SOCIAL MOBILITY IN DEVELOPING COUNTRIES

CONCEPTS, METHODS, AND DETERMINANTS

Edited by

Vegard Iversen, Anirudh Krishna,
and Kunal Sen

Social Mobility in Developing Countries

UNU World Institute for Development Economics Research (UNU-WIDER) was established by the United Nations University as its first research and training centre and started work in Helsinki, Finland, in 1985. The mandate of the institute is to undertake applied research and policy analysis on structural changes affecting developing and transitional economies, to provide a forum for the advocacy of policies leading to robust, equitable, and environmentally sustainable growth, and to promote capacity strengthening and training in the field of economic and social policy-making. Its work is carried out by staff researchers and visiting scholars in Helsinki and via networks of collaborating scholars and institutions around the world.

United Nations University World Institute for
Development Economics Research
– UNU-WIDER
Katajanokanlaituri 6B, 00160 Helsinki, Finland
www.wider.unu.edu

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Foreword

Social mobility—defined as the ability to move from a lower to a higher level of education or occupational status, or from a lower to a higher social class or income-group—is the hope of economic development and the mantra of a good society.

In early 2019, UNU-WIDER launched Social Mobility in the Global South: Concepts, Measures, and Determinants, a multidisciplinary research project bringing together a group of experts to look at what is known about social mobility in developing countries, and what are the research avenues to be explored.

Grave concerns about rising inequality have renewed interest in social mobility, especially in the developing world. However, efforts to construct databases in developing countries and meet the standards required for conventional analyses of social mobility are, still, at a preliminary stage and need to be complemented by innovative conceptual and methodological advances to convincingly study a phenomenon of great contemporary importance.

This book is the distillation of the extensive research work—with contributions from leading scholars in economics, anthropology, sociology, economic history, and political science. As Director of UNU-WIDER, I wholeheartedly thank the chapter authors for their scholarly enthusiasm and valuable contributions to the body of work. Also, I heartily thank my co-editors, Vegard Iversen and Anirudh Krishna, for their colleagueship in co-directing the research project, and their editorial skills in bringing the work together coherently.

Via this book, UNU-WIDER shares the multidisciplinary research findings and knowledge, with the resulting policy suggestions underlining that economic growth and social justice can be promoted by well-designed policy tools.

UNU-WIDER gratefully acknowledges the support and financial contributions to its research programme by the governments of Finland, Sweden, and the United Kingdom. Without this vital funding our research and policy advisory work would be impossible.

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Kunal Sen
Director UNU-WIDER, Helsinki

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June 2021

Acknowledgements

The genesis of this book can be traced back to a workshop in May 2017—jointly organized by Duke University and the University of Manchester on 'The Architectures of Inequality'—that the three of us attended, as well as the extensive work on social mobility that has been done by one of us (Anirudh Krishna) in the past several years. Two major insights emerged from the rich deliberations during the 2017 workshop. Firstly, and in contrast to the large literature on industrial countries, much less is known about the extent and nature of social mobility in developing countries. Secondly, while research on social mobility is often discipline-based, a cross-disciplinary perspective is essential for obtaining a holistic view and fuller understanding of the subject—and even more so when studying developing country contexts. These two key takeaways from the workshop informed our thinking and provided much of the motivation as we started planning this book. A review article on social mobility in developing countries, published in *World Bank Research Observer* in 2019, helped develop greater clarity about the book's structure, content, and possible contributors.

As we embarked on the task of inviting contributors, the enthusiastic response confirmed the volume's appeal, perceived importance, and timeliness. The first drafts of the chapters in this volume were discussed in a project workshop in September 2019 in Helsinki. We thank the contributors—Jere Behrman, Gregory Clarke, Shahe Emran, Gary Fields, Patricia Funjika, Rachel Gisselquist, Anthony Heath, Himanshu, Ravi Kanbur, Peter Lanjouw, Yaojun Li, Nancy Luke, Anandi Mani, Patrizio Piraino, Emily Rains, Emma Riley, Forhad Shilpi, Florencia Torche, Divya Vaid, and Yizhang Zhao—for their important contributions. We are grateful to Mayra Da Silva De Gouveia, UNU-WIDER project associate, for the efficient manner in which the project workshop was organized. For their insightful comments and helpful suggestions, we thank the individuals who acted as discussants for the various chapters—Maria Lo Bue, Shahe Emran, Markus Jäntti, Patricia Jeffery, Paul Lambert, Peter Lanjouw, Sarah Nolan, Tuomas Pekkarinen, Vitorocco Peragine, and Tony Shorrocks.

A special note of thanks to Lorraine Telfer-Taivainen, UNU-WIDER Editorial and Publishing Associate, for her remarkable professionalism and constant advice to us, which we have enormously benefited from. We have also benefited from the comments of two anonymous reviewers. Guidance, advice and encouragement from our Oxford University Press editor, Adam Swallow, have been invaluable.

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VegardIversen, Anirudh Krishna, and Kunal Sen
London, Durham NC, and Helsinki

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List of Abbreviations

AAAS	American Academy of Arts and Sciences
AR	autoregressive
BIC	Bayesian information criterion
BMI	body-mass index
CCTs	conditional cash transfers
CDW	Chakravarty–Dutta–Weymark index
CEF	conditional expectation function
CFPS	China Family Panel Studies
CGSS	Chinese General Social Survey
CHIP	Chinese Household Income Project
CnSF	constant social fluidity model
CYNLSY79	Children and Young Adults of the National Longitudinal Survey of Youth 1979
DD	difference in difference
DFID-UK	Department for International Trade
DHS	Demographic and Health Surveys
DI	Dissimilarity Index
DRC	Democratic Republic of the Congo
EGP	Erikson, Goldthorpe, and Portocarero scheme
EIC	Education Inequality and Conflict
ELMPS	Egypt Labor Market Panel Survey
EMI	effectively maintained inequality
ESID	Effective States and Inclusive Development
FDI	foreign direct investment
FE	fixed effects
GCOV	group-weighted coefficient of variation
GDIM	Global Database on Intergenerational Mobility
GDP	gross domestic product
GGC	Great Gatsby Curve
GGini	group-weighted Gini coefficient
GICs	standard growth incidence curves
GNP	gross national product
GTheil	group-weighted Theil Index
HAZ	height-for-age z
HICs	high-income countries
HI-E	horizontal inequality in educational attainment
HUD	US Department of Housing and Urban Development
IEC	intergenerational educational correlation
IER	intergenerational educational regression

IFLS	Indonesian Family Life Survey
IFPRI	International Food Policy Research Institute
IGC	intergenerational correlation coefficients
IGE	intergenerational elasticity of income or earnings
IGM	intergenerational mobility
IGRC	intergenerational regression
IHDS	Indian Human Development Survey
IHDS-I	Indian Human Development Survey I
IHDS-II	Indian Human Development Survey II
ILO	International Labour Organization
IOP	inequality of opportunity
IPD	Initiative for Policy Dialogue
IRA	intergenerational rank association
IRC	intergenerational rank correlation
ISCO	International Standard Classification of Occupations
IT	information technology
IV	instrumental variables
IZA	Institute of Labor Economics
LGBTQ	Lesbian, Gay, Bisexual, Transgender, Queer
LID	Livelihoods and Institutions Department
LMICs	low- and middle-income countries
LSMS	Living Standards Measurement Surveys
MENA	Middle East and North Africa
MICs	middle-income countries
MMI	maximally maintained inequality
MP	member of parliament
MxFLS	Mexican Family Life Survey
NAS	National Academy of Sciences
NDI	Net Difference Index
NE	natural experiment
NGOs	non-governmental organizations
NLSY79	National Longitudinal Survey of Youth 1979
NREGS	National Rural Employment Guarantee Scheme
NRI	Natural Resource Institute
OECD	Organisation for Economic Co-operation and Development
OLS	ordinary least squares
PPP	purchasing power standards
PRC	People's Republic of China
PSM	propensity score matching
RCT	randomized controlled trial
RE	random effects
REDS	Responses to Educational Disruption Survey
SC	estimating sibling correlations
SD	standard deviation
SEI	socioeconomic index

SES	socioeconomic status
SICHS	South India Community Health Study
2SLS	two-stage least squares
TS2SLS	two-sample two-stage least squares
UNDP	United Nations Development Programme
UNIDIFF	uniform difference
UNU	United Nations University
UNU-WIDER	United Nations University World Institute for Development Economics Research
WAZ	weight-for-age z
WWII	Second World War

Notes on Contributors

Jere R. Behrman is the W.R. Kenan, Jr. Professor of Economics and Sociology at the University of Pennsylvania, Philadelphia, USA. He is a leading international researcher in empirical microeconomics, particularly as pertaining to the determinants and impacts of human capital in developing economies. He has published over 500 studies primarily in leading general and field journals in economics, as well as in nutrition, public health, demography, and sociology.

Gregory Clark is Distinguished Professor of Economics, University of California, Davis and Visiting Professor, Department of Economic History, London School of Economics. His research is in long-run economic history, with particular emphasis on the Malthusian Era, the Industrial Revolution, and social mobility in the long run.

M. Shahe Emran is a development economist with IPD at Columbia University. His research interests include theoretical and empirical analysis of intergenerational mobility and tax policy in developing countries, interaction of labour market with microfinance, effects of market integration on poor, distributional effects of corruption, and pricing and pass through in vertical supply chains. His research has been published (or forthcoming) in *Review of Economics and Statistics*, *American Economic Journal: Applied Economics, Journal of Public Economics*, *Journal of Human Resources*, *Journal of Development Economics*, *Economica*, *Oxford Bulletin of Economics and Statistics*, *Canadian Journal of Economics*, *Economic Development and Cultural Change*, and *World Development.*

Gary S. Fields is the John P. Windmuller Professor of International and Comparative Labor and Professor of Economics at Cornell University, Program Coordinator of the IZA Institute for Labor Economics Program on Labor and Development, and a UNU-WIDER Non-Resident Senior Research Fellow. He is the 2014 winner of the IZA Prize in Labor Economics, the top world-wide award in the field. He has been an Ivy League teacher and professor for 49 years, first at Yale University and then at Cornell University. He teaches and conducts research on labor economics and development economics. Fields has published more than 200 books, articles, and book chapters. His most recent books are *Growth, Employment, and Poverty: Latin America in the 2000s* with Guillermo Cruces, David Jaume, and Mariana Viollaz (Oxford University Press 2017) and *Employment and Development* (Oxford University Press 2019).

Patricia Funjika is an economist and research fellow in the Economics and Business Research Program of the Institute of Economic and Social Research, University of Zambia. She is currently a PhD student in the economics department of the University of Pretoria, South Africa, and her area of research is in developmental economics with a particular focus on social mobility in Africa. She is a past participant of the UNU-WIDER PhD Fellowship Programme.

Anthony Heath CBE, FBA is Emeritus Professor of Sociology at the University of Oxford and Senior Research Fellow at the Centre for Social Investigation at Nuffield College, Oxford. His research interests cover social stratification and mobility, ethnicity and ethnic inequalities, social and political attitudes, national identity and social cohesion. Anthony has published many books and scientific papers. He has also carried out work for a range of government and international bodies.

Rachel M. Gisselquist a political scientist, is Senior Research Fellow, United Nations University, World Institute for Development Economics Research (UNU-WIDER). She works on the comparative politics of developing countries, with particular attention to sub-Saharan Africa. Her research focuses on issues of ethnic politics; inequality; state fragility and governance, including the role of aid therein; and democracy and democratic transition.

Himanshu is an associate professor in economics at the Centre for Economic Studies and Planning, School of Social Sciences, Jawaharlal Nehru University. He is also visiting fellow at Centre de Sciences Humaines, New Delhi. He has held visiting fellowships at London School of Economics (British Academy Senior Visiting Fellow and C R Parekh Fellow), UNU-WIDER (Finland), and GREQAM (France). His primary area of research is development economics with focus on issues related to poverty, inequality, employment, food security, rural development, and agrarian change. His current research interests revolve around poverty and inequality in India, structural change and changing patterns of employment and livelihood in rural India. He has received the Sanjay Thakur Young Economist Award of the Indian Society of Labour Economics and Personnalité d'Avenir of the French Ministry of Foreign Affairs.

Vegard Iversen is a professor of development economics and Head of the Livelihoods and Institutions Department (LID) at the Natural Resource Institute (NRI), University of Greenwich. He returned to UK academia in 2018 after 12 years in India where he was based at IFPRI, Indian Statistical Institute, Jindal School of Government and Public Policy, and Indian Institute of Management Ahmedabad. In addition to social mobility, his current research focuses on women and other politicians and on the poverty and vulnerability impacts of large irrigation dams. He has published widely and is a Non-Resident Senior Research Fellow at UNU-WIDER, Helsinki and at the International Initiative for Impact Evaluation (3ie), New Delhi. He received (with Richard Palmer-Jones) the annual Dudley Seers Prize for the best article in *Journal of Development Studies* in 2008 and is a Co-editor of the *Journal of South Asian Development.*

Ravi Kanbur researches and teaches in development economics, public economics, and economic theory. He has published in the leading economics journals, including *Journal of Political Economy*, *American Economic Review*, *Review of Economic Studies*, *Journal of Economic Theory*, and *The Economic Journal*. The positions he has held include: Chief Economist for Africa, World Bank; Chair of the Board of UNU-WIDER; Member of the OECD High-Level Expert Group on the Measurement of Economic Performance; President of the Human Development and Capability Association; and President of the Society for the Study of Economic Inequality.

Anirudh Krishna is the Edgar T. Thompson Professor of Public Policy and Political Science at Duke University. His research investigates how poor communities and individuals in developing countries cope with the structural and personal constraints that result in poverty and powerlessness. His most recent book, *The Broken Staircase: The Paradox and the Potential of India's One Billion* (Cambridge University Press and Penguin Random House India), won the A. K. Coomaraswamy book award of the Association for Asian Studies. Krishna has authored or co-authored five other books. Before returning to academia, Krishna spent 14 years with the Indian Administrative Service, managing diverse rural and urban development initiatives.

Peter Lanjouw is a professor in development economics at VU University, Amsterdam. He spent more than two decades in the Development Economics Research Group of the World Bank, most recently as manager of the Poverty and Inequality team. He has taught courses at the Delhi School of Economics, the Foundation for the Advanced Study of International Development, Tokyo, and the University of Namur, Belgium, and has held a visiting position at the University of California, Berkeley. He is current editor of the World Bank Research Observer and a past assistant editor of the World Bank Economic Review. He is a fellow of the Tinbergen Institute and the European Development Research Network, and was a core member of the Global Poverty Commission, convened by the World Bank and led by Anthony B. Atkinson. His principal research interests include the measurement and analysis of poverty and inequality in developing countries, structural transformation in developing countries and the contribution of longitudinal village studies to the analysis of rural development.

Yaojun Li is a professor of sociology at Department of Sociology and Cathie Marsh Institute for Social Research, Manchester University, UK. His research is in social mobility and social stratification, social capital, and socioeconomic integration of ethnic minority groups. He has published widely in these areas, including papers in top sociology journals, and reports for government offices and think tanks. He has also conducted many research projects funded by academic and government agencies in the UK and other countries.

Nancy Luke is a professor of sociology and demography at the Pennsylvania State University. Her research focuses on gender, family, and health and well-being in international contexts, including gender dynamics within relationships, gender inequality in child health, and the influence of gender attitudes on economic decision-making. Luke has published in *American Journal of Sociology*, *Social Forces*, *Population Studies*, *Journal of Development Economics*, and *Economic Development and Cultural Change*.

Anandi Mani is a professor of behavioural economics and public policy at the Blavatnik School of Government. Her research interests are focused on challenges faced by people who are poor and/or socially marginalized, and women. In her recent work, she has sought to understand the psychological impacts of poverty and social exclusion on attention allocation, decision-making and life outcomes. She has also examined novel solutions for gender issues, such as political representation to tackle gender violence and psychological interventions to bolster the self-image and hence life choices of marginalized women, such as sex-workers. Prof. Mani is a Research Affiliate at Ideas42, a think tank for behavioural economics at Harvard University, and a Fellow at the Centre for Comparative Advantage in

the Global Economy (CAGE) at the University of Warwick. Her recent work has been published in prominent economics journals and has also featured in leading newspapers including *The New York Times* and *The Guardian,* as well as the BBC. Professor Mani was a programme participant at the World Economic Forum 2017 in Davos and also a member of the Forum's Global Council on the Future of Behavioral Sciences.

Patrizio Piraino is an associate professor of education, labour, and development at the Keough School of Global Affairs at the University of Notre Dame. He is an applied microeconomist with a focus on social mobility and the mechanisms of social exclusion. He has published numerous articles on education and labour markets, including human capital and employment policies in developing regions, and the broader determinants of socioeconomic disadvantage.

Emily Rains is a PhD Candidate in the joint programme between Public Policy and Political Science at Duke University. Her research examines urbanization and development, primarily in India. In particular, she is interested in how residents of urban slums mobilize politically and how this affects neighbourhood development outcomes.

Emma Riley is a postdoctoral researcher at the Department of Economics and the Centre for the Study of African Economies at the University of Oxford. She holds a DPhil (PhD) in Economics from the University of Oxford. Emma's research is in development economics, with a regional focus on sub-Saharan Africa, and primarily utilizes large-scale field-experiments. Her current research examines the impact of mobile phone-based technologies, such as mobile money and mobile banking, on the growth of female-owned micro-enterprises. She also has studies looking at the impact of role models on secondary school students' educational attainment, cash transfers on women's empowerment and a village-based poverty alleviation programme on household welfare.

Kunal Sen is Director of United Nations University World Institute for Development Economics Research (UNU-WIDER), and Professor of Development Economics in the Global Development Institute, The University of Manchester. Formerly, he was Joint Research Director of the DFID-UK funded Effective States and Inclusive Development (ESID) Research Centre. His current research is on the political economy of development. He also has a research interest in the analysis of poverty, informality and social exclusion in India, where his interest in this area has principally been on the determinants of rural poverty and in the persistence of poverty among Dalits and Adivasis. Kunal's recent authored books are *The Political Economy of India's Growth Episodes* (Palgrave Macmillan), and *Out of the Shadows? The Informal Sector in Post-Reform India* (Oxford University Press India). He has published over 100 journal articles, including papers in *Journal of Development Economics*, *Journal of Development Studies*, and *World Development*. He has won the Sanjaya Lall Prize in 2006 and Dudley Seers Prize in 2003 for his publications.

Forhad Shilpi is a senior economist in the Development Research Group of the World Bank. Her current research focuses on the impacts of infrastructure on rural–urban transformation, the role of domestic market institutions in the transmission of international price signals, and intergenerational mobility in developing countries. Her research

has been published in leading development and economics journals such as *Economic Journal*, *Journal of Development Economics*, *Journal of Human Resources*, *American Economic Journal: Applied Economics*, *Economica*, *Canadian Journal of Economics*, *Journal of Economic Geography*, *Oxford Bulletin of Economics and Statistics*, and *World Development*.

Florencia Torche is a professor of sociology at Stanford University. Her research examines the intergenerational transmission of advantage and the impact of early-life exposures on people's health, attainment, and wellbeing. She uses econometric approaches to evaluate the contours and determinants of intergenerational opportunity. She has led several social mobility data collection projects in Latin American countries. She is an elected member of the National Academy of Sciences (NAS) and the American Academy of Arts and Sciences (AAAS) since 2020.

Divya Vaid teaches sociology at Jawaharlal Nehru University, New Delhi. She has an MSc and DPhil from Oxford. Her research interests include the study of social mobility and inequalities, social stratification and educational attainment, and the application of quantitative methods. Her work has appeared in the *Annual Review of Sociology*, *Contemporary South Asia*, and *Asian Survey* among others. She is the author of *Uneven Odds: Social Mobility in Contemporary India* (OUP 2018).

Yizhang Zhao is an associate professor in the Department of Sociology at Tsinghua University. Her main research interests include social stratification and mobility, educational inequality, and social determinants of health and wellbeing. Her recent work examines how different dimensions of social inequality affect people's life chances and their welfare, and how the influence changes over time and across space in different social contexts.

PART I

INTRODUCTION

1

The State of Knowledge about Social Mobility in the Developing World

Vegard Iversen, Anirudh Krishna, and Kunal Sen

1.1 Introduction: why study social mobility in developing countries?

Social mobility—usually understood as movement from a lower to a higher level of education or occupational status, or from a lower to a higher social class or income group—is the hope of economic development: for many it is also the mantra of a good society. There may be disagreements about what constitutes social mobility and how it should be measured, but there is broad agreement that in a just society 'an individual's expected level of achievement should be a function only of his effort and not of his circumstances' (Roemer 1998: 21).

The subject has particular salience for developing countries.[1] National struggles for independence from colonial rule held out egalitarian visions and the promise of better opportunities. Decades later, opportunities remain unevenly distributed, and inequality has risen markedly. The income share of the top 1 per cent in China increased from 6 per cent to 14 per cent between the early 1980s and 2015, while that of the top 1 per cent in India increased from 7 per cent to 22 per cent.[2]

Rapid economic growth together with growing inequality has stretched the range of difference in developing countries. Compared to other countries, the disparity between the bottom 10 per cent and the top 10 per cent is wider by far in China, India, and other fast-developing countries. Figure 1.1 depicts these comparisons. Successive 10 per cent shares (deciles) of the world wealth distribution, ranging from the poorest to the wealthiest, are depicted on the horizontal axis. The width of a country's streamgraph at any given point represents the share of its population corresponding to the relevant decile of the world wealth distribution.

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[1] The term 'developing countries' as used in this volume is shorthand for low- and middle-income countries whose measurable indicators—in areas such as income, education, and health—do not reach the levels of more advanced nations.

[2] *World Inequality Report 2018,* accessed 10 September 2019.
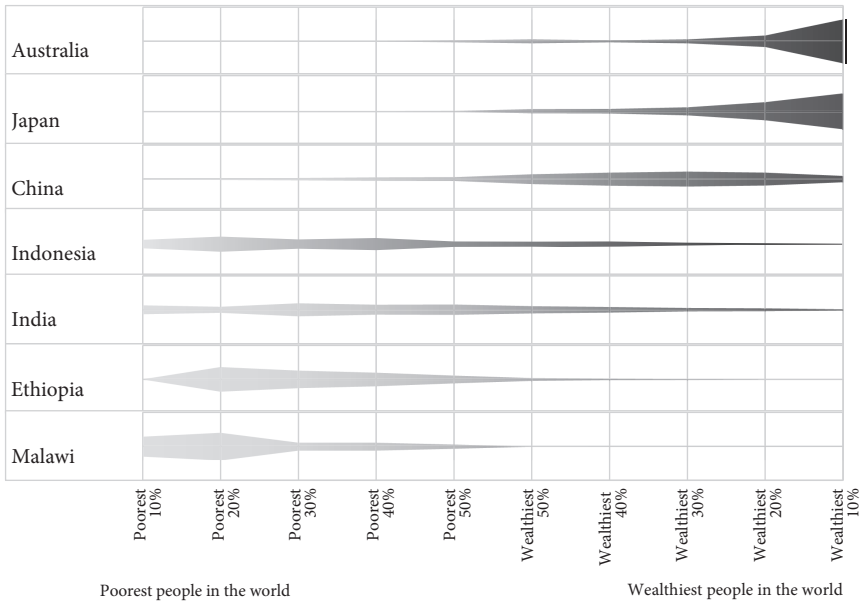
Figure 1.1 How wealthy or poor are the people of different countries?
Source: authors' illustration based on data in *Credit Suisse Global Wealth Report 2019*.

For a country with a large share of its population in the top half of the world wealth distribution, the streamgraph is wide towards the right, as for Australia and Japan. More than 50 per cent of these populations are among the world's wealthiest 10 per cent. These are prosperous nations where people are economically well off. Their streamgraphs start near the middle of the horizontal axis.

Conversely, the populations of Ethiopia and Malawi are contained within the bottom 50 per cent, with the majority occupying the lowest two deciles in the world wealth distribution. These are poor countries with widespread destitution. Their streamgraphs end near the middle of the horizontal axis.

The streamgraphs of India, Indonesia, and other fast-developing countries span the full range of world inequality. Decades of high economic growth have made many people in Mumbai and Jakarta as wealthy as the wealthiest 10 per cent in Tokyo or Sydney. At the same time, significant shares of the populations of India and Indonesia remain within the lowest 1 per cent of the world wealth distribution. The result has been an elongation of the range of inequality. Contrasts rarely observed in richer countries are common in fast-developing countries: barefoot children in one-room schoolhouses alongside air-conditioned computer rooms in private academies, slums, and shanties next door to glass-walled skyscrapers, hand-drawn carts pulling up beside late-model, high-status European import cars.

The range of inequality in a country also captures the distance that an individual, starting at the bottom, needs to cover in a social mobility journey. An

individual moving from the 10th-percentile to the 95th percentile in Mumbai or Lagos will encounter a very different set of challenges than a person completing a similar move in Tokyo or Geneva. Long range upward mobility of the former kind is more rarely accomplished and is one of the reasons for why social mobility is lower in developing than in industrial countries (World Bank 2018).

In addition to its wider range, inequality in developing countries is often configured along geographic and ethnic dimensions. Mean consumption is lower, and poverty rates higher, in rural areas than in urban areas of developing countries (Dudwick et al. 2011; World Bank 2016). 'Countries with unusually high levels of inequality are (often) those where the urban–rural gap is unusually large' (Young 2013: 1728). In a large-scale, innovative study, Chetty et al. (2014) find notable geographical variation in the likelihood that a child of a parent in the lowest income-quintile will make it into the top quintile in the United States. Studies using similar approaches to the study of educational mobility in 26 countries in Africa (Alesina et al. 2021) and India (Asher et al. 2020) find more pronounced geographical variation in developing countries.

Ethnic disparities are additionally significant in many developing countries: blacks in South Africa, darker-skinned people in Brazil (Dixon and Telles 2017), and scheduled castes and tribes in India, for instance, have faced discrimination and other disadvantages. Sometimes, as in the case of scheduled tribes in India, disadvantages are cumulative on account both of remote location and ethnic discrimination.[3]

At the same time, circumstances are not static, with some disparities narrowing while others are emerging, as in Asher et al. (2020): they find diminishing educational mobility cleavages for scheduled castes and widening cleavages for Muslims in India. A notable imbalance and neglect in the social mobility research covering developing countries to date is the limited focus on women.

The combination of high and rising inequality, ethnic, gender and geographic differences, and low social mobility bodes poorly for social and political stability. Where differences are large and widening, between the always-haves (and their children) and the never-haves (and *their* children), and there aren't clear ways to cross over from the wrong to the right side of the railway tracks, frustrations grow and discontent can become explosive (Atkinson 2015; Markovits 2019; Piketty 2014; Wilkinson and Pickett 2009). 'Let them eat cake' was not good public policy on the eve of the French Revolution. It is not good policy at the present juncture when discontent spreads at the speed of tweets and text messages. Populism is on the rise, powered by 'the idea that "the people" can authoritatively recover power from corrupt or self-serving elites, and a belief that democratic politics needed to

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[3] For reviews of the extensive literature on caste, tribe and social change in India, see e.g. Deshpande (2011) and Iversen (2012).

be conducted differently and closer to the people . . . in Africa, Asia and the Middle East' (Kaltwasser et al. 2017: 3–9).

In different ways, policy makers in the developing world have started grappling with these challenges. A combination of redistribution measures, welfare pro-grammes and social mobility promotion with greater and more effective invest-ments to move towards greater equality of opportunity, is required. International organizations, such as the United Nations, OECD, and the World Bank, are urging nations to pay more attention to policies for equal opportunity and social mobility promotion (see OECD 2018; World Bank 2018). At the same time, studies of social mobility in developing countries have started to emerge (see Alesina et al. 2021; Asher et al. 2020).

This volume speaks to these policy and research efforts. During the last few decades, development economists and other social scientists have contributed substantive new understanding of poverty persistence, of the movements out of (and into) poverty and the fragile and often marginal nature of such progress (Dercon 2005; Addison, Hulme, and Kanbur 2009; Krishna 2010, 2013). Our review of the emerging and more limited literature on social mobility in develop-ing countries, echoing Torche (2014), shows that this research is rooted in traditions and methods that were developed and have been used to study indus-trial countries. It also shows that mobility estimates often differ greatly, even for the same country, depending on the concept and measure of mobility used, the dataset utilized, and on whether income, education, or occupational status is the relevant metric of achievement. The spread in results can also reflect variation in research quality and practice. A policy maker looking for informed and coherent guidance may therefore find the emerging literature difficult to interpret making meaningful comparison of progress and setbacks, and the synthesizing of policy lessons harder than it ought to be.

This volume aims to contribute clarity on concepts, insights on the properties of measures, and assess and discuss the strengths and weaknesses of the alternative methodological approaches used by scholars from different social science disci-plines. Our hope is that the ensuing insights will improve research practice and over time the quality of the policy lessons that can be distilled from research findings. Synthesizing what we know that can inform policy and identifying knowledge gaps to provide direction and guide future research effort is another important objective.

1.2 The state of knowledge: conceptual and methodological challenges in developing countries

Depending upon their disciplinary persuasion, scholars have looked at social mobility in terms of advances in education, income, or occupational or class

status that a child achieves compared to her parents *(intergenerational* mobility) or during her own lifetime *(intragenerational* mobility). Following Sorokin's (1927) monograph, pre-Second World War research on the United States and Glass's (1954) landmark study of intergenerational mobility in Great Britain, sociological research on social mobility flourished during the 1960s and 70s (e.g. Goldthorpe and Hope 1974; Bendix and Lipset 1966). The research surge in economics and political science is more recent.

Economists have focused on industrial country settings, taking advantage of the access to increasingly sophisticated and nationally representative datasets as well as population-wide income tax and other official records that facilitate the linking of generations with in-depth and accurate information on earnings (income), education, and occupational attainment. Intergenerational mobility has retained centre stage in this now vast literature comprising rich conceptual, methodo- logical, and empirical discussions and investigations (e.g. Solon 1999; Black and Devereux 2011; Blanden 2013; Mogstad and Torsvik 2021).

While the preference among economists has been to study income or earnings- mobility, often anchored in the influential Becker and Tomes (1979) model, sociologists and historians favour analyses of changes in class or occupational status. Their starting point is one of the hierarchically-ordered occupational group classifications developed to facilitate cross-country and other comparisons (Duncan 1961; Goldthorpe and Hope 1974; Erikson, Goldthorpe, and Portocarero 1979; Armstrong 1972). The positioning of any particular occupa- tional group within these classifications is typically anchored in weighted averages of the mean level of earnings and education of that group of occupations (Blanden 2013). In studies focusing instead on social class, relative class positions are, in addition, influenced by employment relations, distinguishing e.g. between employers, self-employed workers, and employees (Erikson and Goldthorpe 1992, 2002).

Turning to concepts, inter- and intragenerational mobility can be absolute or relative.[4] Absolute mobility captures the magnitude of positive or negative change that an individual experiences compared to her parents (or to her own starting position). A son with three more years of schooling than his father will have achieved positive, absolute intergenerational educational mobility when years of schooling is the only relevant metric. Structural change is of particular interest and importance during a process of economic development where agriculture to industry transitions may result in rapid and dramatic changes in the overall occupational distribution within a country. Such rapid economic progress bodes well for absolute occupational mobility. Relative intergenerational mobility is a less straightforward concept with a variety of interpretations and uses. For the

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[4] As discussed later, relative mobility has alternative interpretations.

above son, a three-year absolute gain might translate into positive, negative, or zero relative mobility, depending on the progress (or setbacks) that other members of society experience. In Bhattacharya and Mazumder's (2011) intuitive interpretation, relative mobility requires a difference in the parental and the offspring percentile rankings in the income (or status) distributions of their respective generations. As discussed by Torche (this volume), relative mobility can be thought of as the association between parent and offspring educational attainment, net of changes in the overall distribution of occupations or the distribution of educational attainment from the parent to the offspring generation. Sociologists use the terms 'fluidity' and relative mobility interchangeably (e.g. Heath and Zhao, this volume) and often perceive 'fluidity' as an indicator of openness and a quality of society both with respect to upward and downward mobility.

A major workhorse in economics research on income mobility in industrial countries is the intergenerational elasticity of income or earnings (the IGE). The IGE is estimated by regressing the natural log of offspring earnings (often the father) on the natural log of parental earnings (often the son). Variants of the IGE, the intergenerational regression (IGRC) or correlation coefficients (IGC), are the most widely used measures in studies of educational (or occupational) mobility in developing countries (see e.g. Azam and Bhatt 2015; Emran and Shilpi 2015; Emran, Greene, and Shilpi 2018; World Bank 2018). These IGE variants also capture relative mobility and are referred to by Fields (2008) as measures of origin-independence (or persistence). The intuition is that there is greater intergenerational mobility when parents' education or occupational status is a less important determinant of offspring attainments.

As noted earlier, the findings from the emerging research on social mobility in developing countries often point in different directions (Iversen, Krishna, and Sen 2019). Diverging conclusions can be reached depending upon whether one considers differences in educational levels (*educational mobility*), earnings (*income mobility*), or occupational status (*occupational mobility*). A similar comment can be made for relative and absolute mobility, and for intergenerational and intragenerational mobility, although as Kanbur (this volume) makes clear, a series of intragenerational snapshots necessarily contain the essence of the intergenerational outcome.

Another explanation for divergence in research findings is provided by Clark and Cummins (2014). They compare two studies of occupational mobility in Victorian Britain—respectively, Miles (1999) and Long (2013)—which covered exactly the same time period (1851–81) but came to radically different conclusions. While Long (2013) reports surprisingly high intergenerational occupational mobility, Miles finds very low mobility. Clark and Cummins highlight how in research of this kind, the devil lies in the details: since Miles (1999) used marriage register data from a time period where people married at a very young age, he missed out on

subsequent career progress that Long's use of data from successive surveys was able to pick up.

Two other sources of inconsistency between findings, addressed in-depth by contributions to this volume, are, firstly, the insufficient precision with which concepts of mobility are used (Fields, this volume) and, secondly, that social mobility research covering developing countries has been rooted in traditions and methods of studying social mobility in the West (Torche 2014). Both observations highlight a shortage of clarity about concepts and of the properties, performance, and possible limitations of widely used social mobility measures for the analysis of developing countries.[5]

Research practice and policy progress requires more clarity about differences between industrial and developing country settings. Five broad types of differences are especially salient while considering social mobility concepts and methods in developing country contexts:

1. limited availability of sufficiently granular and nationally representative panel and other datasets and of reliable and economy-wide official records such as annual income tax returns:

2. methodological considerations relating to measurement challenges for key variables, including:
    (i) the estimation of income for parent and offspring generations in contexts where agrarian and informal sectors dominate:[6]
    (ii) whether standardized occupational classifications, developed to study social mobility and make comparisons across industrial country settings, can be adjusted and made useful for research covering developing countries:

3. the likely more severe consequences of downward mobility in low income-settings, including descents into poverty or deeper into poverty:

4. the importance of drivers of social mobility beyond those conventionally considered in the literature covering industrial countries:

5. the consideration whether, given these contextual differences, there are reasons for
    (i) prioritizing any of the six main types of social mobility discussed by Fields (2008 and this volume), when studying developing countries? Further, do some conventional measures have more robust properties and perform better than others when applied to the study of low-income settings?

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[5] We divide these differences into five broad types below.
[6] Economists use the notion of permanent income—an individual's expected long-term average income—instead of the income recorded for a particular year when measuring income mobility, as current income may change from year to year, and be subject to cyclical fluctuations.

A key objective of this volume is to progress on each of these fronts. We elaborate upon each of these points briefly.

Starting with (1) and data constraints, Corak, Lindquist, and Mazumder's (2014) comparison of Canada, the United States, and Sweden illustrates the income or earnings data requirements to generate a credible estimate of permanent income. Corak et al. (2014) have access to 30 years of earnings data for Swedish and five years of data for Canadian fathers. Social mobility estimates could change substantially if single-year averaged income estimates replace multi-year averaged income estimates (Mazumder 2005).[7] While increasingly demanding data requirements make earnings-based analysis of intergenerational mobility in developing countries difficult, contextual attributes amplify this challenge. The precision with which income can be measured when most people have a fixed pay check rapidly disintegrates in countries with dominant agrarian sectors, sizeable informal sector employment (Emran and Shilpi 2015), incomes fluctuating with rainfall (e.g. Townsend 1994) or a mélange of shifting occupations practised by multiple household members. Further and while scholars studying industrial countries are able to access large and reliable tax return, social security and other datasets (e.g. Chetty et al. 2014; Anand and Segal 2017), such data are either not available or have limited coverage within developing countries.

Calculating income for any one year is a difficult enough enterprise; calculating permanent income is a nearly impossible undertaking given these contextual differences. An obvious and crucial issue is that recall—which has been widely used for estimating intergenerational educational mobility—is not a credible option for income or earnings-based intergenerational comparisons.

Another legitimate concern, corresponding to (2), is how applicable and useful occupational classification schemes developed to study industrial countries are for analysis of occupational mobility in developing countries. The realities that bedevil the calculation of income—a large informal sector, family units with multiple shared occupations, high seasonal variance, and farmers with variable landholding sizes and tenurial rights constituting a large proportion of the population, also make it harder to assign individuals to occupational tiers. Yet as Heath and Zhao (this volume) show, thoughtful adjustments and contextually informed tailoring, can make comparisons and analysis of absolute and relative occupational mobility in Chile, China, Egypt, and India both feasible and rewarding.

For (3), downward mobility can have particularly severe consequences in developing country settings. In spite of dramatic post-1980 progress (Deaton 2013), destitution remains widespread. While 'fluidity' refers to inequalities in the odds of experiencing upward or downward mobility—with greater fluidity

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[7] Chetty et al. (2014) find little mobility estimate sensitivity to the number of years used to measure income in the United States.

often considered a quality of an open society—intergenerational descents into destitution may represent a particularly repugnant variant of what sociologists denote 'perverse fluidity' (Hout 1984; Goldthorpe and Mills 2004).[8] In circumstances where downward mobility has less dramatic consequences, the response of social mobility measures to such mobility events is a less pressing issue: a marginal ascent or descent may both be interpreted as manifestations of less origin independence and thus of a more open and mobile society. A social mobility measure that registers a marginal descent from a high level as mobility-enhancing in an industrial country setting need not, therefore, be controversial. If the same measure, applied in a study of social mobility in developing countries, generates a similar response to a descent into poverty, this is much less straightforward. Elucidating the properties of and how well widely used social mobility measures are equipped to handle the contextual reality of developing country settings is therefore crucial.

Fourthly, there are major research gaps in our understanding of the determinants of social mobility in developing countries. In the literature covering industrial countries, the workhorse theory of the determinants of intergenerational mobility is Becker and Tomes (1979), and Solon's (1999) and (2004) subsequent modifications (see Piraino, this volume). Becker-Tomes focuses on parental investment in their children's human capital and family endowments as the main determinants. An extensive literature has examined its implications for Western countries (see Black and Devereux 2011). In developing country contexts, empirical micro studies also find a significant association between parental background, particularly their income and education, and investment in the human capital of children (Strauss and Thomas 1998, 2008; Behrman and Knowles 1999; Dunn 2007; Orazem and King 2008; Behrman this volume).[9]

However, in addition to parental investment in children's education and parental endowments, a multitude of other factors also affect social mobility in low- and middle-income countries. For a poor parent who can see promise in her child, borrowing constraints and credit market failures can severely constrain the child's life chances (see Piraino this volume). While the neighbourhood a child grows up in matters in rich countries too, many neighbourhoods in developing countries have a constellation of factors that inhibit social mobility, from poor-quality schools to lack of access to the networks that matter for getting

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[8] As Heath and Zhao (this volume) make clear, perverse fluidity captures a situation where, say, a father from a disadvantaged community has made it into an occupational top tier. Distinct from others with similar attainments, he is unable to sustain the level of occupational attainment for his son. As Iversen, Krishna, and Sen (2017) show, such long distance intergenerational downward occupational mobility appear to be much more common among Scheduled Castes than other social groups in India.
[9] Bevis and Barrett (2015) also find gender differences in how parental incomes and endowments affect their children's human capital formation and income using longitudinal data from rural Philippines; while mothers transmit human capital equally and significantly to both sons and daughters, father's human capital is less important to children in general.

information about and access to good-quality jobs, to scarcity of successful individuals that can act as role models for and provide the necessary support to poor children (see Mani and Riley this volume). In one of the most ambitious studies of social mobility in developing country contexts, Alesina et al. (2021) use individual level data from 68 censuses in 26 sub-Saharan-African countries to find significant geographical variation in educational mobility. At the outset, it is important to emphasize that even leading research using large and high-quality datasets from industrial country settings has had to settle for evidence that sheds light on the correlates rather than the causes of social mobility in areas with high upward mobility (e.g. Chetty et al. 2014). Alesina et al. (2021) make some progress on this front and find that a child who moves with her uneducated parents to a region with a one-standard-deviation higher intergenerational mobility than her birthplace at the age of six, has a 7 percentage points higher likelihood of completing primary schooling, compared to her sibling who at the time of the move was already 11 years old. Yet, the lack of robust and systematic knowledge about the drivers of mobility is a severe constraint since it is not obvious what it is about an area that a policy maker should prioritize to enhance social mobility. The contributors to this volume have summarized the policy implications from their reviews and analyses, and our concluding chapter provides a synthesis of these insights.

Finally, should some concepts or measures of mobility be prioritized when studying developing countries? Fields (2008, and this volume) discusses six alternative concepts. While each of these measures has merits and demerits, any concept that relies on accurate measurement of income and is mainly applicable for the study of income mobility will, because of the data limitations discussed above, be hard to implement in developing country settings.

While the economics literature has paid extensive attention to estimation challenges (Solon 1999; Black and Devereux 2011; Mogstad and Torsvik 2021), there are two important exceptions to the paucity of reflection on whether systematic, contextual features of developing countries may interfere with estimation. First, when parents and children live far apart, matching up parent–child pairs represents a logistical hurdle: many nationally representative developing country data sets only facilitate analysis of co-resident father–son pairs. In Azam and Bhatt's (2015) analysis using the Indian Human Development Survey (IHDS) (round I), this co-residence restriction cuts feasible father–son comparisons by about two-thirds. Emran, Greene, and Shilpi (2018) take advantage of a data set that allows for analysis of the effects on mobility estimates: while IGRC-based analysis using co-resident data substantially inflates mobility estimates, the IGC bias is less pronounced. These caveats should be kept in mind when interpreting results. The second exception relates to ceiling effects, which arise in the analysis of intergenerational educational mobility since the number of years of schooling has an upper boundary and rarely, as the World Bank (2018) points out, exceeds 21 years.

The axiomatic and other properties that matter for the performance of social mobility measures have received less attention (but see, for example, Shorrocks 1978, 1993; Fields and Ok 1999; Fields 2008; Cowell and Flachaire 2018). Early axiomatic investigations, which start by articulating the properties a social mobility measure ought to possess, have prioritized properties (e.g. Shorrocks 1978, 1993) that share commonalities with inequality measures: while satisfying mathematical fundamentals is important, whether other economic, the more pronounced ill-being or other realities of low income countries should additionally inform investigations into a measure's properties has received little scrutiny (see Iversen, this volume).

In short, and as Torche (2014) points out and the chapters in this volume demonstrate, the literature's roots in traditions and methods of studying social mobility in industrial countries represents a potentially fragile entry point. Reiterating, an important objective of this collection is therefore to uncover strengths and weaknesses of social mobility concepts and measures in a manner that provides research practice guidance to scholars studying developing country contexts.

1.3 Inequality, poverty reduction, growth, and social mobility: what are the inter-relationships?

As suggested above, an important line of inquiry is to examine the micro-level drivers of social mobility in developing countries. Another set of important relationships are more macro and include the relationships between inequality, economic growth and poverty reduction, on the one hand, and social mobility on the other. Do, for example, high inequality and low social mobility go together? Is broad-based economic growth associated with higher mobility? Is a reduction in poverty a natural consequence of a high rate of social mobility? In this section, we discuss the relationship between inequality and social mobility, between economic growth and social mobility and between poverty reduction and social mobility in turn.

1.3.1 The relationship between inequality and social mobility: the Great Gatsby Curve

Countries with greater inequality of incomes also tend to be countries with lower social mobility (Corak 2013). It is now common to represent this relationship with what the late Alan Krueger, former chairman of the Council of Economic Advisers of the President of the United States, referred to as the 'Great Gatsby Curve'.
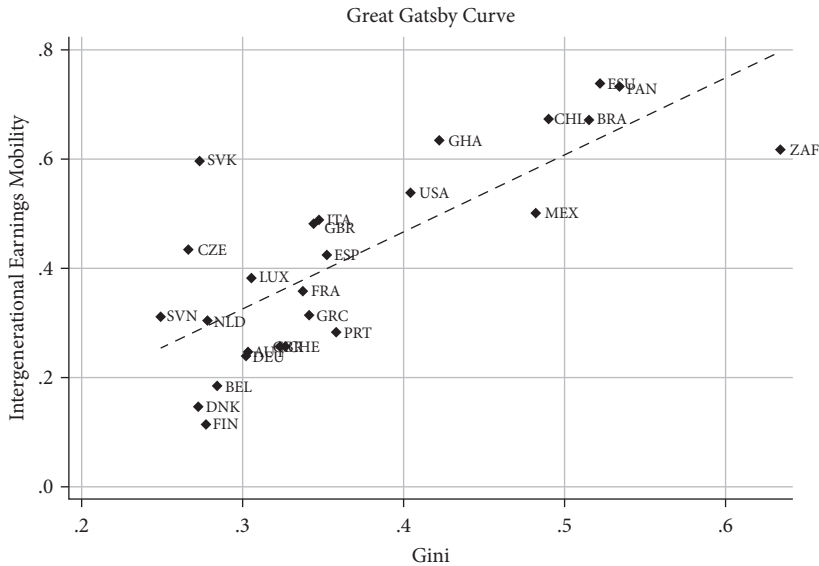
Figure 1.2 The Great Gatsby Curve for the Gini

Note: the most recent available year for each country used. The vertical axis shows the rate of social mobility as measured by the intergenerational earnings elasticity (IGE), with higher values implying lower intergenerational mobility.
Source: authors' illustration, data extracted from http://www.equalchances.org/

Figure 1.2 depicts an example and ranks countries along two dimensions. The horizontal axis shows income inequality in a country measured by the Gini coefficient. The vertical axis shows the rate of social mobility in the same country as measured by the intergenerational earnings elasticity (IGE), which as noted above, is an origin independence (persistence) measure of intergenerational mobility. A higher elasticity reveals that offspring earnings are more dependent on those of their parents, implying lower intergenerational mobility. As is evident from Figure 1.2, social mobility is low in Chile and Brazil which also have higher income inequality. On the other hand, social mobility is high in Denmark and Finland, which are countries with low income inequality.[10] In other words, more inequality at any point of time will tend to be associated with a greater transfer of economic status across generations (Corak 2013). In more unequal societies, 'the poor are more likely to see their children grow up to be the next generation of the

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[10] Few developing countries are included in Figure 1.1 because of the lack of sufficient data on income or earnings, as discussed earlier. As also discussed elsewhere, origin-independence measures have properties that can be problematic in developing country settings (see Iversen this volume, and Emran and Shilpi this volume).

poor, while the rich are more likely to see their children remain at the top rungs of the economic ladder' (Corak 2012: 3).

In this case, the Gini measures inequality in outcomes with respect to income, and it is not obvious why inequality in outcomes would be strongly correlated with social mobility. For two societies, where the child of a poor parent has equal chances of reaching the top rungs of the economic ladder, one society may exhibit higher equality than the other, if the government in the first society implemented stronger redistributive measures to equalize market incomes.

From a theoretical standpoint, a concept of inequality that is expected to be strongly associated with social mobility is inequality of opportunity. This concept relates to the differences in economic status between individuals which can be related to differences in personal circumstances, where circumstances are the aspects of the environments of individuals that affect their economic status and for which the society in question does not wish to hold the individual responsible (Roemer 2004). In contrast, inequality in economic status that results from variation in the effort of individuals, for the same personal circumstances, is not a measure of the inequality of opportunity.

How does personal circumstances matter in affecting the economic status of an individual? According to Becker and Tomes (1979), the most important set of personal circumstances is parental background. Roemer (2004) argues that parents affect the life chances of their children in three important ways, in a threefold hierarchy. Firstly, parents may give their children an advantage through social connections that facilitate access to jobs or privileged educational institutions. Secondly, parents may influence their children's life chances through a family culture and other monetary and nonmonetary investments that can shape skills, aptitudes, beliefs, and motivations. Finally, parents may influence their children's life chances through the genetic transmission of ability, preferences, and attitudes (for example, a strong work ethic).

According to Roemer, these are successive 'playing fields'—each corresponding to a successively broader definition of equality of opportunity—that policy makers could potentially seek to level. Equating equality of opportunity with complete intergenerational mobility—with an earnings elasticity of zero—implies that not only should the influence of social connections and parental investments be eliminated but so too should the genetic transmission of ability, preferences, and attitudes. This implies that 'inequality of opportunity is the missing link between concepts of income inequality and social mobility; if higher inequality makes intergenerational mobility more difficult, it is likely because opportunities for economic advancement are more unequally distributed among children' (Brunori, Ferreira, and Peragine 2013: 17).

In Figures 1.3 and 1.4, we present scatter plots of intergenerational earnings mobility against inequality of opportunity, relative and absolute, respectively, across countries, using data from the World Database on equality of opportunity
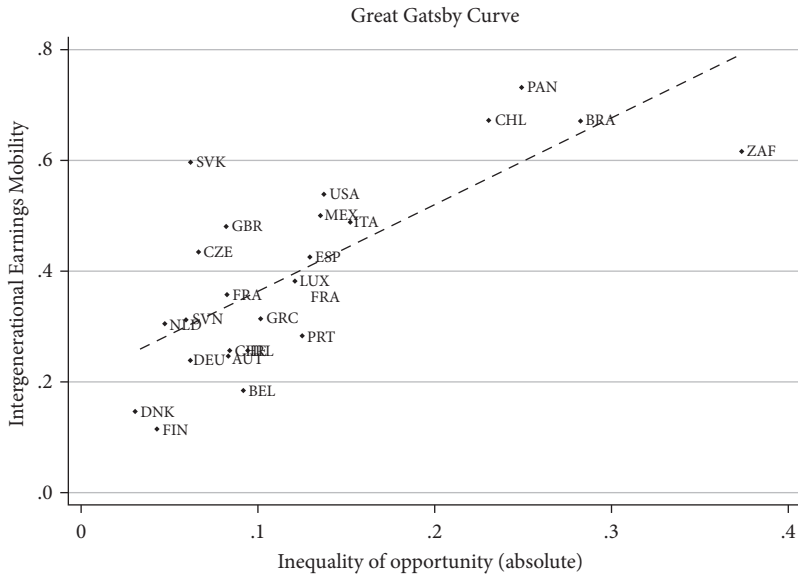
Figure 1.3 The Great Gatsby Curve for inequality of opportunity (absolute)

Note: the most recent available year for each country used. The vertical axis shows the rate of social mobility as measured by the intergenerational earnings elasticity (IGE), with higher values implying lower intergenerational mobility.

Source: authors' illustration, data extracted from http://www.equalchances.org/

and social mobility.[11] Absolute inequality of opportunity is the inequality in incomes across households (as measured by the Gini) that can be explained by differences in parental education, parental occupation, and the location of the individual (e.g. whether the household resides in a disadvantaged area). Relative inequality of opportunity, on the other hand, captures the relative importance of absolute inequality of opportunity in total inequality in household incomes.[12] Again, we see a clear Great Gatsby Curve relationship, with higher inequality of opportunity, whether absolute or relative, associated with lower social mobility.

The Great Gatsby Curve is not a causal relationship. As Corak (2012: 12) argues, 'if it were, public policy solutions for addressing inequality would be more straightforward. If the level of inequality is deemed to be high, then simply use taxes and transfers to lower it. In this way, a policy maker could hit two targets with one instrument—reduce inequality and reduce the degree to which it is

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[11] Available at http://www.equalchances.org.

[12] The World Database on Equality of Opportunity and Social Mobility measures a**bsolute inequality of opportunity**, which is the Gini coefficient of the distribution of predicted equivalized household disposable income based on three circumstances: parental education, parental occupation, origin, and **relative inequality of opportunity**, which is the ratio between absolute inequality of opportunity and the total inequality in the distribution of the household equivalent disposable income.
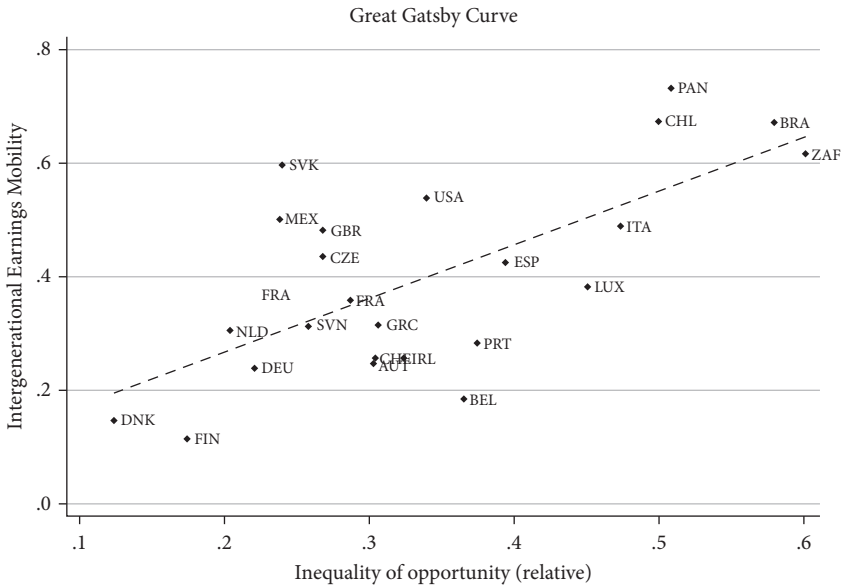
Great Gatsby Curve

Figure 1.4 The Great Gatsby Curve for inequality of opportunity (relative)

Note: the most recent available year for each country used. The vertical axis shows the rate of social mobility as measured by the intergenerational earnings elasticity (IGE), with higher values implying lower intergenerational mobility.

Source: authors' illustration, data extracted from http://www.equalchances.org/

transmitted across future generations . . . (rather) the Great Gatsby Curve reflects a whole series of gradients between the outcomes of children at specific points in their lives and the prevailing socioeconomic inequalities to which they are exposed'. This suggests that there is a multitude of factors that determine social mobility, of which income inequality may be just one factor (albeit an important one).

1.3.2 Social mobility and poverty reduction

An acute case of lack of social mobility is seen where a person who is poor is unable to rise above poverty. The conditions that give rise to poverty traps are associated with high downward, and limited upward, mobility. Lack of affordable and effective health care is associated with frequent downward movements, with many people falling into poverty on account of ill health and ruinously expensive medical expenses (Krishna 2010). Lack of education and careers and jobs and viable business opportunities act as fetters to upward mobility.

While continuing, or chronic, poverty is closely associated with such kinds of social mobility patterns (Hulme and Shepherd 2003), there are also notable

differences between the studies, respectively, of poverty and social mobility. Studies of poverty and those of mobility usually look at different population groups. If a country's people were to be arranged along a spectrum ranging from low to high income, poverty studies look most closely at people who are located near the beginning of the spectrum. Social mobility studies cover the entire spectrum. Overall, social mobility could be high but without any significant improvement in the prospects of the poorest as, for instance, when the children of the top 80 per cent experience high absolute intergenerational mobility but those of the bottom 20 per cent face stasis or downward mobility. Social mobility among the rich is also of concern to scholars of mobility. In fact, it is their movements over time, compared to those of the poor, that result in assessments of relative mobility. A concern with inequality is, in this way, woven into the study of social mobility.

1.3.3 Social mobility and economic growth

As Goldthorpe (1985: 549) notes, 'It is a widely held belief among social scientists that economic development and social mobility are positively associated: the more economically developed a society, the higher the rates of social mobility that it will display.' A defining feature of modern economic growth is structural transformation—the movement of workers from low-productivity agriculture to higher-productivity manufacturing and services (Kuznets 1966; Chenery and Syrquin 1975). Historically, this process of structural transformation and economic development has been associated with higher absolute social mobility, as workers in poorly paid agricultural jobs move to better paid jobs in the manufacturing sector (Kuznets 1955; Kuznets and Murphy 1966; Chenery and Syrquin 1989).[13] Economic development may also be associated with relative social mobility as with structural transformation accompanied by industrialization, new opportunities open up for children which were not within the reach of their parents. This may lead to greater fluidity in society, and a higher likelihood, both of downward and upward movement in economic status. As Goldthorpe (1985: 550) notes, 'high rates of social mobility are, in other words, to be regarded as a generic property of industrial societies. They are a concomitant of the inherent dynamism of the economies of these societies, which continuously transforms their occupational structures.'

While the experiences of Western societies suggest that industrialization has a positive effect on social mobility, it is less obvious that such a positive outcome

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[13] See also the collection of country case-studies that examine the relationship between economic growth and poverty in sub-Saharan Africa in Arndt et al. (2016) and the special issue of the *Journal of International Development* on the emergent African middle class (Resnick 2015).

may be expected for developing countries that are currently undergoing structural transformation. Unlike the earlier path of structural transformation which was a movement of workers from agriculture to manufacturing, the more likely path of structural transformation for a low income country in the current global context is the movement of workers from agriculture to low productivity services such as casual jobs in the trade, hotels and restaurant sector or to construction work in the cities, with low and middle income countries undergoing premature deindustrialization (Rodrik 2016). This suggests that the benign effects of urbanization and industrialization on social mobility that have been observed in the past may be less pronounced in the future. Rains and Krishna (this volume) take up the relationship between urbanization and social mobility in more detail. Funjika and Gisselquist (this volume) considers the added effects of group-based discrimination.

1.4 This volume's contributions

Through what means can the prospects, certainly of the poorer half, be improved in the near and not-so-near future? What prevents talented and hardworking young people from rising to the top? How can these barriers be lowered more effectively? Many of the traditional drivers of social mobility work differently in developing country contexts. For instance, industrial jobs and urbanization helped engender a growing middle class in the United States and Japan, among other OECD countries, but whether urbanization and industrialization will serve the same social mobility objective remains an open question for today's developing countries. Several trends point in the opposite direction. The growing automation of industrial processes is reducing the need for labour. Unionized, formal sector jobs are not growing nearly as fast as the burgeoning informal sector, which absorbs as much as 84 per cent of the entire labour force in the Philippines and India and more than 75 per cent of the labour force in Honduras, Bolivia, Zambia, and Tanzania. Slums are expanding within rapidly growing developing country cities, drawing large parts of the labour force into dead-end, low-paying occupations. By examining how diverse drivers operate in developing country contexts, this volume makes another important contribution. We find that while some among the factors that inhibit or accelerate social mobility are similar among countries—for instance, parental wealth matters everywhere, albeit to different extents—other factors differ between developing and OECD countries. Apart from urbanization, human capital can also have different effects in the developing world, in part, because of the rising college premium coupled with the much smaller numbers of college-goers in developing countries. And human capital, though conceptually similar, could well have diverse observable manifestations in richer countries and poorer countries. The effects of other factors found

influential in studies undertaken in the West—including neighbourhood effects and role models—are also worth examining separately in developing countries. In each of these respects—in terms of concepts, methods and measures, and drivers—this volume makes significant contributions, pushing the frontiers of current knowledge.

Collectively, these essays pull together emerging streams of knowledge contributed by people from different disciplinary backgrounds—economics, sociology, political science, anthropology, and history. The essays offer the state-of-the-art in terms of both conceptual and methodological advances, discussing an array of methods that have proven useful for studying diverse facets of social mobility in developing countries. Some biases and limitations that remain are addressed towards the end of this section.

The rest of the volume is organized in four parts. While some of the knowledge about social mobility gained from investigations undertaken in the West is useful for a different context, much of it needs to be re-calibrated and revalidated in the particular circumstances of developing societies. Concepts, in particular, including well-established ones related to types and definitions of social mobility require rethinking and empirical validation. In Part I, contributions by Piriano, Fields, Iversen, and Kanbur describe the theoretical and conceptual foundations of the extant social mobility literature, and discuss their relevance for developing countries.

Patrizio Piraino in Chapter 2 sets the stage by presenting the standard economics model of intergenerational mobility—the Becker-Tomes model and discusses the appropriateness of some of its assumptions in a developing-country context. He shows why the model has had wide applicability in the empirical literature: it provides powerful insights on the role of parental investment in human capital and inherited family attributes in generating mobility. While these factors may also play a role in determining social mobility in developing countries, the greater degree of labour market segmentation and market frictions would suggest that other factors not included in the Becker-Tomes model, may be important in developing country contexts. Noting that relatively few advances have been made in the identification of factors that drive the high levels of intergenerational persistence observed in developing countries, the author lays out a research agenda focused on segmented labour markets, credit constraints, imperfect insurance markets, and information failures.

Gary Fields, in Chapter 3, provides a helicopter tour of the different concepts of social mobility and embeds these concepts into a larger context of social mobility research. Fields discusses six concepts of mobility that are commonly used in the literature: origin-independence, positional movement, share movement, nondirectional income movement, directional income movement, and mobility as an equalizer of longer-term incomes. As he argues, progress in the study of social mobility has been greatly impeded by the lack of clarity by researchers on which

concept of social mobility they have used, leading to a lack of comparability of the findings of different studies. The chapter provides a checklist of suggestions for conducting and presenting social mobility research that will be valuable for future researchers. In contrast to the attention that has been paid to the axiomatic basis of poverty measures (such as the squared poverty gap index), there is limited knowledge on how social mobility measures that have been developed to study industrial countries perform in analysis of low-income settings. Using three of the six mobility concepts discussed by Fields in the previous chapter, Iversen shows in Chapter 4 how the properties of these concepts, which may not raise significant concern in the context of industrial countries, are more problematic in developing countries where downward mobility often includes descents into destitution. Against this backdrop, the chapter examines the properties of the intergenerational regression coefficient (IGRC) and intergenerational correlation coefficient (IGC), the measures most widely used by economists in the study of intergenerational mobility. With the help of simple and intuitive empirical examples, the chapter illustrates the frailties of these measures in low-income settings. In conclusion, the chapter shows that seemingly 'good' mobility news may be 'bad' and that mobility comparisons are more precarious than acknowledged so far.

Continuing with the provocative note, Ravi Kanbur in Chapter 5 cautions against throwing the baby out with the bathwater. The growing concern with social mobility is welcome, he argues, but not at the expense of other equity-promoting agendas, like progressive taxation (which will be needed, even if only to finance investments in mobility promotion, such as mass public education of high quality). While a shift in focus from inequality of outcomes to intergenerational mobility is often justified in that it is a move from static to dynamic analysis, or in Kanbur's words, from 'a snapshot to a movie', there are both positive and normative reasons for retaining a focus on inequality of outcomes. From a positive point of view, Kanbur argues that the snapshot—inequality of outcome—may itself be a determinant of the movie intergenerational mobility. Similarly, from a normative point of view, there may be a compelling case for redistributive policies for achieving objectives such as equality of educational outcomes that are closely related to social mobility.

The three chapters in Part II assess the state of knowledge and the methodological approaches used in studying educational, income, and occupational mobility. Himanshu and Peter Lanjouw, in Chapter 6, discuss three different approaches that have been used to study income mobility in developing countries. The first approach is the use of panel data to study income dynamics, and the chapter synthesizes findings from the available evidence on relative mobility and poverty dynamics. The relatively short time dimension of panels that track income across different generations of the same household in developing country contexts is in sharp contrast to the long dimension of panels on incomes that are available in developed countries (such as the Panel Study of Income Dynamics in

the United States). The second approach used in the study of income mobility in developing countries is the construction of synthetic panels from repeated cross-sectional data. Himanshu and Lanjouw describe evidence on economic mobility obtained as well as the limitations of such methods. As they note, neither of these two approaches cover sufficiently long periods to enable the study of long-term income mobility processes nor do they allow the researcher to obtain accurate measures of the variables required for the study of income mobility. A third approach used in the study of income mobility in developing countries are longitudinal village surveys that span several decades. Of the village surveys that have been undertaken by economists, the iconic study is that of Palanpur, a village in northern India, studied over seven decades, and combining both ethnographic and quantitative approaches. Himanshu and Lanjouw examine intergenerational income mobility in Palanpur, looking at father-son pairs over 1957–58 to 2008–09. Strikingly, they find that with increasing diversification out of the farm economy and growth of household incomes, intergenerational mobility may have weakened over time, suggesting that the nature of the economic growth that has taken place may not be associated with greater social mobility, particularly in the rural economy.

In Chapter 7, Florencia Torche reviews the small but rapidly growing literature on intergenerational educational mobility in developing countries. She argues that since education is a critical determinant of economic wellbeing and predicts a range of nonpecuniary outcomes such as marriage, fertility, health, crime, and political attitudes, understanding educational mobility and its underpinnings is paramount. The chapter discusses mobility concepts and how educational attainment can be measured. Rapid recent educational expansion and progress notwithstanding, intergenerational education persistence is stronger in developing countries than in high-income countries. The chapter reviews sociological theories' explanations for intergenerational educational persistence, including an illuminating theory of primary and secondary effects, where the former captures the impact of e.g. parental and other household characteristics on educational performance (such as test scores): the latter captures class-based choices, net of educational attainment. Using important examples from industrial and developing country settings, this provides a powerful illustration of how interdisciplinary conversations can inform and substantially nuance an educational mobility research agenda.

In Chapter 8, Heath and Zhao provide an in-depth discussion of concepts and occupational classification alternatives and the challenges classification poses, including reflections on 'the equivalence of meaning'. The authors highlight the limitations of the ISCO (ILO) occupational classification scheme for developing country farmers. ISCO distinguishes '18 different types of farmer, primarily based on the kind of farming they are engaged in—cereals, animals, rice, poultry, for example—and on whether the farming is subsistence or market-oriented': 'there is

no reference to the kind of tenure that the farmer has—tenant farmer, member of a collective, proprietor who works his or her own land, sharecropper, or someone who farms the commons—nor of the amount of land that is farmed'. They suggest that classifications should be adjusted or tailored for individual countries with a view to better capture mobility chances: the ideal starting point, the authors suggest, is a solid understanding of the anthropology of the institutions of the country of interest. Following a careful discussion of the occupational categories in the EGP (Erikson, Goldthorpe, and Portocarero) scheme, they reduce categories from 11 schema to eight and use this modified EGP scheme to analyse relative and absolute intergenerational occupational mobility in China, Chile, Egypt, and India using odds ratios and simple, intuitive mobility tables. Overall, the findings point to substantive 'surpluses' of upward over downward mobility and notable differences between countries in relative mobility. While their samples of women have some limitations, there is suggestive evidence of much lower upward and less relative mobility for women than for men.

Given the needs both to refashion concepts and definitions and the data limitations that persist, innovative methods have been pioneered. We discuss a range of methods in Part III of this volume, albeit with a greater coverage of quantitative methods.

In Chapter 9, Shahe Emran and Forhad Shilpi critically review the economic literature on intergenerational mobility in developing countries, focusing on data and methodological challenges. For the widely used origin-independence measures (e.g. the IGE and IGRC), a bias from measurement errors is compounded by sample selection resulting from co-residency, a common limitation in developing country survey data. While this causes substantial bias in the IGRC, the IGC is more robust. Recent concerns about the stability (Chetty et al. 2014) and other properties (Iversen this volume) of these widely used regression measures—also in research on developing countries—has renewed interest in the more robust intergenerational rank correlation (IRC). An important argument made by the authors is that to adequately understand differences across groups, cohorts, and geographical areas, which is a crucial objective of mobility research, reliable estimates of not only the slope (as for e.g. IGE or IGRC) but both intercept and slope coefficients are necessary. The chapter also discusses the usefulness of sibling correlations, a broader measure of mobility.

In Chapter 10, Yaojun Li presents a quantitative sociological approach to the study of intergenerational class mobility in China and introduces the reader to measures such as the Lieberson Net Difference Index (NDI) and the Dissimilarity Index (DI). Drawing on national representative surveys collected between 2010 and 2015, the chapter provides absolute and relative mobility comparisons for men and women across four different birth cohorts using five occupation-based class categories. Given the sparsity of evidence on women's intergenerational occupational mobility, women's high labour force participation in China offers

an important analytical advantage and opportunity. The author discusses the hukou system in depth and reminds the reader of China's startling and recent higher education progress. While the university gross enrolment rate was below 10 per cent in 1998, this had risen to 50 per cent by 2019. The chances of sons getting better jobs than their parents are 70 per cent higher than for daughters. Sixty per cent of parents, 31 per cent of sons, and 40 per cent of daughters have an agricultural occupation. When disaggregated by cohort, rapid structural change is discernible: while 66 per cent of the parents of the oldest cohort were peasants, this had fallen to 44 per cent of the youngest cohort's parents. Within the youngest cohort itself, 10 per cent of men and 13 per cent of women remain involved in agricultural work. Between the oldest and the youngest cohort, the proportions holding professional and managerial jobs increased from 17 to 32 per cent for men and 12 to 30 per cent for women. Overall, there is rising absolute mobility, with upward mobility prevailing over downward mobility. With regard to relative mobility, there is constancy for the older cohorts but a growing rigidity for the youngest cohort of men. The urban–rural divide is increasingly blurred, but class differences are becoming more salient, especially between the professional-managerial salariat and the rest of society in occupational and educational attainment.

Divya Vaid, in Chapter 11, provides an overview of anthropological investigations of social mobility in developing countries. The starting point for these investigations is the observation that people's aspirations and their anxieties are shaped by the contexts in which they live. Value and meaning are socially constructed. Whether individuals regard income growth or educational attainment—or artistic merit or religious distinction—as their most valuable aspiration and marker of individual achievement, depends on how each of these goals is collectively valued within a particular contextual setting. The anthropological method 'allows the tracing of upward and downward trajectories of movement that individuals and families may experience, the ways in which people might articulate their position as well as associated changes, and the meaning of what it means to be mobile, their anxieties, fears and aspiration'. Mobility patterns for entire social groups are studied, providing a link with the later discussion on group-based inequalities (in Chapter 16). Groups that have been examined specifically include those defined by caste, religion, ethnicity, and gender divisions. How language, dress, behaviour, and social customs change alongside groups' aspirations for, or achievement of, social mobility is another important area of anthropological inquiry. Vaid also examines the role played by physical mobility (migration) for social mobility.

The discussion of alternative methods continues in Chapter 12, where Gregory Clark presents an innovative method he has developed that is helpful for tracking long-period intergenerational mobility. Particularly in societies for which long-term data on incomes is missing—a description that would include, currently, all

developing societies—the 'surnames' method developed by Clark can help assess the extent of intergenerational mobility. The method works ideally when fathers and sons have the same surname spelt in the same way and information about economic status is available for multiple generations. These circumstances characterize only a handful of societies. In practice, however, the surnames method is much less 'informationally demanding'. Drawing on examples from pre-industrial England and current-day Chile and India, Clark demonstrates how it is possible to derive reasonable estimates of intergenerational mobility rates with just three pieces of information: the frequency of surnames or surname types in a society; the frequency of these surname types within a particular elite class (or underclass); and a measure of how advantaged the high status group is (or how disadvantaged the low status group is) compared to the rest of society.

Part IV in this volume helps uncover the underlying mechanics: what drives social mobility in developing societies? Through what means can the prospects, certainly of the poorer half, be improved in the near future and not-so-near future? What prevents talented and hardworking young people from rising to the top? How can these barriers be lowered more effectively? The authors find that while some among the factors that inhibit or accelerate social mobility are similar among countries—for instance, parental wealth matters everywhere—other factors differ between richer and poorer countries.

Defining human capital broadly, in Chapter 13, as 'a vector of stocks for cognitive skills, socioemotional skills, and health' that have both immediate and longer-run returns, Jere Behrman presents a masterful review of studies examining the relationship of different components of the vector of human capital with diverse measures of social mobility. Human capital is sometimes carelessly equated with education, but is actually multidimensional, encompassing cognitive skills, socioemotional skills, and health and nutritional status. Human capital factors matter over the entire lifecycle, starting very early. Shocks experienced in utero or in early life can have persistent effects. Large differences emerge in preschool child cognitive skills, conditioned by parental wealth, income and educational attainment. Physical health and nutritional status are other important dimensions of children's human capital that can also give rise to early differences that persist and can be pernicious. In fact, it might be supposed that health and nutrition effects could matter more in many developing countries compared to education, because health and nutrition effects become manifest at early ages and can widen in later life, and because weaker market and public institutions make it more likely that already constrained families will play the critical roles in making these investments.

A central question in the study of social mobility in the Global South is whether the rapid urbanization that developing countries are currently undergoing can lead to greater social mobility, as had been observed previously in Western countries. Rains and Krishna, in Chapter 14, review empirical evidence on the

potential for social mobility in today's urban slums in order to assess prospects for upward mobility in cities of the Global South. Finding evidence for limited levels of upward mobility and high levels of volatility, they argue that urbanization will not automatically improve prospects for mobility for the urban poor. Instead, it will be critical to implement appropriately nuanced interventions to improve opportunities for the tens of millions residing in today's and tomorrow's slums.

In Chapter 15, Nancy Luke notes that women, historically, have been overlooked in social mobility research. Luke reviews the literature on the intergenerational transmission of gender attitudes and norms, arguing that gender attitudes are a key transmission mechanism for intergenerational economic mobility beyond wealth and other economic factors. An important contribution of the chapter is to link our understanding of the underpinnings of women's mobility to the factors that affect their labour market participation. Mothers' egalitarian views and less-restrictive gender norms promote greater labour force participation for daughters and daughters-in-law. To date, few studies have covered developing countries, where restrictive gender attitudes and norms are more pervasive, more diverse and potentially more strongly shape women's labour force participation. The chapter concludes with a brief case study of women's labour force participation in India, where the direct link between gender attitudes and women's labour market engagement could provide a further explanation for its recent decline. While this opens the door for an important new set of enquiries, some of which are already underway, it also reminds the reader about the need for more and better theories that not only shed light on why women are not in the labour market, but also the sectors women enter into and the hurdles to upward mobility they face once they enter the labour market.

Group-based discrimination—deriving from divisions based in religion or ethnicity or caste or region—acts as a dampener on the social mobility prospects of particular individuals. Patricia Funjika and Rachel Gisselquist, in Chapter 16, explain how 'horizontal inequality' is sustained when members of the disadvantaged groups in a society not only start at a lower point but also move up at a slower pace compared to advantaged groups. Group-based inequalities get perpetuated where group-discrimination is not countered using the kinds of active policy measures the authors discuss, including measures that raise the mobility rates of historically disadvantaged groups above those of the rest of the population.

Neighbourhood effects, social networks, and role models that research in the West has revealed to be important influences on social mobility (Chetty et al. 2014), also act differently in developing societies. In Chapter 17, Anandi Mani and Emma Riley find that membership in social networks helps through two types of channels—tangibly, via access to opportunities for migration, credit, trading relationships, information on jobs, and new technologies; and intangibly, through shaping anxieties and aspirations, and through the influences of inspiring role

models and peers. The authors review a range of research results related to both types of channels, and conclude on a note of agnosticism. While the literature largely provides evidence of various channels through which social networks work as positive levers for upward mobility social networks, by their very nature, have boundaries: they exclude nonmembers. Those who do not belong to well-resourced social networks, typically, the poor and marginalized, are excluded from these beneficial influences. Like the other authors, Mani and Riley discuss policy measures that can help achieve a better result.

Chapter 18 concludes the volume and provides directions of future research as well as discusses possible policy implications that can be gleaned from the contributions to the volume.

We have tried to cover a broad range of concepts, methods, and countries, but our coverage falls short in relation to each of these dimensions. Reflecting our own disciplinary backgrounds in economics and public policy, the volume is heavier on quantitative methods and somewhat lighter on qualitative methods, though few chapters are fully qualitative or entirely quantitative, and many combine both types of argumentation. We present empirical results that derive primarily from a small group of developing countries, especially, China and India, though these chapters also refer to other developing countries, including Chile and South Africa. These limitations on geographic coverage are a reflection of the emergent stage of this literature.

We hope this compilation of essays will provide the tools and the motivation required for much-needed investigations of social mobility in the developing world.

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PART II

THEORY AND CONCEPTS

2

Drivers of Mobility in the Global South

Patrizio Piraino

2.1 Introduction

A large empirical literature on intergenerational income mobility shows consist-
ent evidence of positive correlations between the income of parents and that of
their adult offspring. This is true for every society for which we have data and for
several types of income (e.g. labour market earnings, total market income, welfare
receipts, etc.). Björklund and Jäntti (2009), Black and Devereux (2011), and Corak
(2013) provide comprehensive reviews of this literature. The existing international
evidence has allowed researchers and policy makers to identify a number of
'stylized facts' on the multitude of factors that can help to explain the observed
variation in mobility levels across and within countries. This largely descriptive
literature, while falling short of identifying the relative role of alternative causal
mechanisms, offers very plausible hints about where to look to improve social
mobility.

At the same time, it is notable that most of the stylized facts on possible drivers
of mobility are derived from empirical analyses of high-income countries. Since
only a relatively small share of the world population currently lives and works in
this group of countries, a natural question is whether the findings from these
regions can easily be extended to the much larger pool of the world population
living in the developing world. Empirical studies of intergenerational mobility in
developing countries tend to find higher levels of economic status persistence
across generations compared with those of developed economies (Brunori et al.
2013; Narayan et al. 2018), but there have been relatively few advances in the
identification of the underlying drivers of this higher persistence. This is due to a
combination of data availability and, to some extent, an over-emphasis in the
economics literature on analyses of the Global North (e.g. Europe, North
America). In fact, it is fair say that even the existing theoretical contributions in
this literature appear to be implicitly benchmarked on structural processes that
may be more applicable to the developed world.

The purpose of this chapter is to contribute to reducing this gap in the literature
and offering a more complete picture of social mobility across the globe, including
in developing and emerging economies. It will point out some of the potential

drivers of mobility that are either outside those typically considered in high-income countries or likely to be of greater relevance in the developing world. I will begin with a simplified description of standard models of intergenerational income mobility, followed by a discussion of the appropriateness of some of their underlying assumptions in a developing-country context. I will then advance some suggestions for future theoretical and empirical investigations of social mobility in the Global South.

2.2 Theoretical framework

Empirical analyses of intergenerational mobility have largely relied on the classic model developed by Becker and Tomes (1979, 1986)—and subsequent adaptions and extensions—for a theoretical underpinning of the intergenerational income regression typically estimated in the literature. In its most basic versions, the model assumes a two-period utility framework for families consisting of one parent and one child. In the first period, the parent faces a budget constraint which dictates the allocation of disposable income between own consumption and investment in the child's human capital. In the second period, the child earns income as a function of the acquired human capital and other endowments. I discuss here a simplified version of the standard model using the adaptation presented in Solon (2014).

2.2.1　Parental investments and heritable endowments

Following Solon (2014), we can begin by expressing the income-generating function for the child as:

$$\ln(Y_t) = \mu + \gamma_t H_t, \tag{2.1}$$

where Y_t is the child's income, H_t is their human capital, and μ is the intercept for the t generation. The returns to human capital in the labour market are captured by γ_t.

Next, we can specify the child's human capital as depending on the parent's investment in the previous period, I_{t-1}, and on the composite effect of other endowed attributes:

$$H_t = \vartheta \ln(I_{t-1}) + E_t. \tag{2.2}$$

The parameter ϑ in Equation (2.2) represents the 'effectiveness' of parental investment in generating human capital. Substituting Equation (2.2) into Equation (2.1) gives:

$$\ln(Y_t) = \mu + \gamma_t \vartheta \ln(I_{t-1}) + \gamma_t E_t. \tag{2.3}$$

A key assumption of the model is that E_t, which is independent from parental investments, is transmitted across generations according to a first-order autoregressive process:

$$E_t = \kappa + hE_{t-1} + \omega_t. \tag{2.4}$$

That is, the child's endowed attributes are partly inherited from the previous generation according to the heritability parameter $h \in [0, 1]$. As we will see below, the parameter h plays an important role in these models. These inherited endowments encompass a variety of genetic, cultural, and environmental attributes that are transmitted across generations via a mechanic heritability process—i.e. they are independent of parental investments in the child's human capital (Solon 2004, 2014). Examples of these attributes may be genetic ability or non-genetic aspects of family culture, attitudes, and connections that children gain by virtue of belonging to a given family.

Parents are aware of Equations (2.1) to (2.4) and decide the income allocation between own consumption, C_{t-1}, and investments in the child's human capital, I_{t-1}, by maximizing a Cobb-Douglas utility function of the form:

$$U = (1 - a)\ln(C_{t-1}) + a\ln(Y_t), \tag{2.5}$$

subject to the budget constraint:

$$Y_{t-1} = C_{t-1} + I_{t-1}, \tag{2.6}$$

where Y_{t-1} and Y_t are, respectively, the parent's and the child's income. The parameter a represents parental altruism, which determines the weight that parents assign to children's future earnings relative to current own consumption.

The budget constraint and Equation (2.3) allow us to rewrite the parent's utility as:

$$U = (1 - a)\ln(Y_{t-1} - I_{t-1}) + a\mu + a\gamma_t\vartheta \ln(I_{t-1}) + a\gamma_t E_t, \tag{2.7}$$

which, after solving the first-order condition, yields the optimal investment in the child's human capital:

$$I_{t-1} = \left[\frac{a\gamma_t\vartheta}{1 - a(1 - \gamma_t\vartheta)}\right] Y_{t-1}. \tag{2.8}$$

Intuitively, Equation 8 suggests that parental investments in the child's human capital will be higher for richer and more altruistic parents, and for periods of greater returns to human capital.

This simple model allows a rationalization of the intergenerational earnings elasticity (IGE) typically estimated in the empirical literature to measure the degree of economic mobility in a given society. To see this, one can substitute

the optimal investment amount Equation (2.8) into the child's earnings function Equation (2.3), to obtain:

$$\ln(Y_t) = \mu^\star + \gamma_t\vartheta \ln(Y_{t-1}) + \gamma_t E_t. \tag{2.9}$$

As explained by Solon (2014), this is a first-order autoregression of $\ln(Y_t)$ with a serially correlated error that also follows a first-order autoregression.[1] In steady state—i.e. when $Var[\ln(Y_t)] = Var[\ln(Y_{t-1})]$-the slope coefficient in Equation (2.9) is the commonly estimated IGE, which will be equal to the sum of the two autoregressive parameters divided by one plus their product:

$$IGE = \frac{\gamma_t\vartheta + h}{1 + \gamma_t\vartheta h}. \tag{2.10}$$

Expressing the IGE as in Equation (2.10) clarifies that earnings persist across generations (i.e. $IGE > 0$) as a result of two main 'transmission channels':

(i) Higher-earning parents invest more in their child's human capital, which increases income in the next generation: $\gamma_t\vartheta > 0$.
(ii) Higher-earning parents have greater income-enhancing endowments, which are transmitted to the next generation through cultural influences and genetics: $h > 0$.

The strength of channel (i) will depend on the effectiveness of parental investments in producing human capital (ϑ) and on the returns to human capital in the labour market (γ_t), while the strength of (ii) will be determined by the degree of heritability (h) of endowed attributes.

It is important to note that the rationalization of the IGE in terms of these two intuitive transmission channels can be derived under a different set of model assumptions. For example, Becker and Tomes (1986) assume that the parent can borrow against their child's future income in order to finance human capital investments. In the presence of credit constraints, low-income parents face a higher cost of borrowing and this introduces a non-mechanical link between the income of the parent and that of the child. That is, when the ability to secure credit depends on Y_{t-1}, richer parents will invest more in their children's human capital.[2] In summary, basic models of intergenerational mobility predict that the intergenerational earnings elasticity will reflect both the degree of heritability in endowments and the higher investments in human capital by high-income

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[1] With intercept $\mu^\star = \mu + \gamma_t\vartheta\ln\left\{\frac{a\gamma_t\vartheta}{[1-a(1-\gamma_t\vartheta)]}\right\}$.

[2] This is not the case if one assumes perfect capital markets, which allows all parents to make the right investment decision independently of their income. In this scenario, the transmission of income across generations would depend solely on the extent to which endowments are inheritable (h).

parents. This is a key result of the standard theory, and we will discuss its relevance for developing countries in more detail below.

It is also useful to note that the heritable endowments in the basic model can be separated into two types (see Corak and Piraino 2016; Mulligan 1997, 1999). The first type consists of traits (or advantages) that parents can transmit to their children without changing the expected marginal returns to human capital investment. These could be endowments that only come into play in the second period of the intergenerational model, once parental investment is already determined (e.g. a lottery won by parents later in the child's life). A second type of inherited attribute can instead alter the effectiveness of the human capital investment and/ or its returns. These endowments have an additional effect on the child's earnings by changing the efficient level of their human capital. An example of such factors may be a genetically or culturally transmitted trait that enhances the child's ability to learn. Another example, provided in Magruder (2010), is parental networks changing the returns to human capital by increasing the number of potential job offers for a given education level. Magruder shows how this type of inherited endowment has a multiplying effect on the transmission of economic status, by amplifying the other channels of persistence. Similarly, Mulligan (1997) discusses a more general model of economic persistence that incorporates the two types of heritable endowment, as well as credit constraints, and shows that the degree of intergenerational income resemblance will depend on the interplay between the various sources of persistence, such as the importance of borrowing constraints, the correlation between the two dimensions of endowment, the size of the direct effect of inherited attributes, and the degree of heritability of endowments.

2.3 Determinants of social (im)mobility in developing countries

The workhorse theoretical framework reviewed in the previous section has proven very useful for rationalizing empirical estimates of intergenerational income mobility around the world. However, most of the existing applied literature focuses on high-income countries, with a particular emphasis on the United States. While the key drivers in the standard theory of intergenerational mobility—i.e. parental investment in human capital and inherited family attributes—can also help the interpretation of the empirical evidence from low- and middle-income countries, it is important to recognize that not all insights apply to all economies, or at least not in the same way. The aim of this section is to highlight some of the barriers to social mobility that either have received less attention in the existing literature or may be of higher relevance to the majority of the world's population, due to the presence of institutions and market frictions that are more commonly observed in developing-country contexts. In particular,

I will focus on (i) labour market segmentation, (ii) credit and risk market failures, and (iii) information frictions. There are, of course, other important drivers of social mobility in the developing world not discussed here, such as the determinants and returns to human capital acquisition, group discrimination, family structures and formation, and community-level effects. Fortunately, some of these issues are well covered in other chapters of this volume (Behrman; Funjika and Gisselquist; Mani and Riley).

2.3.1 Segmented labour markets

Segmentation is often thought of as a key characteristic of labour markets in developing countries (Fields 2011). This refers to the empirical observation that different parts of the market appear to operate in appreciably distinct ways. Typical examples are the documented differences between the formal and informal sectors, or between rural and urban areas. Segmentation does not imply complete separation. In fact, a defining feature of segmented markets is the existence of various links (actual or potential) across segments, such that the performance and characteristics of one sector affect the functioning of the others (and vice versa). For our purposes, it is important to ask whether the existence of qualitative differences between labour market segments has implications for the level of social mobility in developing countries.

   We can simplify the discussion by focusing on just two sectors—i.e. dualistic markets. The starting point of several theoretical models of dualistic markets in development economics is the distinction between primary and secondary sector jobs. 'Primary sector jobs' generally refers to higher-pay positions in the formal sector, carrying some benefits and some level of job security, which are also more likely to be located in urban areas. Secondary sector jobs offer lower pay, are typically in the informal sector and rural areas, and have limited benefits and job security. In these models, workers of similar human capital and skills levels can earn significantly different wages depending on which sector they find employment in (Fields 1980; Lewis 1954).

   This characterization of segmented labour markets can have implications in terms of the intergenerational mobility framework outlined in the previous section. Standard models of mobility implicitly assume a unitary labour market, where skills are equally rewarded across sectors. This assumption is less realistic in the context of developing countries. Moreover, it is plausible to expect that the capacity to access different segments of the market is itself correlated across generations, which creates an additional channel of earnings transmission from parent to child. This applies to segmentation across sectors (agriculture vs industry), locations (urban vs rural), and occupations (formal vs informal). The key distinction here is in the underlying driver of the intergenerational earnings

association. That is, do children of low-income (high-income) parents end up in low-paying (high-paying) jobs as a result of lower (higher) productive endowments and human capital, as in the standard models, or are they destined to remain in the same segment of the labour market as their parents because of barriers to mobility across sectors?

Mobility across segments of the labour market in developing countries is hindered by a number of factors, ranging from labour market institutions and regulations (e.g. minimum wages, unions), to geographic hurdles that increase migration costs, to lack of appropriate personal connections that may facilitate transitions into high-paying jobs. It is plausible to assume that many of the obstacles preventing transition from 'bad' to 'good' jobs are partly inheritable. For example, a large fraction of low-income parents in developing countries are employed in agriculture or live in remote areas that do not offer a wide variety of employment options. While residential location is clearly correlated across generations, some individuals are able to migrate. However, evidence from the literature in developing regions shows that it may be especially difficult for young adults born in the poorest parts of rural areas to look for work in and relocate to areas of higher employment and wages. As an example, Ardington et al. (2009) provide evidence of significant intergenerational effects arising from the arrival of a stable source of income in rural South Africa. They show that when an older member of the household becomes eligible for a state pension, there is an increase in the out-migration of prime-age individuals within the household. That is, the additional income in the family relaxes the barrier to mobility for the rural poor.

Beyond the heritability of residential location, children also inherit connections that can lead them to an occupation in the same sector as their parents. Magruder (2010) finds evidence of a significant role for network-based intergenerational correlations in South Africa. He notes that when intergenerational networks are important, they result in a reallocation of jobs among young adults according to connections (see also Mani and Riley in this volume). Since these parental connections are not perfectly correlated with ability, this mechanism is both inefficient and inequitable. This is because some high-ability individuals will find themselves confined to low-productivity and low-wage jobs due to a lack of valuable networks, while connected low-ability workers will be employed in the primary sector. To the extent that there are important differences in pay levels across sectors, this will contribute to lower intergenerational mobility.

Relatedly, whether a young adult can receive 'a little help' in obtaining a first job in the formal vs the informal sector is of high relevance in many developing countries. The wage premium of working in the formal sector has been estimated in several studies to be positive and significant. Gong and Van Soest (2002) and Heintz and Posel (2008) find evidence of wage differentials in urban Mexico and South Africa, respectively. The South African study also shows that segmentation

is evident not only between the formal and informal sectors in the labour market but also within the formal sector. This finding is consistent with evidence from Côte d'Ivoire (Günther and Launov 2012) and Egypt (Radchenko 2014). While some of these earnings differentials may reflect differences in skills, the wage gap cannot typically be fully explained by observable factors.

In summary, the existing empirical evidence on the qualitative differences in employment and wage conditions across different sectors of developing countries' labour markets suggests an additional type of endowed attribute that can be passed on across generations. 'Inheriting' a job in the same sector as your parent can sometimes only happen after human capital investments are completed. This would have an additive effect on the IGE. At the same time, the expectation of obtaining help in getting a job in a certain sector may alter the returns to human capital, which will affect parental incentives to invest in the child's education. As discussed in Section 2.2, this may have a multiplying effect on the transmission of economic status, by amplifying the role of the other drivers of intergenerational inequality.

2.3.2 Imperfect credit and insurance markets

Credit constraints

While there are several plausible mechanisms that could account for the finding of significant intergenerational association in incomes (Bowles and Gintis 2002), credit market imperfections and human capital acquisition have received the greatest attention (e.g. Grawe 2004; Mazumder 2005; Mulligan 1997). In the Becker-Tomes framework, if credit markets are perfect, all parents are able to borrow sufficient funds to invest the optimal amount in their offspring's human capital (depending on ability level). In the presence of borrowing constraints, however, some parents are unable to gain access to credit and the optimal amount of human capital investment will not be realized. As a result, there will be a higher degree of intergenerational income persistence for families with high-ability children but insufficient credit. Allowing for systematic variation in access to credit thus creates a pathway of intergenerational persistence in the form of higher human capital investment by richer parents.

Producing credible empirical evidence on this theoretical prediction is not straightforward. One of the key problems is the difficulty of knowing unambiguously which households are truly borrowing-constrained. In order to identify constrained households, applied researchers have resorted to different forms of indirect evidence. One approach has focused on testing for a concave pattern in the intergenerational transmission of income. If low-income families are most likely to be credit-constrained, the degree of economic persistence across generations should be higher at the lower end of the distribution and should

decrease with parental income. Based on this conjecture, a number of studies have investigated non-linear patterns in the intergenerational earnings equation (see Grawe and Mulligan 2002 for a review). Note, however, that in the human capital model, non-linear patterns arise as long as poor parents with high-ability children do not have sufficient funds to invest in their children's education. Corak and Heisz (1999) and Han and Mulligan (2001) suggest that these constrained households are more likely to be found at the *middle* of the income distribution. If the child's ability is correlated to parental income, credit market imperfections may not create distortions in the optimal amount of human capital for poor families. As the ability level increases with parental income, middle-income families would be more susceptible to credit constraints than both poor and rich families. Grawe (2004) further argues that the correlation of offspring's ability with parental income makes the presence of credit constraints compatible with any functional form. He concludes that nonlinearities cannot form the basis of a test for credit constraints without specifying which families are presumed to be constrained.

A different set of empirical studies splits the sample of households into two groups by the likelihood of binding credit constraints. The logic behind this approach is that the group that is more likely to be constrained should experience more intergenerational income persistence. Mulligan (1997) draws an intergenerational sample in the United States and uses special information on inheritances to distinguish between financially constrained and unconstrained families. He estimates two separate intergenerational earnings regressions and finds no significant differences in the inertia parameter between the two groups. Gaviria (2002) partitions a sample of US fathers and children into 'rich' and 'poor' families and finds instead evidence of greater intergenerational earnings persistence for the credit-constrained group (i.e. the poor). Mazumder (2005) adds further empirical evidence to the debate by using a larger US administrative data set. He argues that the level of net worth can measure the ability of parents to borrow against their current wealth. Comparing individuals in the top quartile of net worth with those in the bottom quartile, he obtains significant differences in the persistence parameters. Clearly, the evidence from these US studies shows that the proxies used to identify credit-constrained households have a crucial impact on the empirical results.

The development economics literature on the role of access to credit and liquidity in reducing poverty provides a more consistent set of results. Burgess and Pande (2005) take advantage of a natural experiment in India to identify the effects of a large state-led bank branch expansion into rural locations with no banks. They find that banking expansion significantly reduced rural poverty, and that credit disbursement by banks in rural areas was a mediating factor. A related (but distinct) strand of studies suggest that targeted transfers to the poor in developing countries, such as conditional cash transfers, can have positive effects on a variety of outcomes in the short term, by allowing welfare-enhancing

investments (Behrman et al. 2011; Molina Millán et al. 2019). Some studies also find evidence of long-term multiplier effects (Barrett and Carter 2013), suggesting that policies removing barriers to investments, such as through improved access to credit, can have a larger role in enhancing the upward mobility of the poor living in developing countries. These findings are consistent with an established theoretical literature identifying the different mechanisms through which access to credit can allow individuals to modify their production and employment choices and to improve their economic status. For example, Banerjee and Newman (1993) offer an occupational choice model wherein individuals with low initial wealth cannot access occupations that require significant levels of human capital investment, due to imperfect capital markets.

There is also increasing empirical evidence in developing countries on the existence of binding credit constraints for educational investments. Solis (2017) presents findings on the effects of a college loan programme in Chile and finds that credit access leads to a large increase in enrolment. Importantly, access to credit closes the gap in enrolment and attainment by income status, which has clear implications for intergenerational mobility. Similarly, Kaufmann (2014) shows that lower-income individuals in Mexico are responsive to changes in the direct costs of education, which is consistent with binding credit constraints.[3]

Taken together, these different strands of literature suggest that credit constraints may play a larger role in developing countries. If credit markets are more likely to fail in these contexts, the chances of upward mobility for children at the bottom of the income distribution may be lower than in rich countries. For example, Grawe and Mulligan (2002) note that societies with well-functioning credit markets should have fewer constrained families and, consequently, display higher levels of overall intergenerational income mobility. Maoz and Moav (1999) argue that less-efficient credit markets may partially explain why intergenerational earnings mobility is higher in more developed economies. In their model, economic growth influences mobility via its effect on the incentives to acquire education and on relaxing liquidity constraints. As a result, when countries grow, mobility increases the correlation between ability and education. This intuition has direct policy relevance. If borrowing constraints are an important determinant of intergenerational mobility, easing credit market access for targeted groups would have desirable effects in terms of both equity and efficiency.

Risk and uncertainty

Significant earnings volatility and imperfect insurance against shocks are important determinants of households' budget and expenditure decisions in developing

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[3] Note that, in contrast, the evidence in support of binding credit constraints for educational investments in high-income countries is more mixed (Carneiro and Heckman 2002; Restuccia and Urrutia 2004).

countries—much more so than in high-income settings. Higher uncertainty and income volatility are partly related to larger agricultural sectors and the risks deriving from farm production (e.g. seasonality, weather shocks, etc.). Larger informal sectors and fewer labour market regulations also contribute to this high-risk environment. The combination of low pay, unpredictable income, and underdeveloped insurance tools leads individuals to manage their resources more carefully, which may result in suboptimal risk-taking.

In terms of the standard theory of intergenerational mobility, the uncertainty in current and future earnings will affect parental investments in the two-period model discussed above. With imperfect risk markets, uncertainty in the child's future earnings may lead risk-adverse parents to under-invest in their child's human capital. In addition, income volatility in the first period and imperfect insurance markets may exacerbate the effects of credit constraints on intergenerational mobility. In particular, the amount invested in children can be suboptimal even if the parent is not presently constrained but has a positive probability of being constrained in the future (Heckman and Mosso 2014). To the extent that volatility and uncertainty are higher in the earlier periods of a parent's working life, this may be particularly binding for early-education investment choices. In the presence of dynamic complementarities in skill accumulation, this early-stage uncertainty would also render later parental investments less effective. Since poorer households tend to be both more risk adverse (Binswanger 1980) and more likely to be constrained, these effects imply a greater role for parental income in determining the children's human capital and hence their future earnings.

There is no empirical evidence on the contribution of imperfect insurance markets and income uncertainty in explaining intergenerational mobility. Given the higher incidence of these issues in developing countries, it is plausible to expect that this particular driver of intergenerational persistence will be of great relevance. The literature on poverty traps in development economics provides evidence in support of this conjecture. Barrett and Carter (2013) review the ample evidence from development economics showing that risk influences the decisions of poor individuals and that shocks can have long-term consequences. Even one-off events can push poor households into a poverty trap (Lybbert et al. 2013). This, coupled with lack of insurance and credit, results in individuals opting for low-return, low-risk investments. The absence of formal insurance schemes and the insufficient protection offered by informal risk-sharing arrangements lead to a differential ability of households with different economic status to take on high-return investments, leading to poverty perpetuation (Dercon and Christiaensen 2011). In addition, the same factors driving suboptimal investment choices can imply an endogenous change in individual preferences. Uncertain future prospects, along with low asset levels, may lead poorer parents to shorten their time horizons and underestimate potential future gains. For example, Laajaj (2017)

shows evidence on this type of behavioural poverty trap with respect to asset accumulation in rural Mozambique.

2.3.3 Information frictions

Do informational constraints contribute to higher social exclusion and lower social mobility in developing countries? To answer this question, I focus on two specific informational barriers: (i) asymmetric information in the labour market and (ii) parental beliefs about the returns to education.

Labour market information frictions

Information frictions are prevalent in developing countries' labour markets, especially in the market for low-skill and entry-level jobs. In these markets, job-seekers often have limited work experience and lack educational degrees to signal skills. For those who acquire education, the quality of learning is low on average and highly variable, which limits the use of education credentials to signal productivity. This leaves firms with limited or unreliable information with which to screen job applicants. Moreover, employers are less likely to invest in costly screening, as work relationships are often short term (Autor and Scarborough 2008). Also, relevant labour market information may be less available than in high-income countries because of spatial frictions, a much younger workforce with limited work experience, and less-widespread use of information technologies. To the extent that these information gaps make firms particularly uncertain about (or likely to underestimate to a greater extent) the productivity of disadvantaged job-seekers, information frictions will contribute to social exclusion and limited upward mobility.

Hiring employers can partially reduce these asymmetries by relying on social networks and the existing workforce to fill vacancies. For example, current employees can help to overcome the problem of asymmetric information and create better employment matches, as they know both the firm and the people in their network. Moreover, firms may use referrals from current workers to reduce moral hazard problems (Heath 2018). However, finding employment through personal connections may limit the pool of potential candidates and decrease match quality (Loury 2006). For instance, current employees may have personal interests in referring family and friends that conflict with the interests of the firm (Beaman and Magruder 2012; Fafchamps and Moradi 2015). Informal referral systems may thus exacerbate inequity, as they disadvantage less-connected groups (Montgomery 1991).

Imperfect information affects not only the selection of applicants but also the wages of employed workers. In many contexts, employers can only partially observe work effort and productivity. Foster and Rosenzweig (1994) use large

data sets from rural areas in Asia to investigate the extent to which employers have imperfect information on the productivity of heterogeneous workers. They find considerable variation in productivity that is not explained by characteristics observable by employers. While employers appear to learn about worker productivity over time, this would exacerbate wage inequality between workers with varying degrees of labour market attachment/experience. They also find evidence that information frictions lead employers to engage in statistical discrimination against women. Statistical discrimination occurs when managers use group membership as a proxy for individual productivity. Individuals with identical abilities may thus receive different wages on account of the average productivity of the group they belong to (e.g. gender, race, caste).

Pervasive gaps in labour market information may thus decrease social mobility in developing countries. This intuition is corroborated by a series of recent studies on how various types of labour market frictions in different African countries can result in worker misallocation and higher inequity. Abel et al. (2020) show that hiring firms can reduce information asymmetries for young South African job-seekers through referrals from previous employers. Former employers are shown to have valuable information about workers' skills that would otherwise be unobservable in the hiring process. Importantly, the analysis shows that the effect may be larger for job applicants at an initial disadvantage. However, these authors also find that this practice is largely absent in the low-skill market analysed, partly because job-seekers underestimated its effectiveness. Recent evidence from two experimental studies on the role of information frictions in Ethiopia and Uganda find consistent results (Abebe et al. 2016; Bassi and Nansamba 2018). In particular, these studies show that programmes to help job-seekers certify their skills can have positive effects on employment outcomes. These types of intervention are shown to be particularly useful for those with the least education and experience, suggesting that information frictions disproportionately affect people from lower socioeconomic backgrounds.

Beliefs about the returns to education

Human capital investment decisions by disadvantaged families are not only a function of the availability of credit lines or risk insurance. Under-investment in the human capital of children may also result from biased beliefs. Simple human capital investment models predict that individuals are more likely to acquire education when the expected returns to the investment are higher. An accurate assessment of the returns to additional schooling is unlikely for most parents, as decisions are typically made on the basis of limited or imperfect information. As noted by Berhman (1999), most of the empirical literature on such investments in developing countries does not integrate this possibility due the difficulty in measuring such expectations (see also Berhman in this volume). However, this possibility may be of particular importance in the developing world, where

educational attainment remains lower than in high-income countries, despite higher estimated returns.

It is possible that parents in low-income countries are less well informed about the returns to education. Reliable information on education returns may not be available because of data constraints. Even when information is available, the findings may not be as widely disseminated by public and/or private organizations. In addition, schools may be less likely to have a counsellor who provides information about future career paths and earnings. Parents can reduce this information gap by relying on what they can observe in their proximate environment. The accuracy of the information people can gather would then depend on the 'quality' of the sources people have access to. Segmentation and segregation imply that people from different socioeconomic backgrounds will form different expectations about the returns to schooling. The extent to which the bias on the expected effectiveness of schooling investments varies by socioeconomic status will determine how the child's human capital will respond to inherited disadvantage via this additional channel of influence.

Jensen (2010) investigated families' perceptions of the returns to schooling in the Dominican Republic, finding that students significantly underestimate the returns to secondary education. Providing them with more-accurate information about the returns to education led to the completion of additional years of schooling. The study also showed that while the intervention had a similar impact on the perceived returns for the poorest and the least poor households in the sample, there was no significant increase in schooling among the poorest households. This suggests that even if families are aware of the returns to education, schooling costs and credit constraints may still prevent them from attending. This suggests a degree of complementarity in the barriers to upward mobility as discussed in Section 2.2.

2.4 Concluding remarks

The discussion in the previous section helps us to identify some promising avenues for future research on intergenerational mobility in developing countries.

The existence of segmented labour markets points to analyses of the variation in economic mobility across spatial, sectoral, and occupational segments. This could provide valuable insights on whether segmentation is indeed a key driver of intergenerational persistence in developing countries. The recent increase in the number of empirical studies on the 'geography of mobility' in high-income countries provides an example of approaches that could generate credible evidence on this important question. Of course, such efforts could be coupled with more narrowly focused (and perhaps less-descriptive) investigations of the various types of barriers to sectoral, geographical, and occupational mobility faced by different individuals in the population.

As noted above, testing for the importance of credit constraints as a driver of intergenerational persistence, relative to other impediments to mobility, is particularly difficult. If anything is to be learnt from studies in high-income countries, credit constraints do not appear to be especially important. Given the inconclusive nature of results on credit constraints as a barrier to mobility, as well as the underdevelopment of capital markets in many developing countries, it is fair to say that there are ample opportunities for innovative research in this area. In particular, credible empirical tests must take into account the specific features of capital markets in the developing world, such as the widespread lack of collateral among poor households, the limited market penetration in rural areas, and the role of small credit institutions.

Similarly, there is limited or no empirical evidence on the contribution of imperfect insurance markets and income uncertainty in explaining intergenerational mobility. Given the high relevance of these factors in developing countries, this offers a clear direction for future investigations. However, risk preferences are often not measured in national surveys, and identifying households that can be assumed to benefit from different types of insurance is not straightforward. Similarly to the empirical approaches in the credit constraints literature, future studies in this direction may have to design forms of 'indirect' evidence for this channel of intergenerational income transmission.

Our discussion on information frictions in the labour market also leads to ideas for future research in developing countries. We have shown that reducing information barriers in job search can contribute to levelling the playing field for job applicants at an initial disadvantage. This may provide a rationale for governments to facilitate information exchange. In general, this type of labour market policy could improve social mobility by increasing the labour market integration of disadvantaged groups. This could also help to reduce the barriers to mobility across segmented labour markets. Policies that promote market integration can thus diminish the room for practices reproducing segmentation and inequality, such as network effects, nepotism, and discrimination.

Finally, we have shown that biased expectations about the returns to education can also lead to a differential outcome for disadvantaged students. Families make decisions on educational investments based on what they perceive to be the benefits to human capital. These perceptions may be inaccurate, particularly among low-income parents, causing people to under-invest in education. Economists and psychologists have made substantial progress in understanding how people of varying socioeconomic backgrounds form expectations and make decisions. Poorer families may be more likely to form biased beliefs because of limited access to accurate information from personal experience or from the fewer more highly educated acquaintances who can serve as examples. More generally, different experiences and exposure to different social patterns can have long-lasting effects on judgement and behaviour by shaping the way in which information is interpreted. A promising direction for future research is to test the

relative importance of informational frictions compared with credit and risk market failures. This has high policy relevance, as it may be possible to effectively influence information asymmetries and biased beliefs at a fraction of the cost of interventions offering financial assistance.

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3
Exploring Concepts of Social Mobility

Gary S. Fields

3.1 Introduction

Social mobility remains a topic of great interest—see, for example, the Opportunity Insights Project (e.g. Chetty et al. 2017), the OECD (2018), and the World Bank (2018). For the purposes of this book, 'social mobility' is defined as 'the ability to move from a lower to a higher level of education or occupational status, or from a lower to a higher social class or income group' (Chapter 1, this volume). Social mobility thus subsumes economic mobility in general and income mobility in particular as well as many other notions of status. For the project, 'social mobility . . . is the hope of economic development and the mantra of a good society'. I agree wholeheartedly.

The preceding paragraph talked about social mobility, economic mobility, income mobility, educational mobility, occupational mobility, and class mobility. To collect all of these ideas under a single term, I will simply refer to the variable of interest as income without quotation marks; when analysing something else such as education, occupation, labour market earnings, or wealth, we should feel free to use that terminology instead. Notationally, let us suppose that we have two values for the same individual; the initial value for individual i is denoted x^i and the final value y^i. The corresponding vectors for the economy/society as a whole are x and y in bold letters.

This chapter has two principal purposes. One is to define clearly different social mobility concepts and components. The concepts are origin-independence, positional movement, share movement, non-directional income movement, directional income movement, and mobility as an equalizer of longer-term incomes. The mobility components are upward and downward mobility, exchange mobility, growth mobility, transfer mobility, and dispersion change. For earlier work on these concepts, see, for example, Fields and Ok (1999a), Fields (2008), and Jäntti and Jenkins (2015). It is beyond the scope of this chapter to review all of the different measures of social mobility and their suitability for the various concepts and components.

The second main purpose of this chapter is to embed these concepts of social mobility and their components into a larger context of social mobility research. A typical social/economic mobility paper proceeds roughly like this:

1. 'Here is what I am calculating.'
2. 'When I calculate it, here is what I find.'
3. It often is left to the reader to infer what mobility concept the author had in mind.

An example goes like this: 'Here is my estimating equation, in which beta is the intergenerational elasticity. My empirical findings show that the intergenerational elasticity has been rising over time. Because the intergenerational elasticity is an inverse measure of social mobility, I conclude that social mobility has been falling.'

In such a statement, for the author and therefore for the reader, 'social mobility' is that which the intergenerational elasticity measures. This is unsatisfactory; authors have the responsibility of telling their readers what mobility concept they are studying. It is bad enough when an author has in mind the concept of origin-independence but fails to use that term. It is even worse when the author has in mind a different mobility concept—for example, the extent of upward income movements—but measures the intergenerational elasticity.

This chapter suggests a better way for analysts to address social and economic mobility. In essence, we need to proceed through several preliminaries—outcome of interest, context, and level of analysis—and then four steps—question, mobility concept(s), mobility measure(s), and empirical findings.[1]

My book *Distribution and Development* (Fields 2001) is laid out precisely according to these four steps: Chapter 1 gives the preliminaries, and then the next eight chapters examine four distributional variables of interest: inequality (Chapters 2 and 3), poverty (Chapters 4 and 5), income mobility (Chapters 6 and 7), and economic well-being (Chapters 8 and 9). Upon reading any pair of chapters, the reader learns what the concept is, how it is measured, and what we knew empirically at that time about how that variable changed in the course of the economic growth of developing countries for which we had data.

Moving from distributional analysis to mobility analysis, I freely admit that I have not always followed the preceding steps. I too am guilty of having written and talked about income mobility without being precise about which concept of mobility was being considered. When seminar participants would sometimes say to me 'But that is not what economic mobility is!', the reason they did is that my earliest work on this topic, written jointly with Efe Ok (see Fields and Ok 1996), did not state clearly enough that the concept of mobility that we were characterizing

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[1] The terms of reference for this chapter are to discuss *concepts* of mobility. For thorough reviews of empirical findings, see Jäntti and Jenkins (2015) and Iversen et al. (2019).

at that time was non-directional income movement, also known as income flux. Happily, we learned our lesson, so that in Fields and Ok (1999b) we distinguished flux from directional income movement, and in Fields et al. (2002) we distinguished these from positional movement, share movement, and origin-independence.

Before moving on, I would like to answer a question that has often been asked of me: Given all the options that follow in this chapter, which concept(s) is (are) most important? If I had to choose one concept to emphasize above all else, it would be directional income (or educational or occupational) mobility. And when analysing directional mobility, I would measure both the *rates* of upward and downward mobility and the *magnitudes* of the upward and downward movements. Moreover, if I were to add a second concept to highlight, it would be mobility as an equalizer or disequalizer of longer-term incomes relative to initial incomes. This is not to say that I would exclude all other concepts or measures of them, but these are the ones with which I would start. Let us proceed.

3.2 Getting started: preliminaries, points of agreement and disagreement, and terminology and notation

3.2.1 Preliminaries

Before we can analyse social mobility, we have a number of initial matters to address.

The social/economic variable(s) of interest
Variables of interest include total income, consumption, labour earnings, wealth, occupation, educational attainment, social class, and many others. As noted in the Introduction, we need a name for whichever variable or variables are under examination, or indeed the entire collection of them. I shall use 'outcomes' for the collection of such variables and 'income' for one of them.

Context: intragenerational or intergenerational?
The same concepts and methods apply in both the intragenerational and inter-generational contexts. All that is required here is for the author to insert a modifier: 'intragenerational mobility' or 'intergenerational mobility'. In the literature, this is often done.

Level of analysis: macromobility, macromobility components, or micromobility?
Macromobility analysis investigates the extent of *total* mobility in an economy— for example, how much directional income movement has taken place? The analysis of macromobility components, on the other hand, looks at *components*

of the total, such as upward mobility and downward mobility or structural mobility and exchange mobility.

Micromobility analysis is concerned with *which* people in the economy have experienced changes of what magnitude. For this purpose, people may be classified by initial income group, geographic location, gender, or anything else.

Note that a given mobility concept can be analysed at all three levels. For example: How much directional income mobility has there been in the economy as a whole? How does total directional income mobility break down into structural mobility components and exchange mobility components? Which individuals experienced more positive directional income changes than others—for example, those living in large cities (and which ones) or those living in small towns?

3.2.2 Points of agreement and disagreement

Mobility researchers actually agree on many things. We agree that social mobility is about the transformation of a vector of outcomes (denoted x) at one point in time to another vector (denoted y) at a later point in time (and possibly to yet other points in time as well). When all we have are cross-sectional data, we can analyse *structural change*—for example, the existence of more middle-income opportunities and fewer lower-income ones. But when we have panel data, we can also analyse *panel changes*—that is, the changes over time for each of the persons in x and y.

But where researchers disagree is what questions are interesting to ask and what methods are appropriate for answering them. Take, for example, the following questions. Does one country have more social mobility than another? Has social mobility been rising or falling over time? Who have more social mobility: men or women? The better-educated or the less-educated? Urban or rural residents? In which parts of the income distribution is social mobility the greatest? Does social mobility tend to make the distribution of lifetime income more equal?

The answers to these questions have been shown empirically to depend on how social mobility is conceptualized and measured; this literature includes works by Atkinson et al. (1992), OECD (1996, 1997), Checchi and Dardanoni (2003), Sologon (2010), Chetty et al. (2014a, 2014b, 2017), Jäntti and Jenkins (2015), and Bishop et al. (2019), just to name a few. To take the most recent example from this list, Bishop et al. (2019) found that the United States is more mobile than western Germany in terms of positional mobility but less mobile in terms of mobility as an equalizer of longer-term earnings relative to initial incomes, and that neither country always exhibits more directional mobility and income flux than the other. Such flips pervade the literature; they are the rule rather than the exception.

Part of the reason for these different answers is that different *indices* are being used to measure social mobility. These include the Pearson correlation coefficient,

the rank correlation coefficient, minus chi-squared, the quantile (quintile, decile, etc.) immobility ratio, determinant of the transition matrix, average jump in income rank, per-capita quantile movement, average absolute value of change in income share, average absolute value of change in per-capita incomes in logs or in dollars, average algebraic value of change in per-capita incomes in logs, Hart's mobility index, Maasoumi and Zandvakili's index, Shorrocks's mobility index, and Fields's equalization index, among others.

However, an even more fundamental reason for finding different empirical answers is that researchers are in fact measuring different social mobility *concepts*, often without being aware of it. Clarifying these concepts is what the rest of this chapter is about.

3.2.3 Terminology and notation

The social variable of interest is called income, which is a shorthand for any social/ economic variable that can be measured. When a variable is measured in currency units (dollars, euros, etc.), it is assumed to be adjusted for inflation. The recipient unit is called a 'person' or an 'individual', but the points made apply equally to households, per capita, adult equivalents, earners, or dynasties. Also, the concepts and components presented apply equally to the intergenerational and intragenerational contexts.

Assume that we are working with panel data such that the same persons' incomes are observed or reported twice, once in a base year and once in a final year. Let $x = (x^1, \ldots, x^n)$ denote a vector of initial year incomes among n persons, indexed without loss of generality in ascending order of initial incomes. Similarly, let $y = (y^1, \ldots, y^n)$ denote a vector of final-year incomes among these same persons, also in ascending order of initial incomes. We may picture x and y as being arrayed in an $n \times 2$ panel data matrix (or synonymously, a longitudinal data matrix) $D = (x', y')$.

For a given individual i, we may denote the transformation from x^i to y^i (equivalently, the ith row of D) as $x^i \rightarrow y^i$ and the social mobility associated with that particular person's transformation as $m^i(x^i, y^i)$. Similarly, for the economy as a whole, we may denote the transformation from x to y as $x \rightarrow y$ (equivalently, the entire D matrix) and the aggregate social mobility associated with this transformation as $m(x, y)$.[2]

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[2] It bears mention that an entire parallel literature uses a different kind of data: comparisons of anonymous cross-sections in an initial year and a final year. Suppose, for example, that the anonymous cross-sectional data (denoted superscript *a*) are arrayed into comparable groupings such as the mean incomes in each of ten income deciles in the initial year x^a and in the final year y^a. Denote the resultant

Sticking with analyses based on panel data *D*, research on the microeconomics of social mobility addresses changes that take place for given individuals in an intragenerational context or for a given family or dynasty (e.g. fathers and sons, mothers and daughters, parents and children) in an intergenerational context. Among the micro aspects analysed are changes in incomes in dollars or log-dollars, growth rates of incomes measured as exact percentage changes, absolute values of changes in incomes, changes in positions (quintiles, deciles, centiles, or ranks), and changes in income shares. None of these is obviously the right way to gauge how much social mobility an income recipient hamms experienced over time. All are relevant.

The various micro aspects do not agree in magnitude and may not agree even in direction. For example, a given individual may simultaneously experience a rise in real income and log-income, a fall in income share, and a positive, negative, or zero change in position. For this reason, researchers need to be careful to specify which aspect(s) of micromobility is (are) the object of study. Accordingly, the different micromobility aspects are distinguished at the micro level as follows: dollar changes by $x^i \rightarrow y^i$, log-income changes by $\ln(x^i) \rightarrow \ln(y^i)$, positional changes by $\pi(x^i) \rightarrow \pi(y^i)$, share changes by $s(x^i) \rightarrow s(y^i)$, and exact percentage changes by $\%\Delta^i = (y^i - x^i)/x^i$. The macro changes in these outcomes are defined analogously on x and y, respectively, and are denoted $m_{dir\ mvmt}$, $m_{pos\ mvmt}$, $m_{share\ mvmt}$, and m_{flux}.

The main task in the balance of this chapter is to help clarify the different concepts underlying $m^i(.)$ and $m(.)$. This conceptualization is linked to the axiomatic approaches to income mobility pioneered by Shorrocks (1978), Atkinson (1981), and Cowell (1985); for subsequent reviews of the axiomatic literature, see Shorrocks (1993), Fields and Ok (1999a), Jäntti and Jenkins (2015), and Cowell and Flachaire (2018). Mobility concepts and mobility components are treated in turn in the next two sections.

3.3 Six mobility concepts and their measures

Six mobility concepts are analysed here. The first, origin-independence, is one macromobility concept in common use. It asks the question, in the economy as a whole, how dependent is current income on past income? The next four—positional movement, share movement, income flux, and directional income movement—ask the question, how much economic movement has taken place,

anonymous data matrix by $D^a = (x^{a'} y^{a'})$. Most of what we read in scholarly works or hear in political campaigns about income changes for, say, the top 1 per cent or the bottom 40 per cent is based on anonymous data D^a and not panel data D. And standard growth incidence curves (GICs) (e.g. Ravallion and Chen 2003) are based on anonymous data D^a. Others (e.g. Bourguignon 2011; Grimm 2007), however, work with panel data D, dubbing their GICs 'non-anonymous'. I prefer to call them what they are (panel GICs) in preference to what they are not (non-anonymous GICs).

either for a single individual or for the entire economy? The sixth—mobility as an equalizer—asks, to what extent has the mobility that has taken place equalized longer-term incomes in the economy as a whole relative to initial incomes?[3]

For each concept, I present what is the *essence* of that concept, state what it means to have *no* mobility of that type and *more* mobility of that type, and give an *example* of an *index* that measures mobility of that type. (Note that researchers sometimes disagree about whether a particular index used to measure a particular mobility concept is or is not a good measure of that concept.)

3.3.1 Origin-independence

The *essence* of origin-independence is the extent to which final incomes are statistically independent of initial incomes. An economy exhibits *zero* origin-independence (equivalently, *perfect* origin-dependence) if y is perfectly determined by x—that is, if the transition matrix is an identity matrix or a reverse-identity matrix. There is *more* origin-independence (equivalently, *less* origin-independence) if y is determined to a lesser degree by x. There is *perfect* origin-independence if the conditional distribution of y given x is the same as the unconditional distribution of y, that is, $f(y|x) = f(y)$. One *measure of origin-independence* is obtained by constructing a two-period transition matrix and calculating chi-squared. Denoting the expected frequencies under origin-independence by EXP_{ij} and the observed frequencies by OBS_{ij}, the standard (Pearson) chi-squared statistic is calculated as:

$$\chi^2 = \sum_i \sum_j \frac{(OBS_{ij} - EXP_{ij})^2}{EXP_{ij}}.$$

The chi-squared statistic is highest the further the economy is from origin-independence, and in this sense chi-squared measures *immobility*; to make it a measure of *mobility*, minus chi-squared is used.

Note that the ordinary Pearson correlation coefficient is also used as an (inverse) index of origin-independence. But because the correlation between two vectors of incomes is the same as the correlation between two vectors of income shares, this same index can also be used to measure the origin-independence of shares.

In the intergenerational mobility context, it is common to regress the logarithm of the child's income on the logarithm of the parent's income and take the

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[3] The four aggregate movement concepts $m_{dir\ mvmt}$, $m_{pos\ mvmt}$, $m_{share\ mvmt}$, and m_{flux} are individual movements based in the sense that $m^i(.)$ is a perfectly sensible notion for those concepts. The other two, though, are not: individual i does not have his/her own origin-independence or mobility as an equalizer.

resulting β as an (inverse) index of intergenerational mobility. In the case where parents' and children's incomes have about the same variance of logarithms, β approximates the correlation between children's and parents' log-incomes. Otherwise, β and R^2 can give very different impressions (Solon 2002), because they actually measure different things. Introductory econometrics teaches us that β measures how much higher is the dependent variable (in this case, the income for the child) for each one unit increase in the independent variable (in this case, the income of the parent) across the individuals in the sample, while R^2 measures the extent to which information on the independent variable (the income of the parent) enables us to determine the value of the dependent variable (the income of the child). The differences are depicted in Figures 3.1 and 3.2. In our writings and presentations, we would do well to use their proper names: regression coefficient and coefficient of determination, respectively.

3.3.2 Positional movement

The *essence* of positional movement is the extent to which persons change positions (quintile, decile, centile, or rank) within a distribution. Denoting the
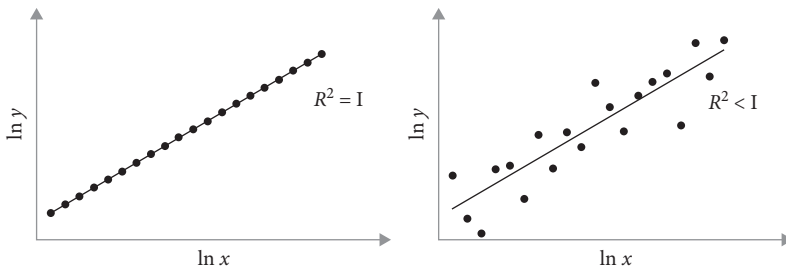

**Figure 3.1** Same βs, different R^2s
Source: author's illustration.
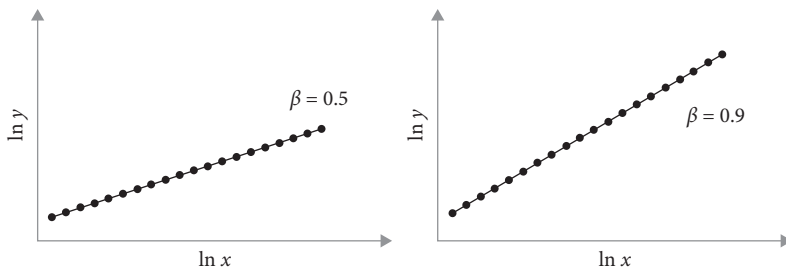
Figure 3.2 Same R^2s, different βs
Source: author's illustration.

ith person's position in the x distribution by $\pi(x^i)$ and in the y distribution by $\pi(y^i)$, *zero* positional movement arises in an economy if and only if everyone's position in the income distribution remains the same, that is, $\pi(x^i) = \pi(y^i) \; \forall i, i = 1, \ldots, n$. *More* positional movement takes place when the non-directed distances between $\pi(x^i)$ and $\pi(y^i)$, $i = 1, \ldots, n$, increase. One *measure of total positional movement* in an economy is the average absolute value of positional changes: $m_{pos \; mvmt} = (1/n)\Sigma|\pi(y^i){-}\pi(x^i)|$.

3.3.3 Share movement

The *essence* of share movement is that individuals' shares of total income may change, whether or not their incomes do. There is *zero* share movement in the economy if and only if everybody has the same *share* of total income in y as in x— that is, letting $s(x^i) \equiv x^i/\Sigma x^i$ and likewise for $s(y^i)$, we have zero economy-wide share movement if and only if $s(x^i) = s(y^i) \; \forall i, i = 1, \ldots, n$. There is *more* share movement as the non-directed distances between $s(x^i)$ and $s(y^i)$ increase. An example of a *measure of total share movement* in an economy is the average absolute value of share changes: $m_{share \; mvmt} = (1/n)\Sigma|s(y^i){-}s(x^i)|$.

3.3.4 Income flux (also called non-directional income movement)

The *essence* of income flux is that it gauges the magnitudes of income fluctuations without regard to their direction. *Zero* income flux arises if and only if all incomes remain the same: $x^i = y^i \; \forall i, i = 1, \ldots, n$. An economy has *more* income flux when the non-directed distances between x^i and y^i, $i = 1, \ldots, n$, increase. An example of a *measure of total income flux* in an economy is the average of the absolute values of income changes: $m_{flux} = (1/n)\Sigma|y^i{-}x^i|$.

3.3.5 Directional income movement

The *essence* of directional income movement is that it is concerned with the extent to which incomes are rising or falling.[4] An economy has *zero* directional income movement if and only if all incomes remain the same: $x^i = y^i \; \forall i, i = 1, \ldots, n$. There is *more* directional income movement in an economy when the directed distances between x^i and y^i, $i = 1, \ldots, n$, increase. Examples of *measures of total directional*

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[4] It is worth noting that poverty dynamics—moving into or out of poverty or both—is a particular kind of directional income movement.

income movement in an economy are the average of the income changes in dollars, $m_{dir\ mvmt} = (1/n)\Sigma(y^i{-}x^i)$, and in log-dollars, $m'_{dir\ mvmt} = (1/n)\Sigma(\ln(y^i){-}\ln(x^i))$.[5]

3.3.6 Mobility as an equalizer of longer-term incomes relative to single-year incomes

The *essence* of mobility as an equalizer is whether and to what extent the income changes that take place makes the distribution of longer-term incomes more equal relative to a reference distribution or to reference distributions of income. For Shorrocks (1978), the reference is a *weighted average* of the inequalities of single-year incomes in the several periods for which incomes are observed for panel individuals. For Fields (2010), on the other hand, the reference is inequality in the distribution of *initial incomes*, as is the usual reference distribution for changes in economic magnitudes over time. For the Fields case, letting I be a vector of longer-term incomes and $I(.)$ an inequality measure, *zero equalization* of longer-term incomes relative to initial incomes arises if and only if $I(l) = I(x)$. There is *more equalization* of longer-term incomes relative to initial incomes if $I(l){<}I(x)$ and the smaller (i.e. more negative) is $I(l)$ relative to $I(x)$. Analogously, there is *more disequalization* of longer-term incomes relative to initial incomes if $I(l){>}I(x)$ and the larger is $I(l)$ relative to $I(x)$. An example of a *measure of mobility as an equalizer of longer-term incomes relative to initial incomes* is $m_{equalizer} = 1{-}(I(l)/I(x))$, and the inequality measure $I(.)$ used is the Gini coefficient.

3.4 Macromobility components and their measures

In addition to the six mobility concepts presented in the last section, the literature also distinguishes a similar number of mobility components. These are components in the sense that a mobility concept can be conceived of as being the combination of two or more components plus possibly a residual—for example, directional income movement as comprising upward mobility and downward mobility. For each component, I present what is the *essence* of that component, state what it means to have *no* mobility of that type and *more* mobility of that type, and give an *example* of an *index* that measures mobility of that type.

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[5] Of the various measures presented in this section, these are perhaps the most problematical.

3.4.1 Upward, downward, and zero mobility

The *essence* of upward, downward, and zero mobility is that each recipient experiences a change in one of these directions for each mobility concept. These changes need not be in the same direction for the different concepts—for example, a given recipient may have upward income movement, downward share movement, and zero positional change. There is *zero* upward and downward mobility if all incomes are unchanged, that is, $x^i = y^i \; \forall i, i = 1, \ldots, n$. There is *more upward mobility* if more people move up and/or if they move up by more, and analogously for downward mobility and zero mobility. An example of a *measure of total upward mobility* is $m_{upward \; mob} = (1/n)\Sigma_{winners}(y^i-x^i)$; the corresponding *measure of total downward mobility* is $m_{downward \; mob} = (1/n)\Sigma_{losers}(x^i-y^i)$.

3.4.2 Structural mobility

The *essence* of structural mobility is that the income vectors change from initial year to final year but the income recipients are treated anonymously within the two distributions. As before, let x denote the vector of initial incomes ordered without loss of generality from lowest to highest initial income, and let y^c denote the vector of final incomes ordered from lowest to highest final income. This is a counterfactual, hence the superscript c, in the sense that the rows of the $D^c = (x, y^c)$ data matrix are not the initial and final incomes of the individuals in question, but rather of the *positions* in question. There is *zero* structural mobility if and only if the elements of the x and y^c vectors are the same, that is, $x^i = y^{ci} \; \forall i, i = 1, \ldots, n$. There is *more* structural mobility the greater the non-directed distances are between x^i and y^{ci}, $i = 1, \ldots, n$. An example of an *index of total structural mobility* is the average absolute value of the differences between x^i and y^{ci}: $m_{structural \; mob} = (1/n)\Sigma|y^{ci}-x^i|$.

3.4.3 Exchange mobility

The *essence* of exchange mobility is that income recipients change places within a structure in which all income amounts are held constant but the final distribution is permuted to preserve the initial order. We have *zero* exchange mobility if and only if the vector of final incomes arrayed in ascending order of initial incomes y^c is identical to the vector of final incomes arrayed in ascending order of final incomes y, that is, $y^{ci} = y^i \; \forall i, i = 1, \ldots, n$. We have *more* exchange mobility the greater the non-directed distances are between y^{ci} and y^i, $i = 1, \ldots, n$. An example

of an *index of total exchange mobility* is the average absolute value of the differences between y^{ci} and y^i: $m_{exchange\ mob} = (1/n)\Sigma|y^{ci}-y^i|$.

3.4.4 Growth mobility

The *essence* of growth mobility is that the incomes of the panel people may change because the economy gets richer (or poorer). *Zero* growth mobility takes place if and only if total income remains the same, that is, $\Sigma x^i = \Sigma y^i$. *More* growth mobility takes place as Σy^i increases relative to Σx^i. An example of an *index of total growth mobility* is the average income gain or loss $m_{growth\ mob} = (1/n)\Sigma(y^i-x^i)$.

3.4.5 Transfer mobility

The *essence* of transfer mobility is that after allowing for the economy to have grown or contracted, there may remain income gains or losses due to transfers between winners and losers. *Zero* transfer mobility arises (i) in the case of economic growth when there are only winners, no losers, and (ii) in the case of economic decline when there are only losers, no winners. *More* transfer mobility occurs in times of economic growth (decline) when, among the losers (winners), the directed distances between initial and final incomes increase. An example of a *measure of total transfer mobility in the case of economic growth* is the average amount lost by the losers: $m_{transfer\ mob} = (1/n)\Sigma_{losers}(x^i-y^i)$, while in the case of economic decline, the corresponding index is the average amount gained by the winners: $m_{transfer\ mob} = (1/n)\Sigma_{winners}(y^i-x^i)$.

3.4.6 Dispersion change

A last component is, strictly speaking, not a mobility measure, but because it is sometimes used in decompositions, I include it here. The component is dispersion change. The *essence* of dispersion change is that the distribution of income among anonymous individuals may become more or less equal. Letting $s(x^\pi)$ and $s(y^\pi)$ denote the income share of the anonymous person in the πth position of the income distribution, *zero* dispersion change takes place if and only if all anonymous income shares stay the same—that is, the Lorenz curve remains unchanged. *More* dispersion change takes place the larger the change in anonymous shares. An example of an *index of total dispersion change* is the anonymous analogue of the panel measure of share movement: $m_{dispersion\ change} = (1/n)\Sigma|s(y^\pi)-s(x^\pi)|$.

3.5 Remarks on mobility concepts

3.5.1 Social mobility and economic growth

As used in this chapter, 'social mobility' entails the total change in an outcome variable. Occasionally, an analyst will say that social mobility is that which is left after economic growth is taken out.[6] Such usage seems to be more common among sociologists than among economists, it differs from what I just presented (I am an economist), and I disagree with it precisely because economic growth may be an important factor leading to upward social mobility. I have brought it up here for the sake of completeness.

3.5.2 On decomposability

The previous sections distinguished between movement-based mobility concepts and others. For the four movement-based concepts—positional mobility, share mobility, income flux, and directional income movement—it makes sense to think in terms of the amount of movement experienced by an individual income recipient. But the other two concepts—mobility as origin-independence and mobility as an equalizer of longer-term incomes relative to initial incomes—are not defined on individuals; instead, they are defined on all individuals or groups of individuals.

As can be seen from a quick glance at the formulas in Sections 3.3.2–3.3.4, the specific measures presented for each of these four concepts are in fact subgroup decomposable, indeed additively decomposable. For a review of such measures, see Bárcena-Martín and Cantó (2019).

What about the components defined in Section 3.4? Of course, many mobility concepts are exactly decomposable into upward mobility and downward mobility components. As for structural and exchange components, some studies present decompositions of a particular index into these two components (e.g. Van Kerm 2004). There are other decompositions as well; see Jäntti and Jenkins (2015) for a review. However, for decompositions other than breaking down the total into upward and downward components, (i) one component is well-specified while the other component is a residual, and (ii) the contribution of each component to total mobility depends on the order in which the components are introduced.

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[6] See, for example, Torche (this volume). Writing in the context of educational mobility, Torche states: 'Two types of mobility provide complementary information: Absolute mobility captures total observed change in educational attainment across generations. . . . Relative mobility, in turn, captures the association between parents' and children's education net of any change in distribution of schooling across generations.'

This does not mean, however, that an exact decomposition of a mobility measure is impossible. To the contrary, Fields and Ok (1996, 1999b) have shown that two indices of income flux, $m_{flux} = (1/n)\Sigma|y^i-x^i|$ and $m^*_{flux} = (1/n)\Sigma|\log y^i-\log x^i|$, are exactly decomposable into growth mobility and transfer mobility components: in a growing economy, $m_{flux} = \frac{1}{n}\sum|y_i - x_i| + \frac{2}{n}\sum_{losers}(x^i - y^i)$ and analogously for m^*_{flux}, with equivalent expressions for a shrinking economy.

Do there exist decompositions other than the upward–downward decomposition and the Fields–Ok decomposition of m_{flux} and m^*_{flux} without residuals and without order mattering? This is a frontier question, the answer to which remains to be discovered.

3.5.3 Comparison with some of the major papers in the mobility literature

Among the most important papers in the social and economic mobility literature, one finds that a wide variety of concepts and components have been analysed.

Shorrocks (1978) proposed a mobility index, which in the two-period context is $m_{Shorrocks} = 1-(I(l)/(w_xI(x)+w_yI(y)))$, where, as above, l (long-term income) is calculated as the average of initial and final year income and $I(.)$ is an inequality index such as the Gini coefficient. As can be seen from the formula, Shorrocks' index measures the inequality of longer-term incomes relative to a *weighted average of initial and final incomes*, a different concept from Fields' notion of mobility as an equalizer of longer-term incomes relative to *initial incomes*.

Atkinson (1981) and Atkinson and Bourguignon (1982) analysed diagonalizing switches in the domain of bistochastic transition matrices. By construction, a bistochastic transition matrix keeps the initial and final-year distributions equal to one another, as would be the case when analysing movements among, for example, income quintiles, which requires that 20 per cent of the income recipients be in each quintile in both the initial and final-year distributions. By construction, no structural change is permitted. It follows that their analysis is applicable to the positional movement concept and the transfer mobility component but not to any of the others—in particular, directional income movement and income flux.

Chakravarty et al. (1985) proposed an ethical mobility index $m_{CDW} = (E(y_{agg})/E(x))-1$, where x is the initial income vector, y_{agg} is the vector of aggregate incomes over two or more periods, and $E(.)$ is an equality index. The Chakravarty–Dutta–Weymark (CDW) index takes on positive (negative) values when aggregate incomes are distributed more (less) equally than initial incomes. In welfare terms, they write: 'Socially desirable mobility is associated with income structures having positive index values while socially undesirable mobility is associated with income structures having negative index values' (Chakravarty et al. 1985: 8). In my

view, this is a reasonable way of passing judgement on the transfer mobility component. On the other hand, the CDW approach entirely ignores whether incomes have grown or contracted, and so I see it as too restrictive for general application.

To take one more example, Cowell (1985) develops measures of 'distributional change', a concept broad enough to include both income mobility and horizontal inequity but not specific to any particular income mobility concept. More recently, Cowell and Flachaire (2018) offer a careful presentation on 'measuring mobility'.

3.5.4 On relative and absolute mobility

The reader may have noticed that the terms 'relative mobility' and 'absolute mobility' have not been mentioned in this chapter. This omission is deliberate because these terms have many different meanings in the social mobility literature.

The term relative mobility has been used to mean any or all of the following:

- Strongly relative changes have taken place: $m(\lambda x, \alpha y) = m(x, y) \; \forall \lambda, \alpha > 0$.
- Weakly relative changes have taken place (also called scale invariance): $m(\lambda x, \lambda y) = m(x, y) \; \forall \lambda > 0$.
- Positional movements have taken place: $\pi(x_i) \neq \pi(y_i)$ for some i's.
- Changes in relative standing have taken place, for example, in the sense of share movements.
- An individual's mobility is a function of his/her growth rate of income as opposed to dollar changes.
- The object of interest is a comparison of the relative outcomes of children from different parental backgrounds (in an intergenerational context).

The term absolute mobility has also been used to mean many different things:

- There have been gains or losses in incomes measured in dollars (or euros or pounds) rather than measured in log-dollars or exact proportional changes.
- There have been gains or losses in dollars or growth rates rather than in income shares or positions.
- The absolute values of income changes are non-zero, and the absolute values of the changes are an object of interest.
- Translation invariant changes have taken place: $m(x+\alpha, y+\alpha) = m(x, y) \; \forall \alpha$.
- Children are found to do better (say, earning more) than their parents (in an intergenerational context).
- Upward income changes are to be valued positively and downward income changes negatively in and of themselves.

I confess to having used these terms in work in the 1990s with Efe Ok; I now wish we had not. As elsewhere in social science, when a term has more than one meaning within the same literature, the use of that term obfuscates more than it clarifies. Moving forward, I think it is best to drop the terms relative mobility and absolute mobility altogether.

3.5.5 Welfarist approaches, Markov chains, and pseudo-panels

Three strands of the economic mobility literature have not been mentioned in this chapter because they were not needed.

The first is the welfarist approach to deriving mobility measures, also called the ethical approach (Atkinson 1981). In this approach, mobility is first conceptualized in social welfare terms. Based on the specified social welfare properties, a mobility functional, class of indices, or single index is derived. As Atkinson (1981: 71) put it, 'Mobility is seen in terms of its implications rather than from a direct consideration of what is meant by mobility.' In this chapter, a different approach has been taken, namely, descriptive measurement, which is also called objective measurement. In the words of Dardanoni (1993: 374), the descriptive approach aims to 'construct summary immobility measures to capture the intuitive descriptive content of the notion [of mobility]'. This distinction in the mobility literature parallels the distinction in the inequality literature made by Sen (1973: 2) between (i) 'seeing' more or less inequality and (ii) 'valuing' inequality more or less in ethical terms. In both the welfarist and the descriptive approaches, the amount of economic mobility recorded presumably has welfare significance. What differentiates the two approaches is whether a social welfare function is required in order to determine the measure of how much economic mobility has occurred in the first place.

A second approach not taken in this chapter is the use of Markov chains. To measure the mobility concepts and components presented above, appropriate calculations can be made using the panel data directly. By contrast, the Markov chain approach multiplies an initial income vector by a transition matrix a large number of times in order to derive a steady-state vector, and it is the steady-state vector that is then the object of investigation. Such an indirect approach is simply not required for the purposes at hand.[7]

A third approach not taken here is the use of pseudo-panels, which are also called synthetic panels (e.g. Antman and McKenzie 2007; Bourguignon and Moreno 2018; Dang and Lanjouw 2018). Pseudo-panels attempt to fix measurement error in each year's income (cf. Deaton 1997; Bound et al. 2001) and/or to

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[7] Shorrocks (1976) and Atkinson et al. (1992) are among those who reported data showing that a first-order Markov chain is rejected in empirical data.

make dynamic statements in the absence of true panel data. However, in so doing, they lose whatever actual mobility takes place within cells. It is a judgement call, but for the analysis of economic and social mobility, I prefer to work with panels rather than pseudo-panels despite their respective limitations.

3.6 Conclusion

In this chapter, I have tried to clarify concepts of social mobility, their constituent components, and measures of each. I have tried as well to be prescriptive about how to embed these ideas in our research and writing.

In the literature, we find many concepts and components being analysed, all under the rubric of 'social and economic mobility'. A great many of these papers are insufficiently specific about which one or ones is under examination.

However, as I said at the beginning of this chapter, I myself used to do the same thing: talk about economic mobility without adding a modifier like directional income movement or whatever was being examined. The solution is straightforward: for authors *always* to use as many modifiers as are needed to clarify what is being studied and for readers and listeners (and editors) *always* to insist on such clarification.

Following these precepts, an abstract of one of my current papers might read something like this:

This is a study of intragenerational income mobility, using panel data from countries around the world to ask which income groups experienced the largest directional changes in dollars and in percentages. We find in the panel data that in the great majority of countries, those individuals who gained the most in dollars and in percentages were those who started *lowest* in the initial year's income distribution; those who started highest in the distribution had the largest *losses* in dollars and in percentages.

Does this abstract make sufficiently clear which mobility concept is being examined and what the empirical work is about? And parenthetically, did it pique your interest in reading about it?

To summarize the main points, I offer a checklist of things for all of us to do:

- Specify the social/economic outcome(s) of interest: examples are total income, labour earnings, consumption, wealth, occupation, social class, etc.
- Specify the context: intergenerational or intragenerational.
- Specify the level of analysis: these include macromobility concepts, macromobility components, and micromobility patterns.

- Specify the question(s) under investigation, for example: 'What is the time path of various measures of economy-wide income mobility in country X?'
- Specify the mobility concept(s) being examined: origin-independence, directional income movement, income flux, share movement, positional movement, and/or mobility as an equalizer of longer-term incomes.
- Specify the sub-components, if any, being examined: upward and downward movement, structural mobility, exchange mobility, growth mobility, transfer mobility, and dispersion change.
- Specify one or more indices of the chosen mobility concept(s).
- Choose a dataset that measures the variables of interest.
- Combine all of the preceding to answer a question such as: 'What has been happening to economy-wide intragenerational upward income movement and downward income movement over time in country X?'
- Be as rhetorically precise as possible in stating conclusions, for example: 'More people are moving up more dollars and fewer people are moving down now in country X than was the case before.'
- And finally, avoid using the terms mobility, absolute mobility, and relative mobility without modifiers or definitions.

Readers and listeners should not have to work so hard to be able to figure out which mobility concept or component an author or speaker is talking about. It can only be good for the advancement of social science for us to stop talking past one another.

Acknowledgements

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4

Social Mobility in Developing Countries

Measurement and Downward Mobility Pitfalls

Vegard Iversen

4.1 Introduction

Findings from intergenerational mobility research are typically sensitive to whether income, educational, or occupational mobility is considered and to the concept or measure of mobility used (Fields 2008). As Torche (2014) remarks, social mobility research on Latin America and other low-income contexts has typically—and often uncritically—relied on a mere transfer of the methodological templates and approaches used for the study of industrialized country settings. Unlike poverty and inequality measurement, which has been the subject of extensive scholarly scrutiny (e.g. Atkinson 1970; Cowell 1980; Foster et al. 1984; Shorrocks and Foster 1987), the properties of social mobility measures and how adequately they perform when applied to the study of developing country settings remain comparatively unchartered research terrain.

The questions this knowledge gap raises include whether developing country settings are sufficiently different to warrant (a) a rethink of the axiomatic and other properties a social mobility measure ought to possess, along with (b) a careful examination of whether the social mobility measures used in the study of developing countries to date have properties or satisfy axioms that appear *essential*. Answering (a) and (b) requires clarity and, ideally a cataloguing of the strengths and limitations of the pool of candidate measures. Such cataloguing can guide scholars, strengthen research practice, and ultimately improve the quality of policy advice. The purpose of this chapter is to provide direction and make some progress on each of these fronts.

The chapter begins by pointing to a similarity between the empirical and the axiomatic literature on social mobility: the focus on estimation bias in the former and a set of desirable mathematical properties in the latter: less attention has been paid to whether and how features of low-income settings may interfere with estimation or can usefully inform deliberations about essential properties. This is followed by brief, selective, and nontechnical reviews of the relevant branches of the literature.

Fields (2008) distinguishes between two broad and alternative approaches to axiomization: the social welfare-based approach (e.g. Atkinson 1980; Chakravarty et al. 1985) and the descriptive approach (e.g. Fields and Ok 1996, 1999). The descriptive approach can be understood to involve, as Cowell (2016) puts it, the setting out and defending, on a priori grounds, a minimal set of properties a measure of social mobility ought to possess. As suggested below, the descriptive approach can also provide a useful reference point for reflections about other, relevant properties.

For a descriptive approach, (a) can be answered, first, by assessing the completeness of the axioms that have been proposed and, then, by reflecting on and identifying other essential properties a measure of intergenerational mobility ought to possess. Unlike the literature to date, these reflections will be guided by examples from a nationally representative dataset from India. An option for answering (b) would be to run through the gamut of social mobility measures. The more selective and pragmatic route taken in this chapter will be informed, instead, by a measure's perceived relevance as captured by its prevalence in empirical applications using developing country datasets to date.

Following condensed and selective reviews of the econometric, the axiomatic, and other literature addressing properties in Section 4.2, Section 4.3 uses three of the six concepts of mobility considered by Fields (2008)—relative, share, and flux mobility—to illustrate how properties that appear innocuous when studying industrial countries may turn problematic in the analysis of developing country settings. Section 4.4 then asks whether a fourth concept of mobility, origin-independence (see Fields this volume), with measures that are the most widely used for researching developing countries to date, embodies similar frailties.[1] After demonstrating and confirming these frailties, we follow Emran and Shilpi (this volume) and discuss alternative and potentially more robust mobility measures.

4.2 Econometric, axiomatic, and other approaches: a brief review

As discussed by Emran and Shilpi (this volume), a large body of economics research has been concerned with estimation and with the *econometric* challenges encountered in the analysis of intergenerational income or earnings mobility (Solon 1999; Black and Devereux 2011; Mogstad and Torsvik 2021).[2] The intergenerational

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[1] These origin-independence measures are known as variants of the Hart measure in the axiomatic literature (Shorrocks 1993) and as the intergenerational regression coefficient (IGRC) and the intergenerational correlation coefficient (IGC) (e.g. Emran et al. 2018; Emran and Shilpi this volume Azam 2015) in the econometric literature.

[2] The econometric and axiomatic literatures have mainly focused on income mobility.

income elasticity (IGE) is the standard summary measure in studies and comparisons of intergenerational mobility in the United States, Western Europe, and other parts of the industrialized world. In its simplest form,

$$lny_2 = \beta_0 + \beta_1 lny_1 + u_i, \tag{4.1}$$

where y_1 and y_2 represent parental and offspring earnings (typically for father–son pairs) and β_1 is the IGE. The sensitivity of IGE estimates to measurement errors in parental earnings or income and the attenuation bias this results in, has been widely discussed (Solon 1999; Black and Devereux 2011; Emran and Shilpi, this volume), with the main revision to past practice being to replace single with multiple and sequential earning observations to improve proxies for 'permanent income'.[3] Although data limitations, the prevalence of household-based agricultural production, informality, and other contextual features make income-based analysis of intergenerational mobility in low-income settings a much harder task, not enough effort has been devoted to discerning whether and how developing country ground realities may interfere with estimation.[4]

A similar argument extends to discussions of essential properties—addressed mainly in the axiomatic literature—which, drawing on the literature on inequality, has focused on core mathematical properties of measures of (income) mobility, with limited attention to whether developing country contexts may affect and should inform deliberation efforts.

In his discussion of the Hart index, Shorrocks's (1993) starting point is the Galtonian model, which is given by:

$$lny_{t+1} = \alpha_t + \beta_t lny_t + \epsilon_{t+1}. \tag{4.2}$$

It is evident that when $t = 1$, and t_1 and t_2 denote Generation 1 and 2, β_t mirrors the IGE in Equation (4.1). In his forensic examination and comparison of the Hart index[5] with the Shorrocks and the Maasoumi–Zandvakili indices, Shorrocks (1993) focuses on income and the generically desirable properties of a social mobility index: the discussion of desired properties is informed by similar deliberations on inequality indices and includes, for example, universal domain,

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[3] To illustrate the demanding threshold this sets, consider Corak et al.'s (2014) comparison of Canada, the United States, and Sweden which is based on 30-year earnings data for Swedish and five-year earnings data for Canadian fathers. Such data are simply not available for developing countries. Notice, also, that Chetty et al. (2014) found limited IGE estimate sensitivity to the number of years used to measure income.

[4] See Iversen et al. (2019) for a more detailed discussion. An important exception, discussed later, is Emran et al.'s (2018) analysis of the estimation bias resulting from samples restricted to co-resident parent–offspring pairs in developing country datasets.

[5] A suitable index, according to Shorrocks (1993), should be defined on the [0,1] interval, with 0 capturing complete immobility and 1 perfect mobility. While this interval works well for inequality and may appear attractive on first sight, the presence of downward mobility makes the 0 to 1 interval feasible, but less straightforward for a mobility measure (index).

continuity (in incomes),[6] population, and time symmetry and normalization, but also clarity about the conditions under which an income or other structure A will have more mobility than an alternative structure B. The discussion also touches on an analogue of the Pigou–Dalton condition for mobility analysis.

Of the 12 axioms considered, the Hart measure is found to embody nine. This does not, as Shorrocks (1993) is careful to point out, imply an endorsement of the Hart measure since no attempt was made to classify axioms as essential or to rank the axioms in order of importance. A key insight, nevertheless, is that the axiomatic properties of what Fields (this volume) denotes as measures of origin-independence are well-known and seemingly adequate.

While Shorrocks (1978, 1993) and other contributions use a parsimonious approach, the remainder of this chapter will borrow the simple and intuitive two-period framework proposed by Fields and Ok (1999) and Fields (2008) to highlight some of the systematic challenges developing country contexts confront social mobility researchers with. Their starting point is population distribution vectors $\mathbf{x} = (x_1, x_2, \ldots x_n)$ and $\mathbf{y} = (y_1, y_2, \ldots y_n)$, where the same units are followed over time and where Period 1 or, as interpreted here, Generation 1 units, are ordered from lowest to highest: while Fields and Ok (1999) focus on income, the variable of interest could also be occupational or educational attainment. A mobility measure that captures the transformation from Generation 1 to Generation 2 can then be generally represented by $m(x,y)$.

This framework facilitates simple intergenerational mobility illustrations and provides a first response to whether developing country contexts are sufficiently different.

4.3 Mobility concepts and properties: relative, share, and flux mobility

Here, relative,[7] share, and flux mobility are considered: inspired by Fields (2008), examples I–III can now be interpreted as alternative intergenerational mobility profiles:

I: (1,2)–(1,2)
II: (1,2)–(2,4)
III: (2,4)–(4,8)

To add an important developing country contextual feature, suppose that 1.5 represents the poverty line. Following Fields (2008), weak relativity can be defined

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[6] There are obvious differences between income and earnings, which are continuous variables, and the categorical variables used in occupational mobility studies, for example.

[7] As Fields (this volume) makes clear, relative mobility has a variety of possible interpretations and uses.

by $m(\lambda x, \lambda y) = m(x,y)$ for all $\lambda > 0$. Further, and for share mobility, Generation 1 shares for Units 1 and 2 will be given by:

$$s_{11} = \frac{x_1}{x_1 + x_2}$$

and

$$s_{21} = \frac{x_2}{x_1 + x_2}.$$

Finally, flux mobility can be represented as the sum of the absolute values of changes (or fluctuations) from Generation 1 to Generation 2.

For weak relativity, III = II>I, with no difference between III and II, in spite of Unit 1's poverty escape in II. For share mobility (here $s_{11} \neq s_{21}$), I–III all represent zero mobility profiles. Notice that share mobility can occur without changes in ranks: weak relative mobility can also occur without a rank change and through a narrowing of the gap. For flux, which captures the sum of absolute changes, III>II>I, since 6>3>0.

For sharper insights, consider the following intergenerational mobility profiles:

IV: (2,4)–(2,4)
V: (2,4)–(1,2)
VI: (4,8)–(2,4)

Share mobility delivers a similar zero mobility verdict. For weak relative mobility, V and VI are identical in spite of Unit 1's poverty descent in V. There are three important insights. First, and when comparing IV–VI for a developing country setting, profile IV, with rigidity and complete immobility, is most favourable, in spite of the weak relative and share verdicts and the higher flux in V and especially in VI.[8] Rigidity, if secured by resilience to adverse downward mobility, can thus be a favourable outcome and may result e.g. from an effective social security system.

Second, if poverty escapes and descents are perceived as major mobility achievements or setbacks, relative and share mobility concepts (and measures) null out and will fail to register that 50 per cent of the population escapes poverty in II and descends into poverty in V. A zero mobility verdict can thus be elusive. Flux, in the manner interpreted here, does not distinguish between upward and downward movement and will thus be indifferent between 50 per cent of the population descending into poverty and 50 per cent of the population escaping poverty.

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[8] Fields (2008) and Genicot and Ray (2012) argue similarly: the former distinguishes between directional and nondirectional movement while the latter underscore the lack of ethical considerations in the equivalent of a flux-based indicator of income mobility.

Third, these examples touch on the direction of movement and the fact that some concepts and measures may be described as direction neutral: a direction neutrality property may work in some parts of a distribution but become problematic when downward mobility includes descents into destitution.[9]

4.3.1 Direction neutrality and levels: the problem of destitution

To close in on the relevance of direction neutrality, consider the following profiles:

VII: (3,4)–(3,3)
VIII: (1,2)–(1,1)

where we think of VII and VIII as representing occupational mobility in an industrial and a developing country setting, respectively: as for income, 1 represents the lowest occupational category.

For weak relative and share mobility, the offspring generation will be relatively better positioned than the parent generation for Pair 1 and relatively worse for Pair 2, in both VII and VIII. For flux mobility, VII and VIII are identical. It is also evident that weak relative and share mobility may register a mobility increase when all mobility events are poverty descents. As in the above examples, and a key point to note, the welfare ranking of rigidity and zero mobility, on the one hand and mobility increases, on the other, is not straightforward.

In an industrial country setting, VII could represent a situation of genuine offspring autonomy where the observed downward mobility captures a desirable feature of mobility or fluidity in society.

Instead, if we compare VII and IX, where IX is represented by:

IX: (3,4)–(3,5),

valuing offspring autonomy makes it harder to claim that IX represents an improvement over VII. For flux, VII and IX are identical. An implicit and unstated direction neutrality property appears reasonable and possibly even desirable in an industrial country setting.

Returning to the absolute and directional changes in VII and VIII, and while directions and flux are identical, it is much harder to claim that the occupational descent in VIII represents individual autonomy in the manner it might in VII. These simple examples illustrate that while it may be desirable for a mobility measure to embody a direction neutrality property in an industrial country

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[9] It is evident that the onset of destitution in the analysis of occupational or educational mobility will be more fuzzy than the threshold in expenditure or income-based analysis using a poverty line.

setting, mobility measures embodying variants of this property may perform less well in a low-income setting (VII).

To further progress and shift the focus from stylized examples to the properties of the measures that have been most widely used in studies of intergenerational mobility in developing countries, the empirical literature will now be briefly reviewed.

4.4 Intergenerational mobility in the Global South: a condensed review of the empirical literature

While empirical research on social mobility covering developing countries has gained momentum, the increasingly exacting income and earnings data standards set by research covering industrial countries have compelled most scholars working on developing country data to restrict their analysis to educational or occupational mobility.[10]

4.4.1 Origin-independence (persistence) measures of intergenerational mobility

The bulk of research on developing countries has opted for one of the two pragmatic and favoured variants of Equation (4.1), which are firstly:

$$Y_1 = \beta_0 + \beta_1 Y_0 + u_i, \tag{4.3}$$

where β_1 is the intergenerational regression coefficient (IGRC) and Y_0 and Y_1 capture parental and offspring educational or occupational attainments measured in levels.[11] The second variant, the intergenerational correlation coefficient (IGC), is given by:

$$\rho = \beta_1 \left(\frac{\sigma_0}{\sigma_1}\right), \tag{4.4}$$

where σ_0 and σ_1 are the standard deviations of education or occupational attainments in the parent and the child generation, respectively. Equations (4.3) and (4.4) overlap in the unlikely case of identical attainment dispersions in parent and

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[10] Exceptions include the wage convergence analysis in Hnatkovska et al. (2012) and the income analysis in Bevis and Barrett (2015).

[11] While most developing country research has used data on fathers and sons, some studies average parental educational attainments (Hertz et al. 2007) or report estimates for both daughters and sons (Emran and Shilpi 2015). It is customary in Equation (4.1) to add age controls for lifecycle variations in earnings (Solon 1999) and to estimate Equation (4.2) separately by birth cohort (e.g. Hertz et al. 2007; Azam and Bhatt 2015) in order to discern changes over time.

offspring generations. Note that a cross-sectional rise in educational inequality from one generation to the next will enhance the social mobility estimate, while a more compressed distribution of educational attainments in the child generation will have the opposite effect.

The main attraction of Equations (4.3) and (4.4) for developing country settings is that information about intergenerational educational or occupational attainment can be discerned from easy to implement retrospective questions in nationally representative household surveys. This ensures fewer and less severe quality and methodological concerns than data on earnings (Blanden 2013; Emran et al. 2018; Torche this volume). It is thus not a coincidence that studies of intergenerational mobility in Latin America have relied extensively on retrospective survey questions (Torche 2014: 625).

Hertz et al.'s (2007) comparative analysis of educational mobility uses data from 42 countries, including seven countries in Latin America, four in Africa, and 10 in Asia. They find particularly strong educational persistence in Latin America where the seven highest IGC estimates are concentrated: highest among these—and bottom in mobility terms—is Peru (0.66).

Emran and Shilpi (2015) study educational mobility among cohorts of young women and men in India and find progressively lower IGC estimates over time for women in urban areas and for individuals at the lower and upper rungs of the caste hierarchy. Between 1993 and 2006, the IGC for urban women declined from 0.593 to 0.508, which is interpreted to represent higher mobility and therefore encouraging. For the United States, Torche (2013) notes that the intergenerational status association for white men has typically been in the 0.30–0.45 range: for black men, associations are weaker and estimates less precise.

With respect to econometric challenges and axiomatic and other properties, the emerging literature has been particularly concerned with the former and with truncation and the sample selection bias that creeps in when analysing data restricted to father–son pairs who are co-habiting at the time of the survey: sons who have left their parental household to live nearby or for more distant migration are typically neither included nor traced.

As Azam and Bhatt's (2015) analysis using the India Human Development Survey I (IHDS-I) suggests, this co-residence restriction cuts feasible father–son comparisons dramatically, in their case by two-thirds. Emran et al. (2018), using two richer than usual datasets from Bangladesh and India, are able to pin down the estimation biases resulting from intergenerational information being available only for co-resident parent–offspring pairs. While IGRC-based analysis using co-resident data substantially inflates mobility estimates, the IGC bias is much less pronounced.[12]

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[12] For another example, focusing on estimate bias implications of the breakdown of the linearity assumption, see Cowell and Flachaire (2018).

There are also occasional caveats about how IGRC and IGC estimates should be interpreted (e.g. Hertz et al. 2007). A startling outlier in Hertz et al. (2007) is rural Ethiopia in 1994. Educational progress from a low base of 0.12 years of average parental schooling contributed to the country's top educational mobility ranking, as measured by the IGC, among the 42 countries in the sample: the 0.10 IGC value puts Ethiopia well ahead of 'high mobility' countries like Denmark (0.30) and Finland (0.33). Accordingly, and while a summary measure of social mobility can be immensely valuable (Blanden 2013), the measure also needs to deliver meaningful and consistent verdicts.

Another requirement must be that the circumstances under which the measure performs well and less well are clearly understood. The Ethiopia example points to the possibility that IGRC and IGC sensitivity and interpretational concerns may be more pronounced in low-income settings. Another challenge is the presence of ceiling effects (World Bank 2018).

Given the predominance of origin-independence (persistence) measures in the analyses of intergenerational mobility in developing countries to date, it is worth reiterating that the discussion of the axiomatic properties of the Hart measure in Shorrocks (1993) extends to the IGE: while IGC or IGRC are education (or occupation) based there will be overlaps for these, too. What is missing from the literature and considered next is whether these most widely used measures of intergenerational mobility suffer from the type of frailties discussed in Section 4.3.

4.5 Beyond axiomatic deliberation: the properties of origin-independence (persistence) measures

For the following examples, data on intergenerational occupational and educational mobility from the nationally representative India Human Development Survey II (IHDS-II, 2011–12) are used. The occupational mobility estimates are based on the six occupational categories in Iversen et al. (2017).[13] For the same father–son pairs, and to facilitate comparisons, six educational categories are introduced.[14]

Figure 4.1 reports equivalents of IGRC and IGC estimates for occupational and educational mobility for rural and urban India.

It is evident that the occupation and education mobility estimates are quite closely aligned, with coefficient values all in the 0.29–0.4 range. In rural areas, the

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[13] There are six occupational categories: (1) agricultural or other manual labourer, (2) lower status vocational occupations, (3) higher status vocational occupations, (4) farmers, (5) clerical and others, and (6) professionals.

[14] (1) no schooling, (2) 1–2 years of schooling, (3) 3–4 years of schooling, (4) 5–8 years of schooling (5) 9–12 years of schooling, and (6) above 12 years of schooling. Other categories may be preferable: this is just an example.
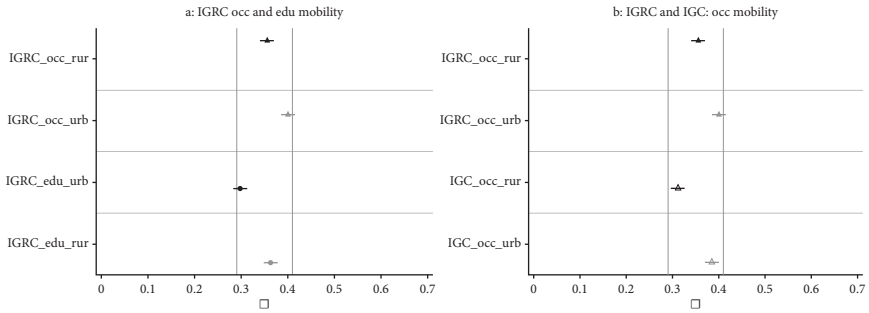
Figure 4.1 IGRC and IGC occupational and educational mobility estimates
Source: author's compilation based on the India Human Development Survey II (IHDS-II), 2011–12.

occupation and education IGRCs are effectively identical. Orthodoxly interpreted, these ordinary least square coefficient values are suggestive of high intergenerational mobility and resonate with recent empirical research (e.g. Jalan and Murgai 2008; Hnatkovska et al. 2012, 2013) where one message—for educational mobility—has been that India, compared with other countries, is doing better than expected (Jalan and Murgai 2008). The IGC occupational mobility estimates, included in Figure 4.1b, convey a similar impression.[15]

Turning, next, to the data, the *x*-axis variable in Figure 4.2 represents the difference between a son and father's occupational category for all father–son pairs: the histogram thus portrays the prevalence of absolute occupational persistence (the zero difference central bar) as well as the prevalence and order of magnitude of upward and downward mobility, separately for rural and urban areas for occupational and educational mobility.

Starting with rural occupational mobility and absolute persistence, the central bar shows that 45.8 per cent of rural sons 'inherit' their father's occupational category. It is also evident that downward mobility afflicts 33.7 per cent of father–son pairs and strongly dominates upward mobility (the remaining 20.6 per cent of the sample): put differently, downward mobility accounts for about 62 per cent of all rural mobility events. In the urban sample, absolute persistence is lower, with 35.4 per cent of sons in the same occupational category as their father. In stark contrast to rural areas, upward mobility dominates downward mobility: 38.7 per cent of urban sons are in a higher and 25.9 per cent of urban sons in a lower occupational category than their father. About 60 per cent of urban mobility events are thus ascents. In spite of these compelling contrasts, the IGRC and IGC coefficient values suggest either on par (IGRC) or greater mobility in rural India (IGC). For education, in Figure 4.2c and 4.2d, urban mobility is again higher with 23.4 per cent of sons in the same educational category as their father: the

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[15] The conclusion for educational mobility is similar.
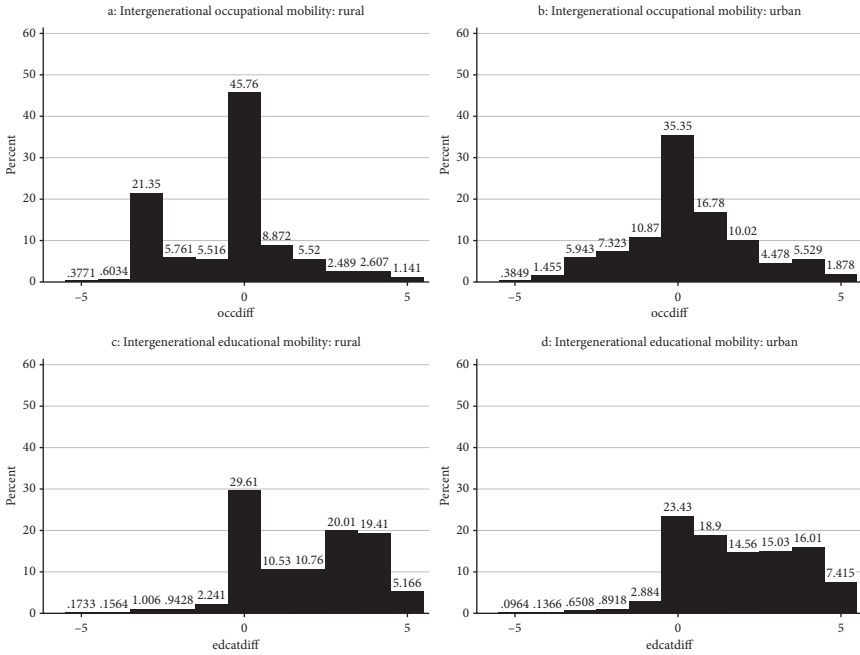
Figure 4.2 Absolute difference in the occupational and educational attainments of father–son pairs, by rural and urban location

Source: author's compilation based on IHDS-II, 2011–12.

corresponding figure for rural areas is 29.6 per cent. For education, the image of progress—consistent with, for example, Maitra and Sharma (2009) and irrespective of whether rural or urban areas are examined—is unambiguous and overwhelming: in rural and urban areas, 93.6 and 93.8 per cent of all intergenerational educational mobility events are ascents. There are, however, few signs of these stark contrasts in the IGRC and IGC estimates.

Table 4.1 summarizes these observations, disaggregated by type of mobility and by rural and urban. The first two rows report the intergenerational mobility ranking using IGRC and IGC coefficient values: the subsequent rows provide a summary for different mobility indicators along with a ranking to indicate consistency, or lack thereof, in the rankings suggested by the IGRC, the IGC, and each individual indicator.

Summarizing, Table 4.1 suggests (i) that educational mobility is unambiguously positive and associated with dramatically fewer setbacks than occupational mobility; and (ii) urban occupational mobility is more pronounced and associated with fewer setbacks than rural occupational mobility. Indeed, and whether total mobility, net mobility (downward mobility dominance captured by a negative sign),

Table 4.1 Intergenerational occupational and educational mobility in India

	Rural		Urban	
	Education	Occupation	Education	Occupation
IGC	1	2	3	3
IGRC	2	3	1	4
Father–son pairs with mobility (% of n)	70.5 (2)	54.2 (4)	76.6 (1)	64.6 (3)
Father–son pairs with ascents (% of n)	65.9 (2)	20.6 (4)	71.9 (1)	38.7 (3)
Father–son pairs with descents (%)	4.5 (1)	33.6 (4)	4.7 (1)	26.0 (3)
Net mobility (ascents–descents)	61.4 (2)	−13.0 (4)	67.2 (1)	12.7 (3)
Average ascent	2.97 (1)	2.13 (3)	2.7 (2)	2.11 (3)
Average descent	−1.91 (2)	−2.54 (4)	−1.64 (1)	−1.97 (2)

Source: author's compilation based on the India Human Development Survey-II (IHDS-II), 2011–12.

average ascents, or average descents are considered, the rankings across educational and occupational mobility consistently favour educational mobility.

Against this backdrop, educational mobility is captured seemingly well by the above measures, while the occupational mobility estimates are intriguing. The IGC, favoured for its robustness to co-residence truncation (Emran et al. 2018), is also vulnerable. The rural occupational mobility estimate is particularly problematic, suggesting more rural occupational mobility than urban occupational and educational mobility. To close in on the foundation of these inconsistencies, the discussion returns to mobility concepts and poverty descents.

An important insight from Section 4.3 is that a mobility concept (or measure) may register a poverty descent as increased mobility. While fluidity is regularly interpreted as a quality of an open society—over some ranges of a distribution as in the directional neutrality discussion above—descents into destitution can be interpreted to represent a particularly repugnant variant of what sociologists call 'perverse fluidity' (e.g. Goldthorpe and Mills 2004) and which occurs if members of a marginalized group are less able than others to retain a high parental occupational achievement for their offspring.[16] Here, reference is made to a proposed variant of perverse fluidity as the 'destitution property' of a social mobility measure, which can be defined as follows:

The destitution property: A son's (or daughter's) descent into poverty should not increase intergenerational mobility.

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[16] See Heath and Zwysen's (2018) discussion of Hout's (1984) work on African Americans with reference to children of immigrants in the European Union and Iversen et al.'s (2017) similar observations for Scheduled Castes in India.

The starting point, in the following examples, is the initial value for the main measure of interest, given by $IGRC_0$ or IGC_0. In each example, a change in a son's occupational category is introduced and the IGRC or IGC response to this change reported. The bottom occupational category—agricultural and manual labourers—can be used as proxy for a condition of poverty and destitution: a marginal descent from occupational category 2 to 1 should, if the destitution property is satisfied, not increase intergenerational mobility. The first examples, in Table 4.2, capture marginal descents into poverty from a low initial base: the IGRC and IGC response to a marginal poverty descent is a social mobility reduction. While seemingly sound, this is not sufficient to rule out a violation of the destitution property and the possibility of a sizeable perverse fluidity bias.

Table 4.2 IGRC and IGC value responses to a marginal poverty descent

| | Example 1 |
	Marginal descent
IGRC	$(x_1, 2)-(y_1, 2) \rightarrow (x_1, 2)-(y_1, 1)$ 0.347756↑ 0.347866
IGC	$(x_1, 2)-(y_1, 2) \rightarrow (x_1, 2)-(y_1, 1)$ 0.308115 ↑ 0.308184

Source: author's compilation based on IHDS-II, 2011–12.

We next consider the IGRC and IGC responses to a son experiencing a moderate (–3 occupational categories) or large (–5 occupational categories) descent into poverty.

For the Table 4.3 examples, both the IGRC and the IGC violate the destitution property: the longer the fall, the more pronounced the *positive* intergenerational mobility response of both measures. While a manual occupation may be a rational and voluntary choice in a high-income environment, a long-distance poverty descent is hard to construe as plausibly voluntary. The destitution property is thus violated and both the IGRC and IGC have a frailty that can seriously reduce

Table 4.3 IGRC and IGC value responses to moderate and large descents

| | Example 2 | Example 3 |
	Moderate descent	*Large descent*
IGRC	$(x_1, 4)-(y_1, 4) \rightarrow (x_1, 4)-(y_1, 1)$ 0.347756↓ 0.347407	$(x_1, 6)-(y_1, 6) \rightarrow (x_1, 6)-(y_1, 1)$ 0.347756 ↓ 0.34604
IGC	$(x_1, 4)-(y_1, 4) \rightarrow (x_1, 4)-(y_1, 1)$ 0.308115 ↓ 0.307801	$(x_1, 6)-(y_1, 6) \rightarrow (x_1, 6)-(y_1, 1)$ 0.308115 ↓ 0.306724

Source: author's compilation based on IHDS-II, 2011–12.

the meaningfulness, accuracy, and comparability of social mobility estimates from developing country settings.

To further progress, more clarity about the severity of this frailty is required. To arrive at a precise answer, a simple experiment is implemented. To estimate the perverse fluidity bias attributable to moderate poverty descents in the study dataset, a counterfactual is constructed with no poverty descents for the large subset of father–son pairs where the father is a farmer.

The results of this experiment are reported in Figure 4.3. Coefficients are organized pairwise with the original (e.g. IGRC_occ_rur) first followed by the experimental equivalent represented by IGRC_rur_exp. The horizontal distance shows the downward perverse fluidity bias attributable to moderate poverty descents. For rural areas, and irrespective of whether the IGRC or the IGC is considered, the perverse fluidity bias is nontrivial: the moderate poverty descents in the data reduce the IGRC coefficient from 0.64 to 0.36, that is, by an order of magnitude of 44 per cent, while the IGC coefficient value is reduced from 0.62 to 0.31 and thus by 50 per cent.[17]
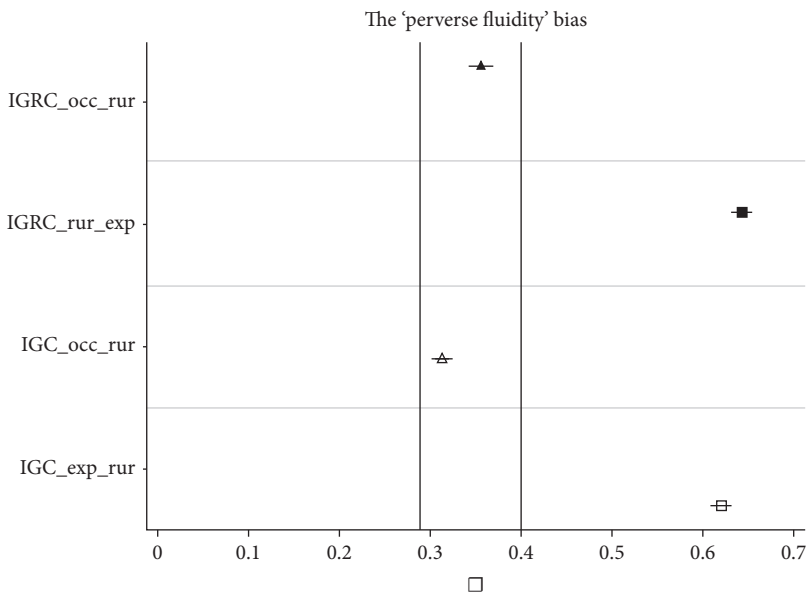
Figure 4.3 IGRC and IGC 'perverse fluidity' biases
Source: author's compilation based on IHDS-II, 2011–12.

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[17] Using the equivalent of Emran et al.'s (2018) definition of bias, that is, [(*IGRC_rur_exp—IGRC_occ_rur*) x 100)/*IGRC_occ_rur*], the IGRC bias is 77.8 per cent, while the IGC bias is 100 per cent.

While the IGC is less vulnerable to co-residence truncation (Emran et al. 2018), it is more sensitive to poverty descents than the IGRC here. Not surprisingly, the impacts on urban estimates (not reported) are negligible.

Turning to directional neutrality, Example 1 (in Table 4.2) shows that poverty descents from a low base reduce mobility: although not shown here, a marginal ascent out of poverty increases mobility. For the main origin-independence measures, the directional neutrality concerns flagged in the discussions of relative, share, and flux mobility, do not, therefore, afflict marginal upward and downward mobility from a low, initial base.

Two counterparts to the destitution property—the weak and the strong poverty escape property—can be formulated as:

The weak poverty escape property: A son's (or daughter's) poverty escape should not reduce intergenerational mobility.

The strong poverty escape property embodies the weak, but adds that starting from the same base, a larger out-of-poverty ascent should generate a positive mobility effect at least as large as a marginal ascent.

As Example 4 in Table 4.4 shows, a large ascent exerts a stronger downward pull on the IGRC and IGC values than a marginal ascent (not shown here). In the middle of the distribution, directional neutrality kicks in, for both the IGRC and the IGC. The main concern, as the comparison in Table 4.4 makes clear, is a directional neutrality variant quite different from that afflicting mobilities in Section 4.3.

Table 4.4 IGRC and IGC responses to large ascents and descents

	Example 4	Example 3 repeated
	Large ascent	*Large descent*
IGRC	$(x_1, 1)-(y_1, 1) \rightarrow (x_1, 1)-(y_1, 6)$ 0.347756 ↓ 0.346636	$(x_1, 6)-(y_1, 6) \rightarrow (x_1, 6)-(y_1, 1)$ 0.347756 ↓ 0.34604
IGC	$(x_1, 1)-(y_1, 1) \rightarrow (x_1, 1)-(y_1, 6)$ 0.308115 ↓ 0.306993	$(x_1, 6)-(y_1, 6) \rightarrow (x_1, 6)-(y_1, 1)$ 0.308115 ↓ 0.306724

Source: author's compilation based on IHDS-II, 2011–12.

The relevant frailty of both the IGRC and the IGC is their direction neutrality for large (or moderate) ascents and descents. While the strong poverty escape property is satisfied for both measures, large out-of-poverty ascents and poverty descents have proximately similar effects on mobility. In fact, a moderate poverty descent registers with a more positive effect on mobility than a large out-of-poverty ascent in the examples in this study. This can be summarized in the directional asymmetry property:

The directional asymmetry property: Poverty escapes and mirror image poverty descents should not have comparable, positive effects on intergenerational mobility.

How damaging are these IGRC and IGC frailties in practice? In the Indian dataset, the impacts on urban occupational mobility and educational mobility estimates are negligible since few moderate and large descents prevent a serious perverse fluidity bias in estimation. In rural areas, in contrast, and as seen, the high prevalence of descents from farmer to agricultural labour occupational status results in sizeable IGRC and IGC perverse fluidity biases.

Further insights about the empirical relevance of the perverse fluidity bias can be found in the descriptive statistics reported by Alesina et al.'s (2019) pathbreaking analysis of educational mobility in Africa. Alesina et al. (2019) define downward intergenerational educational mobility as the failure to complete primary education by offspring of literate parents. Such downward mobility may be interpreted as an educational parallel to the occupational poverty descents observed for rural India. For countries like Zambia, Kenya, and Malawi, the overall prevalence of downward educational mobility has been high, with Alesina et al. (2019) reporting downward mobility incidence of 27.5, 26.1, and 53.3 per cent, respectively. For some conflict-affected areas, the numbers are around 50 per cent (Rwanda, Sierra Leone); for others, such as South Sudan, they are much higher (84.9 per cent).[18]

The IHDS data can also be used to illustrate the impacts of downward educational mobility parallels to the poverty descents observed in the occupational data. In this example and in contrast to above, we now use years of schooling for sons and fathers as the dependent and independent variables. For the rural sample, the initial IGRC coefficient is about 0.45. Next and as another experiment, we introduce intergenerational descents—from years 6 and 7 for fathers to zero for sons, for 3.3 per cent of the observations in our estimation sample—the IGRC coefficient drops to 0.298 or by about 34 per cent [or 52 per cent using the Emran et al. (2018) method, see footnote 17], thus providing strong, additional support to the above arguments.

4.5.1 An alternative

As Emran and Shilpi (this volume) discuss in depth, the co-residence frailties of the IGRC and the IGC (e.g. Azam and Bhatt 2015; Emran et al. 2018) indicate the usefulness of supplementing analysis with alternatives, such as sibling correlations

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[18] These estimates cover the decades before 2000.
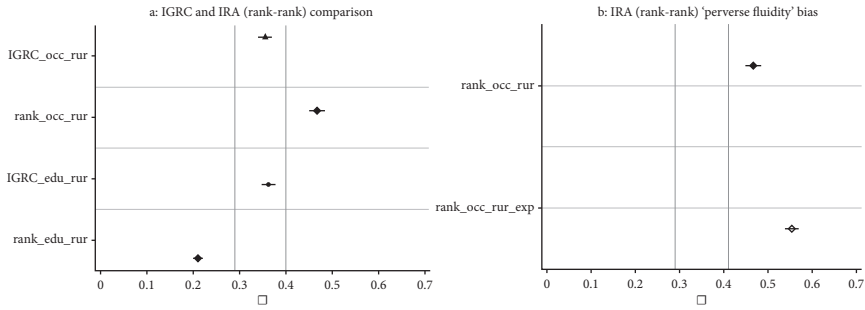
Figure 4.4 Rank–rank comparisons
Source: author's compilation based on IHDS-II, 2011–12.

(Emran and Shilpi 2015). As the above analysis brings to the fore, regression-based measures have other frailties that become particularly pressing in developing country contexts. Drawing on Emran and Shilpi (this volume), an important question is whether rank–rank measures, introduced by Dahl and DeLeire (2008) and discussed and developed by Chetty et al. (2014), handle poverty descents more reassuringly. Using the present study's dataset, the overall performance of rank–rank measures is examined, first by comparing the intergenerational rank association (IRA) with IGRC rural occupational and educational mobility coefficient estimates and then by examining the IRA vulnerability to the presence of moderate poverty descents: for this, the IRA perverse fluidity bias is estimated.[19] The results are reported in Figure 4.4a and 4.4b.

Unlike the IGRC and IGC, the IRA appears to capture the difference between and the essence of occupational and educational mobility patterns in a more intuitive and 'consistent with the data' manner: educational mobility is high (0.21), while occupational mobility is moderate (0.46). For the IRA, the perverse fluidity bias is, also, as Figure 4.4b shows, much lower (0.55–0.46), which corresponds to an order of magnitude of about 15 per cent.[20]

4.6 Concluding remarks

With some important exceptions (e.g. Shorrocks 1993; Fields 2008; Cowell and Flachaire 2018), the literature addressing the axiomatic and other properties of social mobility measures remains underdeveloped. Drawing on the analysis of inequality, early work focused on the axiomatic properties a social mobility measure ought to embody. Assessing the Hart measure, an origin-independence

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[19] Following Dahl and DeLeire (2008), the parent and offspring variables are their percentiles in the distributions of parent and offspring occupational or educational attainments.

[20] The bias equivalent to Emran et al. (2018) is 19.6 per cent.

measure of social mobility, Shorrocks (1993) is agnostic about the importance and ranking of the axioms and properties that he considers. Crucially, the most widely used measures for studying developing country contexts to date, the IGRC and IGC, have much in common with the Hart measure, with axiomatic properties that may therefore be considered as known.

Echoing Torche (2014), a major motivation for this chapter is the limited attention paid to how well or how inadequately social mobility measures that have been used and discussed mainly in relation to industrial countries perform in the analysis of low-income settings. Using Fields and Ok's (1996) simple conceptual framework and three of the six mobility concepts discussed by Fields (2008), the chapter first illustrates how properties of relative, share, and flux mobility, seemingly unproblematic in the study of industrial country settings, turn less innocuous in the presence of descents into destitution. The chapter draws on these insights to scrutinize the properties of the IGRC and IGC and find that being home and dry axiomatically and cognizant of the implications of co-residency-induced and other well-known sources of estimation bias (Emran et al. 2018) does not mean that all is well.

Using occupational and educational mobility data from a nationally representative dataset for India, this study shows that while the IGRC and IGC occupational and educational mobility estimates in Figure 4.1a and 4.1b align closely, the mobility patterns (Figure 4.2 and Table 4.1) underpinning these estimates are strikingly different: for rural areas, and unambiguous educational progress and significant occupational setbacks notwithstanding, the IGRC and IGC occupational and educational mobility estimates are close to identical.

To explicate these apparent inconsistencies, this study focuses on the directional neutrality and destitution properties of social mobility measures. The former captures the notion of fluidity as a quality of an open society and echoes the idea that origin-independence may involve mobility in both directions. However, in contexts where poverty descents are commonplace, a directional neutrality property can be damaging.

As the examples illustrate, the IGRC and IGC respond appropriately to marginal poverty escapes: both measures also possess the weak and strong poverty escape property. In contrast, and while moderate and large poverty descents capture the idea of origin-independence consistently, these descents also violate the deprivation property. For rural occupational mobility, perverse fluidity biases of 44 and 50 per cent in the IGRC and IGC coefficient estimates are attributable to moderate poverty descents.

This exceeds, for example, the co-residence biases reported in Emran et al. (2018). For the directional asymmetry property—which requires that *a poverty escape and a mirror image poverty descent do not generate comparable, positive intergenerational mobility responses*—satisfying the strong poverty escape property (large ascents generate a positive social mobility response) and the moderate

descent violation of the deprivation property implies that the directional asymmetry property is violated for large upward and moderate and large downward mobility.

For inter-country and other comparisons, this can be damaging: as the simple experiments above demonstrate, the IGRC and IGC coefficient estimates in the 0.6–0.7 range may represent mobility patterns preferable to estimates in the 0.3–0.4 range, since the former, in these experiments, entail favourable rigidity which could result from an effective social security system preventing offspring from descending into poverty. At the same time, these IGRC and IGC frailties have a negligible impact on the estimates for urban occupational mobility and educational mobility in the Indian dataset. In the two latter cases, there are too few moderate and large descents in the dataset for a serious perverse fluidity bias to creep in and distort estimation. As the chapter also shows, downward educational mobility patterns of a kind and order of magnitude that would trigger perverse fluidity bias concerns have been commonplace in Africa (Alesina et al. 2019).

Finally, and drawing on Emran and Shilpi's (this volume) discussion, this study examines whether rank–rank measures outperform the IGRC and IGC. To start with, and for both occupational and educational mobility (Figure 4.4a), the IRA appears to distinguish the contrasts in mobility patterns more intuitively and effectively than the IGRC and IGC. Also, for occupational mobility, IRA is less vulnerable to the perverse fluidity bias than the other two measures.

Summing up, this chapter proposed and examined the empirical importance of a new, contextual source of bias in the measures most widely used to study social mobility in developing countries to date. While the order of magnitude of the above estimates of the variant of a 'perverse fluidity' bias proposed should be treated as suggestive and in need of further and more careful examination, the performance of persistence measures in mobility analysis intended to inform international, national, within country regional or intergroup policies is more precarious than acknowledged so far. While a summary measure of social mobility can be immensely valuable (Blanden 2013), sound policy also depends on measures that deliver meaningful and consistent verdicts. While the rich chapter by Fields in this volume provides valuable additional research practice advice, a further cataloguing and examination of the properties of social mobility measures should remain a research priority.

Acknowledgements

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5

In Praise of Snapshots

Ravi Kanbur

5.1 Introduction

The conventional justification for moving from income distribution to intergenerational mobility analysis is that it is a move from static to dynamic, from outcome to process, indeed from snapshot to movie. This justification and this perspective have served us well and have generated a vast positive and normative literature. Inherent in these characterizations and in this literature is the presumption that for positive analysis dynamic mobility encompasses static inequality, and has additional elements which are crucial. After all, isn't a movie simply a sequence of snapshots? Doesn't the movie have all the information which no single snapshot can give us? On the normative front is the claim that focusing on a snapshot can also mislead us. As Stokey (1998) puts it:

> I am going to take the position that if economic success is largely unpredictable on the basis of observed aspects of family background, then we can reasonably claim that society provides equal opportunity. There still might be significant inequality in income across individuals, due to differences in ability, hard work, luck, and so on, but I will call these unequal outcomes.

Thus, it is argued, the distinction between outcomes and opportunity is central to normative judgement, and moreover it is the movie rather than the snapshot which provides a handle on opportunity.

Despite this pedigree of intuitions, recent years have brought forth a questioning. The 'movie is made up of a sequence of snapshots' metaphor is appealing but perhaps itself mechanical and misleading. What if each snapshot has within it the seeds of the next snapshot? Then the snapshots are the harbinger of the movie rather than merely its constituent parts. At the very least, the two interact. Or the two are themselves the outcomes and manifestations of underlying processes which it is our task to uncover through positive analysis and to evaluate through normative exploration.

This alternative perspective was brought to the fore powerfully in popular discourse by the late Alan Krueger (2015) through what he christened the 'Great Gatsby Curve':

Building on the work of Miles Corak, Anders Björklund, Markus Jantti, and others, I proposed the 'Great Gatsby Curve' in a speech in January 2012. The idea is straightforward: greater income inequality in one generation amplifies the consequences of having rich or poor parents for the economic status of the next generation.

Krueger famously plotted estimates of income mobility against estimates of snapshot inequality across countries, and found a negative relationship. Thus, in this view, the snapshot matters. It affects the transition from the current period to the next, and hence the whole movie. Of course, the transition then determines the next snapshot, and on we go with the dynamic process. But it does not make sense, in this way of looking at things, to give the dynamic a precedence and to see it as causing the period by period outcomes. In fact, it is the other way round or, at best, the snapshot and the movie are co-determined.

A similar corrective is needed on the normative front. One may ask *why* unpredictability of economic success based on current outcomes has normative power. Some may stand their ground at this point and simply appeal, with varying degrees of success, to our moral intuitions the way Stokey (1998) appears to do in the quote above. And yet when pushed, many would come to the notion that persistence of income or wealth or education status over time perpetuates dynastic inequality, by which is meant some discounted aggregate of income over time for each set of individuals connected by birth. As often happens in economics, well-being over time is converted into an intertemporal aggregate and it is the distribution of this aggregate which is assessed. Although not exactly that, this is akin to comparing 'snapshots', now of aggregated intertemporal wellbeing.

The object of this chapter is to review the interplay between the static and the dynamic and to thus unpack the Great Gatsby Curve (GGC) and its causal and normative interpretations. It will be seen that although a very interesting new area of analysis has been opened up, there is still much left to be clarified and investigated, both on the positive and on the normative front. Section 5.2 starts with positive analysis and Section 5.3 takes up normative considerations. Section 5.4 compares and contrasts two policy instruments—direct income redistribution and equal pubic provision of education—as between their impacts on inequality and on mobility. Section 5.5 concludes.

5.2 Positive analysis: from mobility to income distribution and back

Consider the usual income transition equation between log income y of generation t–1 and generation t:[1]

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[1] This section draws on Section 2 of Kanbur (2018).

$$y_t = \beta y_{t-1} + \varepsilon_t; \quad \varepsilon_t \text{ is } N(0, \sigma^2_\varepsilon), \tag{5.1}$$

where ε_t is a stochastic disturbance term, initially assumed to be iid and normal with mean zero and variance σ^2_ε. The effect of generation t-1's outcome on the outcome for generation t, the intergenerational elasticity of income (IGE), is β. With these assumptions it follows that:

$$\sigma^2_t = \beta^2 \sigma^2_{t-1} + \sigma^2_\varepsilon, \tag{5.2}$$

where σ^2_t is the variance of y_t. This variance of log-income is used as the measure of snapshot inequality in this literature.

The equations and the process go back at least as far as Gibrat (1931) who posited it as describing the evolution of firm size. In the post-war period it was used to great effect to study the evolution of income inequality and its links to mobility, for example by Creedy (1974) and by Hart (1976). Clearly, from Equation (5.1) IGE or β can be interpreted as a measure of income immobility. The higher is β the greater the influence of parental income on children's income. With this interpretation Equation (5.2) gives us the link from mobility to snapshot inequality. Taking σ^2_ε as given, if β is greater than or equal to unity then inequality explodes, increasing every period. The increase is greater the greater is the degree of immobility. If, however, β is less than 1 then inequality falls every period, converging to a steady state value:

$$\sigma^2_y = \sigma^2_\varepsilon / (1 - \beta^2) \tag{5.3}$$

Further, the lower is β, in other words the greater is mobility measured in this fashion, the lower will be the steady state inequality.

Thus Equation (5.3) predicts a negative relationship between snapshot inequality and the measure of dynamic mobility. This is of course the correlation posited in the Great Gatsby Curve. But here the causality runs from β to σ^2_y. From the movie to the snapshot. Increase mobility, if you can, and you will lower steady state inequality. There is no feedback from the snapshot to mobility as posited in the model. But perhaps such a feedback could be brought in by addressing the usual iid assumption on ε_t? If ε_t is AR(1) then:

$$\varepsilon_t = \theta \varepsilon_{t-1} + \xi_t; \quad \xi_t \text{ is } N(0, \sigma_\xi^2) \tag{5.4}$$

$$y_t = (\beta + \theta)y_{t-1} - \beta\theta \, y_{t-2} + \xi_t \tag{5.5}$$

It can be shown (Solon 2004) that for this second order autoregressive process the steady state variance is given by:

$$\sigma^2_y = \{(1 + \beta\theta)\sigma_\xi^2\} / \{(1 - \beta\theta)[(1 + \beta\theta)^2 - \beta^2]\} \tag{5.6}$$

The impact of mobility on inequality now interacts with the persistence of shocks as measured by the magnitude of θ. It can be shown as before that the higher is the immobility parameter β the greater will be steady state inequality, and the same is true for the persistence parameter θ. Further, there is an interaction term so that the marginal impact of each of these dynamic parameters is greater the higher the value of the other parameter. So this is causality from the dynamic parameters β and θ to the static outcome σ^2_y. The characteristics of the movie determine the snapshot.

So far, then, the GGC correlation between inequality and mobility has been vindicated by the theory, but the causality is from mobility to inequality, and thus not in the direction that Krueger (2015) posited when he said 'greater income inequality in one generation amplifies the consequences of having rich or poor parents for the economic status of the next generation'. It should be clear that such an implication could not in fact be drawn from Equation (5.1) or Equation (5.6) because in those models the outcome for the present generation is *linear* in the outcomes for the past generation or generations. If there was to be a snapshot redistribution of income in the present generation, this would affect snapshot inequality, but not intergenerational mobility as measured by β or θ—these are constant across income by assumption.

But what if β in the simplest model (1) were not constant but itself varied with y? Then of course there would not be a convenient single constant measure of mobility. But we could, for example, use the mean value of β in the cross-section as a measure of overall mobility. Now there would in general be an impact of greater snapshot inequality on mobility so measured. In particular, if β were a concave (convex) function of income then a mean preserving spread in snapshot income would decrease (increase) the mean value of β and thus increase (decrease) the measure of overall mobility. A similar set of arguments can be made around Equation (5.6), albeit the analytics would be more complicated.

Viewed in this way, the central empirical question becomes whether the intergenerational elasticity of income is itself a function of current income, and on the shape of this relationship. In their excellent paper Bratsberg et al. (2007) build on the work of Becker and Tomes (1979) and Solon (2004) to show that microfounded models of parental investment in children could predict either a concave or convex relationship between the children's income and parental income, depending particularly on the nature of credit constraints. It should be clear intuitively, and can be shown formally, that credit constraints will make parental resources a stronger determinant of investment of children and therefore outcomes for children—in other words, β in Equation (5.1) is higher. Becker and Tomes (1979) argued that if credit constraints affect poorer parents more, then the relationship between children's income and parents' income will be concave.

However, Bratsberg et al. (2007: C76) make the case that the relationship could be convex, as follows:

Suppose that all families are borrowing-constrained, possibly because the optimal level of investment is higher for children with high ability ... Suppose now that educational policies and institutions are designed in such a way that, for lower levels of human capital formation, access to education services is characterised by equal opportunity. In this meritocratic case, the ... flatter gradient applies to the lower rather than to the higher earning parents. In this scenario, the relationship between child and parent earnings is convex rather than concave.

Bratsberg et al. (2007) rely on policy interventions to generate convexity rather than properties of the market. But the basic point remains that the nature of the non-linearity is an empirical question.

Is there an empirical consensus? In terms of global patterns, the answer seems to be 'no'. A decade ago, Bratsberg et al. (2007) reviewed the literature of the time and found widely varying conclusions across countries, from concavity (Mazumder 2005) to convexity (Corak and Heisz 1999; Behrman and Taubman 1990), to no relationship (Couch and Lillard 2004: 190–206, for Germany). Their own empirical work came to similar conclusion:

It turns out, however, that the functional form of these intergenerational relationships varies widely across countries. While linear regressions fit the US — and even the UK — data reasonably well, the ... relationship between sons and fathers log earnings in the Nordic countries is not linear but rather convex. Specifically, in the Nordic data the relationship starts out flat, implying that whether sons are born into very poor or moderately poor families has little impact on their own expected adult earnings.   (Bratsberg et al. 2007: C73)

The literature has of course advanced in the last decade, and many methodological issues have been aired and addressed. The massive research programme of Raj Chetty and his colleagues has unfolded. But it would perhaps be fair to say that the basic patterns, at least the fact that there are large variations across countries, remain unchanged. Thus Chen, Ostrovsky, and Piraino (2016) conclude:

The pattern of nonlinearity observed in the Canadian data seems to be more in line with the Nordic evidence: a modest intergenerational relationship in the lower segments of the fathers' distribution and an increasingly positive correlation in middle and upper segments (Bratsberg et al. 2007). The United States, by contrast, exhibit an almost perfectly linear relationship between children's and parents' ranks in the income distribution.   (Chetty et al. 2014)

But the variation across countries is perhaps not surprising because the estimates of IGE from observed outcomes are a combination of market forces and policy

interventions. The market forces may themselves differ across countries. For example, Grawe (2004) argues that the specific type of non-linearity in the earnings function may determine concavity or convexity rather than the presence or absence of credit constraints. And Bratsberg et al. (2007) argue that policies might overcome credit constraints in some countries but not in others. Policy variation in turn raises the question of why the intervention is deemed desirable in the first place—why precisely is it that a low IGE is normatively desirable? I now turn to this question.

5.3 Normative analysis: snapshots and movies

The normative interpretation of positive analytics measures of mobility, like the IGE, has of course been much studied, from Shorrocks (1978a, b), through Fields and Ok (1999), to Jäntti and Jenkins (2015). Cowell and Flachaire (2019) is only the most recent extension to a vast literature on this topic. In this chapter I want to draw from this literature the theme that while it seems that the dynamic perspective of the movie is generally accepted as superior for normative evaluation, in fact beneath the surface there is often a concern with inequality—not exactly a snapshot but something akin to it.

Let us begin with Equation (5.3) which gives us a causal relationship between the dynamics inherent in the IGE and the snapshot inequality outcome measured by σ^2_y (Equation (5.7) tells the same story in the more general setting of an autoregressive error term). An aggressive strand of the normative and policy discourse is not concerned with σ^2_y at all. Rather, the normative focus is on reducing β (increasing mobility) even if, for example, the tradeoff was that σ^2_ε would increase by so much that the combined effect would be for σ^2_y to increase. Stokey (1998) exemplifies this strand, but it is ever present in the policy discourse, usually under the moniker that equality of opportunity is preferable to equality of outcomes:

> From this perspective greater mobility is socially desirable because equality of opportunity is a principle that is widely supported. This is relevant because independence of origins and destinations is consistent with inequality of outcomes being relatively equal or unequal.   (Jäntti and Jenkins 2015: 815)

There is a strong philosophical strand advancing equality of opportunity, and thus its manifestation of mobility in the present context, as the dominant normative goal (see the comprehensive survey by Roemer and Trannoy 2015). However, there is also a strand of consequentialist rather than deontological argument as to why greater mobility is preferable because of its impact on snapshot inequality in different senses. The most obvious sense has already been alluded to. From

Equation (5.3) even if our normative objective was to focus on snapshot inequality, mobility is not at all irrelevant. We can reduce $\sigma^2{}_y$ by reducing $\sigma^2{}_\varepsilon$ but also by reducing β, if we had the policy instruments to do so.

But there is another sense in which mobility affects inequality, and it is to do with evaluations of time profiles of outcomes across generations. Shorrocks (1978b: 377–78) provides a clue when he argues as follows about the role of the accounting period:

> There are reasonable grounds ...for supposing that the existence of mobility causes inequality to decline as the accounting interval grows. Furthermore, intuition suggests that the extent to which inequality declines will be directly related to the frequency and magnitude of relative income variations. If the income structure exhibits little mobility, relative incomes will be left more or less unaltered over time and there will be no pronounced egalitarian trend as the measurement period increases. In contrast, inequality may be expected to decrease significantly in a very (income) mobile society ... In essence, mobility is measured by the extent to which the income distribution is equalised as the accounting period is extended.

Thus given individual time profiles of income, a longer time period of aggregation will have differential impact on snapshot inequality depending on the mobility. Indeed, Shorrocks (1978b) develops the argument that this impact can itself be used as a measure of mobility. A similar point was made by Grootaert and Kanbur (1995: 610) for poverty measurement with different accounting periods, in one of the first mobility studies using panel data from sub-Saharan Africa (for Côte d'Ivoire):

> ... 'two-period' poverty is in general less than the larger of the two snapshot poverty figures for each panel. In fact, in some cases two-period poverty is in general less than both of the snapshot figures ... What this suggests is that there is considerable mobility in the panels, particularly across poverty classes.

Such intertemporal aggregation was also introduced by Atkinson and Bourguignon (1982), indirectly and by implication, through their social welfare-based approach to ranking multidimensional distributions of economic outcomes. The dimensions could of course be interpreted as different time periods, bringing us to social welfare rankings of time profiles of outcomes across the generations. A simple way to present the issue, also introduced by Shorrocks (1978a), is to ask on what normative principle we would compare the two transition matrices:

$$A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \text{ and } B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix} \tag{5.7}$$

between two outcome states across generations. Intuitively, at a glance, B is more mobile than A. But why is it preferable? One might argue that dynasties are not permanent in B, which shows an extreme case of churning—'clogs to clogs in three generations'. But why is that preferable? Ultimately, I think, one is pushed to compare inequality of some intertemporal aggregate across the two dynasties, as between A and B. Each generation takes its turn in the top spot with B, hence intertemporal inequality will be smaller than in A.

But Shorrocks (1978a) also presents us with another comparison, of B with:

$$C = \begin{bmatrix} 1/2 & 1/2 \\ 1/2 & 1/2 \end{bmatrix} \tag{5.8}$$

This transition matrix shows independence of future prospects from the current outcome. Indeed the prospects are identical across outcome states. Surely this qualifies as 'equality of opportunity' and thus must be better than B (although both B and C are better than A)? One way to answer this question is to ask what long-run inequality would look like under these two transition matrices. With a discount factor given by r (less than one), and a ratio of snapshot incomes given by k (greater than one), it is shown by Kanbur and Stiglitz (2016) that the 'constant churn mobility' of matrix B gives lower dynastic inequality than 'equality of opportunity mobility' of matrix C. The intuition for this is straightforward. With discounting, the starting point matters. The generation starting with higher income will keep that advantage even if prospects from then on are independent of incomes. The only way to counter the initial advantage is to compensate by giving the lower initial state with better prospects.

This need to compensate the initial disadvantage of low-income states also comes through in the sub-literature on mobility dominance, where a precise intertemporal social welfare function is specified, and the question is asked which transition matrices will give higher social welfare. One of the best-known papers in this tradition is that by Dardanoni (1993: 390):

> In this paper we have considered the ranking of mobility matrices by deriving the lifetime prospects under different transition mechanisms and aggregating them with a [Social Welfare Function] which gives greater weight to individuals starting at a lower position ...This approach may be considered as the intertemporal counterpart to the static inequality ranking of income distributions by the Lorenz curve...The equivalence of our ranking with the 'permanent income' Lorenz ranking ...gives support to the claim that this approach is the natural extension of [conventional static inequality measurement] approaches.

Dardanoni (1993) makes explicit what is implicit in this part of the literature, that in effect the comparison of time profiles of income, the movie, is converted into a

comparison of the inequality in intertemporal aggregate like permanent income, which is akin to a comparison of snapshots—indeed, the same methods from the static literature are used once the conversion is completed. As Jäntti and Jenkins (2015: 813) state in their survey paper: 'Mobility can therefore be characterized in terms of the extent to which inequality in longer term income is less than the inequality in marginal distributions of period-specific incomes.' We are thus back to evaluating snapshots, granted of a particular type, to get a normative handle on the movie.

The way to avoid being led into snapshot comparisons of one type or another is to studiously focus only on the dynamic properties of the income generation process, in particular on the degree of independence of future outcome from the current state. Put another way, the degree of independence of children's outcomes from parents' status is the only thing that matters—all else is extraneous. As noted earlier, this is one part of a broader argument on equality of opportunity. As formulated by Roemer (1998) this argument rests on the distinction between circumstances and effort as determinants of outcomes for an individual. Circumstances are those factors over which the individual has no control. Effort is that over which the individual does have control. Inequality of opportunity is that variation in outcomes which is attributable to circumstances. Since parental status is something over which an individual has no control, it follows that independence of outcomes for children from parental status is a necessary condition for equality of opportunity. Indeed, if this was the only circumstance, that is all that would matter. Hence the focus on mobility measures, and hence the strong statements as found in Stokey (1998).

But the strong stance on equality of opportunity, as opposed to equality of outcomes, is not without its critics. There are empirical and conceptual critiques, on whether we can ever truly separate out circumstance from effort in determining outcomes (Kanbur and Wagstaff 2016: 131–48; Wagstaff and Kanbur 2015) and in the use of policy instruments. Such attempted separation of 'equality of outcomes' policy and 'equality of opportunity' policy is taken up in the next section.

5.4 Policy: income or education?

An often-heard refrain in the policy discourse is that policy should focus not on equality of outcomes but on equality of opportunity. Its manifestation in the current context would be to focus on improving mobility, by which is meant making children's economic prospects independent of parental economic status. This would satisfy the direct normative objective of equality of opportunity but it would also, according to Equation (5.3), reduce long-term equality of outcomes as well. In terms of concrete policy instruments, a distinction tends to be drawn

between progressive taxation and transfers of income which reduce snapshot income inequality, and policies which provide an equal educational start for all. Redistribution of income is held to have detrimental incentive effects, but the primary reason for its disavowal is that it is targeting the wrong objective—the snapshot rather than the movie. Equalizing education provision, on the other hand, targets equal opportunity and so is to be preferred.

This narrative, common as it is and well-embedded as it is, needs to be looked at carefully and deconstructed, not least because it marks a slippery slope towards dismantling progressive income tax and transfer policy. At the very least, we will have to think about how the resources for public provision of education are raised—will that be through progressive taxation? As important is the role of parental resources and inputs in determining the educational achievements of children. If parental resources are important, might not their inequality also contribute to inequality of educational outcomes and thus equality of opportunity? And what about the Great Gatsby Curve? If there is indeed a causal relationship from income inequality to mobility, should income inequality not be targeted instrumentally, at least?

In a paper prepared for the UNU-WIDER research project The Economics and Politics of Taxation and Social Protection, Haaparanta et al. (2019) use optimal taxation analysis in the tradition of Mirrlees (1971) to assess the balance between progressive income taxation and public education provision, even when the objective is equality of opportunity, as measured by inequality of educational achievements. Their Proposition 1 (p. 9) is instructive:

> A government that only cares about inequality in educational outcomes should also use progressive income taxation, in addition to possibly subsidizing education. The tax system is more progressive when the increase in educational attainment is highly sensitive to increases in income, especially among those at the bottom of the educational distribution.

The result is derived in a model in which educational outcomes depend on both public and parental inputs, and parents invest in the education of their children taking into account public provision and the tax regime. The intuition behind the proposition should be clear. Education is a normal good, and richer parents invest more in education for their children for any given level of public provision. Raising public provision will equalize education ceteris paribus, but so will income redistribution. And in any case, raising public provision will need resources which are in turn raised through taxation—doing this through progressive taxation will further enhance educational equality.

Proposition 2 of Haaparanta et al. (2019: 11) addresses the question of the optimal level of provision of public education:

Optimal public provision of education for a government whose social welfare function is motivated by [equality of opportunity] concerns is increasing in the relative impact of public provision versus additional income on educational attainment. The provision rule suggests distorting the public provision upwards if [parental education inputs] are more sensitive to public provision at the lower end of the distribution.

The proposition raises the general question of the impact of public and parental inputs in educational outcomes. While there is now broad consensus that parental resources are strongly associated with children's educational outcomes, there is less agreement whether parental and public inputs are substitutes for or complements to each other. Does public provision crowd out private inputs, and what are the effects at different income levels? Pelzman's (1973) theoretical proposition introduced the notion that public provision could crowd out private inputs. But the evidence has been mixed. For example, Cohodes and Goodman (2014) find crowding out effects while Castelman and Long (2013) do not. Zero or only small degrees of substitution have been found for pre-school programmes (Cascio and Schanzenbach 2013, for the US; Brinkman et al. 2017, for Indonesia). Even here, results on effects across the income distribution are mixed. Cascio and Schanzenbach (2013) find strong crowding out effects at the upper end, while Brinkman et al. find no differences among rich and poor.

Public and private inputs to education are also incorporated into Solon's (2004) analysis, following on from the Becker and Tomes (1979) model. In Solon's (2004) model income is taxed at rate τ and it is assumed that public expenditure provides the equivalent of G_i to educational input, to be added to parental input. Solon then characterizes 'a sort of relative progressivity in public investment in children's human capital' by assuming the following relationship:

$$G_{i,t-1}/[(1-\tau)Y_{i,t-1}] = \varphi - \gamma y_{i,t-1}, \tag{5.9}$$

where Y is income and y is log income. As Solon (2004) continues: 'With $\gamma > 0$ the absolute public investment may or may not be greater for children from high-income families, but the ratio of public investment to parental after-tax income decreases with parental income. The more positive γ is, the more progressive is the policy.' Not surprisingly perhaps, Solon shows that 'the intergenerational elasticity is greater as . . . public investment in children's human capital is less progressive (γ is less positive)'.

Income is only taxed proportionately in Solon's model, and indeed there is no overall government budget constraint which relates total public provision to the tax rate. And, further, public education is not a pure public good but can be targeted at different income levels—in effect, a transfer to poorer parents relative to the tax revenue raised from them. In the Haaparanta et al. (2019) model public

educational expenditure is indeed a pure public good, thus the focus on complementarity or substitutability of public and private inputs through parental decision-making. However, it should be clear intuitively that despite its dynamic structure in terms of the evolution of inequality, the policy side of the Solon (2004) analysis is quite akin to changing the snapshot distribution of income—the more progressive is the transfer of human capital, the greater will be the intergenerational elasticity of income. As for the relative balance between education and taxation, Solon's analysis is not focused on that, but Haaparanta et al.'s propositions tell us that income taxation should be progressive even if the objective is equality of educational outcomes. Thus the policy usually characterized as (and perhaps derided by some) as targeted to equality of outcomes, turns out to be instrumental in targeting equality of opportunity.

5.5 Conclusion

Income redistribution through taxation and transfers is under renewed attack in the policy arena. The conventional argument against such policies is through their effect on incentives. Economists have contributed to this caution by jointly modelling equity and efficiency as in the Nobel Prize-winning analysis of Mirrlees (1971). Indeed, the Mirrlees Review, conducted under the auspices of the Institute for Fiscal Studies (Mirrlees et al. 2011), is famously said to have been the intellectual force behind the reduction of the UK's top income tax rate from 50 per cent to 45 per cent in 2013 by then Chancellor of the Exchequer, George Osborne. The policy change and the analysis underlying it were criticized by Atkinson (2015: 184–5), but the incentives case for less progressive taxation is now commonplace.

However, a second argument against income redistribution has now gained ground. This argument relies not on inefficiency of income redistribution but on its normative illegitimacy. Policy focus, it is argued, should not be on inequality of outcomes but on inequality of opportunity. This position has been advanced not only by conservative philosophers and politicians, but by economists who would be regarded as egalitarian in their stance (e.g. Roemer 1998). In this perspective, only that part of income inequality which is attributable to inequality of opportunity is a legitimate policy target, and policy should address those inequalities directly rather than redistribute income. Add to this the next step in the argument, that dependence of children's outcomes on parental economic status is a clear indication of inequality of opportunity, and we are led inexorably to the conclusion that policy should focus not on redistributing parental income but improving intergenerational mobility. At the very least, the balance should shift away from income redistribution to other policies, such as education provision, which target mobility directly.

The burden of this chapter's argument is that such a policy conclusion is not warranted. The positive analysis of mobility, both from economists and from interdisciplinary perspectives (Addison, Hulme, and Kanbur 2009), is of course welcome. But the leap from such analysis to a reduction of focus on direct income redistribution is not justified, neither in the positive nor in the normative discourse. The distinction between snapshot and movie, and the elevation of movie over snapshot, is too readily made. Often when we think we are focusing on evaluating the movie we are in fact using methods from snapshot analysis. Theoretical and empirical arguments underpinning the Great Gatsby Curve suggest that the snapshot contains within it the seeds of the movie. And direct redistribution of income turns out to be an integral part of achieving objectives like equality of educational outcomes which are proxies for greater mobility and for equality of opportunity. Thus to set against Stokey's (1998) argument that we should focus not on outcomes but on opportunity, we have the argument of the Payne (2017: 173) that

> ...the fundamental truth that needs to be faced is that those with advantages must give up some of them to make space for those who start off with disadvantages. If we really want more mobility, improving equality of *opportunity* is a red herring—what matters is improving inequality of *outcome*. Improving mobility rates will do little to improve social inequality, but reducing social inequality is the sure way to achieving greater social mobility.

Perhaps I protest too much. Perhaps all this is well known and well understood and there is no danger of a focus on mobility leading to a shift away from redistributive taxes and transfers to reduce inequality directly. But I think a corrective is in order. I write in praise of snapshots.

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PART III

TYPES OF MOBILITY

6

Income Mobility in the Developing World

Recent Approaches and Evidence

Himanshu and Peter Lanjouw

6.1 Introduction

The documentation and analysis of distributional outcomes in developing countries have seen great advances in recent years. However, a remaining blind spot pertains to the understanding of how living conditions evolve over time at the household level. The analysis of such patterns of income mobility relies on longitudinal data that follow households over time. While such panel data can deliver important insights for the analysis of living standards (see for example Ashenfelter et al. 1986), the fielding of panel surveys has lagged behind the more conventional cross-section surveys that underpin standard distributional analysis. This is largely due to the relatively high cost and complexity associated with panel data collection. Recent years, however, have seen a welcome expansion of such survey efforts. For example, the World Bank's Living Standards Measurement Study Integrated Surveys on Agriculture programme has been collecting panel data in eight sub-Saharan African countries since the mid-2000s.[1]

The analysis of economic mobility is typically concerned with tracking the relative position of individuals or households across the entire distribution of income or earnings. When there is extensive relative income mobility, then inequality of long-term income ('permanent' income) is likely to be lower than inequality measured in any given year (Fields 2010). Income mobility thus relates closely to inequality and the normative view one might take regarding the observed degree of inequality at a given moment.

An assessment of dynamics in the distribution of income as a whole is also needed when we confront questions around the emergence of a middle class (see Ferreira et al. 2013). In many developing countries, economic growth,

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[1] Other well-known and highly regarded nationally representative panel surveys covering the 2000s include the Indonesian Family Life Survey, the Mexican Family Life Survey, the Indian Human Development Survey, Viet Nam's Household Living Standards Survey, Thailand's Socio-Economic Survey, Peru's National Household Survey, and Chile's National Socio-Economic Characterization Survey (see Table 6.1).

urbanization, formalization of the economy, an expanding service sector, and closer global integration have led to increased attention to the emergence and expansion of the middle class. Crucial questions arise with respect to the flow of population into the middle class, and the possible presence of constraints that prevent the poorer segments of society from becoming part of the middle class.

In the developing country context, the panel-based analysis of welfare dynamics has often focused specifically on establishing and assessing the distinction between chronic and transient poverty. Chronic poverty occurs where the same individuals are consistently poor over time—possibly pointing to the existence of poverty traps. Efforts to combat chronic poverty may call for policies that help households overcome the structural constraints they face. In contrast, transient poverty exists where the composition of the poor changes from one period to the next—due to at least some of the currently poor exiting poverty through upwards mobility, and some of the non-poor falling back into poverty. Here, policies that are more in the nature of safety nets may be required.

Given the (current) scarcity of panel data in developing countries—particularly longitudinal data that are representative at the national level—a variety of research efforts have been directed towards the utilization of cross-sectional surveys to extract insights about poverty dynamics. Following Deaton (1985), a large strand of research has constructed pseudo-panels based on cohorts, to track income and consumption outcomes at the cohort level over time. These approaches have the attraction that, since cross-section samples are refreshed in each wave, they are possibly less exposed to the concerns surrounding attrition and measurement error that afflict panel data sets. However, the focus on cohorts in pseudo-panels implies that relatively little can be said about poverty and mobility trajectories at the household or individual level. Recently, Dang et al. (2014) and Dang and Lanjouw (2018a) have proposed a method for constructing synthetic panels at the household level from two rounds of cross-sectional data.[2] The approach builds on an 'out-of-sample' imputation methodology described in Elbers et al. (2003) for small area estimations of poverty, to convert two or more rounds of cross-section data into a panel of individuals by predicting the income for the same households in future (or past) periods. Analysis of mobility is then possible by using actual observed incomes for households in a given year combined with their predicted incomes in the other. Validation of these methods, where synthetic panel estimates are compared with true panel estimates, has been fairly encouraging.[3] Given

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[2] Bourguignon et al. (2004) and Guell and Hu (2006) apply pseudo-panel methods to analyse poverty dynamics, but are compelled to make a number of assumptions that are difficult to verify. The former are also dependent on at least three rounds of cross-section data. Cuesta et al. (2011) report on broader income mobility in Mexico on the basis of pseudo-panel methods.

[3] Dang and Lanjouw (2018a), Herault and Jenkins (2019), and Garces-Urzainqui (2017) document cases where synthetic panel estimates fall outside the confidence intervals surrounding true panel estimates. However, even in such cases the qualitative patterns of poverty transitions are generally quite similar between the panel and synthetic panel estimates. Cruces et al. (2013) warn that the synthetic panel approach may be less suited to some mobility concepts and measures than others.

the wide availability of cross-section data, synthetic panels promise to add significantly to the countries and time periods for which mobility analyses can be undertaken.

Mobility analysis as described above, based on quantitative panel or cross-section survey data on incomes, offers a useful entry point for understanding how, and to what extent, living standards in a population are changing. However, it has also become clear that these data are at best able to provide a partial understanding. The numerous limitations of such data (limited sample sizes, definitions of welfare, short time periods, measurement error and attrition, methodological assumptions, etc.) imply that even basic descriptions of mobility are approximate at best. More fundamentally, such analysis is at best descriptive, and moving from there to a deeper analysis of the drivers of mobility presents additional onerous challenges. As argued by Ashenfelter et al. (1986), the limitations of panel data may become particularly apparent when we move on from description to the exploration of underlying transmission mechanisms. Notably, income mobility is best understood when broader economic and social structures are also given explicit consideration. As the focus is squarely on change, and as even economic institutions are endogenous to changing economic circumstances and conditions, it seems imperative to complement the standard data on economic welfare dynamics with an understanding of life histories, and of the broader environment and its evolution. Longitudinal village studies provide a setting within which such a broader analysis may be broached—although of course these entail stepping back from making inferences to the larger populations.[4]

The objective of this chapter is to illustrate various entry points into the analysis of mobility, and to take stock of recently available evidence in developing countries. In doing so we adopt a three-pronged approach. First, in Section 6.2 we briefly examine existing evidence on relative mobility and poverty dynamics. In Section 6.3 we describe findings from the growing effort to document patterns of economic mobility via synthetic panels constructed from multiple rounds of cross-section data. In Section 6.4 we describe in detail the story of economic mobility in the village of Palanpur, northern India, over a period of seven decades (Himanshu et al. 2018). This study allows us not just to describe the patterns of poverty dynamics and economic mobility in the village, but also to highlight some of the processes that have been important in driving these patterns. Given the important context of structural transformation within which the Palanpur story is

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[4] Village studies are a long-standing tradition in the South Asian context, and have generated a number of insights about welfare dynamics (Jayaraman and Lanjouw 1999; Himanshu et al. 2016; Walker and Ryan 1990). Village studies per se are less common in other regions, but detailed subnational studies of dynamics are readily found (see for example Scott and Litchfield (1994) in Chile; Townsend (2013) in Thailand; Dercon and Krishnan (2000) in Ethiopia; de Weerdt (2010) and Beegle et al. (2011) in Kagera, United Republic of Tanzania). Many of these look well beyond the analysis of household survey data.

embedded, our sense is that the broad narrative may well resonate elsewhere in the developing world. Section 6.5 offers some concluding remarks.

6.2 Evidence on income mobility and poverty dynamics from panel data

A fairly comprehensive overview of findings from studies of income and earnings mobility in developing countries can be found in Fields (2011). The empirical evidence assembled in the survey reveals that current knowledge is derived to a considerable extent from Latin American countries, where there has been a longer tradition of collecting panel data. However, the survey does also present evidence on patterns of mobility in China, Ethiopia, South Africa, and the United Republic of Tanzania, and it also refers to findings from additional countries in Africa and Asia. Fields (2011) notes that much of the income mobility work has focused on earnings rather than full income, and is generally more representative of urban than rural areas. Based on his review of the evidence, Fields (2011) notes that developing countries tend to exhibit neither complete immobility nor perfect mobility. When the income trajectories of households or individuals are tracked over time, the evidence suggests that there is a general tendency for the rich to remain rich and the poor to remain poor, but there is typically also a great deal of both upwards and downwards movement in the relative income distribution.

Fields (2011) describes a fairly extensive literature investigating whether the mobility patterns of households vary according to their characteristics. An important question concerns whether changes in household earnings are related in some way to initial earnings. This has been explored unconditionally, when just baseline earnings are correlated with subsequent changes in earnings, as well as conditionally, when these patterns are examined controlling for other household characteristics such as occupation, education, demographic composition, etc. The literature has further considered this question in terms of both absolute changes in earnings and percentage changes in earnings. Overall, the literature most frequently finds evidence of 'convergence', suggesting that the largest increases in earnings are experienced by those who have the lowest reported incomes or earnings to begin with. Importantly, the evidence in support of convergence appears to hold when it is assessed unconditionally as well as when it is conditional on household characteristics. In some cases, convergence is observed only in terms of percentage changes rather than absolute changes in earnings, and more broadly the evidence becomes weaker when efforts are made to adjust for the possible presence of measurement error. This finding of convergence is important, as it suggests that income mobility generally acts to make the distribution of lifetime income more equal. A snapshot of income inequality, based on a single cross-section survey, could thus provide a rather misleading picture of the distribution of longer-term incomes.

As noted in the introduction, interest in welfare dynamics in developing country contexts has often been specifically focused on the dynamics of poverty. In one of the earlier syntheses of this particular literature, Baulch and Hoddinott (2000) point out that there should be no presumption that the poor, identified as such at a given moment, are always poor. Consistent with the findings reported by Fields (2011) for the distribution of income as a whole, they suggest that the group of the 'sometimes poor' is strikingly large, and that there is thus a great deal of 'churning' that occurs across the poverty line. Some of the poor graduate out of poverty, while some of the non-poor fall back. The numbers involved are often surprisingly large.

Dercon and Shapiro (2007) build on the analysis of Baulch and Hoddinott (2000), and also examine the profiles of the transitory and chronic poor. They find that in general, individual, household, and community characteristics correlate as intuition would expect with the likelihood of escaping or falling back into poverty. They warn, however, that observing correlations is not the same as establishing causality, and they note the absence of studies that provide such causal evidence. Dercon and Shapiro (2007) further underscore the potential biases to insights that arise as a result of sample attrition, and also note that at least some of the churning observed will be driven by measurement error. They further place great emphasis on understanding the role played by risk and uncertainty in welfare dynamics.

Baulch (2011, 2013) offers the reminder that assessments of movements out of and into poverty refer to discrete jumps across a poverty line. He shows that in Vietnam between 2002 and 2006, while the chronically poor represented a relatively small fraction of the population, the non-poor were concentrated just above the poverty line and thus remained at high risk of falling back into poverty. Indeed, Dang and Lanjouw (2016) propose designating as vulnerable that segment of the non-poor population that faces a heightened risk of falling back into poverty. Ferreira et al. (2013) offer an analogous line of reasoning in establishing a three-way division of the population into the poor, the vulnerable, and the middle class.

Table 6.1 presents updated evidence from a selection of countries on the incidence of chronic and transitory poverty. The table closely follows the structure of Table 1 in Baulch and Hoddinott (2000), differing essentially in that it reports evidence from the 2000s and only findings from nationally representative panel surveys. Some useful insights emerge. First, the 'sometimes poor' are a large share of the population in most of the countries listed. A clear outlier is South Africa, where Finn and Leibbrandt (2016) record percentages for the 'always poor' of between half and two-thirds of the population, depending on the time interval examined. Second, when poverty dynamics are measured over a longer period, then not surprisingly there is greater scope for mobility, and the group of the 'sometimes poor' is larger. When mobility is measured across more than just two waves of a panel data set, as in the case of Uganda, the likelihood of being 'always poor' diminishes even further: there are more opportunities in the data to be

Table 6.1 Poverty dynamics in a selection of nationally representative panel studies

Source	Country	Panel interval dates	Welfare measure	Always poor	Sometimes poor	Never poor
Dang and Lanjouw (2018a)	Bosnia and Herzegovina	2001–04	Per capita consumption	10.3	23.1	66.5
Dang and Lanjouw (2018a)	Lao People's Democratic Republic	2002–07	Per capita consumption	13.8	25.2	61.0
Garces-Urzainqui (2017)	Thailand	2006–07	Per capita income	15.3	21.6	63.1
Dang and Lanjouw (2018a)	Viet Nam	2006–08	Per capita consumption	9.9	10.8	79.3
Dang et al. (2014)	Indonesia	1997–2000	Per capita consumption	7.3	18.4	74.3
Dang and Lanjouw (2018b)	India	2004–11	Per capita consumption	12.7	32.8	54.4
Van Campenhout et al. (2016)	Uganda	2005–09–10–11–12	Per capita consumption	12.3	51.9	35.8
Ruhinduka et al. (2018)	United Republic of Tanzania	2008–10	Per capita consumption	6.6	19.9	73.5
Ruhinduka et al. (2018)	United Republic of Tanzania	2010–12	Per capita consumption	3.1	14.0	82.9
Jolliffe and Seff (2016)	Ethiopia (rural)	2011–13	Per capita consumption	14.4	30.6	55.0
World Bank (2016)	Malawi	2010–13	Per capita consumption	23	32	44
Finn and Leibbrandt (2016)	South Africa	2008–10	Per capita income	64.7	15.6	19.7
Finn and Leibbrandt (2016)	South Africa	2008–14	Per capita income	53.7	25.2	21.1
Dang and Lanjouw (2018a)	Peru	2005–06	Per capita consumption	29.9	20.5	49.7
Cruces et al. (2015)	Peru	2008–09	Per capita consumption	23.6	20.0	56.5
Cruces et al. (2015)	Nicaragua	2001–05	Per capita consumption	35.7	29.5	34.9
Cruces et al. (2015)	Chile	1996–06	Per capita income	4.6	22.6	72.8
Ramos et al. (2015)	Mexico	2002–05	Household income	26.1	45.5	28.3
Dang and Lanjouw (2018a)	United States of America	2007–09	Per capita income	6.0	8.4	85.7

Source: authors' compilation.

observed above the poverty line. Third, notwithstanding the broad evidence of considerable mobility, Table 6.1 suggests that the incidence of chronic poverty in certain countries—such as Malawi, Mexico, Nicaragua, Peru, and South Africa—remains remarkably high. Finally, Table 6.1 also provides a window on the variability of mobility across time intervals. In Peru and the United Republic of Tanzania, mobility figures are provided across two different intervals of similar duration, and the percentages in the three classes of 'always poor', 'sometimes poor', and 'never poor' vary significantly. Assessments of poverty dynamics are thus liable to depend on the specific interval over which such dynamics are measured.

6.3 Insights from synthetic panels

As noted in the introduction, there have been efforts in recent years to develop methods to extract insights about economic mobility and poverty dynamics from cross-section data. The goal is to find a way to draw on the far more abundant cross-sectional household surveys in order to start filling in the knowledge gaps on the international experience of mobility. We outline below a synthetic panel method proposed by Dang et al. (2014) and Dang and Lanjouw (2018a), and we report findings concerning poverty dynamics in a number of countries based on this approach. It should be emphasized, however, that while synthetic panels show promise, a great deal of additional work is needed to establish their ultimate reliability. The brief description below of findings from several attempts to obtain synthetic panel-based estimates should thus be treated with circumspection.[5]

Ferreira et al. (2013) undertake a systematic analysis of household survey data from 18 Latin American countries to assess patterns of mobility—both out of poverty and into the middle class—over the interval from around the mid-1990s to around 2010. They draw on the Dang et al. (2014) methodology of producing synthetic panels, and in particular they adapt the method in such a way as to err on the side of understating mobility. At the aggregate level, obtained by pooling together the data from all the countries, Ferreira et al. (2013) estimate that around 22.5 per cent of the population in these countries remained below a poverty line of US$4 per person per day in 2005 purchasing power standards (PPPs) over the period circa 1995 to circa 2010. Similarly, 22 per cent of the population were 'sometimes poor', while about 55.5 per cent were non-poor throughout. Taking a cut-off point of PPP US$10 per person per day to demark the entry into the middle class, Ferreira et al. (2013) report that only about 20 per cent of the population were counted among the middle class over the whole period.

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[5] For an overview of synthetic panel and vulnerability analysis methods, see Himanshu and Lanjouw (2020).

It is instructive to compare the mobility rates estimated in Ferreira et al. (2013) with those reported in Table 6.1 for the four Latin American countries for which true panel estimates are provided.[6] Table 6.2 reveals that—as foreshadowed by Ferreira et al. (2013)—the synthetic panel estimates of mobility point to a higher degree of chronic poverty than was observed in Table 6.1. However, it is interesting to note that in Chile—where the true panel estimates corresponded to the 10-year interval between 1996 and 2010, and the welfare indicator was also income—chronic poverty was 4.6 per cent, relative to 11.6 per cent in Table 6.2. Additionally, the Ferreira et al. (2013) study suggests that roughly 27 per cent of the population was 'sometimes poor' between 1992 and 2009. This compares with an estimate of 22.6 in Table 6.2, based on true panel data between 1996 and 2006. These findings suggest that biases in the Ferreira et al. (2013) study may not be egregious everywhere.

A recent study by Dang and Dabalen (2018) undertakes a similar effort to produce estimates of poverty dynamics for 21 sub-Saharan African countries, accounting for roughly two-thirds of the entire sub-Saharan population. Although the precise interval over which the dynamics are assessed varies, the comparisons span six years on average during the 2000s. Whereas Ferreira et al. (2013) reported lower-bound estimates of mobility, Dang and Dabalen (2018) attempt to estimate point estimates of mobility, based on a refinement of the methodology described in Dang and Lanjouw (2018a). When pooling the data for all 21 countries, Dang and Dabalen (2018) report that just under 36 per cent of the population remained under the poverty line of US$1.90 per person per day, in 2011 PPP terms, across the intervals compared. Transitory poverty accounted for 13.4 per cent, and the 'never poor' accounted for 50.7 per cent of the population.

Dang and Dabalen (2018) point to great variation in the levels of chronic poverty across African countries. Worryingly, but perhaps not surprisingly, the incidence of chronic poverty is particularly high in countries such as the

Table 6.2 Poverty dynamics in Latin America—synthetic panel estimates

Country	Panel interval dates	Always poor	Sometimes poor	Never poor
Nicaragua	1998–2005	54.3	16.0	29.7
Peru	1999–2009	31.0	25.7	43.3
Chile	1992–2009	11.6	27.3	61.1
Mexico	2000–08	24.9	12.0	63.1

Source: authors' compilation adapted from Ferreira et al. (2013).

[6] However, strict comparisons are not valid, due to the different time periods under consideration and the facts that the welfare levels in the Ferreira et al. (2013) study are uniformly income, and the poverty lines under consideration are country-specific in Table 6.1 and common across countries in the Ferreira et al. (2013) study.

Democratic Republic of the Congo (DRC), Madagascar, and Malawi, with also very high overall poverty rates. For example, the overall poverty rate in DRC was nearly 80 per cent in 2012 (although down from 92 per cent in 2004), and the chronically poor represented nearly three-quarters of this group. More generally, Table 6.3 confirms that transitory poverty is consistently high in sub-Saharan Africa, and it points to several countries where the category of the 'never poor' is vanishingly small (DRC, Madagascar, Malawi, and Mozambique).

A third application of synthetic panel-based mobility analysis across a set of countries can be found in Dang and Ianchovichina (2018), assessing patterns of mobility in Arab countries. Dang and Ianchovichina (2018) construct synthetic panels from cross-section data in six Arab countries/territories: Egypt, Jordan, Palestinian territories, the Syrian Arab Republic, Tunisia, and Yemen. The panels span different time periods—mid- to late 2000s in Egypt, Jordan, Palestinian territories, and Tunisia, and late 1990s to mid-2000s in the Syrian Arab Republic and Yemen. End-year poverty rates, based on a uniform poverty line of US$2 per person per day in 2005 PPPs, varied sharply across these countries, with a low of less than one per cent in the Palestinian territories, and a high of 56

Table 6.3 Poverty dynamics in sub-Saharan Africa—synthetic panel estimates

Country	Panel interval dates	Always poor	Sometimes poor	Never poor
Mauritania	2004–08	6.5	12.1	81.4
Botswana	2002–09	8.9	24.9	66.2
Nigeria	2011–13	11.7	17.9	70.4
Ghana	1998–2005	20.4	18.4	61.2
Cote D'Ivoire	2002–08	17.3	11.2	71.5
Cameroon	2001–07	13.9	23.3	62.8
Ethiopia	2004–10	28.6	18.8	52.6
Senegal	2005–11	29.5	17.2	53.3
Chad	2003–11	24.8	55.3	19.9
Eswatini (formerly Swaziland)	2000–09	18.0	51.2	30.8
Uganda	2005–09	32.4	33.1	34.5
United Republic of Tanzania	2007–11	27.6	47.7	24.7
Togo	2006–11	41.1	25.5	33.4
Sierra Leone	2003–11	37.8	36.3	25.9
Burkina Faso	2003–09	47.6	16.3	36.1
Rwanda	2005–10	50.8	29.3	19.9
Zambia	2006–10	45.1	32.0	22.9
Mozambique	2002–08	51.1	48.5	0.4
Malawi	2004–10	54.1	37.8	8.1
DRC	2004–12	72.8	24.1	3.1
Madagascar	2005–10	59.9	36.8	3.3

Source: authors' compilation adapted from Dang and Dabalen (2018).

Table 6.4 Poverty dynamics in the Arab world—synthetic panel estimates

Country/territory	Panel interval dates	Always poor	Sometimes poor	Never poor
Palestinian territories	2005–09	0.1	1.9	98.0
Syrian Arab Republic	1997–2004	7.3	34.3	58.4
Jordan	2006–08	2.4	4.7	92.9
Yemen	1998–2006	28.3	31.5	40.2
Egypt	2004–09	13.3	22.8	63.9
Tunisia	2005–10	1.2	11.9	86.9

Source: authors' compilation adapted from Dang and Ianchovichina (2018).

per cent in Yemen (Table 6.4). Poverty dynamics, assessed on the basis of the US $2 poverty line, were negligible in the Palestinian territories and Jordan—where the 'never poor' represented more than 90 per cent of the population. In the other four countries, chronic and transitory poverty were rather higher, with the 'sometimes poor' accounting for the bulk of the poor in each country. Given the degree of churning that can be observed, it becomes apparent that simply comparing aggregate poverty rates over time might not capture the extent to which the population was exposed—at one point or another—to acute deprivation. Since in several countries the intervals examined spanned the social upheaval of the 'Arab spring', this helps us to understand why disaffection was so widespread, even though poverty (and inequality) rates were rather low and stable.

6.4 Income mobility at the village level: a case study

6.4.1 Village studies as a tool for studying mobility

The preceding discussion has highlighted the challenge of describing and measuring mobility in the developing world. Better techniques, improvements in data quality, and accessibility of unit data have allowed researchers to use panels or synthetic panels to expand assessments of mobility in a growing number of countries. However, even where such data are available, they rarely cover sufficiently long periods to enable the study of long-term processes, such as mobility across two or three generations.

In addition, large-scale sample surveys have the advantage of representativeness but are constrained by the nature of the (typically quantitative) questions they ask. Village surveys, on the other hand, typically use multiple survey instruments, including qualitative surveys that aim to capture different aspects of the social, political, and institutional context. Such surveys may not be suited for studying

trends and patterns of mobility for a country as whole, because of their small size and limited domain of reference. But these limitations may be compensated for in part by the depth of analysis that these studies occasionally permit.

Among longitudinal village surveys, Palanpur, a small village in western Uttar Pradesh in India, is particularly well placed for a more detailed study of mobility and poverty dynamics. Palanpur is uniquely endowed with data, having been intensively surveyed on seven occasions spanning the interval from 1957–58 to 2015. Himanshu et al. (2018) provide a detailed account of economic development in Palanpur and how lives have changed in the face this process. In what follows we present a brief description of the most salient aspects of mobility and its drivers.

A unique feature of the Palanpur data arises from the fact that that the surveys cover the entire village population, as opposed to a sample of households or individuals. This is useful for the detailed analysis of inequality and relative mobility. The Palanpur data also allow the use of caste as an occupational classification category. Occupational transitions can provide important insights into welfare dynamics. In any analysis spanning seven decades, occupational classifications are always difficult to define consistently. One way of dealing with such problems is to use caste as a category of classification.[7] While they are not synonymous with occupational classifications, the fact that caste hierarchies are generally stable over time offers a window onto aspects of mobility that go beyond the standard income metrics.

6.4.2 Palanpur: a brief description

In the most recent detailed survey, conducted in 2008–10, Palanpur had a population of 1,255 persons in 233 households. The three main castes among Hindus that accounted for about two-thirds of the village population were Thakurs (23 per cent), Muraos (24 per cent), and Jatabs (16 per cent). Muslims, at around 15 per cent, were divided into two main groups, Telis and Dhobis.

Highest in the village social hierarchy are the Thakurs, who have traditionally had the largest landholdings in the village. However, declining land endowments and rising real wages have gradually compelled most of them to take up employment opportunities outside the village. In economic terms, the Muraos are placed similarly to the Thakurs, and occasionally rank even higher in per capita income terms. Muraos are traditional cultivators and have generally been successful in taking advantage of technological changes in agriculture. They have tended to eschew involvement in the growing non-agricultural sector. At the bottom end of

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[7] Hindu society is divided into various caste and subcastes, which are hereditary. The caste of an individual is generally also associated with the status of the individual/household, based on the position of the caste in the social hierarchy. For a detailed description of caste and social status in Palanpur, see Lanjouw and Stern (1998).

the hierarchy are the Jatabs, who comprise the bulk of the Scheduled Caste population in the village. The Jatabs are historically the most deprived caste in Palanpur in social and economic terms. They own little land, and until very recently lived in a cluster of shabby mud dwellings, earning most of their income from casual labour and subsistence farming. The Jatabs also remain at the bottom in terms of human development outcomes, with particularly high levels of illiteracy throughout the survey period. Before 1993, few Jatabs had ever succeeded in obtaining regular employment outside the village.[8] Muslims are not part of the traditional caste hierarchy but were generally also among the poorest households until 2008, when the Telis saw significant improvement in their economic fortunes.

Between 1957–58 and 2008–09, total village income increased more than five-fold.[9] As a result of population growth, however, real per capita income growth was slower, increasing 2.4 times.[10] During the seven decades of the survey period, not only did the village see uneven growth, but the fortunes of its residents also evolved differently. In particular, growth was not shared equally by all caste groups.

Lanjouw and Stern (1998) identify technological change, non-farm jobs, and population growth as the primary drivers of growth during the first three decades. These three forces also remained relevant during the most recent three decades, but the degree to which they played a role changed. Agricultural intensification ushered in by the Green Revolution played an important role during the 1960s, 1970s, and early 1980s. Non-farm diversification played only a modest role in that period. The processes of change launched by the Green Revolution—expansion of irrigation, intensification of cultivation, changing cropping patterns, farm mechanization, marketization of factors of production, and improvements in formal credit supply—continued throughout the survey period, and combined over time to result in the release of labour from agriculture. This was increasingly absorbed by a growing non-farm sector. The availability of casual manual jobs and self-employment opportunities in the form of small 'petty' businesses such as general shops, milk businesses, tailoring, etc. resulted in a larger pool of villagers employed in the non-farm sector. One feature of this in recent decades has been a significant increase in access to non-farm jobs among hitherto disadvantaged groups such as Jatabs and Telis. The non-farm sector has emerged as a major driver not just of economic outcomes but also of changing income distribution and mobility.

[8] Lanjouw and Stern (1998) indicate that in the period up to 1983–84, even after controls for wealth position and education levels, Jatabs were unlikely to find regular employment in the non-farm sector.

[9] This growth was not even, with village income increasing at 3.83 per cent per year during 1958–83, but slowing down to 3 per cent over the next 25 years (1983–2008).

[10] Back-of-the-envelope calculations show that the average income in Palanpur in the period 2008–09 was around the World Bank International Poverty Line, indicating that in this sense it is a poor village by international standards.

6.4.3 Mobility across survey years

The conventional analysis of mobility, based on income and consumption, is central to an understanding of distributional outcomes. However, quantitative measures of income or consumption provide only a partial perspective on patterns.[11] The Palanpur surveys have also looked at qualitative measures of wellbeing, especially measures that reflect the resident investigators' perspectives on living standards and capture the relative socioeconomic status of households from the villagers' own standpoint.[12] For most of the mobility analysis that follows, we combine these quantitative and qualitative measures. While they broadly agree with each other for rankings at the two ends of the welfare distribution, there are differences in the middle. The differences in various ranking methodologies highlight the role and relative importance of different aspects of wellbeing, thereby providing a multidimensional view of poverty and the circumstances of poor people, a view that is broader than that available from a single dimension.

As in any village, Palanpur villagers live in a close-knit community where individuals know a great deal about each other. With the investigators' long residence in the village, much of this local knowledge is absorbed and can be considered together with direct observation and quantitative measures. This knowledge has been used by the resident investigators to develop an 'observed means' classification. As considered here, 'means' should be understood as the ability to command resources. Drawing on personal observations and consultation with the villagers, the investigators constructed a ranking of overall prosperity for every household during the survey years 1983–84 and 2008–09.[13]

6.4.4 Intragenerational mobility

We use both quantitative and qualitative rankings to compare the relative positions of households in survey years, and to compare their position in one period with their position in the second period. We start with an examination of the interval between 1983–84 and 2008–09, as this allows us to consider both income and the observed means categorization. While the analysis based on observed means is limited to the interval between 1983–84 and 2008–09, it is arguably less prey to idiosyncratic fluctuations in incomes, and may therefore be more robust for

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[11] Apart from the difficulty of imputation and coverage of income/consumption, the quantitative measures are affected by the choice of survey years. For example, a comparison between a drought year and a normal year may lead to a different understanding of mobility, given that such external shocks do not affect all households in the same manner or to the same extent.

[12] It is important to acknowledge, of course, that qualitative surveys and qualitative rankings may introduce their own subjective biases.

[13] Households were classified into five groups as follows: 'very poor', 'poor', 'secure', 'prosperous', and 'rich'. For details, see Himanshu et al. (2018).

tracking the movements of individuals and their households across survey rounds. Since income data are available from 1957–58 onwards, we use the income classification to examine below how intergenerational mobility has evolved.

Table 6.5 displays the movement of individuals and their households according to the observed means classification in 1983–84 and 2008–09. Similarly to the income classification,[14] the transition matrix by observed means reveals that a relatively high percentage of the better-off were able to maintain their rankings between 1983–84 and 2008–09 (28 per cent of the rich, and 26 per cent of the prosperous group; see cells on the diagonal of the transition matrix in Table 6.5). At the bottom, the percentage of the very poor and poor in 1983 who remained very poor and poor was only 13 per cent in both categories (see the diagonal in Table 6.5). As with income quintiles, this suggests greater mobility by those at the bottom of the rankings than by the top two categories.

The detailed information on income along with observed means also allows us to throw light on the patterns of mobility by caste. Table 6.6 gives the distribution of households by observed means by caste. The dominance of Thakurs and Muraos among the relatively well-off is once again seen from the fact that no Thakur or Murao household was ranked as very poor in 1983–84. On the other hand, there was no Jatab household which was classified as prosperous or rich. The situation changed in 2008–09, with at least some Thakur and Murao households then appearing as very poor. While there were no poor households in 1983–84 among the Muraos, a little over one-fifth of Murao households were

Table 6.5 Cross-tabulation of households by observed means (investigator rankings) between 1983–84 and 2008–10

Observed means household rankings in 2008–10

		Very poor	Poor	Secure	Prosperous	Rich	Matched households	House-holds in 1983–84
Observed	Very poor	0.13	0.42	0.39	0.06	0.00	31	20
means	Poor	0.17	0.13	0.57	0.03	0.10	30	19
household	Secure	0.10	0.31	0.27	0.19	0.13	52	24
rankings in	Prosperous	0.05	0.19	0.40	0.26	0.10	42	22
1983–84	Rich	0.02	0.11	0.34	0.25	0.28	61	22
Households in 2008–10		17	48	81	39	31	216	107

Note: the total number of households (216) matched between the two survey rounds is less than the actual number of households (233) in 2008–09.

Source: primary survey data.

[14] We do not present the income transition matrices for the sake of brevity. Interested readers can refer to Himanshu et al. (2018) for details.

Table 6.6 Observed means classification of Palanpur households by caste

Panel A: 1983–84

	Very poor	Poor	Secure	Prosperous	Rich	% (no. of households)
Thakur	0.0	0.267	0.233	0.267	0.233	1.00 (30)
Murao	0.0	0	0.222	0.370	0.407	1.00 (27)
Dhimar	0.154	0.462	0.308	0.077	0.0	1.00 (13)
Gadariya	0.0	0.250	0.25	0.167	0.333	1.00 (12)
Dhobi	0.250	0.250	0.250	0.0	0.250	1.00 (4)
Teli	0.375	0.313	0.188	0.063	0.063	1.00 (16)
Passi	0.400	0.067	0.133	0.200	0.200	1.00 (14)
Jatab	0.737	0.158	0.105	0.0	0.0	1.00 (19)
Other	0.286	0.143	0.0	0.429	0.143	1.00 (8)
% of households	22%	19%	20%	19%	20%	100% (143)

Panel B: 2008–09

	Very poor	Poor	Secure	Prosperous	Rich	% (no. of households)
Thakur	0.052	0.121	0.345	0.259	0.224	1.00 (56)
Murao	0.036	0.200	0.400	0.182	0.182	1.00 (58)
Dhimar	0.136	0.364	0.273	0.091	0.136	1.00 (18)
Gadariya	0.0	0.133	0.533	0.267	0.067	1.00 (16)
Dhobi	0.250	0.250	0.250	0.250	0.00	1.00 (8)
Teli	0.273	0.182	0.273	0.136	0.136	1.00 (21)
Passi	0.0	0.167	0.667	0.0	0.167	1.00 (6)
Jatab	0.077	0.436	0.410	0.077	0.0	1.00 (38)
Other	0.182	0.182	0.182	0.455	0.0	1.00 (9)
% of households	8%	23%	37%	19%	13%	100% (230)

Source: primary survey data.

classified as poor in 2008–09. As against this, with no Jatab households classified as prosperous or rich in 1983, 8 per cent were classified as prosperous in 2008–09. But what is remarkable is that only 8 per cent of Jatab households were classified as very poor in 2008–09, as against three-quarters classified as very poor in 1983. The rise of Jatabs in the rankings is a reflection of fundamental changes in Palanpur's economic and social structures.

The evidence for Palanpur thus points to a significant improvement in the relative position of what has historically been a particularly vulnerable and disadvantaged group of households. These households are also, for the first time, actively engaged in the non-farm sector, earning roughly as much from non-farm sources (as a percentage of total income) as the other castes. The picture is one of an expanding non-farm sector generating returns that appear to exceed those from agriculture, slowly becoming less exclusively the preserve of the well-off, and therefore representing an increasingly important engine of rural poverty reduction.

6.4.5 Intergenerational income mobility

A further unique feature of the Palanpur study is its ability to offer a window onto mobility patterns across generations. Given that we have data for all the individuals and households over seven decades, the Palanpur study allows us to look at the change in the occupational patterns as well as income rankings of households over generations. There are three main aspects that determine the economic outcomes achieved during an individual's lifetime: first, the circumstances into which he or she is born, such as caste, gender, or wealth of the family; second, people's efforts or talents in terms of the initiative and work that they put into sustaining a livelihood; third, good or bad fortune, including health and outcomes of risky activities in agriculture or elsewhere, and the extent to which behaviour (such as gambling) involves exposure to risk. Inequalities of outcome attributed to effort or talent are sometimes regarded differently from those associated with family background or ill health.

Recent years have seen a growing literature assessing 'intergenerational elasticity in earnings', which captures the strength of the association of income earnings across generations.

Corak (2013) focuses on the father–son relationship and evaluates the elasticity of a son's lifetime earnings with respect to his father's lifetime earnings. He introduces the idea of the Great Gatsby Curve, which plots the relationship across countries between the intergenerational elasticity in income and a cross-sectional measure of income inequality, the Gini coefficient. The Great Gatsby Curve shows a positive relationship across countries, suggesting that higher inequality in a given country at a given point in time is associated with lower intergenerational mobility (a higher intergenerational elasticity in earnings) in that country. This is an intriguing finding, pointing to the possibility that rising inequality might unleash forces that act to reduce economic mobility.

Using the very long time span of our data, we enquire into mobility across generations in Palanpur. The long period of the surveys, covering income data for 1957–58 to 2008–09, allows us not only to look at father–son intergenerational income elasticity over one generation, but also to track and assess changes in this elasticity over two generations. We calculate the intergenerational elasticity in income for two periods of at least 25 years: 1957–58 to 1983–84, and 1983–84 to 2008–09. For each period we identify father–son pairs where sons in the latter period belong to the 25-to-35 age group. The per capita income of the household in the initial period is assumed to be the father's income. In other words, if the son falls into the working-age group mentioned and is part of the household in 2008–09, then the per capita income of the household in 1983–84 is considered to be his father's income. Table 6.7 reports the estimated elasticities.

The picture in Palanpur is consistent with Corak's (2006) observation of higher income inequality in the later period being associated with a higher

intergenerational income elasticity (and thus lower mobility). We observe an increase in the intergenerational elasticity over time, along with a rise in overall inequality as measured by the Gini coefficient. Figure 6.1 plots the Gini coefficients of the terminal year and the value of intergenerational elasticity—the figure known as the Great Gatsby Curve.

While the persistence of income rankings is presumably strongly influenced by inheritance passed on to successive generations—notably land in the case of an agrarian economy such as Palanpur—the emergence of the non-farm sector as an alternative source of income can also be seen to have generated the opportunity for some households to break the rigidities in income and wealth transmission. Jatabs and households in the lower-end income strata have now gained access to some non-farm activities. However, these are mostly of a casual nature. It is important to recognize, moreover, that although non-farm employment has

Table 6.7 Intergenerational elasticity in earnings and inequality, 1958–2009

	1958–84 (1)	1984–2009 (2)	1958–74 (1984) (3)	1974 (1983)–2009 (4)
No. of observations (in the age group 25–35 years)	58	100	58	100
Gini coefficient in terminal year	0.336	0.379	0.235	0.379
Intergenerational elasticity	0.328	0.396	0.294	0.441

Note: columns 3 and 4 represent the elasticity by replacing the income for 1983–84 with an average of 1974–75 and 1983–84, because 1974–75 was a good agricultural year and 1983–84 was a bad year.

Source: primary survey data.
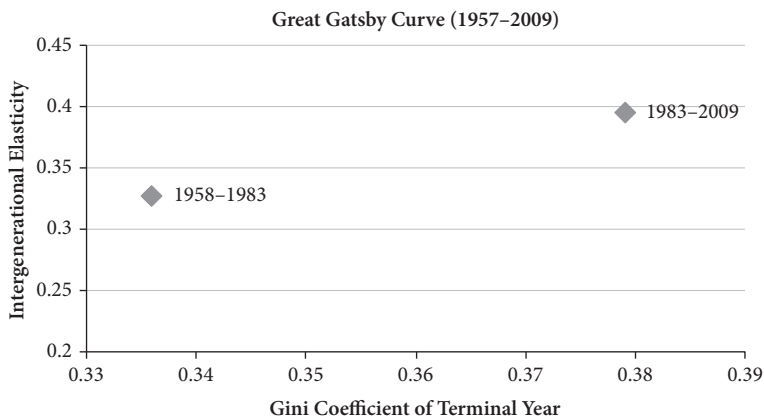
Figure 6.1 Great Gatsby Curve for Palanpur

Source: authors' illustration based on primary survey data.

become accessible to a wider population, the importance of networks and assets has not diminished and may well have increased. In particular, access to regular, well-paying non-farm jobs remains concentrated among Thakurs and other advantaged households, who have better access to networks and can finance 'entrance fees' or bribes where these are necessary. In addition, in a few cases where educational qualifications have been important, these have been concentrated among the relatively advantaged. The story emerging from our examination of intergenerational mobility, and finding evidence of some decline, is thus not inconsistent with increased intragenerational mobility among Jatabs and other caste groups. Broadly speaking, the new non-farm opportunities do open up possibilities for upwards mobility, and within any group some move to take up these opportunities more quickly than others. At the same time, income and social status increase the likelihood of obtaining these non-farm jobs, and this effect becomes more important in overall structures as the number of non-farm opportunities rises.

We can further examine the changing nature and structure of non-farm opportunities by looking at the transition matrix of occupations between fathers and sons. Table 6.8 presents the occupational transition matrix for two generations. We match fathers' occupations in 1957–58 with sons' occupations in 1983, and fathers' occupations in 1983 with sons' occupations in 2008–09. One of the striking results from this analysis is the concentration of casual labour jobs in 2008–09 compared with 1983–84. Only 40 per cent of casual non-farm labourers in 1983–84 had a father who also worked as a casual non-farm labourer in 1957–58, but 54 per cent of casual non-farm labourers in 2008–09 were in households where the father was also a casual non-farm labourer in 1983–84. On the other hand, if we compare the bottom and top panels, we see that overall, the transmission of parental occupation was weaker in 2008–09 compared with 1983–84 for cultivators and regular non-farm workers.

6.4.6 Discussion

The analysis above clearly brings out the rise in per capita incomes in Palanpur and the consequent fall in poverty in recent years. Consistent with all-India trends, the rise in incomes is also accompanied by increasing inequality in the later decades of the study period. Also consistent with the all-India experience, there is an accelerating trend towards non-farm employment diversification. This has been accompanied by a change in the composition of the non-farm sector since 1983–84, with a rise in the share of casual labour and self-employment activities and a fall in regular employment. The expansion of non-farm activities has led to some increase in the participation of disadvantaged castes in these activities. This has not only increased the overall incomes of disadvantaged castes,

Table 6.8 Transition matrix of fathers' and sons' occupational categories, 1983–84 and 2008–09

Sons (2008–09)

	Occupation	Student	Cultivation	Agricultural labour	Casual labour	Regular employment	Self-employment
Fathers (1983–84)	Not working	0.08	0.38	0	0.08	0.23	0.23
	Cultivation	0.21	0.40	0.05	0.16	0.10	0.10
	Agricultural labour	0	0	0	0	0	0
	Casual labour	0.15	0.08	0.15	0.54	0.08	0
	Regular employment	0.39	0.19	0	0.17	0.17	0.08
	Self-employment	0.25	0.25	0	0.25	0.06	0.19

Sons (1983–84)

	Occupation	Student	Cultivation	Agricultural labour	Casual labour	Regular employment	Self-employment
Fathers (1957–58)	Not working	0	0.33	0	0.17	0.17	0.33
	Cultivation	0.05	0.58	0	0.06	0.31	0
	Agricultural labour	0	0	0	0	1.00	0
	Casual labour	0.20	0	0	0.40	0.20	0.20
	Regular employment	0.18	0.09	0.18	0.18	0.36	0
	Self-employment	0	0	0.33	0	0.67	0

Note: entries in the table are fractions moving from the status in the row to the status in the column. For the first block of the table, the sons' occupation class (present and surveyed in 2008–09) in the age group 15–50 is matched with fathers' (heads of household) occupation in 1983–84. For the second block of the table, the sons' occupation class (present and surveyed in 1983–84) in the age group 15–50 is matched with fathers' (heads of household) occupation in 1957–58. Total number of sons matched with their fathers in 2008–09: 141. Total number of sons matched with their fathers in 1983–84: 104. Sons falling under the category of 'not working' were students.

Source: primary survey data.

notably the Jatabs, but has also contributed to narrowing the gap between the Jatabs as a group and the rest of the village. The Telis, a much smaller group, have moved up even more sharply. This has been in large measure through self-employment and entrepreneurship—driven by the remarkable progress of one particularly enterprising household.

Although the greater dispersion of non-farm jobs across caste groups has been an important driver of the mobility of households, particularly for those at the bottom of economic ladder, these jobs are still governed to an important extent by access to networks, as well as by the acquisition of assets for some self-employment activities. The village elites have been particularly well placed to take advantage of their more extensive networks and relative wealth. The story of mobility in Palanpur has thus seen both an increase in intragenerational mobility—benefitting to a large extent the weaker segments of the village population—and a decline in intergenerational mobility over the seven decades covered by the village surveys.

6.5 Concluding remarks and policy implications

This chapter aimed to present an overview of the available evidence on income mobility and poverty dynamics in developing countries. We briefly summarized the key messages from an earlier literature on the subject of income mobility and poverty dynamics. Next, we supplemented this evidence base with emerging findings derived from the growing effort to document patterns of economic mobility via synthetic panels constructed from multiple rounds of cross-section data. While these synthetic panels appear to provide useful additional evidence, we would also emphasize that ongoing work to establish the reliability of the methods and resulting estimates remains essential.

At the global level, it is difficult to draw general conclusions regarding income mobility in the developing world. Context-specific circumstances, the durations of the intervals under consideration, and numerous other factors combine to prevent broad generalizations. One robust finding from the available national-level studies, and from the earlier literature on the topic, is that there is substantial movement by households across income classes, or the poverty line, from one year to the next. Poverty dynamics, and indeed dynamics across all classes of the income distribution, are more frequent than is often believed. Poverty in developing countries is not universally a chronic condition. It is understood that some of this observed churning may be driven by data issues—notably measurement error. But much of this mobility is likely to be real, and there are important remaining gaps in our understanding of the factors, such as migration, that are likely to play an important role.

One way to get deeper insights into the underlying processes at work is to look at detailed case studies. In Section 6.4 we attempted to look more closely at the

processes that drive mobility, and at the welfare interpretation of those processes, by describing in detail the story of economic mobility in the village of Palanpur, northern India, over a period of seven decades. The richness of the data, covering all households in the village for a span of many decades, has allowed us to track changes in poverty, inequality, and mobility at a level of detail not normally available from secondary data sources. The close attention to detail and the long time spent in the village have also given us an opportunity to highlight individual examples, and to set observed changes in a broader social context. The key finding from the Palanpur story is that against a background of structural transformation out of agriculture towards a more diversified rural economy, income mobility has increased. There is clear evidence of a greater ability of the more disadvantaged segments of rural society to lift themselves out of poverty and to rise in relative income rankings. At the same time, the Palanpur story points to rising inequality accompanying the diversification process, and this in turn appears to be associated with an attenuation of intergenerational mobility. This is a sobering message about the possible longer-term impacts of this kind of development process.

While a longitudinal study of a village such as Palanpur offers opportunities for the in-depth analysis of dynamics, it obviously comes at the cost of constraining our ability to make inferences to broader populations. Nonetheless, we suggest that the story of mobility in Palanpur may not be so unusual in the Indian context.

The analysis of cross-country studies and the in-depth studies from the Palanpur surveys suggest a pattern of mobility across income classes including at and around the poverty line class. These are conditional on social and political context and the dynamics of economic change. The implication for policy is difficult to generalize but these do emphasize the process of mobility driven by access to opportunities opened by economic change. The mobility in case of Palanpur is as much a result of declining agriculture and opening up of opportunities outside agriculture as it is due to individual risk taking. Some of these processes are likely to generate new forms of inequalities but may also allow existing structures of inequality to be broken. Policy can certainly help in facilitating the risk taking. But it is also necessary to provide the opportunities for upward mobility through the process of economic growth.

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7

Educational Mobility in the Developing World

Florencia Torche

7.1 Introduction

Educational mobility captures the association between parents' and adult children's schooling attainment. Along with measures of occupational and economic mobility, it provides information about equality of opportunity in society. A strong association signals that the chances to attain formal schooling are largely determined by the advantages of birth. A weak association suggests that everyone, regardless of family educational resources, has similar chances to attain high (or low) levels of schooling.

While much mobility research focuses on occupational and economic indicators such as earnings, income, class, or occupational status, schooling is a distinct and important socioeconomic domain. Educational attainment is the main predictor of earnings in contemporary societies, and the earnings returns to schooling are greater in developing than in wealthy countries (Psacharopoulos and Patrinos 2018). Educational attainment has intrinsic value, and it predicts a range of nonpecuniary outcomes including health, longevity, fertility, marriage and parenting, crime, political participation, and attitudes, in both the developing and the developed world (Cutler and Lleras-Muney 2008; Lochner 2013; Omariba 2006; Oreopoulos and Salvanes 2011).

As well as being a relevant outcome in its own right, educational attainment plays a central role in the process of intergenerational economic and occupational mobility. Education has been found to be the main vehicle both for economic persistence across generations and for intergenerational mobility (Hout and DiPrete 2006). Education is the main vehicle for persistence because advantaged parents are able to afford more and better education for their children. Education is at the same time the main vehicle for economic mobility because most of the variance in educational attainment is not tied to social origins.

Studying educational mobility also has practical advantages compared with economic mobility. Most people complete their education by their early adulthood.

As a result, measures of educational attainment among adults at a single point in time provide highly valid and stable information about completed schooling. This contrasts with measures of earnings, which can vary widely from year to year. As a result, researchers need to obtain multiple measures over time in order to approach a measure of 'permanent earnings' (Friedman 1957).

Furthermore, questions about educational attainment are usually not perceived as sensitive by survey respondents, and they have good recall, refusal, and reliability properties. This is particularly advantageous when information about parents' education is retrospectively reported by adult children, which is the case of most surveys in the developing world.

Because of these practical advantages, intergenerational educational mobility has been measured in many countries of the world, including developing and wealthy nations. An early cross-country assessment of mobility across cohorts born from the 1930s to the 1970s included 42 countries (Hertz et al. 2008). A recent update considered 148 nations, with good representation across all continents (World Bank 2018).

Researchers have found substantial variation in intergenerational educational mobility across the world, with Northern European countries usually featuring the highest levels of mobility, and Latin American countries until recently featuring the lowest levels. Even if the exact rankings vary somewhat depending on the measure used (more on this later), these country rankings closely resemble rankings based on intergenerational earnings mobility, suggesting a close association between these measures. Both economic and educational mobility are related to economic inequality in cross-sectional comparisons across countries, such that the Great Gatsby Curve applies to both measures. In fact, the few analyses that have explicitly compared measures of educational and economic mobility have found a strong although by no means perfect correlation between the two (Björklund and Jäntti 2011; Blanden 2013).

Even if basic descriptive analyses of educational mobility are available for a large number of developing countries, the study of educational mobility in the developing world has been limited. First, the study of mechanisms for the intergenerational educational association is largely restricted to wealthy countries. Second, there is only a small literature on the association between mobility and macro-level factors such as economic development and public educational spending, as well as on the impact of economic crises on educational mobility in developing countries. Moreover, this literature is scattered and focused on some countries in the developing world, such as Latin American nations, India, and South Africa.

This review will consider the trends and patterns of educational mobility in the developing world. We will explicitly compare these patterns with the developed world whenever possible, in order to gain analytical insight and to examine the relevance of context. The review is organized as follows. Section 7.2 examines

concepts and measures of educational mobility. Section 7.3 examines theoretical approaches to accounting for the mechanisms of intergenerational educational persistence. Section 7.4 reviews patterns and trends of intergenerational educational mobility around the world, with an emphasis on developing regions. The section also examines differences in mobility by gender and macro-level correlates of educational mobility. Finally, Section 7.5 focuses on the relationship between educational and economic mobility, and the role of education in the intergenerational transmission of economic advantage and mentions policy implications of the literature.

7.2 Concepts and measures in the study of intergenerational educational mobility

Educational mobility captures the association between parents' schooling attainment and their children's attainment. Two types of mobility provide complementary information. Absolute mobility captures the total observed change in educational attainment across generations. Overall change across generations is driven by both educational upgrades affecting the entire population over time, and the allocation of education based on parents' education net of overall upgrade. Typical measures of absolute mobility include the proportion of individuals with higher levels of educational attainment than their parents (upward mobility) and those with less attainment than their parents (downward mobility). Relative mobility, in turn, captures the association between parents' and children's education net of any change in the distribution of schooling across generations.

The analysis of educational mobility tends to focus on relative mobility. This is understandable given that this measure provides a more direct assessment of equality of opportunity in society. However, educational expansion provides an important impetus for absolute educational mobility as experienced by individuals, particularly in contexts, such as developing countries, where access to formal education has expanded greatly across cohorts. For example, Brazilians born in 1990 attained on average 10 years of schooling. In contrast, their parents attained on average only six years of schooling (Leone 2017). This substantial upward mobility might be entirely consistent with no increase in relative mobility if, in a context in which everyone benefits from educational expansion, the allocation of educational gains remains as strongly tied to parents' education as before.

7.2.1 How is educational mobility measured?

The specific measures of absolute and relative educational mobility depend on how educational attainment is operationalized: either as a continuous measure of

the total number of years of schooling completed, or as a set of ordered categories that capture educational milestones such as completing primary education, continuing into secondary school, completing secondary school, etc. This categorical classification assumes that educational attainment is not a continuous accumulation of years of schooling, and that the effect of attaining one additional year might vary dramatically across levels.

7.2.2 Years of schooling

When educational attainment is operationalized as years of schooling, mobility is measured by means of a linear regression coefficient or a correlation coefficient linking parents' and adult children's schooling. These measures provide simple summary accounts that are easy to obtain and interpret. Their validity is based on the assumption that the intergenerational educational association is linear, which may be an oversimplification in some contexts (for example, there is evidence that the association might be stronger among parents with high levels of education).

The main difference between the intergenerational educational regression (IER) coefficient and the intergenerational educational correlation (IEC) coefficient is that the former is affected by the dispersion of parents' and children's education, and the latter nets out the dispersion in both generations, creating a standardized metric that ranges between −1 and +1. The correlation coefficient is obtained by multiplying the regression coefficient by the ratio of the standard deviations of parents' schooling and children's schooling.

Both measures provide valuable, complementary information. The IER has a straightforward interpretation. It captures the average change in an adult child's years of schooling associated with each one-year increase in the parents' schooling. For example, an IER of 0.6 indicates that for each additional year of parents' education, children's education is expected to increase by 0.6 years on average. The IEC, in turn, uses the metric of the standard deviation. An IEC of 0.4, for example, indicates that for each standard deviation increase in parents' schooling, children's schooling is predicted to increase on average by 0.4 standard deviations. Even though it is less intuitive, it has been claimed that the IEC is more stable and less prone to bias than the IER (Emran et al. 2018).[1]

The distinction between the IER and the IEC is not merely a statistical detail, and it is particularly important when one is comparing mobility across countries or over time. A common finding in the literature is that, across cohorts, the IER

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[1] Furthermore, measures that link ordered ranks of educational attainment in both generations may provide an even more robust measure than the IER or IEC when data are incomplete (Emran and Shilpi 2017).

declines while the IEC remains constant.[2] Given that the IEC nets out the influence of changes in the dispersion of education across generations, such a departure between measures suggests that the decline in the intergenerational association captured by changes in the IER is entirely driven by changes in the distribution of schooling of parents and/or children across cohorts, without any change in the net association over time. We advocate using both indicators whenever possible to understand the factors driving the change in educational mobility over time.

7.2.3 Educational categories

Education can also be operationalized as an ordinal variable based the completion of subsequent educational milestones such as entering formal education, completing primary education, continuing to secondary education, completing secondary education, etc. This approach reflects the fact that attainment of specific degrees or levels of schooling is particularly important for economic or other outcomes. In most countries attaining a secondary-school qualification or a college degree is a critical milestone associated with much greater economic returns than having the same number of years of schooling without the qualification or degree, likely because of the signalling function of educational credentials, a phenomenon called the sheepskin effect (e.g. Hungerford and Solon 1987).

When education is measured as an ordered categorical variable, measures of mobility are based on transition matrices cross-classifying the educational attainment of parents and children, and mobility is analysed using a simple row or column per cent distribution or log-linear models (Hout 1984). These methods can separate change in the distribution of education across generations from the net association between parents and children, providing an assessment of relative mobility. The categorical version of education also allows the analysis of educational attainment as a set of discrete conditional transitions such as primary entry, primary completion conditional on primary entry, secondary attendance conditional on primary completion, etc. (Mare 1980).

Most cross-country studies of intergenerational educational mobility treat educational attainment as a continuous variable and use the regression or correlation coefficient to capture associations, but a small literature focuses on categorical measures—specifically, on the probability that children will reach a

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[2] Hertz et al. (2008) elaborated on this finding, showing empirically that at least between the 1930s and the 1980s, the dispersion of parents' schooling increased monotonically across cohorts, while the dispersion of adult children's schooling followed an inverted-U pattern: increase and then decrease. As a result, the ratio of these measures of dispersion increased among more recent cohorts, resulting in a constant correlation even as the regression coefficient was declining.

particular educational level—to examine specific national cases. Categorical measures of education have been used to examine mobility in Malaysia (Lillard and Willis 2006), Chile (Torche 2005), four Latin American countries (Marteleto et al. 2012), and countries in the Middle East and North Africa (MENA) region (Assaad et al. 2019).

7.2.4 How to measure parents' education?

Many surveys collect information on both fathers' and mothers' education, which raises the important but neglected question about how to measure parental education in order to examine intergenerational mobility. Most empirical analyses use the dominance approach (Erikson 1984), selecting the parent with the highest level of attainment. It is possible, however, to argue that the parent with less education is more relevant for children's attainment, under the assumption that family dynamics adjust to the lowest common denominator in terms of schooling resources. Another alternative is to use a joint approach (Sorensen 1994), which combines the educational attainment of both parents. This strategy is usually implemented by taking a simple average of years of schooling of both parents, under the implicit assumption that both parents contribute equally to the child's attainment. A more sophisticated version of this approach computes the weights for each parental indicator such that the relative contribution of the variables to explain the variation in the dependent variable is taken into account (Lubotsky and Wittenberg 2006).

Another criterion to select how to measure parental education is the gender of the parent. Many studies suggest that mothers are more influential than fathers on children's educational attainment given that they spend more time with children, particularly at early ages. This approach has been used in both the developing and the developed world (Behrman and Rosenzweig 2002; Haveman and Wolfe 1995; Schultz 1993). Yet another approach suggests that it is the education of the same-gender parent that is more influential for children, which would suggest using a measure of the father's schooling for sons and the mother's schooling for daughters.

Naturally, a simpler and more comprehensive alternative would be to include both the father's and the mother's educational attainments separately, if available, to predict the child's educational attainment. The drawback of this approach is that it moves researchers away from single, straightforward, and easily comparable measures of intergenerational association, towards an attempt to capture the partial association between several domains of social origins and the adult child's educational attainment (and even worse, to interpret these associations causally).

If the objective of the mobility measure is to produce a single statistic that can easily be compared across place and time, then using one single measure of parental education is recommended. Given that there is not yet clear consensus about which version of parental schooling is preferred—and reason to believe the best measure depends on context—we suggest using several measures if available and evaluating whether the results are sensitive to this choice.

7.2.5 When to measure children's education?

Most analyses of educational mobility consider only respondents in their mid-20s or older, to increase the chances that they have completed their educational career, and to reduce right-censoring of the education measure. However, it is also possible to evaluate mobility among younger respondents who are still in school and who are co-residing with their parents. In this case, education is measured as timely grade progression, for example as the difference between the number of years of school the children would have completed if they had entered school at the normative age and advanced one grade every subsequent year, and the number of years of school that they have actually completed (e.g. Behrman et al. 1999).

Even if this approach does not capture the final completed schooling of young people, it has two advantages for the study of mobility in the developing world. First, it does not require intergenerational data from panel surveys, or retrospective reports of parental education by adult respondents. Rather, it only requires survey information on the educational attainment of all household members, which is usually available in the roster of household surveys. Second, because this measure of mobility captures educational attainment among children and adolescents, it provides information about recent mobility trends and their determinants. This is particularly relevant in developing countries that have experienced vast and rapid educational upgrading and policy changes with a potential impact on mobility.

Note that the use of co-residential parent–child dyads to measure educational mobility needs to be restricted to children younger than the normative age at which children leave the parental household, which is usually in late adolescence. If older co-resident children are included in the analysis, this induces the risk of bias insofar as children who continue to live with parents after late adolescence might not be a representative sample of their cohort. Emran et al. (2018) show that co-residence bias affects IER much more strongly than it does IEC. Selection bias induced by selecting co-resident children beyond their late adolescence is a concern even if the sample is restricted to children who are young adults (Francesconi and Nicoletti 2006).

7.3 What accounts for intergenerational educational persistence? Theoretical approaches

The standard model for understanding intergenerational mobility was formulated by Becker and Tomes (1979, 1986) and recently expanded by Solon (2004). In this model, parents invest in the future success of their children in response to credit constraints and the child's observed ability and other endowments. Although the Becker and Tomes model refers to income mobility, it can be easily extended to educational mobility.

Based on the Becker and Tomes approach, economists have distinguished a variety of possible pathways accounting for educational persistence across generations. These include (Björklund and Salvanes 2011):

i. Genetic transmission: more highly educated parents have higher levels of endowments that are consequential for education, such as cognitive ability, and pass them to their children.

ii. Socialization: parents' norms and values that are consequential for educational attainment, such as time preferences, can be passed to children through socialization.

iii. Financial resources: more educated parents have more economic resources that can be used to alleviate borrowing constraints and the opportunity costs of education.

iv. Choice and attainment: parents' educational choices may directly affect children's choices, and parents' attainment may raise the marginal productivity of children's education.

Sociological approaches expand the Becker and Tomes model in several directions, including the examination of the sociocultural determinants of academic performance, the sources of intergenerational persistence, and the factors driving mobility (or lack thereof) in contexts of massive educational expansion.

7.3.1 Sociocultural determinants of academic performance

Sociological theories of reproduction focus on structural factors, and in particular power dynamics, to explain the role of the educational system in society. These approaches argue that the educational system serves as an institutional device for the intergenerational persistence of economic advantage. This approach emphasizes the role that school systems play in preventing educational mobility and reproducing the status quo. For example, Bowles and Gintis (1976) discuss the role that schools play in socializing children from different socioeconomic

backgrounds into hierarchical social roles, which they are expected to take based on their social origins, and which are functional to capitalism.

Probably the most influential approach to reproduction in education is Bourdieu's (Bourdieu 1977a, 1977b; Bourdieu and Passeron 1973). Bourdieu claims that schools provide a powerful vehicle to legitimize and maintain the unequal socioeconomic structure by transforming social class distinctions into educational distinctions represented as emerging from merit, and by channelling children of different social origins into different positions. Specifically, schools reward and redefine as merit the cultural capital that upper-class students build naturally at home and less privileged students lack (Bourdieu and Passeron 1973). These critical approaches remind us of the limits of educational expansion, and of the educational system more generally, as an institutional strategy to foster mobility.

7.3.2 Sources of intergenerational educational persistence

Boudon (1974) introduced the distinction between primary and secondary effects to explain the strong association between parents' resources and children's educational attainment. Primary effects express the association between individuals' socioeconomic background and their academic performance measured by standardized test scores or grades. Secondary effects capture class-based choices net of students' academic performance. Children of poorly educated parents will choose to leave school earlier than their peers from more advantaged backgrounds, even if they have the same levels of academic performance.

Primary effects are determined by cognitive and other endowments, financial resources, socialization, and the effect of parents' schooling on the productivity of children's investments in schooling. In turn, secondary effects refer to differential choices driven by class-based perceptions about the necessity of attaining a given level of schooling, the pay-off of educational attainment, the opportunity costs of remaining in the education system, and the probability of success if students remain. *Ceteris paribus*, children in disadvantaged families will consider it less essential or taken-for-granted to attain higher levels of education, and they will perceive the pay-off of educational attainment and the probability of educational success as lower, and the opportunity costs as higher, than their more advantaged peers.

Research in advanced industrial countries shows that secondary effects play a substantial role in explaining educational persistence, accounting for up to half of social-class differentials in educational attainment (Jackson 2013; Jackson et al. 2007). There are only a few studies distinguishing primary and secondary effects in the developing world. In the case of Egypt, Jackson and Buckner (2016) found that test score differences (primary effects) were more relevant than secondary

effects for track placement in secondary education. However, secondary effects were much more relevant in explaining socioeconomic inequality in the transition to university. In Brazil, Marotta (2017) found that secondary effects predicted about half of the inequality in secondary-school completion. It is likely that the relevance of secondary effects varies by gender, but at the moment studies on the topic in the developing world have not considered differences between girls and boys.

The relevance of secondary effects in developing countries points to factors such as educational aspirations, access to information and guidance, self-esteem, and self-efficacy as potentially critical obstacles to attaining higher levels of schooling among disadvantaged children, even those with high educational performance. As shown by research in the Indian context, interventions promoting these noncognitive skills appear to have been able to improve educational attainment among poor children (Krishna and Agarwal 2017; Krishnan and Krutikova 2013).

Although it is not possible to offer a systematic comparison of primary and secondary effects between developed and developing countries, the existing studies suggest that secondary effects play as critical a role in the persistence of educational advantage across generations in developing countries as they do in high-income countries. They also have important practical implications. In many countries, attempts to address inequalities in educational attainment have focused on gaps in educational performance measured by test scores or grades. These policies are based on the presumption that the best way to reduce inequalities in educational outcomes between poor and wealthy households is to reduce inequalities in performance, and they may have led to an excessive emphasis on high-stakes testing (see e.g. National Research Council 1999). The relevance of secondary effects suggests that equalizing test scores is only one component of an effort to foster intergenerational educational mobility.

The distinction between primary and secondary effects raises the question of the factors that account for socioeconomic differences in choices given similar levels of academic performance. Breen and Goldthorpe (1997) suggest that class-based educational choices are driven by the attempt to avoid downward occupational and economic mobility. Given that the thresholds that define downward mobility vary by social origins, students whose parents have higher levels of education will have stronger incentives to complete more advanced levels of schooling, while leaving the educational system earlier will be more acceptable to lower-class students. This hypothesis highlights that parents provide an important referent for comparison when children are making educational decisions, and it suggests that individuals are driven by the comparison with their parents as much as, or more than, by the comparison with their peers in the same cohort.

As shown by Mare and Chang (2006) in a comparative study of Taiwan and the United States, whether parents make a particular educational transition is a

critical determinant of whether their offspring make that transition. The effect of parents' educational transitions varies, however, across context. In the United States, this effect is independent of the sex of the parent and offspring. In Taiwan, in contrast, the effect of parents' educational transitions is mostly confined to fathers and goes mostly to sons. If Taiwan is representative of developing countries characterized by deeper levels of gender inequality, the gender heterogeneity of this finding suggests that as education expands rapidly in developing countries, and thus children acquire much higher levels of schooling than their parents, the stronger pattering of individual attainment based on parents' attainment among sons than daughters may serve as a barrier for sons, and provide a stronger avenue of mobility for daughters.

7.3.3 Intergenerational persistence in the context of educational expansion

The substantial educational expansion experienced over the twentieth and early twenty-first centuries in most countries around the world was expected to reduce the association between parents' and children's schooling, equalizing educational opportunity. Furthermore, many countries implemented reforms explicitly intended to equalize access and completion, such as constructing schools, reducing fees, and extending the number of years of compulsory education.

The fact that these expectations did not materialize (see e.g. Shavit and Blossfeld 1993) led scholars to attempt to understand the mechanisms of intergenerational persistence in the context of rapid expansion. The maximally maintained inequality (MMI) approach (Raftery and Hout 1993) was formulated as an explicit attempt to answer a question posed by findings in several industrialized countries: why is it that educational expansion and egalitarian reforms have not reduced intergenerational educational persistence more?

MMI asserts that an expansion in the educational system that does not specifically target the less advantaged classes provides new opportunities for all children. On average, children of advantaged classes have more economic and cultural resources, perform better in school, have higher aspirations, and are more acquainted with the educational system; in short, they are 'better prepared than are others to take advantage of new educational opportunities' (Ayalon and Shavit 2004: 106). Therefore, only when the advantaged classes have reached saturation at a particular level of education—i.e. transition rates at or close to 100 per cent—will other sectors of society benefit from educational expansion. Only in these cases will educational expansion contribute to the reduction of socioeconomic inequality in educational opportunity (Raftery and Hout 1993).

According to MMI, a decline in inequality can be reversed. If, for example, an educational reform pushes expansion at the secondary level, but this expansion is

not coupled with a growth of similar magnitude at the college level, the increasing number of secondary-school graduates will cause a bottleneck, leading to competition for scarce college places. The advantaged classes will have the upper hand in that competition, which may lead to growing inequality at the college level. Evidence suggesting this process of inequality reduction reversal was found for the Russian case during the late Soviet and post-Soviet periods (Gerber 2007; Gerber and Hout 1995).

Policy reforms intended to provide educational opportunities can also have unintended consequences, resulting in declines in mobility. In the case of China, for example, an educational reform in 1986 established nine years of compulsory education in an attempt to raise the educational levels of the most disadvantaged children. However, fiscal decentralization tightened the link between local economic resources and educational access at the local level. To compensate for budget restrictions, local governments in poor areas passed costs on to families in the form of increased tuition fees. In the context of the economic growth fostered by the economic reform of 1978, parents with higher levels of education experienced an increase in the economic returns to their schooling, and were able to increase their investment in their children's education, exacerbating the influence of parents' schooling on children's educational attainment (Emran and Sun 2015).

The MMI approach is complemented by the effectively maintained inequality (EMI) perspective (for the original formulation, see Lucas 2001; see also Ayalon and Shavit 2004; Breen and Jonsson 2000). The EMI approach criticizes the MMI perspective for ignoring the simple fact that educational systems are not one-dimensional. Rather, they include several branches at each particular level—for instance, academic and vocational education, or college preparatory and noncollege preparatory tracks. EMI argues that when saturation is reached at a particular level, and inequality in attainment declines, vertical inequality may be replaced by horizontal inequality, i.e. socioeconomically advantaged families will be able to obtain specific educational credentials within a particular level of schooling that provide them with enhanced opportunities for further attainment.

The EMI approach emphasizes the institutional organization of different educational systems and the extent to which it provides opportunities for the persistence of educational attainment. It focuses on tracking, a relevant dimension of inequality in the advanced industrial world. In addition to tracking, sources of differentiation within a particular educational level prevalent in the developing world include the distinction between private and public schools. We discuss horizontal inequality as a potential source of intergenerational mobility in Section 7.6.

Finally, a recent line of research extends the understanding of mobility from two-generation parent–child dyads to a multigenerational population-level analysis, and shows the value of incorporating demographic factors such as marriage

and fertility into the understanding of persistence across generations. In a seminal paper, Mare and Maralani (2006) showed that the beneficial population-level influence of women's schooling on the educational attainment of the next generation was partially offset by the fact that more highly educated women bore fewer children (and so were under-represented in the offspring's generation), and was enhanced by the more favourable marriage partners of educated women.

7.4 Intergenerational educational mobility in developing countries: empirical findings

International comparative studies of intergenerational educational mobility consistently indicate that developing countries feature less mobility than their advanced industrial peers, and that the gap has persisted or even increased over time. The seminal study by Hertz et al. (2008) pooled survey data for individuals aged 20 to 69 across 42 countries between 1994 and 2004. They measured the association between parents' education, measured as the average years of schooling of the father and mother, and adult children's completed schooling, using regression and correlation coefficients, which provide comparable and straightforward measures of mobility.

Hertz et al.'s (2008) findings showed that Latin America and Africa were the least mobile regions of the world. The unweighted average of the IER coefficient reached 0.79 in Latin America and 0.80 in Africa.[3] Selected developing countries in Asia featured an average regression coefficient of 0.69. At the other extreme, Nordic countries exhibited the highest levels of mobility with a regression coefficient of 0.34, and the average across Western and Northern European countries and the United States was 0.54.

In terms of change over time, the global average trend suggested a substantial increase in mobility across cohorts. The regression coefficient dropped from more than 0.7 among those born in 1930 to less than 0.6 among those born in 1980. In contrast, the correlation coefficient remained constant at approximately 0.4 over this period. As explained in Section 7.2, the lower value of the IEC compared with the IER indicates that the variance of parents' schooling was lower than the variance of children's schooling over the entire period. Furthermore, the ratio of the variances increased as education expanded, compensating for the decline in the IER. In substantive terms, Hertz et al.'s (2008) findings suggest that the increase in mobility across cohorts was entirely due to the changing variance of the schooling distribution of parents and children over time, rather than to a change in the net intergenerational educational association.

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[3] But note that only four African countries (or regions within countries) were included. Given this very small sample size, the findings for Africa were only suggestive.

Hertz et al.'s (2008) analysis has recently been updated and expanded in the World Bank (2018) volume *Fair Progress*. This volume offers an impressively comprehensive evaluation of educational mobility across cohorts born between the 1940s and the 1980s across 148 economies that comprise 96 per cent of the world's population. The authors consider relative and absolute mobility. They measure intergenerational educational association by means of the IER and IEC, and operationalize parental education as the maximum level of education attained by the parents.

The authors examine educational mobility separately for developing and high-income regions. The developing world includes most nations in East Asia and the Pacific, Eastern Europe and Central Asia, Latin America and the Caribbean, MENA, South Asia, and sub-Saharan Africa. High-income economies include countries in Western Europe, Canada, the United States, Australia, and New Zealand. They also include some countries in East Asia (Japan, Taiwan, Singapore, Korea), Eastern Europe (Latvia, Slovenia), and Latin America (Chile, Uruguay). If the country is coded as high-income, it is not included in its region.

Overall, the analysis indicates sharp differences in mobility levels and trends between developing and wealthy countries. In terms of absolute mobility, the authors find an increase in the proportion of children with more education than their parents in the developing world, from 40 per cent among those born in the 1950s to 50 per cent in the 1960s birth cohort, but stagnation thereafter. For high-income countries, absolute upward mobility actually declines, from a peak of 65 per cent of children having more education than their parents among those born in the 1950s to about 60 per cent among the 1980s birth cohort. While upward mobility is still much higher in high-income countries, these trends emphasize convergence driven by a ceiling on the expansion of educational attainment in wealthy nations (Figure 7.1, left-hand panel).

In terms of relative mobility, a decline in the IER is observed, signalling increased mobility in both high-income countries and the developing world. The IER dropped slightly from 0.48 to 0.45 between the 1950s and the 1980s cohorts in the developing world—most impressively in Latin America and MENA. In high-income economies, the decline in the IER was larger, from 0.37 to 0.32, resulting in a growing gap in relative mobility between developing and wealthy countries. When the IEC coefficient is used as an alternative measure of relative mobility, the authors find a significant drop in high-income countries, but persistence or even increase in the intergenerational association in the developing world (see World Bank 2018: Figure B3.1.1).

Together, these findings yield several important conclusions. First, absolute upward mobility is converging between developing and wealthy countries, driven by the still massive educational expansion in the developing world. Second, there is a growing gap in relative educational mobility between wealthy and developing countries, regardless of whether the IER or the IEC is used. Third, the increase in
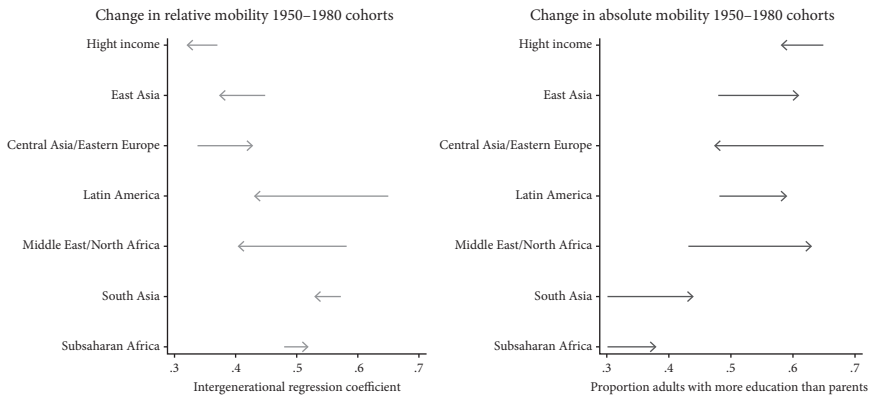
Figure 7.1 Change in relative and absolute mobility of 1950–80 cohorts, across regions

Note: Relative mobility measured by IER. Higher values indicate less mobility. Absolute mobility measured by the proportion of adults who have higher levels of educational attainment than their parents. Regional averages are not weighted by population and exclude high-income economies (if any). The figure does not include economies for which estimates are available only for the 1980s cohort. *Source*: World Bank (2018: Figure 3.3).

relative mobility in the developing world—particularly impressive in Latin America and MENA, the regions that used to be the least mobile in the past—is largely driven by changes in the dispersion of schooling of parents and children across cohorts, rather than by the net intergenerational association. Fourth, among younger cohorts born in the 1980s, mobility is lowest in sub-Saharan Africa and South Asia, the regions that also have the lowest levels of educational attainment in the world. A combination of low average educational attainment and limited mobility is a worrying trend for these regions.

7.4.1 Educational mobility across regions of the world

The literature on educational mobility in specific developing countries or regions is a valuable extension of cross-national comparisons, which helps us to understand the relevance of economic and institutional contextual factors for educational opportunity. Unfortunately, this literature is relatively limited and restricted to specific countries.

Latin America

The longest tradition in the study of educational mobility can probably be found in Latin America. A landmark study by Behrman et al. (2001) examined intergenerational educational mobility in four countries (Brazil, Colombia, Mexico, and Peru) using the intergenerational regression coefficient. They found mobility

to be much more limited in Latin America than in the United States using both metrics. The association of years of schooling between parents and adult children was approximately 0.5 in Mexico and Peru, and approximately 0.7 in Brazil and Colombia, compared with 0.35 in the United States. At the same time, the IER declined for cohorts born between the 1940s and the 1970s.

Sibling correlations of years of schooling also show very limited mobility in Latin America. Using the United States as a benchmark, Dahan and Gaviria (2001) examined the correlation among siblings in terms of their probability of being above the average educational attainment for their age. They found correlations ranging from 0.34 in Costa Rica to 0.59 in El Salvador, much higher than the correlation of 0.21 found in the United States. Behrman et al. (2001) closely replicated these findings. These studies confirm that Latin American nations used to feature very low levels of mobility, apparently even lower than countries with similar levels of development.

More recently, Daude and Robano (2015) and Neidhofer et al. (2018) have extended the comparative analysis of intergenerational educational association to virtually all Latin American countries, and Leone (2017) has offered a detailed analysis of the Brazilian case. The findings from these studies about trends over time are consistent with the findings of Hertz et al. (2008) and the World Bank (2018): the intergenerational association measured by the regression coefficient has declined across cohorts in Latin America, but the intergenerational correlation has remained constant or declined minimally.

South Asia

A small literature has examined educational mobility in India and Pakistan using representative samples of adult children and retrospective information about parents. For India, Emran and Shilpi (2015) and Azam and Bhatt (2015) have found a substantial increase in educational mobility across cohorts born between the 1940s and 1980s based on the IER, but little change using sibling correlations or the IEC. Both the IEC and sibling educational correlations show a persistently low level of mobility between 1991 and 2006, even lower than in Latin America.

Cheema and Naseer (2013) find that while Pakistan has benefited from substantial educational expansion and the growing availability of schools in the last decades, the most disadvantaged households in rural regions have experienced very limited upward mobility. This finding offers an important warning about the limits of policies that alter the supply of education without changes in its demand by disadvantaged populations.

There is also a larger literature based on samples of parents and children residing in the same household in India and other South Asian countries (Hnatkovska et al. 2013; Jalan and Murgai 2015; Maitra and Sharma 2010; Sinha 2018), samples affected by other sources of selectivity such as excluding young people who are in school or children younger than a certain age (Choudhary and

Singh 2017; Ranasinghe and Hartog 1997), or samples with insufficient information to assess their representativity and quality (Tiwari et al. 2016). Two common themes emerge from this literature. First, in the case of India, Scheduled Castes and Scheduled Tribes experience less educational mobility than the rest of the population, although the gap has closed over time. Second, in several South Asian countries including India, Pakistan, and Nepal, occupational mobility appears to be more limited than educational mobility, and the gains in upward educational mobility experienced by disadvantaged groups have not translated into occupational mobility gains. These findings suggest that growing educational opportunity is not sufficient to guarantee occupational equalization. Third, at least one study in Sri Lanka indicates that children of more affluent families seem to derive more benefits from the free education policy than children of disadvantaged groups (Ranasinghe and Hartog 1997), a finding consistent with the MMI approach reviewed in Section 7.3. This finding casts doubt on the effectiveness of the free education policy as a sufficient strategy to promote social mobility. All these results, however, should be taken as suggestive, given the potential for bias emerging from the use of co-resident parents and children.

East Asia

Several studies examine trends in intergenerational educational mobility in China and find signs of declining mobility over time. Fan et al. (2015) find declining mobility between urban cohorts born before and after 1970, particularly among women. Using a census of co-resident parents and children in urban China, Magnani and Zhu (2015) also find a decline in mobility for both sons and daughters between 1990 and 2000. Furthermore, Li and Zhong (2017) find that, in the context of rapid educational expansion, the association between parents' cadre membership and children's educational attainment has declined, but the association between parents' and children's education has increased over time. The authors speculate that this decline in mobility might be due to the fact that since the beginning of economic reforms in 1978, cadre selection has relied increasingly heavily on educational attainment.

The finding of declining educational mobility in China in a context of economic development and market reform is not unquestioned, however. Chen et al. (2015) find a U-shaped trend in intergenerational educational persistence among cohorts born between 1930 and 1985 in urban China. The persistence falls among cohorts educated after the Communist revolution of 1949, but rises again among cohorts educated during the reform era in the 1970s. In addition, Emran and Sun (2015) find that educational mobility has increased for women but decreased among men (more on this gender disparity later). In contrast to South Asia, limited educational mobility has been accompanied by massive upward occupational mobility, suggesting that industrialization and market reform have opened up occupational opportunities beyond the influence of educational expansion. Further research

evaluating differences across data sources and statistical techniques might help us to find the sources of the discrepancies across studies.

Another important topic in the context of China is differences in mobility across the urban–rural divide. Golley and Kong (2013) find a wide gap in mobility between urban and rural populations, with rural children more likely to experience downward educational mobility than their urban peers. Using a sample of co-resident parents and children, Guo et al. (2019) find different effects of educational expansion policies in rural and urban populations. The compulsory education law of 1986 and the college expansion policy of 1999 promoted upward mobility in urban areas, but did not favour mobility in rural areas. This finding again highlights demand-side barriers to educational mobility among rural households.

Sub-Saharan Africa

A recent study evaluates trends in educational mobility over five decades in nine sub-Saharan African countries (Azomahou and Yitbarek 2016). The authors examine levels, trends, and patterns of intergenerational persistence of educational attainment among cohorts born from the 1930s to the 1980s. Consistent with cross-national comparisons around the globe (Hertz et al. 2008; World Bank 2018), they find an increase in mobility in all the countries examined using the IER (of a log-transformed version of years of schooling) as their measure of mobility, particularly after the 1960s, which coincides with drastic changes in educational systems and a large investment in human capital accumulation in the region following independence. Nevertheless, the education of parents remains a strong determinant of educational outcomes among children in all the countries. However, the IEC suggests stability over time, again supporting the claim that growing mobility is predicated on a change in the dispersion of schooling across generations, rather than changes in the net intergenerational association.

As in the South Asian region, a worrying finding in sub-Saharan countries is that the increase in absolute upward educational mobility driven by educational expansion has not resulted in a commensurable increase in occupational mobility (for an analysis of Kenya and Tanzania, see Knight and Sabot 1986; for a study of Ethiopia, see Haile 2018). Furthermore, Knight and Sabot (1986) find that in Kenya, the substantial expansion of primary schooling has resulted in a stronger association between social background and secondary-school students' educational performance and school quality, a finding consistent with the MMI and EMI hypotheses outlined in Section 7.3.

A small literature exists on the South African case which highlights the sharp racial differences in mobility, particularly between Blacks and Whites. Research shows that educational mobility is lower among blacks than whites, and particularly low among black boys who are poor (Nimubona and Vencatachellum 2007). Using sibling correlations in timely educational progress, Louw et al. (2007) find

an increase in educational mobility in South Africa between 1970 and 2001 among both blacks and whites. The gaps in the quantity and quality of education across races remain very large, however. The mobility deficit of the black South African population has also been found for earnings mobility (Piraino 2015), contributing to the wide economic disparities between racial groups.

7.4.2 Gender and educational mobility

The conventional wisdom about gender differences in education states that the gender gap in favour of males is still large in the developing world. However, trends from the 1970s and the 2000s show enormous change, with women's educational attainment reaching parity or even surpassing men's in many developing countries (Grant and Behrman 2010; Hill and King 1993). As enrolment levels within countries have increased, the gender gap has consistently closed (Wils and Goujon 1998). In the early twenty-first century, girls have caught up with or exceeded boys in terms of primary educational attainment in the vast majority of developing countries, although gaps favouring boys still persist at the post-secondary levels in many poor nations (Assaad et al. 2019; Azomahou and Yitbarek 2016; Jayachandran 2015).

The gaps in educational attainment between boys and girls have been attributed, at least partially, to a marked parental preference for sons over daughters in many nations. Researchers have documented gender-unequal intrahousehold allocations of resources critical for educational attainment, such as nutrients, in contexts such as India and China (Song and Burgard 2008; Thomas 1996). It appears that girls living in rural areas are particularly handicapped (Lillard and Willis 2006). These patterns are not universal across the developing world, however: in some contexts, including very traditional and low-income societies, rough equality in investments between sons and daughters appears to be the norm (Kevane and Levine 2003; Mulder et al. 2019).

A handful of studies examine intergenerational educational mobility by gender in developing countries. Several of them report a stronger intergenerational educational association among women than men (for India, see Emran and Shilpi 2015; for China, see Emran and Sun 2015; for nine sub-Saharan African countries, see Azomahou and Yitbarek 2016; for South Africa, see Thomas 1996). Some of these studies, however, have found substantial change over time towards convergence across genders. For example, Emran and Shilpi (2015) find an increase in mobility using the intergenerational correlation and sibling models among daughters but not sons between the early 1990s and 2006. In China, the intergenerational educational association remained stable among daughters but increased among sons between 1988 and 2002, likely driven by growing direct costs and opportunity costs of schooling in the context of growing economic

opportunities (Emran and Sun 2015). This observed convergence in the level of intergenerational educational association across genders suggests an equalization of parental investments in these two national contexts.

Researchers have found greater mobility among daughters than sons in other developing countries. Such findings characterize rural China (Emran and Sun 2015), Brazil (Leone 2017), and the Philippines (Dacuycuy and Dacuycuy 2019). The reasons for the mobility differences between men and women vary across national contexts. In the case of Brazil, Leone (2017) found that the higher mobility of daughters than sons was driven by their higher probability of attaining post-secondary education, regardless of social origins. In the Philippines, Dacuycuy and Dacuycuy (2019) found that sons' mobility deficit could be accounted for by the stronger influence of low-educated/nonworking mothers on the school progression of sons than daughters. More research is certainly needed to advance a systematic understanding of gender differences in mobility across different national contexts.

Two caveats are relevant when considering uneven parental investments in resources critical to schooling, or schooling itself, between sons and daughters. First, the unequal allocation of household resources in favour of sons may be changing rapidly, driven by growing returns to schooling among women. For example, Rosenzweig and Zhang (2013) find that returns to schooling in the urban labour market are higher among women than men in China, and that they are rising along with rising levels of schooling. The authors suggest that these trends are driven by a comparative advantage of women in 'skill' versus 'brawn' occupations in the context of substantial economic development and structural change since the 1980s. Second, when one is examining differences in parental investments and transfers by gender, it is important to consider the entire family portfolio. For example, a study in rural Philippines found that daughters received lower parental investments in terms of education and land transfers than sons; however, they were compensated with other non-land assets (Quisumbing1994).

7.4.3 Macro-level factors and educational mobility

A small literature examines the association between the national economic and institutional context and educational mobility by relying on cross-country (and to a lesser extent, over time) comparisons in the developing world. To date, this literature has mostly focused on Latin American and African countries. The existing studies find a positive association between educational mobility and several macro-level factors including the mean level of schooling in the country, the level of income inequality, economic development, and the strength of financial markets (Behrman et al. 1999; Dahan and Gaviria 2001; Neidhofer et al. 2018).

In the case of sub-Saharan Africa, a study by Alesina et al. (2019) considering 26 African countries finds that colonial investments in the transport network and missionary activity are associated with upward mobility. Mobility is also higher in areas with more vibrant economic development, rugged areas without malaria, and regions that were more economically developed at independence. Given that many of these factors characterized the region decades or centuries ago, the policy implications are not immediately obvious.

Interestingly, the association between public expenditures in education and educational mobility is very weak, at least in the Latin American and African cases (Behrman et al. 1999; Dahan and Gaviria 2001; Knight and Sabot 1986; Neidhofer et al. 2018). This contrasts with comparisons across industrialized countries, which show that educational spending is positively related to mobility (Blanden 2013). A likely explanation for this weak association is that governments in Latin America and Africa allocate a large portion of their educational budgets to higher education. Spending on higher education, particularly on undergraduate training, tends to benefit more affluent families whose children remain in school longer, so it provides a hefty subsidy to the upper class (Birdsall 1996). In fact, when public spending on different educational levels has been considered, researchers have found that primary and secondary spending is indeed positively associated with mobility, but spending on tertiary education is negatively associated with mobility (Neidhofer et al. 2018).

7.4.4 Economic crises and educational mobility

Developing countries suffer deeper and more frequent economic downturns than wealthy ones, making the question about the effect of the economic cycle on educational mobility important. Much research examines the effect of economic crises on educational attainment (for an excellent summary, see Ferreira and Schady 2009). However, these studies tend to focus on the effect of crises on the overall level of educational attainment, rather than on the allocation of education by parental resources (e.g. McKenzie 2003; Skoufias and Parker 2006).

The few studies that examine the effect of the macroeconomic context on educational persistence in developing countries consistently find a negative effect of economic crises on mobility. Economic decline during the 1980s resulted in decreased mobility in Mexico (Binder and Woodruff 2002) and across four Latin American countries (Torche 2010). By the same token, the economic crisis that started in the late 1990s in Argentina appears to have resulted in lower educational mobility (Rucci 2004). Examining the consequences of the 1998 crisis in Indonesia, Thomas et al. (2004) found that it resulted in lower investments in children's education, most dramatically among the poorest households. Conversely, post-crisis economic growth resulted in increased mobility in Latin

America (Marteleto et al. 2012). The decline in mobility resulting from economic recession is particularly strong at the secondary and post-secondary levels, which are noncompulsory in many developing countries.

This decline in educational mobility associated with economic crisis is driven not only by tighter financial constraints among poorer households, but also by increased educational attainment among advantaged families. It appears that in the developing world, economic crises produce different effects on educational attainment for poor and wealthy households. A positive substitution effect results in educational gains among the wealthy, whereas a negative income effect results in losses among the poor (Ferreira and Schady 2009). The end result is a stronger influence of social origins on educational attainment among the cohorts affected by economic contraction.

7.5 The role of education in the intergenerational transmission of socioeconomic advantage

So far, this review has focused on educational mobility. Education is also important as a mediating factor in the process of economic mobility. There is a long research tradition in sociology that examines the role that education plays in the process of socioeconomic mobility.

In the 1960s, the status attainment tradition showed that education was both the main mechanism for intergenerational persistence and the main vehicle for mobility (Blau and Duncan 1967; Hout and DiPrete 2006). This dual role, which puzzled researchers when it was first documented, is easy to explain. Education is a central vehicle for reproduction because advantaged parents are able to afford more schooling for their children, which in turn pays off in the labour market and other markets. Education is also the main vehicle for mobility because factors other than parental advantage account for most of the variance in educational attainment, thus weakening the link between socioeconomic origins and destinations.

As proposed in the influential book *The American Occupational Structure* (Blau and Duncan 1967), the total socioeconomic association between parents and adult children can be decomposed into the pathway mediated by educational attainment and a direct pathway that is net of education. The education pathway includes the association between parents' socioeconomic standing and individual educational attainment ('inequality of educational opportunity'), and the association between educational attainment and adult children's socioeconomic position ('returns to education'). These pathways are indicated by arrows A and B respectively in Figure 7.2.

The direct pathway that is net of education captures multiple factors, such as the direct inheritance of property, variations in the probability of marrying and
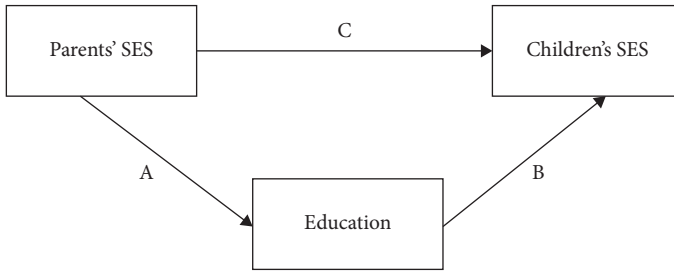
Figure 7.2 The role of education in the socio-economic mobility process
Note: SES: socio-economic status.
Source: author's illustration.

assortative mating patterns by social origins, the use of family-based social networks or cultural capital for occupational placing, and the transmission of personality traits, among many others. It is indicated by arrow C in Figure 7.2.

A particularly important concern is the role that educational attainment plays in the intergenerational stratification process in the developing world. Given the high earnings returns to schooling that characterize developing countries (Psacharopoulos and Patrinos 2018), education is likely to play a pivotal role in intergenerational reproduction. So far, the evidence is scarce, but existing studies suggest variation across regions. In Latin America, the mediating role of education appears to be strong, perhaps even stronger than in the advanced industrial world (Torche 2014). In contrast, Assaad and Saleh (2018) and Binzel and Carvalho (2017) show that growing educational mobility across cohorts in Jordan and Egypt respectively has not resulted in more income mobility, suggesting that the educational pathway plays a limited role in economic mobility, and offering a word of caution about the strategy of focusing on equalizing educational attainment to improve socioeconomic mobility.

The evidence also suggests that the role of education in the economic mobility process may vary by gender. Gender variation could emerge from parents investing more in the schooling of their sons than of their daughters (Behrman 1988; Song and Burgard 2008), from different returns to schooling for men and women (DiPrete and Buchmann 2006; Dougherty 2005; Montenegro and Patrinos 2014), or from gender variation in the portion of the intergenerational economic association that is not mediated by education.

To date, evidence of gender differences in the role of education for economic mobility is very limited in the developing world. A study in rural Philippines found that the intergenerational income association was entirely accounted for by parental investments in capital—education, health, and landholdings—among sons. In contrast, a direct intergenerational income association was found among daughters, even after their educational attainment and other types of

capital were accounted for, suggesting the use of social capital and the direct transfer of assets among women, probably related to finding a 'good' husband (Bevis and Barrett 2015). In the case of Mexico, the role of education in intergenerational economic persistence is similar for sons and daughters (Torche 2015). Both national cases diverge from high-income countries such as the United States and United Kingdom, where the mediating role of education and occupation appears to be more important for daughters than for sons (Blanden et al. 2014). The heterogeneity of findings suggests the need to consider other developing nations to understand patterns of gender variation.

Some analysts have claimed that a strong mediating role of education in the process of economic persistence is good news: the transmission of advantage net of education reflects processes that refer to pure ascription. However, the strong mediating role of education could create a situation of 'inherited meritocracy', legitimized and naturalized by educational attainment when in fact persistence emerges from the strong barriers that disadvantaged families in the developing world face to access quantity and quality in education (Torche 2014).

Sociologists have further explored the possibility that the direct intergenerational association that is unmediated by education varies by the level of education of the respondent. Empirical analysis has shown that the net intergenerational socioeconomic association is weaker among individuals who obtain college degrees than among those with lower levels of schooling. This finding has been obtained in the United States (Torche 2011), some European countries (Breen and Jonsson 2007; Falcon and Bataille 2018), and at least one developing country, namely Brazil (Torche and Ribeiro 2010).[4]

This finding has been interpreted as indicating that higher educational levels are more meritocratic in the sense that college graduates are allocated to segments of the labour market in which meritocratic selection is more prevalent and origin characteristics count for less, insofar as higher qualifications are a powerful signal for employers, leaving little leeway for social network effects (Breen and Jonsson 2007).[5]

Alternatively, the weaker intergenerational persistence among college graduates could be due to unobserved selectivity among those who make it into higher education—think in particular of the positive selectivity of students from disadvantaged origins who are able to persist in the educational system in spite of obstacles (Karlson 2019; Zhou 2019). This question has important implications. If the markets faced by college graduates are indeed more meritocratic, expanding

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[4] Both Torche (2011) and Falcon and Bataille (2018) find a re-emergence of the intergenerational association among individuals who attain graduate degrees, however.

[5] The strong intergenerational economic association among graduate degree holders in some contexts questions this interpretation, however.

college access and graduation will, *ceteris paribus*, increase mobility. An indication of this trend has been found in the United States (Pfeffer and Hertel 2015) and European countries (Breen 2010). If, in contrast, the heightened mobility of college graduates is due to unobserved selectivity, expanding college will most likely reduce selectivity and thus not result in increased mobility. With the exception of Brazil, we do not have empirical information on the intergenerational economic association across levels of schooling in the developing world, but this is a question worth examining.

7.6 Policy implications

We have shown that educational expansion has boosted absolute intergenerational educational mobility across the developing world, but that relative mobility remains low in comparative perspective, signalling limited opportunity to overcome disadvantaged educational origins. What could decision makers do if the goal is to promote educational opportunity? Expanding the educational system is relevant, but it is not enough. In fact, much research suggests that wealthier families are better equipped to take advantage of new educational opportunities, unless policies strictly regulate access. Furthermore, demand barriers to educational attainment among the poor—deriving for example from the opportunity cost of schooling or beliefs about the payoff of the educational system—could be equally or more important than availability of affordable schools, and would need to be specifically addressed. These barriers appear to be strong among specific groups such as rural and isolated populations, which call for targeted interventions.

The literature also highlights discrepancies between educational mobility and occupational/economic opportunity. In some settings, such as China, fast economic expansion has increased the opportunity cost of education among disadvantaged groups with newly found job prospects, potentially depressing educational mobility. In other contexts, such as some MENA countries, youths with much more education than their parents cannot find jobs due to economic stagnation. These discrepancies highlight that educational opportunity should not be a goal separated from economic prosperity, and that promoting educational mobility might require targeted strategies to assist disadvantaged youths.

Finally, mobility is a 'backward looking' measure in the sense that it provides information about individuals who have experienced their educational career in the past (sometimes decades ago), under economic and policy circumstances that differ from current ones. Complementing standard mobility measures with the assessment of educational opportunity among school-age children and with evaluation of specific polices is critical to properly inform decision making.

Acknowledgements

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8

Rethinking Occupational Mobility in Developing Countries

Conceptual Issues and Empirical Findings

Anthony Heath and Yizhang Zhao

8.1 Introduction

There is a long and rich tradition of sociological research on occupational and social class mobility going back to the early twentieth century work of Emily Perrin (1904), Pitirim Sorokin (1927), and Anderson and Davidson (1935). While the primary focus of most of this sociological tradition has been on patterns of social mobility in developed societies, there has in more recent decades been important work on developing societies in the Global South, such as China, India, and Chile (for example, Iversen et al. 2017; Li et al. 2015; Torche 2005; Vaid 2018; Wu and Treiman 2007).

The study of occupational mobility provides a practical and flexible approach for studying social mobility in developing and developed countries alike. Occupational position is an excellent indicator in both types of society of an individual's or family's 'life chances': occupations are associated not only with current income and material prosperity, but also with the security of that income, promotion chances, and the risk of unemployment, as well as with a wider range of psychological, social, and demographic outcomes such as fertility and mortality. Occupation, therefore, can provide a succinct and powerful summary indicator of one's position in the stratification system and the extent of one's long-term advantage or disadvantage. While measuring occupational positions of individuals and their families of origin is not entirely straightforward (as we will show in a later section), suitable data can be collected in representative national surveys and do not require more advanced methodologies such as long-term panel studies, linked censuses, or linked tax records.

Sociologists have developed a large and sophisticated suite of conceptual and statistical tools for analysing patterns of occupational and class mobility. Particularly important is the conceptual distinction between absolute and relative

rates of mobility. *Absolute* rates of upward and downward mobility in a society (and the total rate) refer to the percentages of the population who have experienced movement from the positions in which they grew up. In contrast, *relative* rates of mobility refer to the relative chances of people from different origins to gain access to privileged positions and to avoid disadvantaged positions (Heath 1981). This distinction is fundamental to modern research on occupational mobility. The essence is that structural change such as a contraction in the number of disadvantaged low-skilled and agricultural workers at the bottom, and the expansion of high-skilled professional and managerial workers at the top, will lead to increased opportunities for upward mobility. Developing countries, as we will show later, typically display marked changes in the shape of their occupational structures, with increasing 'room at the top'. This further typically leads to high absolute rates of upward mobility and low rates of downward mobility.

At the same time, however, people from more advantaged backgrounds may remain at the front of the queue for gaining access to these new opportunities. In relative terms they may remain just as far ahead of their peers from disadvantaged backgrounds as they had been before the expansion. In other words, the association between parents' and children's relative positions in the occupational hierarchy may remain as strong as ever. Sociologists interpret measures of relative mobility as indicating the underlying fluidity or openness of a society, net of structural change. Trends in absolute and relative rates do not, therefore, necessarily follow the same trends over time, nor the same patterns across countries. As we will show, some countries, such as India, can simultaneously exhibit a substantial surplus of upward over downward mobility and a low degree of social fluidity. These distinctions are as important, if not more important, when studying developing societies as they are when studying developed ones.

A further important sociological concept is that of 'perverse fluidity'. Fluidity can be a consequence of constraint rather than of opportunity and thus may have a perverse character. There is, for example, some evidence that, among African Americans in the US, there is a high degree of fluidity, that is to say a weak relationship between the occupations of fathers and of their children. However, this weak relationship appears to hold because occupationally successful African American fathers are not able to pass on their advantaged positions to their children, probably due to various forms of discrimination against black minorities. Perverse fluidity may therefore occur because of disproportionately high rates of downward mobility experienced by some groups within a society as a result of various constraints on their opportunities.

There are, however, major challenges when studying occupational mobility in developing countries, some being similar in kind (though perhaps greater in magnitude) than those in developed societies, others being qualitatively different. We focus in this chapter on a few central challenges:

- the measurement of occupations
- their amalgamation into broader social classes or scales
- equivalence of meaning over time and space
- the role of non-occupational criteria such as employment status (own-account worker versus employee, for example) and sector (state versus private sector or secondary versus primary production, for example).

We organize this chapter as follows. In Section 8.2, we discuss the building blocks of occupations and the particular challenges encountered in developing societies. In Section 8.3, we discuss the issues involved when constructing scales based on the occupational building blocks, while in Section 8.4 we discuss issues involved when aggregating occupations into social classes. In Section 8.5, we turn to the statistical tools for the analysis of occupational mobility, illustrating their application with examples from Chile, China, Egypt, and India and focusing primarily on issues related to intergenerational (typically father-to-son) mobility rather than intragenerational (career) mobility. Section 8.6 concludes.

8.2 Measuring occupations: the building blocks

The basic building blocks are, of course, the occupations themselves. Detailed lists of occupations (and precise descriptions) were developed in the nineteenth century for various Western countries, originally for use with national censuses and subsequently for social surveys. These country-specific classifications were later followed by the construction of standardized classifications for use in comparative research, such as the International Standard Classification of Occupations (ISCO) maintained by the International Labour Office. ISCO starts with a list of job titles, which are then amalgamated into 'unit groups' based on their similarity in terms of the skill level and skill specialization required for the jobs. The International Labour Organization (ILO) claims that this is a 'classification that allows all jobs in the world to be classified into 436 unit groups'.

Such occupational schemas employ detailed granular measures, which provide a flexible basis for constructing a variety of scales and aggregated measures of occupational classes. A first concern, however, is that, whichever detailed list is selected, the interviewers need to collect both the specific job title and a brief description of the tasks involved for the job. This detailed information then needs to be coded in the office by expert coders into the basic unit groups. This is a time-consuming and expensive task and requires experienced and expert coders. In developed countries only the highest-quality (and best-funded) surveys, such as the gold-standard European Social Survey, nowadays follow this procedure in full. Many surveys take various short-cuts in order to save money, compromising the reliability and granularity of the basic measures of occupation. Similar cost

pressures that compromise quality will also inevitably be present in developing countries.

A second concern is that occupational schemas such as ISCO have typically evolved from Western classifications designed for industrial economies and occupational structures where most workers are employees with formal labour contracts. The schemas may not be well adapted for use in those developing countries which retain large agricultural and informal sectors.

Third, schemas such as ISCO, which are designed primarily for comparative purposes, may miss some of the important specificities of the institutional arrangements, anchored in history, that characterize individual developing countries. For example, the 436 unit groups of the ISCO schema distinguish 18 different types of farmer, primarily based on the kind of farming they are engaged in—cereals, animals, rice, poultry, for example—and on whether the farming is subsistence or market-oriented. These are certainly important distinctions, but there is no reference to the kind of tenure that the farmer has—tenant farmer, member of a collective, proprietor who works his or her own land, sharecropper, or someone who farms the commons—nor of the amount of land that is farmed. Alternative classifications developed by individual countries for their own internal use can make these distinctions, which may well be more socially significant (in the sense of affecting mobility chances) than the criterion of skill level that is fundamental to the ISCO measure.

It is understandable that these detailed issues of tenure, which tend to be country-specific, are ignored in a schema designed for comparative research. But it is not self-evident that scholars will solely be interested in comparative research. It may be better, therefore, to start with a modification of the ISCO schema which picks up any important country specifics. In a sense, the student of a developing country may need to start by having a good understanding of the anthropology of the country's institutions. A tailor-made list of occupations could be preferable to an 'off-the-peg' one.

Even if one is interested in comparative research, these issues may still be relevant. The risk is that forcing occupations into a common, off-the-peg classification may compromise 'equivalence of meaning' if there are important, mobility-relevant differences in the occupations across countries. Equivalence of meaning across countries has been the focus of a great deal of attention among social scientists interested in comparative research on social attitudes. The key point is that one may ask the same question in exactly the same way in different countries, but if concepts and institutions vary across cultures, respondents' answers may differ in their meaning. For example, a standard question about religiosity used in the European Social Survey asks respondents to indicate how often they attend religious services. This question, however, has a radically different meaning when applied in a Muslim country such as Turkey because in Islam it is not customary for females to attend religious services. Davidov et al.

(2014: 57), who provide an excellent overview of the issues involved in establishing equivalence of meaning, point out that 'If researchers overlook the non-equivalence of this question, they may grossly underestimate the level of religious involvement of Turkish women and erroneously conclude that Turkey is the only country in Europe where women are less religious than men.' In other words, standardization of the measuring instrument does not in itself guarantee equivalence of meaning in the resulting data.

The issue of equivalence of meaning has not been studied nearly as much in the literature on the measurement of occupations as it has in the literature on social attitudes, but the same fundamentals are bound to be present. This is particularly likely to be the case with the occupation of farmers, where there is a lack of equivalence between developing and developed countries. In many of the latter, farms have increased in size and degree of mechanization; thus, the incomes and assets of farmers have increased, and the mobility chances of the children of farmers are correspondingly enhanced. Even if we strictly follow the ISCO measurements, we may therefore be comparing non-equivalent occupations (even with respect to skill) in developing and developed countries. We found a powerful example of this in our own research on the UK when comparing the mobility chances of the children of immigrants with those of the majority group of native-born white British: among the white British, people from farming backgrounds had quite favourable mobility chances relative to people from other white British backgrounds. In contrast, the children of migrants whose fathers had had farming occupations in their countries of origin had poorer mobility chances than children of migrants from non-farm backgrounds (Li and Heath 2016: 186–7). The farm/non-farm distinction thus worked differently in the two sub-populations. It is highly likely that farming occupations are not equivalent, with respect to their resources or even the skills involved, in developing and developed countries or indeed between different developing countries that have had very different histories in the organization of farming.

Similar issues of comparability are also likely to apply to some non-farm occupations, particularly manual ones. The much greater prevalence of the informal sector in some developing countries than in developed countries means that an occupational schema that prioritizes skill levels at the expense of employment conditions may lack equivalence of meaning. A worker such as a shoe-maker in the informal economy may have a precarious business using relatively simple technology and materials (for example, recycled rubber tyres), while a worker with the same occupational title in the formal economy, with a regular employment contract, may have access to more advanced equipment and materials and have much greater income security. The mobility chances of their children may be rather different, too.

These issues are likely to be relevant for comparisons between developing countries as well as between developing and developed societies. We should not

ignore the extensive diversity *between* developing countries in their mobility-relevant institutional arrangements. In comparison, developed societies may be more homogeneous in these respects because of their shared histories of trade, technological development, and marketization. These issues may also be relevant over time and across generations within developing societies, especially those that have been experiencing the most rapid development, such as India or China. Indeed, they can be highly relevant when looking at long-term mobility trends in developed societies, too. Erikson and Goldthorpe, for example, in their models of mobility regimes place fathers' farming occupations lower in the class hierarchy than respondents' farm occupations (Erikson and Goldthorpe 1992: chapter 4) in order to reflect these changes over time.[1]

These problems can in principle be addressed by adding relevant distinctions to the ISCO list of occupations: for example, by distinguishing large from small farmers or proprietors from tenants. It then becomes an empirical matter to determine which of the distinctions matter for mobility chances, rather than leaving them invisible, as they would be with an uncritical application of the ISCO schema. What this means, in effect, is that some non-occupational criteria, such as tenure and acreage, must be introduced in addition to the occupational criteria. These additional non-occupational criteria, as we will see, are also very important when we turn to aggregated class schemas.

8.3 Aggregation issues: hierarchical scales

A schema such as the ISCO classification, with its granular differentiation between occupations, is an essential starting point for measuring occupational mobility, but it is not particularly useful as it stands for statistical analysis. The detailed data need to be aggregated into more usable formats. There are two main approaches—hierarchical (ordered) scales and categorical class schemas—as well as various hybrids. We discuss hierarchical scales in this section and class schemas in the next section.

One of the earliest hierarchical scales was that developed in 1913 by Dr T. H. C. Stevenson of the UK's Registrar-General's Office (see Szreter 1984). It contained five discrete ordered categories, grouping occupations according to their 'standing in the community', with professionals at the top and unskilled manual workers at the bottom. A modified version of this classification was developed by Armstrong (1972) and has been widely used in historical research (e.g. Long 2013). The main modifications introduced by Armstrong were to promote all employers of 25 or more workers to the top category (Class I)

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[1] See also Xie and Killewald's (2013) critique of studies of long-term trends in Great Britain and the US.

irrespective of their job title, and to promote all individuals with Class III or IV occupations who employed at least one person other than a family member to Class II. In effect, these promotions take cognizance of the fact that being an employer implies additional socioeconomic resources, additional standing in the community, and some managerial functions that are typically associated with the higher-level occupations. This modified class scheme has been shown to have a clear monotonic (i.e. hierarchical) relationship with income (Williamson 1982) and with the employment of servants, and to be negatively correlated with shared accommodation (Armstrong 1972). Armstrong saw it as a hierarchical measure of general standing in the community, and it could also be treated as a general measure of socioeconomic resources.

In addition to ordered hierarchical measures like those of the Registrar-General and of Armstrong (and the very similar Hall-Jones scale used in the landmark Glass study of 1954) with their five classes,[2] there have been several more refined scales, which approximate to continuous interval scales, with scores assigned to around 100 different occupational groupings. These continuous quasi-interval scales are particularly useful for regression analysis and have many similarities with the continuous scales of income used by economists. They also have the advantage of being based on clear protocols for assigning scores, rather than the intuitions that governed Stevenson's scale and Armstrong's revision of it.

Different scales, however, have used conceptually different criteria for their detailed construction. For example, Hodge et al.'s (1964) scale of occupational prestige was based on the 'standing in the community' that samples of the public attributed to different occupations (see also Treiman's similar (1977) scale for comparative research). In contrast, Duncan's socioeconomic index (SEI) was based on the average education and income of the members of each occupation (Duncan 1961), while Stewart, Prandy, and Blackburn's Cambridge scale (Stewart et al. 1980) was based on the closeness of their social relationships (such as friendship and intermarriage patterns) and can be thought of as a measure of the social distance between occupations.

These scales are alike in assigning a score to each constituent occupational 'unit group' according to a specific criterion (reputation, income and education, inter-marriage, friendship) and thus creating a one-dimensional scale running from the lowest-ranked occupation to the highest. While the conceptual bases and criteria differ, these scales tend to be highly correlated with each other and typically, just like Stevenson's measure, range from an unskilled manual occupation at the bottom to a highly skilled professional occupation such as doctor/physician at the top.

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[2] The ILO has produced a somewhat similar 10-category scale combining the 436 ISCO unit groups into major groups according to their skill levels, although these 10 major groups are not strictly ordered.

These continuous scales have a lot in their favour. They appear to be quite robust, have good discrimination (unlike the shorter, five-category scales like Stevenson's or Amstrong's, where there tends to be quite a lot of within-category heterogeneity), and are suitable for use with regression techniques such as OLS.

One potential problem, however, is that some intermediate occupations may change their position in the hierarchy over time as a society develops. In the UK, for example, there is evidence that the position of postman in the nineteenth century was a relatively high-standing occupation—postmen needed to be able to read, and literacy was rare at that time. As education and literacy became universal, the relative standing of postmen declined and the occupation would now come towards the bottom of the hierarchy. This could be an issue when comparing the positions of fathers and sons in a standard mobility table for a society that has been developing rapidly. (We can think of this as an issue of equivalence of meaning across generations.)

A second important issue is that, as far as we know, these scales have not been validated for use in developing countries. We suspect that in most developing societies, we would find more or less the same rank ordering as in developed societies with the professionals at the top and the unskilled manual workers/ agricultural labourers at the bottom. However, the intervals between occupations (and between the top and bottom of the scale) could be rather different from one country to another. Social distances, for example, between top and bottom, or between intermediate and low-skilled occupations, could be much greater in some highly stratified societies such as Brazil and India (especially, perhaps, in more traditional regions) than in any developed societies. In other words, the very strength of these more refined scales—their metricization—makes them potentially problematic when exported to a different societal context.

A third important issue is that stratification systems may not be one-dimensional. We can be fairly sure that 'standing in the community' or socio-economic status (SES) will constitute the single most important dimension, but Stewart and his colleagues, for example, found when using their Cambridge scale that self-employment/ownership operated as a second dimension. This makes intuitive sense, as the owner of a small business may own some physical assets that provide a different mobility-relevant resource than the human capital which is the primary resource among employees. Similarly, there may be an additional dimension distinguishing agricultural and non-agricultural work of similar skill levels and reflecting mobility barriers that uniquely face agricultural workers (reflecting inter alia geographical variations and opportunity structures). These issues of multiple mobility-relevant dimensions may well be considerably more important in large and diverse developing countries than in more homogeneous developed societies with universal institutions and market penetration.

8.4 Aggregation issues: categorical social classes

In contrast to the essentially hierarchical and unidimensional scales of social standing discussed in Section 8.3, in this section we focus on a rather different sort of classification, with a different conceptual foundation: that developed by John Goldthorpe and his colleagues—sometimes termed the EGP schema (after the authors of an early article by Eriksson, Goldthorpe, and Portocarero (1979), which introduced the schema). The scheme is partially ordered, reflecting the main hierarchical SES dimension that we have already referred to, but also has important non-hierarchical aspects reflecting employment status (employee versus self-employed, for example) and sector (in particular the farm/non-farm distinction). The full schema has the following 11 categories:

I Higher-grade professionals, administrators, and officials
II Lower-grade professionals, administrators, and officials
IIIa Routine non-manual employees, higher grade
IIIb Routine non-manual employees, lower grade
IVa Small proprietors, artisans, etc. with employees
IVb Small proprietors, artisans, etc. without employees
IVc Farmers and smallholders; other self-employed workers in primary production
V Lower-grade technicians; supervisors of manual workers
VI Skilled manual workers
VIIa Semi- and unskilled manual workers not in agriculture (routine manual)
VIIb Agricultural and other workers in primary production (routine manual).

These 11 categories are often collapsed into a smaller number, which makes it easier for many forms of statistical analysis (particularly if the sample is small). However, it is valuable to start with the more detailed 11 categories. As we will argue in the next section, one might want to employ different collapsed versions for different societies—one version may not fit all. We need to take advantage of the flexibility provided by the full 11-category scheme.

Classes I and II are often referred to as the 'salariat' (since they are composed predominantly of employees on regular salaried contracts with considerable discretion over their work tasks as well as favourable employment conditions), while Class III, although also consisting of white-collar workers, involves less discretion and less favourable employment conditions. Class IV, in contrast, is composed mainly of proprietors and own-account workers, not employees, and is often referred to as the Petty Bourgeoisie. Class V is a blue-collar class roughly corresponding to the elite of the working class and consisting of manual foremen and technicians. Classes III, IV, and V are often grouped together as 'intermediate'

classes. Classes VI and VII are other blue-collar classes with basic labour contracts[3] and subordinate positions.

This class schema has a strong hierarchical element but is not purely hierarchical in the way that the scales described in the previous section were. Thus, Class I clearly comes above Class II, which in turn comes above Class IIIa. At the other end, Classes V and VI clearly come above Classes VIIa and VIIb. One can interpret this element of hierarchy as reflecting the general desirability of the occupations involved, deriving from their pay, prospects, and employment conditions, and also reflecting how demanding their entry requirements are. In addition to this hierarchical element, however, the EGP schema also considers non-hierarchical elements, notably employment status (employee versus own account), which provides the basis for distinguishing a distinct class of Petty Bourgeoisie (Class IV). The farm/non-farm distinction also forms the basis for distinguishing Class IVc from Classes IVa and IVb, and Class VIIa from VIIb. These distinctions may be much more salient in a developing society, and one is likely to want to treat Classes IVc and VIIb as completely separate major classes in a developing society.

Erikson and Goldthorpe (1992) also suggested, when modelling mobility tables based on this classification, that there would be a variety of mechanisms generating or inhibiting movement between classes. Thus, in addition to general hierarchical processes, they distinguished processes involving direct inheritance, sectoral barriers, and occupational affinity. Inheritance effects are particularly evident where there is the possibility of the inheritance of capital, as with the Petty Bourgeoisie, in contrast to the dominant mechanism based on human capital and qualifications involved in recruitment to most other occupations in developed societies. The sectoral mechanisms that Erikson and Goldthorpe distinguished mainly concern primary production (agriculture, fishing, and extractive industries), where there is typically a strong geographical concentration that imposes additional barriers to outward or upward movement. Affinity is evident in the white collar/blue collar distinction, with a range of processes based perhaps on subcultures and social networks, which make it easier to move between classes of the same character than across the manual/non-manual border.

The crucial point, then, is to recognize that there may be a variety of processes generating occupational mobility, or stability, over and above the dominant hierarchical processes. While the EGP schema was designed for use in industrialized societies, these additional processes may be even more relevant in developing societies. They may also, of course, take a different form (as exemplified by *hukou* registration in China) from those sketched out by Erikson and Goldthorpe.

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[3] A basic labour contract is one where wages are directly related to the amount of work done on the basis, for example, of piece rates or hourly rates.

We would argue, then, that the EGP schema, by virtue of these additional non-hierarchical distinctions, provides a useful model for analysing mobility in developing societies. Nevertheless, it may still need to be adapted to the specific conditions within each developing society. First, the assigning of occupations to classes should not automatically follow the EGP rules. The example of postmen which we mentioned earlier illustrates the kind of issue that should be considered. Second, further distinctions which are not made in the EGP schema may need to be added—for example, that between subsistence and market-oriented farmers, or between the formal and informal sectors (Torche 2014).

It is understandable that, for industrialized societies where the farming sector has shrunk drastically (and has also perhaps become more homogeneous), it is not worthwhile to make further distinctions within Class IVc, for example. But whether additional distinctions are useful for analysing mobility patterns in a specific developing country should be a matter for empirical investigation, not a priori assumption.

8.5 Absolute and relative mobility in developing countries: the cases of Chile, China, Egypt, and India

To illustrate the statistical approach of sociologists to occupational mobility, and to draw out some key empirical findings about mobility patterns in developing countries, we take the examples of Chile, China, Egypt, and India. We choose these examples because of their geographical spread and the availability of high-quality data. We should emphasize, however, that these four countries are at very different levels of development. According to the UNDP's Human Development Index, in 2010 Chile had a score of 0.81, which ranked it as having very high development (although somewhat lower than the most developed countries of Western Europe and North America). China came next with 0.71, counting as high development according to the UNDP. Egypt scored 0.66, and India scored 0.58, both of these counting as medium development although the Indian figure is close to low development (and we should also note that within India and China there will be substantial regional variation in levels of development).

For Chile we use the 2001 Chilean Mobility Survey, a nationally representative survey of male heads of household. For China we use the 2010 Chinese General Social Survey (CGSS), a nationally representative survey of both men and women. For Egypt we use cross-sectional data from the 2012 wave of the Egypt Labor Market Panel Survey (ELMPS),[4] a nationally representative longitudinal household

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[4] The first round of this was carried out in 1998 with a nationally representative sample of households. Three follow-up surveys were conducted, and in each wave a new sample was added to ensure that the survey remained nationally representative.

survey that collected information on every household member aged six and above. For India we use the 2014 Indian National Election Survey, a representative national sample of registered electors (for further technical details, see Heath and Zhao 2019: Appendix A). All four of these surveys obtained information about the respondents' current occupational positions and employment status, along with similarly detailed information on the positions their fathers held when the respondent was growing up.[5] For respondents who were out of work or retired, we base their social class on their last main job but we exclude those who had never had a paid job, which is much more common in the case of female respondents than for males. As a result, the female samples are much smaller than the male ones in both Egypt and India, reflecting the low rates of participation of women in paid employment in these two countries. In 2010, the ratios of female to male employment were 0.63 in Chile, 0.82 in China, 0.31 in Egypt, and 0.35 in India.

The samples which we report cover respondents aged 18 and over, except in the case of Chile, where the sample covered respondents aged 24 to 69. We should remember that individuals will tend to experience some mobility over the course of their occupational careers, younger people typically starting their careers in entry-level positions and some subsequently experiencing upward career mobility. A person's current occupation is simply a snapshot of what is actually a dynamic process. This could lead to some bias, especially if one compares a country like Egypt, where the population is relatively young, with a country like Chile, with its somewhat older population.

For measuring the class positions of the fathers and respondents, we use an eight-category version of the EGP schema described above, namely:

I Higher professionals, managers, and large proprietors
II Lower professionals and managers
IIIa+b Routine non-manual employees
IVa Small employers with fewer than 10 employees
IVb Self-employed without employees
V+VI Foremen and skilled manual workers
VIIa Semi- and unskilled manual workers[6]
IVc+VIIb Agriculturalists.

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[5] In the Chilean and Chinese surveys respondents were asked for their father's position when the respondent was aged 14, and in Egypt when the respondent was aged 15. In the case of India, however, it appears that fathers' occupations represent their current or last main job if retired (Vaid 2018: 256). This introduces a potential bias compared with the other three countries.

[6] To make full use of the available information in Chile, China, and Egypt, we followed the conventional way of coding (see www.harryganzeboom.nl/isco88/index.htm): vendors were first coded to VIIa, and then, based on their self-reported employment relationships, to IVa (if they were employers with employees), IVb (if they were self-employed), or VIIa (if they did not define themselves as self-employed). In the Indian case hawkers and vendors are included in IVb.

We have to reduce the number of classes from 11 to 8 for a number of reasons. First, we have to combine Classes V and VI because some of our surveys do not enable us to distinguish foremen from other skilled manual workers. We combine Classes IIIa and IIIb because the distinction between them does not appear to be important in developing countries. And we combine Classes IVc and VIIb in order to accommodate the specifics of farming in China and Chile. In the case of China, peasants did not have ownership of land at the time of the survey and for this reason very few would fall into Class IVc according to the Western definition. It therefore makes sense to combine them into a single class of agriculturalists. Similarly, in Chile, Torche and Spilerman (2008) note that, given the concentration of land ownership among a small landed elite, small landholders control minimal amounts of land and are usually engaged in subsistence farming. As a result, Latin American farmers are far from being a rural bourgeoisie and are closer to a rural proletariat. However, in the Indian context the distinction between small landholders and agricultural workers is important, and supplementary analyses are therefore necessary (see further below).

Table 8.1 is a standard mobility table of the sort that has been in regular use among mobility scholars ever since Anderson and Davidson (1935). This table, covering men in Chile (women were not included in the Chilean study), crosstabulates respondent's class by father's class, using the eight-class schema described above. We use this table to illustrate the calculation of absolute rates of social mobility. As we noted above, absolute rates of upward and downward mobility in a society (and the total rate) refer to the percentages of the population who have experienced movement from the positions in which they grew up.

In Table 8.1 we percentage the figures so that the total of all the cells in the crosstabulation comes to 100 per cent. This enables us to calculate rates of *absolute mobility and stability*. By summing the percentages down the main diagonal

Table 8.1 Absolute mobility rates of men in Chile, 2001 (% of total)

Father's class	Respondent's class							
	I	II	III	IVa	IVb	V+VI	VIIa	VIIb+IVc
I	**3.0**	1.4	0.5	0.9	0.6	0.4	0.9	0.2
II	1.3	**1.4**	0.4	0.6	0.7	0.4	0.7	0.0
III	1.1	0.8	**0.5**	0.3	0.6	0.3	1.0	0.0
IVa	1.0	0.8	0.3	**1.6**	0.5	0.6	1.1	0.0
IVb	1.3	1.4	0.9	0.4	**3.3**	1.6	3.2	1.6
V+VI	1.2	1.2	0.8	0.5	2.6	**3.8**	4.7	1.5
VIIa	1.0	1.9	1.1	1.0	3.6	3.3	**7.1**	2.3
VIIb+IVc	1.2	1.1	1.0	1.0	3.6	3.5	6.9	**6.8**

■ Immobility   ▨ Upward mobility   ▨ Downward   □   mobility Horizontal mobility

(shaded black) running from top left to bottom right we can calculate the percentage who were intergenerationally stable. This comes to 27.5 per cent in the case of men. In other words 27.5 per cent of men in Chile were, at the time of the survey, in the same broad class as they had grown up (as indexed by their fathers' occupations). Conversely, we can say that 72.5 per cent of Chilean men had experienced intergenerational mobility.

We can also calculate that 33.4 per cent of men were upwardly mobile (the sum of the light grey cells below the diagonal) compared with 20.7 per cent who were downwardly mobile (the sum of the darker grey cells above the diagonal). And 18.4 per cent should be classified as horizontally mobile; that is, they had moved between the four intermediate classes which are not ranked hierarchically in the EGP schema, or between Classes VIIa and VIIb (the unshaded cells). These figures are not dissimilar to ones which might be found in a developed country like the UK.

The surplus of upward over downward mobility found in Chile is due to changes in the occupational structure that have resulted in increasing 'room at the top'. For example, 13.3 per cent of fathers had had salariat occupations when their children were growing up but this had expanded to 21.1 per cent among the sons at the time of the survey. Conversely, the agriculturalist class had shrunk from 25.3 per cent for fathers down to 12.4 per cent for their sons. This surplus of upward over downward mobility parallels that found in most postwar research on developed countries, and has exactly the same cause: the changing shape of the occupational structure as a society develops.

We can calculate similar statistics for our other countries, where we can also distinguish men from women. The results are summarized in Table 8.2 (for detailed cross tabulations for each of the other three countries on the same lines as Table 8.1, see Heath and Zhao 2019: Appendix B).

Table 8.2 shows some clear findings. First, Chilean men exhibit the lowest rate of intergenerational stability (27.5 per cent)—in other words, the highest absolute rate of intergenerational mobility. Chile is followed by Egypt (34.0 per cent of men being immobile) and China (39.8 per cent of men immobile), with India displaying very considerably more immobility at 68.7 per cent among men. The low rate of mobility in India is due, at least in part, to the very large size of the agricultural class which, among male respondents in 2014, included over 50 per cent of the population.

Second, in all four countries and for both men and women, we see surpluses of upward over downward mobility. As in the Chilean case described above, this reflects the increasing room at the top, with salaried positions increasing in number and lower-level manual or agriculturalist occupations contracting in size. In these respects the 'direction of travel' is similar in all four countries, although the actual sizes of these different classes among respondents vary considerably across countries.

Table 8.2 Summary statistics of absolute rates of mobility (%s of total)

	Immobility	Upward mobility	Downward mobility	Horizontal mobility
Chilean male (N = 3,004)	27.5	33.4	20.7	18.4
Chinese male (N = 4,869)	39.8	34.0	11.4	14.7
Chinese female (N = 5,003)	45.8	28.8	12.4	13.0
Egyptian male (N = 11,114)	34.0	34.1	17.4	14.5
Egyptian female (N = 4,288)	42.7	25.6	20.1	11.6
Indian male (N = 7,114)	68.7	20.1	4.1	7.1
Indian female (N = 2,560)	75.4	15.8	3.4	5.4

Source: authors' construction.

Third, in the three countries where gender differences can be ascertained, men are more likely to experience mobility than women, most of the difference being due to men's higher chances of upward mobility, since the rates for downward and horizontal mobility are quite similar for men and women in China, Egypt, and India. This contrasts with the situation of a developed country such as the UK, where absolute rates of mobility (both the total rate and the upward rate) are very similar for men and women (Bukodi and Goldthorpe 2019: chapter 2).

We turn next to measures of relative mobility. Perhaps the most straightforward way to understand what is involved is to employ what are known as 'outflow' mobility tables, in which we percentage the figures along each row separately. Outflow mobility tables show where people from a given origin class have moved to by the time of the survey. This provides us with a different perspective on the patterns in the data (although it can in fact be calculated directly from the percentages in the total mobility table). Table 8.3 shows the results for Chilean men. As we can see, Chilean men from higher salariat origins (Class I) had over eight times the chance of someone from an agriculturalist background (Classes IVc and VIIb) of reaching the higher salariat themselves (38.2 per cent vs 4.7 per cent). Another way of putting this is that the odds for men from these two different backgrounds of reaching the higher salariat themselves were 8:1. Conversely, men from an agriculturalist background had 14 times the chance of men from a higher salariat background of ending up as an agricultural worker themselves (27.2 per cent vs 1.9 per cent). Or, to formulate it in terms of odds, the odds for men from higher salariat as opposed to agriculturalist backgrounds of ending up as agricultural workers were 1:14. The ratio of these two odds is 115:1.

Sociologists use ratios of odds like these to measure relative mobility. Odds ratios, as they are termed, compare the odds of people from two different class backgrounds of achieving one class destination (in this example the higher salariat) and of avoiding an alternative one (in this example the agriculturalist class). Equality of odds, where two classes have equal chances of reaching one position and avoiding another, entails a ratio of 1:1 and can be thought of as

Table 8.3 Outflow mobility of men in Chile (row percentages)

Father's class	Respondent's class: 8 categories								
	I	II	IIIab	IVa	IVb	V+VI	VIIa	VIIb+IVc	N
I	38.2	17.3	6.9	11.4	7.7	5.3	11.3	1.9	236
II	23.9	25.9	6.8	11.3	12.1	7.6	12.5	0.0	169
IIIab	23.5	17.3	10.9	6.3	12.5	6.9	21.8	0.8	142
IVa	17.2	14.1	4.6	27.1	8.4	9.7	18.1	0.7	180
IVb	9.3	10.4	6.2	3.2	24.3	12.0	23.2	11.4	408
V+VI	7.4	7.4	4.7	2.9	16.1	23.5	29.0	9.1	509
VIIa	4.8	8.8	5.3	4.5	17.1	15.6	33.3	10.7	647
VIIb + IVc	4.7	4.6	3.9	3.9	14.4	14.0	27.4	27.2	713
Total	11.1	10.0	5.4	6.2	15.5	14.0	25.5	12.4	3,004

Source: authors' construction.

indicating perfect fluidity between the two classes in question. In contrast, the Class I/Class IVc+VIIb odds ratio in Chile comes to 115:1—a rather high value, contrasting as it does the two extremes of the stratification system, showing in effect a low degree of fluidity (in other words a high degree of inequality of opportunity) between these two classes among men in Chile.

Odds ratios can be thought of as measuring the relative competitive chances in the occupational structure of people coming from two different class backgrounds. They have some convenient mathematical properties—particularly the fact that they do not depend on the overall distributions of the fathers and sons across classes. In effect, they are not constrained by the changing occupational structure (for example, increasing room at the top) in the same way that the measures of absolute mobility which we discussed earlier are. Odds ratios can therefore be thought of as measuring the underlying fluidity, or its opposite of stickiness, of a society's stratification system.

The Class I versus Class IVc+VIIb odds ratio which we have just calculated is only one of many that can be calculated from a table such as Table 8.3. In Table 8.4 we show a selection of additional odds ratios for the four countries. We see that there is slightly less stickiness between Classes I and VIIa than there is between I and IVc+VIIb (except in India, to which we will return in a moment), while there is considerable (though not perfect) fluidity between Classes VIIa and IVc+VIIb in Chile, China, and Egypt. We also see a great deal of fluidity between Classes IVb and VIIa in Chile, China, and Egypt, representing the ease of movement between manual work and self-employment in these three countries. Indeed, for many people self-employment in the informal sector may simply be an alternative to unemployment—a constrained choice—rather than an example of opportunity. The low odds ratios might thus be regarded as examples of perverse fluidity.

Two other important points can be made about the results shown in Table 8.4. First, what might be termed the hierarchical odds ratios (I vs VIIa or I vs VIIb

Table 8.4 Relative mobility: five examples of odds ratios

	I/VIIa	I/VIIb+IVc	IVb/VIIa	IVb/VIIb+IVc	VIIa/VIIb+IVc
Chilean male	23.1	115.2	2.0	4.0	3.1
Chinese male	7.1	35.6	2.4	29.4	10.5
Chinese female	9.1	57.1	4.0	12.4	6.6
Egyptian male	8.6	53.6	3.6	28.9	10.6
Egyptian female	45.5	21.5	5.0	5.3	6.0
Indian male	1076.2	229.3	224.9	201.7	235.0
Indian female	8470.7	1122.8	144.3	208.5	280.1

Source: authors' construction.

+IVc) suggest that fluidity is greatest in China, followed by Egypt and Chile, with India quite some way behind. Second, and in contrast, China is not exceptional with respect to horizontal fluidity between the agricultural and industrial sectors (e.g. the VIIa vs VIIb+IVc odds ratio). These odds ratios are smallest in Chile and the Chinese ratios are similar to those in Egypt and India, possibly reflecting the important role of the *hukou* system in China (Chan 2009). Occupational mobility in China is distinctively shaped by the *hukou* system, a population registration system that was established when China had a planned economy. Under this system, individuals were registered in the locality of residence and were categorized as either rural or urban *hukou* 'holders'. Urban *hukou* holders had better life chances and access to a set of goods and services provided by the state, while rural *hukou* holders had far fewer resources and their migration to urban areas was strictly controlled (Chan 2009).

It is also important to note intersectionality with gender. In general, there is greater stickiness for women than for men with respect to the hierarchical odds ratios (with Egyptian women an exception). But this is not true to the same extent for movement between the agricultural and lower industrial sectors (for example the VIIa vs VIIb+IVc odds ratio). The detailed outflow tables also show that there is much less inheritance of Class IVb positions (the small employer class) among women than men (for further details, see Heath and Zhao 2019: Appendix C). One suspects that this reflects the direct inheritance of property by sons, not daughters.

Finally, in Table 8.5, following Vaid (2018), we disaggregate the agriculturalist class in India, distinguishing separately the mobility patterns involving large farmers (whom we classify as class Ib), small farmers working their own land (IVc), and landless agricultural workers (VIIb).[7]

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[7] Large farmers (Ib) are defined as farm owners with more than 5 acres of land; small farmers (IVc) are defined as farm owners with 0–5 acres of land and tenant farmers with 5+ acres of land; and agricultural workers (VIIb) are defined as agricultural labourers, non-cultivators, and small tenants with 0–5 acres of land.

Table 8.5 Outflow mobility of male and female in India, distinguishing the different farming classes (row percentages)

Father's class	Respondent's class: 10 categories										
	I	II	IIIab	IVa	IVb	VI	VIIa	Ib	IVc	VIIb	N
Male											
I	53.4	8.2	11.6	8.9	0.7	2.7	2.7	1.4	4.8	5.5	146
II	16.3	37.5	14.2	12.0	2.2	4.9	3.8	0.5	4.3	4.3	184
IIIab	5.4	8.1	40.9	13.7	3.4	13.7	5.4	0.5	3.7	5.1	408
IVa	6.0	8.5	8.8	64.6	1.2	5.4	2.2	0.0	1.2	2.0	497
IVb	2.6	5.2	12.5	7.2	49.7	10.5	3.9	0.0	3.3	5.2	153
VI	3.6	4.2	5.7	6.5	1.5	68.5	5.0	0.3	3.0	1.8	337
VIIa	1.2	1.2	6.7	5.5	3.7	10.6	65.3	0.1	1.9	3.7	671
Ib	1.9	3.3	3.5	5.7	2.7	3.3	2.1	70.8	3.3	3.3	513
IVc	2.0	3.8	6.8	6.9	2.2	4.6	2.6	0.7	65.2	5.2	1,793
VIIb	1.0	2.2	4.6	4.4	2.0	5.1	4.7	0.8	3.4	71.7	2,412
Total	3.6	4.6	8.3	10.4	3.3	8.9	9.5	5.6	18.7	27.1	7,114
Female											
I	70.8	12.5	5.6	1.4	0.0	4.2	1.4	1.4	0.0	2.8	72
II	12.1	67.2	1.7	1.7	0.0	5.2	0.0	1.7	0.0	10.3	58
IIIab	7.0	23.8	42.0	5.6	2.8	4.2	1.4	0.7	5.6	7.0	143
IVa	7.3	34.5	11.8	32.7	0.9	7.3	1.8	0.0	0.0	3.6	110
IVb	4.1	22.4	20.4	8.2	26.5	4.1	4.1	0.0	4.1	6.1	49
VI	2.4	8.7	7.0	5.5	5.5	55.9	6.3	0.0	2.4	6.3	127
VIIa	0.4	5.7	7.4	2.2	3.0	4.8	67.0	0.0	3.0	6.5	230
Ib	0.7	4.7	2.7	2.7	0.7	3.4	0.0	71.8	5.4	8.1	149
IVc	2.2	7.0	2.2	2.2	1.6	3.4	2.7	2.0	70.3	6.3	445
VIIb	1.0	1.9	2.9	0.7	0.9	3.0	2.2	0.8	2.5	84.1	1,177
Total	4.1	8.4	6.3	3.3	2.0	6.2	8.1	5.0	14.5	42.1	2,560

Source: authors' construction.

What we see in Table 8.5 is a high degree of intergenerational immobility within each of these three agriculturalist classes in India, with very little movement between them. We also see a strong element of hierarchy within the agricultural sector, just as there is within the urban/industrial sector, with very low fluidity between large farmers and agricultural workers (an odds ratio of 1922:1). There is a very high degree of stickiness, then, between the agriculturalist classes. This no doubt reflects the importance of direct inheritance of property and rights to land in India.

However, we also see that these differences between large and small farmers and agricultural workers do not count for much when people leave the land and take up employment in the urban/industrial sector. The sons of large farmers, for example, do not have much advantage over the sons of small farmers or of agricultural workers when it comes to accessing salariat positions. (Of those from large farming backgrounds who moved into the non-agriculturalist classes, 23 per cent of sons accessed the salariat compared with 20 per cent from small farm backgrounds and 13 per cent from agricultural worker backgrounds.) In effect, resources which are valuable for one's position within the agricultural sector have much less value for obtaining positions within the non-agricultural sector.

8.6 Conclusions: similarities and differences

There are major differences both between developing and developing countries, and between different developing countries, in their patterns of absolute and relative occupational mobility. One striking parallel, however, is that the direction of travel is quite similar, with substantial surpluses of upward over downward mobility in Chile, China, Egypt, and India, just as there are in a developed country such as the UK. This reflects ongoing processes of development and the changing shape of occupational structures as societies develop. There is nothing inevitable about this, however. There are already signs that in the most developed countries the rate of change has slowed and the surplus of upward over downward mobility is becoming smaller (Bukodi and Goldthorpe 2019).

We also find a strong element of hierarchy both in developing and in developed countries, with major advantages for children who grew up in more privileged homes in terms of obtaining privileged positions for themselves. But the degree of social stickiness or fluidity differs greatly between countries and perhaps varies even more across developing societies than among developed ones, the latter being characterized by fairly similar levels of fluidity. While it might be tempting to conclude that fluidity tends to increase as societies develop, it would be premature to draw any strong conclusions from our set of four countries. China, for example,

shows greater fluidity, at least with respect to the hierarchical dimension, than does more developed Chile. And the very high levels of stickiness in India may owe something to its patterns of landholding and caste, and not be due simply to lack of development.

As well as the hierarchical, vertical aspect of stratification systems, the importance of barriers affecting what might be termed horizontal movements between agricultural and non-agricultural sectors should not be underestimated. In part, these will reflect the (lack of) availability of occupational opportunities in more rural areas, although our evidence suggests that they might also owe something to particular institutional arrangements, such as the Chinese *hukou* system.

Gender inequalities are also very much in evidence where we could investigate them (in China, Egypt, and India). Here we found much lower rates of upward mobility for women than for men, and also a general tendency for fluidity to be greater among men. There are, however, some specific exceptions, father–son inheritance of small employer positions being quite marked. This contrasts with the developed world, where gender inequalities in overall rates of absolute and relative mobility are less marked, except in access to elite positions.

One other important difference between less and more developed countries may be in the extent to which sons tend to follow in fathers' occupational footsteps, even in the absence of direct inheritance of property. We have not been able to investigate this directly with the data available, but we suspect that quite a lot of the stickiness we have observed may occur not so much at the level of the kinds of 'broad' classes that make up the EGP schema but rather at the level of individual occupations, where sons learn their fathers' trades, a pattern which is not unknown in developed countries, too, where some specific occupations such as medical doctor, or politician, tend to run in families.

Occupations thus provide a flexible and powerful basis for studying mobility in developing societies, just as they do in developed ones. As we have argued, how one measures occupations needs to reflect the specificities of the particular country; off-the-peg schemas, whether of occupations or their amalgamation into social classes, may hide as much as they reveal. It is also important to recognize that it is not simply a matter of constructing alternative measures for developing countries. As our empirical examples show, there may well be as much diversity between different developing countries, reflecting their histories and institutional arrangements, as between developing and developed countries on average. Understanding these differences is likely to require a detailed understanding of the particular institutional arrangements, such as the Chinese *hukou* system or the Indian caste system, that impinge on recruitment to occupations.

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PART IV

DIALOGUE ON MEASUREMENT AND METHODS

9

Economic Approach to Intergenerational Mobility

Measures, Methods, and Challenges in Developing Countries

M. Shahe Emran and Forhad Shilpi

9.1 Introduction

Intergenerational mobility is an under-researched area in development economics. Although there is a large literature on poverty and inequality in developing countries, the effects of family and neighbourhood background on the economic opportunities of children remain a largely neglected topic. The focus of much of the development literature has been on trade and development, poverty, inequality, and factor market imperfections, and more recently credit, education, and health interventions using randomized controlled trials. However, the long-term intergenerational effects are in general not studied.

There has been a recent upsurge in the interest in intergenerational mobility in developing countries, partly motivated by accumulated evidence that liberalization and globalization in the 1980s and 1990s resulted in substantial poverty reduction but higher inequality in many countries. To what extent does the observed increase in inequality reflect the deep roots of family background rather than rewards for hard work and innovation? Has market liberalization increased the economic opportunities of children with poor socioeconomic backgrounds? Are the children born with favourable family backgrounds reaping the greatest benefits from globalization?[1] These and other related questions have provided a fresh impetus for the study of intergenerational persistence in economic outcomes in developing countries.

The literature on intergenerational economic mobility in developed countries is rich, with many fundamental theoretical and empirical innovations (for excellent surveys, see Bjorklund and Salvanes 2011; Black and Devereux 2011; Solon 1999).

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[1] The evidence presented by Fan et al. (2021) suggests that, in China, liberalization has not only increased income inequality, it has also led to lower intergenerational income mobility.

Almost all of the work on developing countries in the recent decades closely followed the literature on developed countries and adopted the measures and methods widely used there. As a result, the implications of data constraints and differences in economic structure in developing countries have not always been adequately appreciated.[2] For example, because of the predominance of informal and household-based economic activities, it is difficult to obtain reliable data on individual and household income in most developing countries. This makes it difficult to rely on income as a measure of economic status. The goal of this chapter is to provide a critical survey and synthesis of the recent economic literature on intergenerational mobility in developing countries, with a focus on such data and methodological challenges.

The rest of the chapter is organized as follows. Section 9.2 discusses the difficulties in using income as a measure of economic status in a developing country and how information on education and occupation commonly available in surveys can be leveraged to better understand the role of family background. Section 9.3 is devoted to the standard measures of intergenerational mobility used in the current literature, with a discussion on the choice of 'control variables' in the regression model. Section 9.4 provides a discussion on the effects of truncation due to co-residency restrictions and measurement error on the measures of relative mobility, such as the intergenerational regression coefficient (IGRC), intergenerational correlation (IGC), and intergenerational rank correlation (IRC). Section 9.5 discusses the issues relevant for understanding heterogeneity in intergenerational mobility across social groups, over time, or across spatial units. Section 9.6 contains a discussion on sibling correlation (SC) as a broader measure of intergenerational mobility, which is especially suitable in the context of developing countries with limited data. The challenges in causal interpretation of the estimates from the standard measures are the focus of Section 9.7, which emphasizes the importance of understanding the effects of policies on intergenerational persistence in economic status.

9.2 Measuring economic status/family background in developing countries

9.2.1 Limits of the income-based approach

A fundamental question is how to measure economic status. Not surprisingly, income is the measure of choice for economists; many existing analyses treat permanent income as the most informative measure of family background

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[2] For an excellent discussion on this point, see Iversen et al. (2019).

relevant for the opportunities of children. The focus on income in economics is in sharp contrast to the focus on occupational prestige and social class in sociology.

Early estimates of the intergenerational income elasticity (IGE) suggested high income mobility in the USA (IGE estimates of 0.20–0.30), but this optimistic picture was largely driven by attenuation bias from measurement error (see, among others, Solon 1992; Zimmerman 1992; and Mazumder 2005).[3] The accumulated evidence in the context of developed countries suggests that, to address the measurement error and life cycle biases, one needs good-quality data on income for more than a decade over the appropriate phase of the life cycle.

It is difficult to find such panel data sets suitable for credible estimates of permanent income for both the parents and the children in developing countries. Thus, the data requirements for understanding intergenerational persistence in (permanent) income may be too demanding in most developing countries. In fact, an income-based approach may not be feasible for a variety of reasons. For example, it is difficult to get a reliable estimate of household income when a substantial portion of economic activity is home-based and market interactions are limited—a salient structural feature of developing countries.

Given the data constraints, there are not many papers that estimate intergenerational income elasticity (IGE) in developing countries. Among recent papers, see Mohammed (2019) on rural India and Fan et al. (2021) on China. Mohammed (2019) relies on single-year income data for both generations, and Fan et al. (2021) use four rounds of panel data in a cohort-based analysis. The IGE estimate for India reported by Mohammed (2019) is 0.30, which is identical to the IGE estimate for the USA using single-year income data for fathers and sons in Solon (1992). Fan et al. (2021) provide an IGE estimate of 0.390 for the 1970–80 birth cohorts, which increased to 0.442 for the 1981–88 birth cohorts in China. Again it is interesting and informative to compare with similar estimates from the USA; in fact, the IGE estimate using five-year average income for the USA reported by Solon (1992) is 0.41, very close to the estimates of Fan et al. (2021 for China using four-year average income. When 16-year average income of fathers is used for the USA, the estimated IGE is much higher at 0.61, as reported by Mazumder (2005). This suggests that the availability of longer panels in India and China is likely to yield much higher estimates of IGE for (permanent) income.[4]

An important question in this context is whether there are econometric approaches that can address (at least partially) the data constraints. When there

[3] IGE is the standard measure of relative income mobility in the economics literature. An IGE estimate of 0.30 implies that children born to fathers with a 1 per cent higher income expect a 0.30 per cent higher income as adults.
[4] It is, however, important to note that the central conclusion of Fan et al. (2021), that income mobility has declined for the younger generation in China, is likely to be robust. This is because the data on both generations come from the same panel survey and thus are likely to contain comparable measurement error.

are different sources of income data on parents and children that cannot be linked across generations, the two-sample two-stage least squares (TS2SLS) has been widely used.[5] The basic idea is to use an auxiliary data source with richer information on parental income to get a better estimate of a parent's permanent income.[6] Unfortunately, in general such auxiliary data sources are not available in developing countries. Moreover, the available analysis and evidence suggest that the IGE estimate from the TS2SLS approach is often biased and sensitive to the choice of the set of instruments (Jerrim et al. 2016; Bjorklund and Jäntti 1997).

9.2.2 Measuring economic status with limited data

Although reliable estimates of permanent income are not available, most of the household surveys in developing countries collect data on education and occupation at the individual level.[7] One can make progress in understanding the pattern and evolution of intergenerational transmission of economic status by focusing on these two indicators.[8]

A survey of the recently published papers on developing countries shows that most of the studies use a parent's education (usually, the father's education) as the measure of family background, and focus on the intergenerational educational linkage between the father and sons.[9] In comparison, a limited number of studies rely on parental occupation as the measure of family background and focus on the influence of the father's occupation on children's occupation choices (see, for example, Bossuroy and Cogneau (2013), Emran and Shilpi (2011)).[10] As a result, there are two sub-strands of the literature with little or no cross-over: 'intergenerational educational mobility' and 'intergenerational occupational mobility'.[11]

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[5] See, for example, Bjorklund and Jantti (1997) on Sweden and the USA, Gong et al. (2012) on China, Piraino (2015) on South Africa, and Jerrim et al. (2016) for a list of 30 papers that use TS2SLS for estimating IGE.

[6] The auxiliary data set must refer to the same population as the main data set.

[7] More precisely, most of the data sets include measures of inputs to education, such as schooling. For a discussion on the distinction between schooling and education, see the chapter by Behrman (2021) in this volume.

[8] Another option is to focus on consumption expenditure, which is less affected by the transitory shocks because of intertemporal smoothing. We thank Vito Peragine for suggesting this. However, there are some limitations to this approach. For example, intergenerational persistence in consumption reflects not only intergenerational persistence in permanent income, but also the correlation in savings propensity across generations.

[9] See for example, Azam and Bhatt (2015), Emran and Shilpi (2015), and Asher et al. (2018).

[10] There are some recent contributions that go beyond education and occupation. For example, Bhalotra and Rawlings (2013) present evidence on intergenerational transmission of health using DHS data, Sepahband and Shahbazian (2017) report estimates of intergenerational persistence in risk attitudes in Burkina Faso, and Dhar et al. (2019) analyse intergenerational transmission of gender attitudes in India.

[11] For an analysis of the role of parental occupation in intergenerational educational persistence, see Emran et al. (2020) on rural India and rural China. For an analysis that looks at both educational and occupational persistence without the cross-effects, see Emran and Sun (2015) on rural China.

When the income information is limited in a survey, but there are multiple indicators of family background, including parental education, occupation, grandparent's education and occupation, ethnicity, political affiliation, etc., two methodological issues arise. First, how to combine these indicators to provide a meaningful estimate of the effects of family background? Second, are the effects heterogeneous with respect to the 'other' dimensions of family background? For example, does intergenerational educational persistence in rural areas depend on whether the parents are in farm or non-farm occupations? We discuss the issues related to heterogeneity and intergroup comparison of mobility in Section 9.5.

With regards to the aggregation of different indicators of economic status, a simple approach is to create an index using principal components analysis. However, it is difficult to provide economic interpretations to the weights used in the principal components analysis. Lubotsky and Wittenberg (2006) develop an approach to the problem of aggregation of a set of mis-measured indicators of economic status and show how it can be applied to intergenerational mobility analysis. Instead of creating a summary measure of economic status (permanent income) from the different parental indicators, their approach includes all of the indicators such as education, occupation, ethnicity, etc. as separate regressors in the specification, and then derives a summary measure of their effects by a weighted sum of the estimated coefficients. The weights are estimated from an auxiliary regression using a variant of the instrumental variables procedure.[12] This approach has, however, not yet been widely adopted in the intergenerational mobility literature. We are aware of only three papers, one of which is devoted to developing countries (Neidhofer et al. 2018; Vosters 2018; Vosters and Nybom 2017). A more detailed treatment of the advantages of and caveats about the Lubotsky and Wittenberg (2006) approach is provided in the working paper version of this chapter (Emran and Shilpi 2019).

The focus of this chapter is intergenerational persistence in economic status, but there is an important strand of related literature on inequality of opportunity (IOP) that offers an alternative approach to combine multiple indicators of family background for understanding the role played by the 'circumstances' into which one is born in shaping opportunities later in life. For an excellent discussion of this approach, see Roemer and Trannoy (2016).

9.3 Measures of intergenerational mobility

Given a suitable measure of economic status, the next step is to decide appropriate measures of mobility. Economists, in general, prefer regression-based methods,

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[12] Since the focus is not on estimating causal effects, their approach does not require external instruments satisfying exclusion restrictions.

while sociologists are traditionally more reliant on transition matrices, although regression-based approaches are increasingly common. In this section, we discuss some of the most widely used measures of intergenerational mobility in the economics literature, with a focus on the challenges in studying developing countries.

Many existing studies rely almost exclusively on measures of *relative mobility*, usually estimated as the slope parameter in an AR(1) regression. The standard measures of relative mobility are the intergenerational regression coefficient (IGRC) and the intergenerational correlation coefficient (IGC). Following the influential paper by Chetty et al. (2014), intergenerational rank correlation (IRC) is becoming increasingly popular. For more details on these relative mobility measures, please see below. However, there is an appreciation in the recent literature that measures of relative mobility provide only a partial picture; measures of absolute mobility that combine the estimated slope and intercepts are important and offer complementary evidence (for an excellent discussion, see Chetty et al. (2014)).[13] Note that the intercept provides an estimate of the expected outcome for children born into the most disadvantaged households, for example, where fathers have no schooling. Absolute mobility is especially important for cross-country, intergroup, and cohort-based analysis (see Section 9.5 below). For complementary discussions on different concepts of mobility, see the chapters by Torche and Fields in this volume.

9.3.1 Parents and children: three measures of relative mobility

Most of the economic literature focuses on the effects of parents on children, using the following regression specification:

$$E_i^c = \beta_0 + \beta_1 E_i^p + \Pi X_i + \varepsilon_i, \qquad (9.1)$$

where E_i is the indicator of economic status, such as permanent income, education, or occupation, and superscripts c and p refer to children and parents, respectively. The parameter of interest is the slope β_1, the IGRC, which is a measure of intergenerational persistence. Higher persistence implies lower mobility, as children's outcomes are more closely tied to parental characteristics, with $(1-\beta_1)$ usually taken as the measure of mobility.

To get a sense of the magnitudes involved, it is instructive to consider the model in Equation (9.1) as a description of dynastic evolution of economic status across

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[13] There is a somewhat different definition of absolute mobility used by many authors where children experience upward (downward) mobility if they are better-off (worse-off) than their parents; for example, if they have more (less) schooling than their parents. We discuss the advantages and disadvantages of the alternative approaches in a later section.

generations and look at the long-term variance. Ignoring the controls X for simplicity, we have the following expression for long-term variance of children's economic status:

$$\sigma_{Ec}^2 = \frac{\sigma_\varepsilon^2}{1 - (\beta_1)^2}.$$

We call $\frac{1}{1-(\beta_1)^2}$ the 'family background multiplier', which amplifies the effects of exogenous shocks as captured by σ_ε^2. One way to understand the 'family background multiplier' is that in a perfectly mobile society the multiplier equals 1, implying that the only source of inequality in the long-run cross-sectional distribution is exogenous shocks, and family background does not play any role. Now consider the estimates of β_1 for China and Indonesia reported by Hertz et al. (2008) for intergenerational educational persistence: China (0.34) and Indonesia (0.78) (Hertz et al. 2008: table 4). The estimated family background multiplier for long-term educational variance is 1.13 in China, but 2.55 in Indonesia. Given the same variance of the exogenous shocks, the long-term variance in education in Indonesia is 155 per cent higher due to family background factors, while it is only 13 per cent higher in China! This implies that it is imperative for the policy makers in Indonesia to address the uneven opportunities faced by children from poor socioeconomic background. In the current literature, the estimate of the family background multiplier is usually not reported, but we believe this would be useful for many readers and policy makers.

The analysis of income mobility uses a double-log functional form so that the slope parameter is interpreted as intergenerational income elasticity (IGE).[14] In contrast, all of the estimates of intergenerational educational mobility we are aware of rely on a level–level specification, which is partly motivated by the concern that a substantial proportion of parents may have zero years of schooling.

For educational mobility, the most common interpretation of E_i is years of schooling, but in some cases binary indicators are used. The vector X_i is a set of controls, the elements of which depend on the context and objectives of the analysis. The controls vary widely across studies making it difficult to compare mobility estimates.[15] It is important to recognize that controlling for other covariates in general would result in a biased estimate, as they capture part of the effects of family background we are interested in. In contrast, if the goal is to understand causal effects, it is important to include a set of controls for unobserved ability and preferences to minimize the omitted variables bias. For a discussion on issues related to causal interpretation, see Section 9.7.

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[14] For evidence that the standard log-linear specification is subject to instability in the USA, see Chetty et al. (2014).
[15] Reporting estimates without any controls as a benchmark would be helpful in cross-country comparisons.

A second widely used measure is IGC, which is estimated using the following specification of the regression:

$$\frac{E_i^c}{\sigma_{Ec}} = \rho_0 + \rho_1 \frac{E_i^p}{\sigma_{Ep}} + \Pi X_i + \epsilon_i, \tag{9.2}$$

where σ_{Ec} and σ_{Ep} are the standard deviations of children's and parent's outcomes respectively, and the parameter of interest is ρ_1. Denoting the OLS estimate of a parameter by a hat,

$$\hat{\rho_1} = \hat{\beta_1} \left(\frac{\sigma_{Ep}}{\sigma_{Ec}} \right). \tag{9.3}$$

To get the IGC estimate, we need to adjust the IGRC estimate by the ratio of standard deviation of parental education to that of children's education.

There is substantial evidence that the conclusions depend on whether one uses IGRC or IGC as the relevant measure of relative mobility. For example, in a widely cited cross-country study of educational mobility, Hertz et al. (2008) find that the estimated IGRC has declined over time across different age cohorts, suggesting that intergenerational educational mobility has increased for the younger generation. However, when the measure of choice is IGC, there is no evidence of such improvements. Similar conclusions are reached by more recent country-specific studies, see, for example, Emran and Shilpi (2015) on post-reform India.

A third measure is based on ranks; the regression function is:

$$R_i^c = \delta_0 + \delta_1 R_i^p + \Pi X_i + \upsilon_i. \tag{9.4}$$

Taking educational mobility as an example, R_i^c is the rank of child i in the schooling distribution of all children, and R_i^p is the rank of the parents of child i in the schooling distribution in the parental generation. The parameter of interest is δ_1, which provides an estimate of rank correlation (IRC) as a measure of relative (im)mobility.

With a continuous variable such as income, rank correlation is different from IGRC and IGC in that it captures the fundamental dependence in economic status of parents and children (i.e., a copula), not affected by changes in the marginal distributions.[16] The copula provides a clean statistical measure of relative mobility, and the changes in marginal distributions reflect the factors that determine absolute mobility, for example, economic growth and structural change. However, with discrete variables such as education, the Spearman rank correlation

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[16] Given the marginal distributions of parent's and children's schooling, a copula can be thought of as a function that joins them together to form a bivariate distribution. A copula represents the fundamental dependence between the marginal distributions in the sense that it is not affected by strictly increasing transformations of the marginal distributions. For a discussion, see Nelsen (2006).

is not immune to such changes in the marginal distributions (Neslehova 2007). When conducting comparative analysis, the rank needs to be calculated from the distribution of an appropriate reference group. This can be highlighted by considering the fact that a move from the lowest decile to the median of the income distribution would mean very different things in Bangladesh versus the USA in terms of gains in income, if the income rank is calculated using the national distribution in the respective countries. For cross-country analysis, the ranking thus needs to be calculated in terms of the world income distribution.[17]

9.4 Measures of relative mobility: robustness to data limitations

With the three alternative measures of relative mobility—IGRC, IGC, and IRC— the question immediately arises whether some measures perform better than others, especially when there are important data limitations as is usually the case in developing countries. As noted above, data limitations in the form of measurement error have been a central focus of the literature on intergenerational income mobility in developed countries. In addition to measurement error, the recent literature on developing countries has also highlighted the issues that arise when data limitation takes the form of sample truncation because of the co-residency restrictions used to define household membership in a household survey.

9.4.1 Measurement error

Although measurement error has been a central focus of intergenerational income mobility analysis, the literature has paid little attention to the effects of measurement error on educational and occupational mobility. This partly reflects the observation that measurement error is less severe in education and occupation data. However, when a parent's education and occupation data rely on children's recall, the extent of measurement error may not be ignorable.[18]

In the context of intergenerational income persistence in developed countries, a small but growing literature provides evidence on the reliability of different mobility measures in the presence of measurement error and model misspecifications.

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[17] We thank Patrizio Piraino for alerting us to the importance of the 'scale' or 'absolute distance' in cross-country analysis. See also the discussion in Chetty et al. (2014) on cross-county differences in the USA.

[18] Ranasinghe and Hertz (2008) provide evidence of substantial measurement error in education data in Sri Lanka. Emran and Shilpi (2015) find that correction for measurement error increases the educational persistence estimates substantially in India.

The evidence suggests that rank-based measures, such as IRC, are more stable (Chetty et al. 2014; Mazumder 2014), and less affected by misspecification when compared to IGE, IGRC, and IGC. Taking advantage of exceptionally rich panel data on income from Sweden, Nybom and Stuhler (2017) show that, among the three measures (IGE, IGC, and IRC), the IRC is least affected by attenuation bias arising from measurement error when short panel data on parental income are used. We are not aware of similar evidence on education or occupation, especially in developing countries. Credible evidence on the relative magnitudes of attenuation bias in IGRC, IGC, and IRC in education and occupation data from developing countries would be a valuable contribution to the literature.

9.4.2 Co-residency and sample truncation

Most existing household surveys covering developing countries such as the World Bank's Living Standards Measurement Surveys (LSMS) and the Demographic and Health Surveys (DHS) rely on a set of co-residency criteria to define household membership at the time of the survey. In many LSMS surveys a person is counted as part of the household only if he or she lived at least three months in the house during the last year. This would exclude the rural children attending colleges in a large city.[19] The resulting sample truncation is likely to affect estimates of inter-generational educational, occupational, and income persistence since individuals who, on average, are more educated or occupationally successful are not included in the survey Are measures of persistence and mobility affected differently by such co-residency restrictions in survey design?

In a recent paper, Emran et al. (2018) use data from India and Bangladesh to show that the most common measure, IGRC, suffers from substantial downward bias, while the bias in IGC is much smaller. The intuition can be seen from the relation between IGRC and IGC in Equation (9.3). While truncation causes downward bias in the OLS regression of the slope parameter (IGRC) in a regression of children's schooling on parent's schooling, it also results in upward bias in the ratio of variances of schooling across generations in Equation (9.3). They also find that the magnitude of truncation bias is less sensitive to the degree of truncation in the case of IGC.[20] In a follow-up paper, Emran and Shilpi (2018) extended the analysis to rank-based measures of mobility, using the same

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[19] Some notable exceptions include CFPS survey and the 2013 round of CHIP survey for China, REDS and IHDS for India, IFLS for Indonesia, and MxFLS for Mexico.

[20] As noted by Hertz et al. (2008), IGC is also less sensitive to the details of the empirical model and implementation. For example, the magnitude of IGRC in education can change substantially depending on how the parent's education is measured (the average of parent's education, the maximum of parent's education, etc.), but the magnitude of IGC is less sensitive.

Bangladeshi and Indian data, and found that the co-residency bias in rank correlation (IRC) is smaller than that in IGRC, but similar to that in IGC.[21]

A recent analysis of income persistence in rural India by Mohammed (2019) suggested that the effects of sample truncation might be different for income mobility; he found that the IGE estimate is *higher* in the co-resident sample, in contrast to the downward bias found for educational persistence by Emran et al. (2018) in rural India. These two papers, however, focus on two different aspects of co-residency; while Emran et al. (2018) are primarily concerned with the fact that the sample does not contain all the children of the household head when some children leave the household for college or marriage, Mohammed's analysis focuses on whether the survey has information on the parents of the household head (and the spouse) when the parents are not co-resident.[22] Additional evidence on the effects of truncation due to these two types of co-resident samples on different measures of economic status, and measures of mobility for rural and urban samples separately would be valuable.

9.5 Understanding heterogeneity: social groups, cohorts, and countries (and regions)

An important goal in many mobility studies is to estimate and understand possible heterogeneity in intergenerational persistence across different social groups (for example, gender, caste, ethnicity), and across cohorts, countries, and regions.[23] It is, however, important to recognize that, to understand heterogeneity across groups, cohorts, or countries, the three measures of relative mobility discussed above are not adequate, we also need to look at the intercept estimates of the intergenerational regression equations (Equations (9.1), (9.2), and (9.4)). The fact that the measures of relative mobility can be misleading for intergroup comparison of mobility has been emphasized by Mazumder (2014) and Hertz (2005) in their analysis of black–white differences in intergenerational mobility in the USA.[24]

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[21] Emran and Shilpi (2018) analysis uses the mid-rank method to deal with the ties in schooling ranks. The ties occur when there are many observations at a given value. For example, in IHDS 2005 data for India, 25 per cent of the rural fathers have zero schooling, and the schooling rank assigned to all fathers with no schooling is 12.5.

[22] Emran et al. (2018) also provide evidence using a sample that contains both the non-resident parents and non-resident children of the household head and spouse. The conclusions do not change.

[23] As noted by Iversen et al. (2019), the gender and rural–urban differences in intergenerational mobility in developing countries remain largely unexplored. Recent contributions on rural–urban differences include Iversen et al. (2017) and Emran and Shilpi (2015) on India, Alesina et al. (2019) on 27 African countries, and Ahsan et al. (2020) on Indonesia. Emran, Jiang, and Shilpi (2020) analyse gender bias in educational mobility in China and India.

[24] Torche (2015) discusses similar issues in the sociological literature on intergenerational mobility.

Most of the cross-country analysis of educational mobility in developing countries are based on the estimates of IGRC and IGC; they do not report the estimates of the intercepts. To see the pitfalls in relying on the measures of relative mobility in a cross-country analysis, consider the estimates of IGRC for China (0.34) and Indonesia (0.78) from Hertz et al. (2008). While the evidence implies that intergenerational educational persistence is much lower in China (relative mobility is higher), does this mean that the children in China enjoy an educational advantage? It depends on the intercept terms. For illustration, consider the case when the intercept term is lower in China: the expected educational attainment for children in Indonesia is higher at any given level of parental education. Clearly, it makes little sense to say that children in China have educational advantage in this (hypothetical) case (see Emran and Shilpi 2019 for a diagrammatic exposition).

In a widely cited paper on intergenerational income mobility in the USA, Chetty et al. (2014) combine the intercept and the slope estimates from the rank–rank regression equation (Equation (9.4)) and construct a measure of absolute mobility called P_{25}, which shows the expected income rank for the children of the parents with income in the 25th percentile of parental income distribution. With linear CEF (conditional expectation function), this can be interpreted as a measure of absolute upward mobility, as it captures the expected income of the children born into the lower half of the parental income distribution. Following the influential contribution of Chetty et al. (2014), the P_{25} measure has been adopted increasingly in research on intergenerational educational (and income) mobility in developing countries.

A somewhat different interpretation of *absolute mobility* adopted by many authors relates to whether a child is doing better than his/her parents (more income, higher schooling, etc.). This is informative for the analysis of income and occupation but less useful for understanding educational mobility in developing countries. With about 40 per cent of fathers in rural India having zero schooling in the 1999 REDS survey, the only direction of educational mobility possible for their children is upward, and with almost universal primary school enrolment, (almost) everyone is doing better than their parents for the 40 per cent of households at the lower tail of the distribution.[25] This is a weak criterion for analysing educational mobility in developing countries. In contrast, the Chetty et al. (2014) approach is based on the rank of a child in the education distribution of his or her own generation, and if the children of the fathers with zero schooling have more schooling, but their rank in the distribution of their peers remains unchanged, this would not be considered upward (absolute) mobility.

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[25] An implication of this observation is that evidence of no significant effect of policies on absolute educational mobility needs to be interpreted with caution. When 40 per cent of the households enjoy upward mobility irrespective of the incidence of a policy, one might find a weak statistical relationship between absolute mobility and the incidence of the policy, even when a policy affects relative mobility (IGRC).

9.5.1 Implications of data limitations for the analysis of heterogeneity

Since classical measurement error causes downward bias in the slope estimate, the OLS estimate of the intercept term is biased upward, as the regression line rotates clockwise (for more details, see Emran and Shilpi 2019). We are not aware of any systematic evidence on the magnitude of biases in the intercept estimates of the different intergenerational regression functions caused by measurement error.

Emran and Shilpi (2018), using data on schooling from Bangladesh and India, found that the estimated intercept terms are biased upward in co-resident samples, and the extent of the bias varies substantially across different measures of mobility. The intercept of the IRC regression is the least affected by sample truncation, while the IGC regression (Equation (9.2)) is most affected. When considering the truncation bias in both the slope and intercept terms, the rank-based measures of mobility *à la* Chetty et al. (2014) thus seem preferable for a researcher with data only on co-resident household members. The evidence shows that the co-residency bias is lower in the absolute mobility measure P_{25} compared to the other similar measures based on the IGRC regression (Equation (9.1)). For an extended discussion, see Emran and Shilpi (2018, 2019).

Measurement error and a co-resident sample make comparison across groups, cohorts, and countries difficult even when the focus is on relative mobility. For example, Emran et al. (2018) find that the cross-country ranking in educational persistence can be reversed when using co-resident samples compared to the correct ranking in the full samples. The extent of sample truncation is likely to be more severe for the daughters, which makes the detection of gender bias challenging. The co-residency rates are lower for the younger cohorts as the extended family living arrangements become less prevalent and geographic mobility increases, making the estimates of relative mobility spuriously lower for the younger cohorts. The cohort-based evidence in the current literature on improvements in intergenerational mobility in recent decades needs to be interpreted with caution.

9.6 Sibling correlation (SC): capturing the unobservable common family and neighbourhood background

The discussion so far deals with different ways to estimate the effects of permanent income as captured by a vector of parental characteristics observed in the data (in the absence of the required income data). However, it has long been recognized that income and wealth do not adequately capture the family background characteristics that shape the life chances of children. Becker and Tomes (1979, 1986) elaborate on the non-financial channels through which parents can affect the economic opportunities of children. Moreover, children who grow up together

share much more than the parents: they often go to the same school, have social interactions with the same neighbourhood kids, and look up to the same role models in the community. The correlation in economic outcomes among siblings can thus be interpreted as an omnibus measure of the effects of family and neighbourhood that capture observable and unobservable influences. Early contributors include, among others, Solon et al. (1988, 1991), with more recent contributions from Mazumder (2008) and Bjorklund et al. (2010b). For excellent discussions of the issues relevant for estimating sibling correlations (SC), see Solon (1999) and Bjorklund and Jantti (2012).

As a broad measure of intergenerational (im)mobility, SC seems an attractive option for researchers in developing countries. A sample of co-resident children is more likely to provide a credible estimate of SC because they capture the common family, school, and neighbourhood influences. In contrast, non-resident children who left for college, say 15 years ago, may have less in common, as the neighbourhood and schools change with time. Thus, missing such non-resident children from the sample, is likely to be less damaging for the estimation of SC than for the IGRC. In fact, unpublished estimates for India, Bangladesh, and China by the current authors (with Hanchen Jiang) suggest that the bias due to sample truncation because of co-residency is significantly lower in SC estimates compared to the IGRC estimates.

It is curious that only a few papers adopted SC as a measure in the context of developing countries.[26] In an important contribution, Dahan and Gaviria (2001) present estimates of SC in schooling for 16 Latin American countries. Emran and Shilpi (2015) report estimates of sibling correlation in schooling for India in 1993 and 2006 and show that the conclusions regarding cross-country comparisons of mobility (India versus Latin America) vary depending on whether we rely on the IGRC or SC. When measured in terms of SC (0.64 in 1993 and 0.62 in 2006), the impact of family background in India is *higher* than in Latin American countries, including Brazil and El Salvador. In contrast, the estimated IGRC in schooling for India is *lower* than that in Brazil and El Salvador. This implies that while the parents-to-children transmission of education is not as strong in India, the overall family background, in fact, plays a more important role.

9.7 Challenges for causal interpretation

The available work on intergenerational mobility in developing countries is primarily descriptive; only a small part of the literature is devoted to estimating

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[26] This seems especially surprising in light of the fact that the authoritative survey of the field by Solon (1999) contains a substantial discussion on SC and highlights its advantages as a broader measure of the effects of family background.

intergenerational causal effects of socioeconomic background on children's income, education, and occupation. The central challenge in estimating causal effects is how to address possible upward bias in the estimates because of genetic transmission of ability and preference (called 'ability bias' for short), assuming that the attenuation bias has been taken care of with appropriate data. However, for some analyses, ignoring the ability bias may not be a bad approximation. For example, in a comparative analysis of different castes and religion in India, the differences observed in intergenerational persistence are unlikely to be driven by differences in genetic correlations in ability (there is no scientific basis for such differences across caste or religious groups). The recent finding by Asher et al. (2018) that Muslims in India are among the most disadvantaged groups in terms of educational opportunities in the post-reform period is unlikely to be driven by differences in ability correlations.

Most existing studies assume that unobserved ability is captured by the error term in estimating equations (Equations (9.1), (9.2), and (9.4)). For concreteness, consider a researcher interested in estimating IGRC for schooling using Equation (9.1). A common strategy is to set up a triangular model and use some source of exogenous variations in parental education. The triangular model is:

$$E_i^c = \beta_0 + \beta_1 E_i^p + \Pi X_i + \varepsilon_i \tag{9.5}$$

$$E_i^p = \gamma_0 + \Pi_1 X_i + \zeta_i. \tag{9.6}$$

The correlation between the error terms is expected to be positive because of genetic transmission of academic ability and preference from parents to children—that is $Corr(\varepsilon_i, \zeta_i) > 0$, resulting in an upward bias in the OLS estimate of the parameter β_1. The most common approach, both in developed and developing countries, is to develop an instrumental variables strategy based on a policy experiment or other natural experiments.[27] A recent example in the context of developing countries is the study on Indonesia by Mazumder et al. (2019), where a large-scale school construction in the 1970s is used as a source of identifying variation, following the influential work of Duflo (2004). They find an important causal role for the mother's education for the educational performance of children.[28] Taking advantage of the education reform in 1980 in Zimbabwe that eliminated the apartheid-style policies against blacks, Aguero and Ramachandran (2020) develop a fuzzy regression discontinuity design, and find that both father's and mother's education positively affect their children's educational attainment.

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[27] For a survey of the literature on developed countries, please see Black and Devereux (2011).

[28] The large-scale school construction in Indonesia was first used by Hertz and Jayasundera (2007) in the literature on intergenerational mobility to study the effects of school access on the intergenerational persistence in education. Their focus is on estimating the causal effects of school construction on intergenerational correlation, not on tackling the ability bias. For a detailed discussion, see Section 9.7.2.

Bevis and Villa (2020) estimate causal effects of mother's health on children's health in Cebu, Philippines. The advantages of a credible IV strategy are well-known: it corrects for both the ability bias and the measurement error. However, the estimates are relevant for only a subset of the households (i.e. the compliers). This implies that while the estimates are useful when the focus is on understanding the effects of certain policies such as school construction (increased supply of schooling), they may not be appropriate for other policies or for the broader population.[29]

When credible sources of exogenous variation are not available (which is most of the time), one can implement the approach developed by Altonji et al. (2005) and extended by Oster (2019), which relies on selection on observables as a guide to selection on unobservables to understand the role played by ability correlations. Emran and Shilpi (2011) use the Altonji et al. (2005) approach to estimate the lower bound on the causal effects of parental occupation on children's occupation in rural Nepal and rural Vietnam under the restriction that selection on observables is equal to selection on unobservables. They find that the lower bound is significant for the mother–daughter occupational link, especially in Nepal, and interpret it as role model effects in a traditional society. This approach, however, requires that we include a rich set of observables to ensure the equality between selection on observables and on unobservables, and may be of limited use for estimating the causal effects (i.e. the total derivative) of parental education and/or occupation. The rich set of controls would capture part of the causal effects of education and occupation.

When the vector of control variables is parsimonious,[30] one can use the sensitivity analysis for various values of the correlation $Corr(\varepsilon_i, \zeta_i)$. Such sensitivity analysis looks more promising when one takes advantage of the recent estimates of the correlation in cognitive ability between parents and children from the economics and behavioural genetics literature to restrict the interval to which the correlation parameter belongs. The available evidence suggests that a plausible interval would be $Corr(\varepsilon_i, \zeta_i) \in [0.20-0.40]$ (for the economic literature, see, for example, Black et al. (2009) and Bjorklund et al. (2010a); for the behavioural genetics literature, see Plomin and Spinath (2004)). Emran et al. (2020) use this approach to analyze the role of parental farm and non-farm occupations in intergenerational educational persistence in China and India. They find that the observed intergenerational educational persistence in rural China could be driven by genetic correlations alone, while genetic correlations cannot explain the observed persistence in rural India. An important advantage of this approach

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[29] Aguero and Ramachandran (2020) argue that their estimates are relevant for a large proportion of the population in Zimbabwe, as 86 per cent of the eligible students changed their behaviour in response to the policy change.

[30] For example, it is common to control for only quadratic age variables for the father and son in the analysis of intergenerational income mobility, following Solon (1992).

not adequately appreciated in the current literature, is that the bias corrected estimates refer to the broader population rather than a subset of 'compliers' as is the case with an IV approach.

In the triangular model above, ability is assumed to be additively separable so that the marginal effect of parental education does not depend on the ability of a child. The recent contributions in economics, however, suggest that the effects of ability may be multiplicative. In an interesting theoretical analysis, Becker et al. (2015, 2018) develop a model of human capital approach to intergenerational income persistence where parental financial investment is complementary to the ability of a child, which makes IGRC a function of ability in Equation (9.1). When ability enters multiplicatively, the estimating equation becomes a random coefficient model, as discussed by Murtazashvili (2012). She shows that the 2SLS estimator is not appropriate in this case and develops a control function approach for estimating the causal effect (when there is a credible IV). Her analysis finds that the estimate of income persistence from the control function approach is much higher when compared to the IGE estimate using the 2SLS estimator.

Another important issue highlighted by the work of James Heckman and his co-authors is that the implicit assumption of ability as innate is likely to be misleading. A large literature has developed in the last few decades that shows that ability is largely determined by the early-life environment, including mother's health when a child is in utero and early-life nutrition (Heckman and Corbin 2016; Heckman and Mosso 2014).[31] An implication of this evidence is that most of the estimates of correlations in cognitive and non-cognitive ability of parents and children available in the current literature are likely to be biased upward, as they are measured not at birth, but later in life. This also implies that when we set Corr($\varepsilon_b \zeta_i$) = 0.40, the resulting estimate of IGRC should be considered as a lower bound, both because the ability correlation is likely to be overestimated, and because the IGRC estimate will be biased downward because of measurement error.

9.7.1 The implications of sample truncation due to co-residency

As noted in Section 9.4.3, there are two types of co-residency we need to think about; some papers focus on the non-resident children, while others focus on the non-resident parents of the household head and spouse. It is important to appreciate that it is difficult to estimate the causal effects even when we have a data set containing information on the non-resident parents of the household head and spouse. In this case, we have a random sample of children with data on

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[31] For evidence on the effects of family background on brain development of children, see the widely cited work by Noble et al. (2015). They conclude that 'These data imply that income relates most strongly to brain structure among the most disadvantaged children' (abstract).

their parents irrespective of the residency status of the parents at the time of the survey. However, for estimating causal effects, what we need is a random sample of parents with the necessary information on all their children, irrespective of the residency status at the time of the survey. This can be better understood if we think of a mental experiment in which we could do a randomized controlled trial to estimate the causal effects of the father's education on the children's schooling. Clearly, we need to randomize the father's education (the 'treatment'), not the children's education (the outcome variable), and then track all the children irrespective of the residency at the time of the follow-up survey after the children complete their education. To our knowledge, there are only a few surveys in developing countries that include information on all children of household head and spouse (REDS in India and Matlab survey in Bangladesh are among the exceptions).

9.7.2 Causal effects: estimating effects of policy on intergenerational persistence

A number of recent contributions focus on estimating the effects of policy (or economic environment) on intergenerational persistence in developing countries; thus, the focus is not on the biases caused by unobserved genetic transmissions, but on the possible endogeneity in policy placement and implementation. Most of the current literature on intergenerational persistence and the causal effects of a parent's education ask different research questions, and they have evolved somewhat independently. It is not clear how to connect the two sets of estimates to get an overall picture of economic mobility across generations for answering policy-relevant questions. The focus on the causal effects of policy on the measures of persistence such as IGRC, IGC, and IRC provides a bridge: one can ask policy-relevant questions without trying to disentangle the role of genetics in the estimated intergenerational persistence. For example, whether public investment in roads and schools improve mobility by weakening the intergenerational persistence in education and occupation are clearly important both for policy makers and researchers.[32] It is also important to appreciate that the estimated effects of roads and schools are unlikely to be driven by omitted genetic inheritance, because such public investment is unlikely to change the correlation in genetic ability of parents and children.

An early example of this approach in the context of developing countries is presented by Hertz and Jayasundera (2007), who study the effects of school

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[32] In the context of developed countries, Pekkarinen et al. (2009) estimate the effects of comprehensive school reform in Finland during the period 1972–77 on intergenerational income elasticity. They find that the school reform that eliminated the two-track system reduced IGE from 0.30 to 0.23.

construction in Indonesia. They find that school construction lowered the IGRC for education of sons but had no appreciable effect for daughters. Using the 1991 liberalization in India as a quasi-experiment, Ahsan and Chatterjee (2017) estimate the effects of trade liberalization on occupational persistence in urban India, and find that while trade liberalization increased cross-sectional inequality, it also promoted occupational mobility. Assaad and Saleh (2018) estimate the effects of increased supply of public primary schools in Jordan on the father–sons, mother–sons, father–daughters, and mother–daughters schooling correlations. Their findings suggest that the availability of public primary schools weakens the intergenerational linkages, especially for daughters. Zou (2018) and Yu et al. (2020) estimate the effects of the one-child policy on intergenerational educational and income mobility in China. Alesina et al. (2019) analyse the relative roles of 'regional exposure' and 'spatial sorting' in absolute educational mobility in 27 African countries. They find evidence of bidirectional sorting, but there is also substantial effect of regional exposure. In a recent paper, Ahsan et al. (2019) analyse the effects of better market access on intergenerational educational persistence in rural India. The empirical analysis relies on the location of historical railroads in 1880 *à la* Donaldson (2018), and the arc distance to the Golden Quadrilateral (GQ) highway network as sources of identifying information. Their evidence shows that, in rural India, better access to markets reduces the influence of family background on children's educational attainment; better markets thus act as substitutes for better-educated parents.

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10

Social Mobility in China

A Case Study of Social Mobility Research
in the Global South

Yaojun Li

10.1 Introduction

This chapter investigates social mobility in developing countries using China as a case study. Social mobility is an indicator of economic efficiency, social justice, and political legitimacy. As such, it is an enduring concern for government decision makers, social science researchers, and wider society, in developing as well as developed countries. Yet, developing countries have lower levels of economic development and country-specific sociocultural institutions, which call for particular and more sensitive attention when we conduct mobility research. This chapter gives an example of theoretically informed, methodologically rigorous, and contextually attuned mobility analysis in the Global South, using China as an example.

China's situation is unique due to entrenched social differences exacerbated by the household registration (*hukou*) system. This system requires rural residents to register as agricultural *hukou* holders even if they are not engaged in agricultural work, as is the case for example with commune cadres, teachers, or doctors. In addition, it requires all newborn babies to register with their mother's *hukou*, thereby binding most Chinese people to the land at birth and for decades thereafter, with limited opportunities for upward social and geographical mobility. A direct result of this is an urban–rural divide where, under state planning, urbanites enjoy many benefits which are denied to rural residents, although there are still clear class differences among urban residents. China was also subject to Confucian indoctrination for thousands of years, whereby male preference was an open practice, causing marked gender inequality. China as we now know it— the People's Republic of China (PRC), established in 1949—was born out of a whole series of wars against foreign invasions as well as civil wars, such that immediately after the Liberation the country was extremely poor, and it remained

very poor until quite recently. However, the reform policy implemented in 1978 gradually shifted the country from one of the poorest to become the second-largest economic powerhouse in the world.

It is in this context that the analysis in this chapter is situated. China's institutional, historical, and cultural barriers to mobility may or may not find similar expressions in other developing societies, as these countries may have specific urban–rural or ethno-religious differences or caste systems. While it is important to recognize country-specific differences, it is hoped that there may be a common or similar logic when countries develop socioeconomically and that, therefore, by following the logic of this chapter, readers might conduct mobility research in other developing countries.

There are different approaches to conducting quantitative sociological analysis of social mobility. Owing to space limitations, we focus on intergenerational social (class) mobility in this chapter.

The chapter is structured as follows. In the next section, we give a brief account of the major government policies that have had and are continuing to have a large impact on social mobility. We also review existing research on intergenerational social mobility in China, conducted by Chinese and other scholars. This is followed by the presentation of data, methods, and key findings. The analysis ends with a discussion.

10.2 Social policy and mobility

No research on class mobility in China can proceed without considering the impacts of the major government policies implemented since 1949. There are of course many policies that have impacted on people's life chances, but the most important are those related to the *hukou* system, the opening-up and reforms that led to the migration of over 280 million rural residents (peasants) to urban and coastal areas for jobs and a better life, and the drive to expand higher-education provision in 1999 that aimed to make the country not only an economic super-power, but also a knowledge incubator.

The *hukou* system was initiated in 1955 and fully implemented in 1958. Initially it was aimed at population control, as the government could not feed the growing population in the cities. After the Liberation, millions of rural people swarmed into urban centres, and the first Constitution of the PRC, promulgated in 1954, permitted free movement. Soon the government found it increasingly difficult to supply the ever-growing urban population with jobs, education, housing, transport, healthcare, pensions, and daily necessities. As a response, the government firstly called on newcomers to cities to 'voluntarily' return to their villages, and then designed a 'fundamental' solution to migration by adopting the *hukou*

system. Over time, the system became more and more rigid, and effectively created a chasm 'between heaven and earth' (Treiman 2012), separating Chinese citizens into an 'agricultural' rural sector and a 'non-agricultural' urban sector, with rural *hukou* holders unable to move to cities and denied the benefits bestowed upon urbanites by the state in terms of jobs, education, housing, healthcare, pensions, and many other services. In the urban sector, the government further differentiated workplace (*danwei*) statuses, giving top priority to Party and government organizations, followed by state-owned enterprises, and cascading down to collective-owned enterprises (Cheng and Selden 1994). Self-employment was greatly curtailed, especially during the Cultural Revolution (1966–76). Most importantly, newborn babies had (and still have) to register with their mother's *hukou* status. As most Chinese people were living in the countryside at that time—and more so for women than for men—this meant that the overwhelming majority of children born from the late 1950s onwards in China had rural *hukou* status and were destined to be peasants themselves, even if their fathers had urban *hukou* or worked as rural cadres, doctors, or teachers. Only 'the best and brightest' (Wu and Treiman 2007: 419) could escape this fate and become non-rural.

Hukou was therefore a paramount ascriptive factor in mobility in China. This, together with parental class, has predominantly determined the life chances of Chinese people for the last 70 years. For decades since its inception, this system has served as an effective control mechanism over the Chinese people, and as an especially powerful barrier for the peasants. Parental positions have further strengthened the social divide. For instance, even during the most turbulent years of the Cultural Revolution, cadres' sons had a 50 per cent greater chance of receiving a senior secondary education than did peasants' sons (Deng and Treiman 1997: 421). Furthermore, around 27 million educated youths from junior and senior middle schools were sent 'up to the mountains and down to the valleys' following Chairman Mao's instructions to receive 're-education' by poor and lower-middle peasants during the same period. Even though family background had little influence on who was sent down, it had a tremendous influence on who could return earlier: those from high-ranking cadre families were over twice as likely to secure an early return to the city as their peers from ordinary working-class families (Zhou and Hou 1999: 24).

The economic reforms that started in 1978 unleashed huge creativity among the Chinese people. Factories mushroomed, making China a world factory that needed millions of workers. The rural reforms that started in 1978, when the People's Commune system was gradually abolished, released the peasants from the land. Hundreds of millions of migrant peasant-workers surged into cities and coastal areas, seeking the dirty, dangerous, and demeaning jobs shunned by urbanites on construction sites and in restaurants, shops, and hotels, as

bricklayers, waiters, cashiers, or cleaners. They were treated unequally and suffered greatly in the cities, often having to leave their children, spouses, and parents behind in the villages. Life was hard, but there was more money than if they had stayed at home as peasants. In the process, they were also upgrading the occupational structure of China and, over time, many of them became skilled manual workers, lower-grade technicians, clerks, and even professionals, managers, and entrepreneurs, signifying a huge change in terms of social structure and mobility. Many migrant peasant-workers are now second generation, born and bred in cities, although they still carry the rural *hukou* with them and still suffer systemic discrimination. It is also noted that from the early 2000s onwards, the government launched a series of urbanization policies that aimed to turn China from a rural to an urban country, allowing rural people to register as urban residents in small- and medium-sized cities (in big cities they still need to apply for a temporary residential permit). Many rural people are reluctant to make the change, however, and for good reasons. They do not wish to lose their homestead rights and communal benefits; furthermore, as they have remained at the bottom of Chinese society for over half a century, they also fear that they have more to lose by losing their rural *hukou*, and they do not have adequate socioeconomic-cultural resources to compete with existing urbanites in the fierce struggle for survival in the urban labour market. These emerging features are new developments in China, but they do not pose a serious challenge to intergenerational mobility research of the kind in which we are currently engaged.

Another consideration as a driver of mobility is education. China used to be a very poorly educated country. In 1949, only 20 per cent of young people could attend primary schools. In 1998, only 9.8 per cent of the age cohort could enter higher education. In 1999, the government decided to expand the higher educational sector. Over the last 20 years, the proportion of university-educated people has increased at amazing speed. At the time of writing in 2019, there are 39 million students in China's 3,000 universities, and the gross enrolment rate for university education has exceeded 50 per cent. The quality of Chinese universities is also rising. As class destination is increasingly determined by education, the increase in higher educational provision will affect the growth of the professional-managerial salariat. But how family origins affect education, and in turn class destination, is worth serious analysis.

Finally, we must bear in mind that China is a very big country, with many differences not only between rural and urban areas, and between people in different class positions, but also between different regions and provinces. Even during the planning period, and even more so now, life in a suburban area of a big coastal city such as Beijing or Shanghai is better than life in a small town in the mountains. The impacts of regional factors and *hukou* origins need to be taken into account in assessing mobility patterns and trends, and this is done in the present analysis.

10.3 Data and methods

To explore the patterns and trends of intergenerational social mobility in China, the present study uses pooled data from the China General Social Survey series (CGSS) for 2010, 2011, 2012, 2013, and 2015.[1] The CGSS is the most widely used national representative dataset in mainland China, with the widest geographical and population coverage.[2]

Intergenerational class mobility is chiefly concerned with movement between origins and destinations. To measure parents' and respondents' class positions, we employ a schema much used for intergenerational class mobility in China (Chen 2013; Li and Zhao 2017; Li and Zhu 2015; Li et al. 2015; Wu and Treiman 2007). Firstly, with regard to parental class, we note that an increasing proportion of Chinese mothers have higher social positions than do fathers (from 3.4 to 12.6 per cent from the oldest to the youngest cohort). Although this is lower than the 20 per cent seen in Britain (Li and Devine 2011), it signifies remarkable social progress. Given this, we adopt the dominance approach (Erikson 1984; see also Beller 2009), using the higher parental position (be that the father's or the mother's position) as the class of origin.

For parents' and respondents' classes alike, we coded a five-way class schema:

1 the professional and managerial salariat (classes I and II);
2 the intermediate class of clerical, own-account, manual supervisorial, and lower technical workers (III to V);
3 skilled manual workers in commerce and industry (VI);
4 unskilled manual workers in commerce and industry (VIIa);
5 agricultural workers, also called *nongmin* (peasants) in Chinese terminology (VIIb).

Parental class refers to the family position when the respondent was aged 14 to 18 years old, and respondent's class refers to his or her current or last main job. As the CGSS is designed for the adult population in China, we confine the analysis to

[1] Our prior analysis shows that both for the pooled sample (men and women together) and for each sex separately, there are no significant changes from one year to another in the net association between parents' and respondents' classes. However, there are significant gender differences. All details are available on request.

[2] The CGSS data are available at www.cnsda.org. The CGSS is jointly conducted by the Survey Research Centre of the Hong Kong University of Science and Technology, and the Sociology Department of the People's University of China. The first survey was launched in 2003, followed annually or biannually. The 2003 survey contained only the urban sector. The survey did not cover Qinghai, Xizang, or Ningxia until 2010. The data since 2010 are therefore the most comprehensive social surveys of mainland China. The response rates are between 60 and 75 per cent, as shown in CGSS technical reports.

those aged 18 to 65 years. Excluding cases with missing data on parents' and respondents' classes, we have an effective sample size of 38,002.

To reflect the impacts of major social policies, we use a semi-cohort approach in this analysis, with the following measurements. Cohort 1 refers to those who were born between 1945 and 1957, who received their education and entered the labour market largely before the start of the Cultural Revolution. The country was very poor at that time, with only 2 per cent able to receive degree-level education. Cohort 2 refers to those who were born between 1958 and 1967 and experienced the Cultural Revolution, with a severely interrupted education: only 4 per cent had a degree-level education. Cohort 3, born between 1968 and 1980, were able to enjoy the fruits of the opening-up and reform policies. In 1977, the national examination for university admissions was reinstated after a lapse of many years, allowing many of those who had lost the opportunity for higher education to have a second chance. Nearly 10 per cent of cohort 3 have a degree-level education. Finally, those born after 1981 constitute our youngest cohort, and they were the direct beneficiaries of government policies to expand the higher educational sector. In 1998, the gross enrolment rate in higher education was 9.8 per cent, with a student body of 2.06 million. Today, the rate has surpassed 50 per cent, with over half of young people attending higher education (Wu and Du 2018).

We conduct analyses of both absolute and relative mobility rates. The former refer to mobility between parents and children as we directly observe it, and are expressed in percentage terms; the latter refer to the results of class competition— that is, the competition to gain advantaged and avoid disadvantaged positions— and are typically expressed in terms of odds ratios. We also try to explain our findings in comparison with those found in developed countries such as Britain, where appropriate. We keep technical details to a minimum.

10.4 Analysis

10.4.1 Absolute mobility

Changing class structures
We begin by looking at the overall class distributions of parents and respondents, distinguishing between men and women as shown in Table 10.1. Also shown in the table are the scores on the dissimilarity index (DI) and Lieberson's (1975) net difference index (NDI). The DI indicates the percentages of cases that would have to be reallocated to make the two distributions identical, and thus is a measure of the overall difference between any two distributions. As the DI is insensitive to the ordering of the class categories and does not provide any directional statement

Table 10.1 Parents' and male and female respondents' class distribution, column percentage

	Parents	Men	Women
Class			
Salariat	14.0	20.1	16.3
Intermediate	10.4	19.2	24.1
Skilled manual	8.5	11.0	7.0
Unskilled manual	6.8	18.6	12.4
Agricultural	60.4	31.1	40.2
DI		28.7	22.1
NDI		26.5	15.6

Note: N = 18,732 and 19,270 for men and women respectively. The two indices compare men's and women's classes with those of their parents. The NDI is usually taken as ranging from -1 to 1, but the values are here reversed and multiplied by 100 for ease of comparison with the DI. Positive values in the NDI indicate an advancement of the respondent's class relative to the father's class. All analyses in this study are based on weighted data, with weights supplied by the data providers.

Source: Author's calculations based on data from CGSS.

about the differences between parents' and respondents' classes, we also use the NDI as an indication of net class decline or advancement.[3]

Looking at the data in Table 10.1, we find evidence of a major social change that occurred in China within one generation: most parents (60.4 per cent) are agricultural workers (peasants), but the proportion drops by half for sons (31 per cent) and one third for daughters (40.2 per cent). The proportions in professional-managerial salariat positions increase notably, from 14 to 20 and 16 per cent for parents and male and female respondents. All of this shows increasing 'room at the top' in China, as in Britain (Goldthorpe 1987; Li and Heath 2016).

Turning to the indices of dissimilarity in the lower part of the table, we see that the overall DI scores are higher for men than for women, indicating the male preference in China, where parents have tended to attach greater importance to sons' than to daughters' investment in education and career advancement. For instance, peasant families would try their best to find a non-peasant job for their sons, and working-class urban families would try to get a non-manual job for their sons. This kind of son preference disappeared for single children, but even during the years of the one-child policy (strictly enforced by law between 13 March 1982 and 1 January 2016), most rural and some urban families had more than one child. The male advantage is even more clearly shown in the NDI scores. Roughly

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[3] The NDI is defined as NDxy = pr(X > Y)—pr(Y > X) and further defined as ⊠ where X indicates the class position of parents, and Y that of respondents. It is noted here that we reversed the class order in calculating the NDI, with 1 referring to peasants and 5 to the salariat.

speaking, men's chances of gaining better jobs than their parents are around 70 per cent higher relative to women's (NDI being 26.5 and 15.6 respectively).

In order to gain a clearer view, both of the structural changes as reflected in parents' and respondents' class distributions, and of the amount of mobility and class advancement that has occurred between generations, we show the changes in occupational distribution over the four cohorts in Figure 10.1, and the DI and NDI data in Figure 10.2.

Data in Figure 10.1 reveal an amazing picture of occupational upgrading for a country with such a huge population and from such a low starting point. Sixty-six per cent of the parents of the oldest cohort were peasants, but the proportion drops to 44 per cent for the youngest cohort's parents. For the respondents themselves, we see that 45 per cent of the men and 56 per cent of the women in the oldest cohort are still engaged in agricultural work; but for the youngest cohort, the proportions have fallen to 10 and 13 per cent respectively. On the other hand, the proportions holding professional and managerial jobs increase from 17 to 32 per cent for male respondents, and from 12 to 30 per cent for female respondents, between the oldest and the youngest cohort. The data in Figure 10.2 show that although the overall DI and NDI for men are higher than for women, the cohort changes are actually in favour of women. For both DI and NDI, women have been making rapid progress, and in the youngest cohort are ahead of men in both sets of statistics. Women's progress is largely due to their lower starting points.

Parent-respondent class association

As we are concerned with social mobility, we wish to see how parents' class affects children's class. In Table 10.2, we show class distribution by parental class for the two gender groups. This is a table of row percentages, but it is constructed in such a way that if we had used cell percentages, then the cell values with the different colour schemes shown in the table would be easily aggregated to reveal rates of immobility and various kinds of mobility. Thus, the cells on the main diagonal (in black) correspond to intergenerational stability; those above the diagonal correspond to downward mobility; those below the diagonal correspond to upward mobility. Within upward and downward mobility, long-range mobility is differentiated from short-range mobility, determined by whether the movement crosses the division line of the professional-managerial salariat (Goldthorpe 1987). Movement into or out of the salariat is seen as the most decisive moment in class mobility separating long-range from short-range mobility. In our data, the rates of total, upward, downward, long-range upward, and long-range downward mobility are 56, 41, 15, 13, and 4 per cent respectively. In a period of rapid socioeconomic change, there are more chances for upward than for downward mobility, and for long-range upward than for long-range downward mobility.

Panel 1: Parents

Panel 2: Men

Panel 3: Women
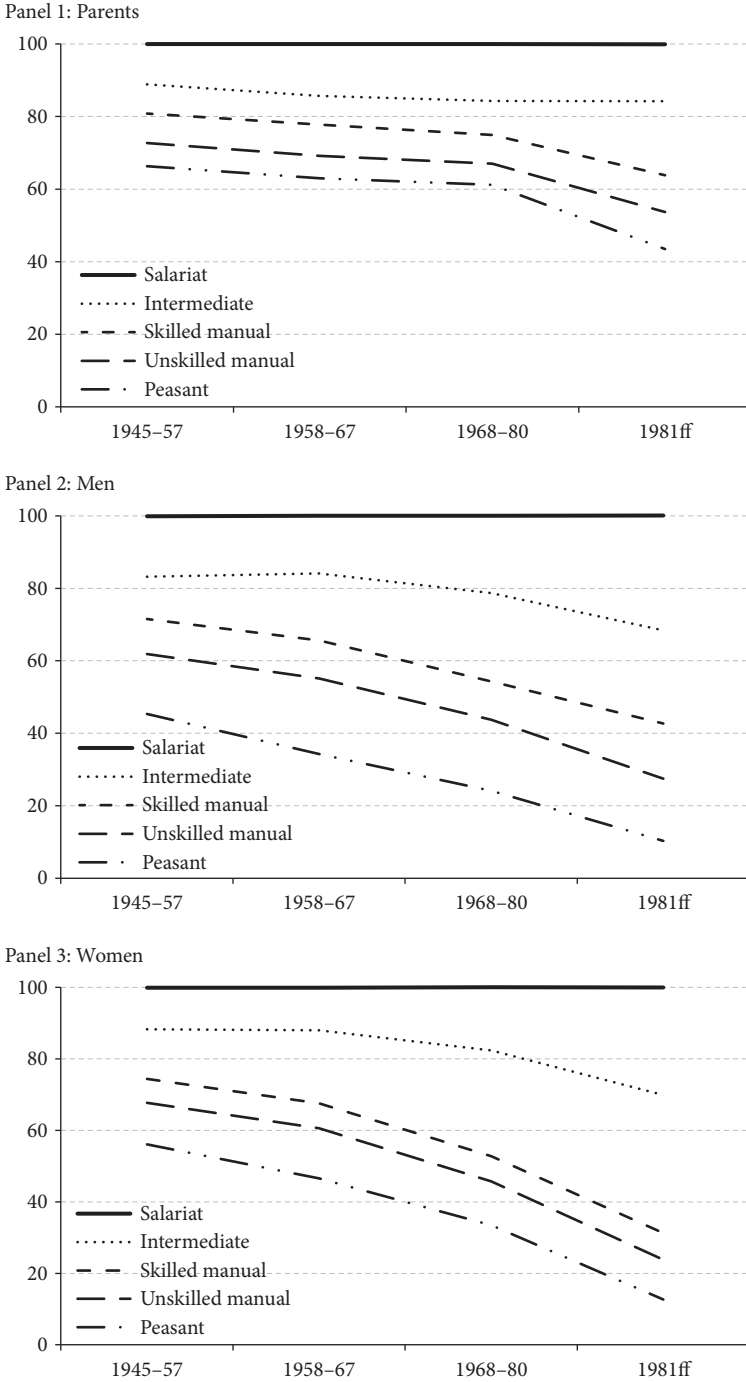
Figure 10.1 Distribution of parents' and men's and women's class positions by cohort, cumulative percentage

Source: author's calculations based on data from CGSS.

Panel 1: DI
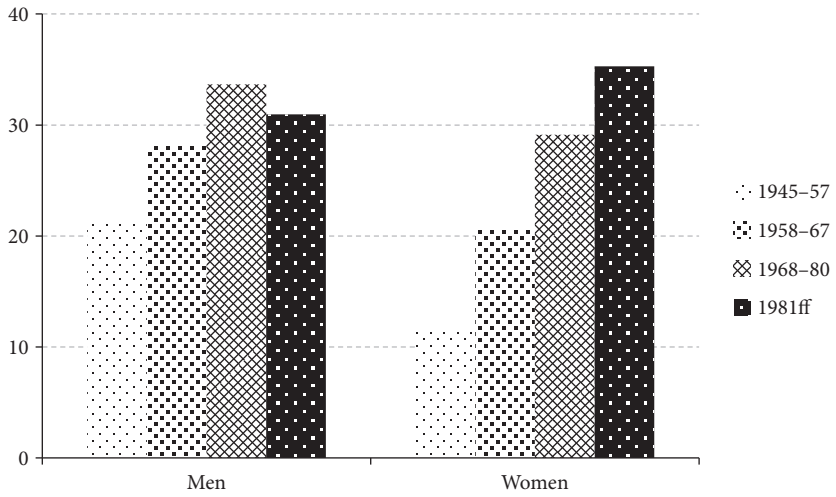
Panel 2: NDI
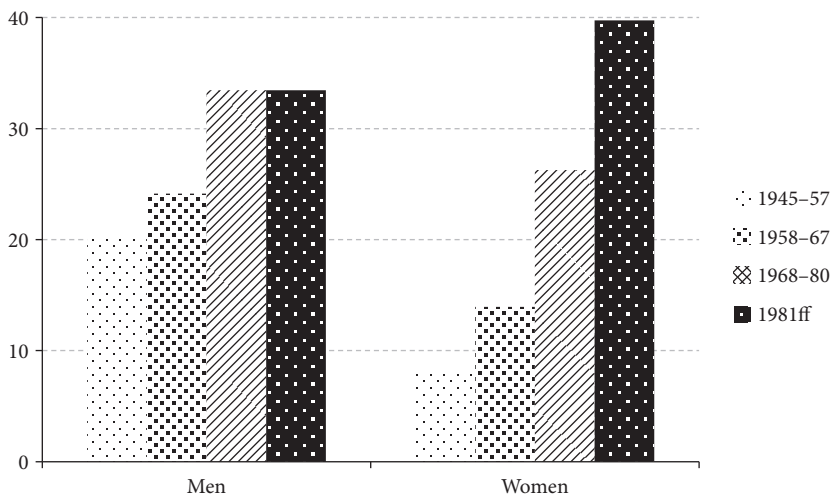
Figure 10.2 DI and NDI for men and women
Source: author's calculations based on data from CGSS.

The data in Table 10.2 show three main features. The first is the clear class gradient in access to the salariat, as seen in column 1, running from 43 per cent for salariat sons to 12 per cent for peasants' sons, and from 39 per cent for salariat daughters to 7 per cent for peasants' daughters. In other words, the class

Table 10.2 Class distribution of respondents by class of parents (percentage by row)

Parental class	Respondent's class					
	1	2	3	4	5	N
Men						
1 Salariat	43.2	22.0	9.1	14.6	11.1	2,605
2 Intermediate	31.5	29.1	12.3	20.1	7.1	1,972
3 Skilled manual	24.4	26.5	19.6	23.0	6.5	1,652
4 Unskilled manual	22.5	22.3	15.6	33.7	5.8	1,363
5 Agricultural	11.9	15.4	9.4	16.8	46.6	11,140
(All)	20.1	19.2	11.0	18.6	31.1	
Women						
1 Salariat	39.4	28.9	5.4	10.5	15.9	2,687
2 Intermediate	30.9	39.4	8.1	10.9	10.8	2,042
3 Skilled manual	23.7	33.0	14.0	18.6	10.7	1,625
4 Unskilled manual	21.2	35.1	11.3	20.6	11.8	1,220
5 Agricultural	7.0	18.1	5.9	11.4	57.6	11,696
(All)	16.3	24.1	7.0	12.4	40.2	

Key:

■ Immobility ■ Long-range upward mobility ■ Short-range upward mobility
■ Short-range downward mobility ■ Long-range downward mobility

Source: Author's calculations based on data from CGSS.

differences run around four to five times as high in terms of disparity ratios. Secondly, however, the opposite is not shown in the distributions to the peasant class. It is expected that peasants' sons and daughters would have a high likelihood of remaining peasants, as opportunities for upward mobility were extremely limited before the reforms. This is clearly shown in the table, with 47 per cent of sons and 58 per cent of daughters from peasant families still found as peasants. Yet, if we look at the data under column 5 of the table, we see that salariat sons and daughters are not the least likely to find themselves peasants. They are actually around four to five percentage points more likely to be peasants than those from intermediate, skilled, and unskilled manual working-class families. This kind of long-range downward mobility is rarely found in other countries and manifests

itself as a Chinese characteristic, reflecting China's sociopolitical system. As parental class is measured by the job of the higher-class parent, and as fathers usually have higher-class jobs than do mothers, it means that children whose mother was a peasant but whose father was a cadre or professional will have a rural *hukou*, just like those from families where both parents were peasants. Children with rural *hukou* status, regardless of their father's class, are expected to remain peasants, and further analysis indeed shows that 96 per cent of those experiencing long-range downward mobility have a rural *hukou*. At that time, and to some extent even today, the rural–urban divide was a chasm 'between heaven and earth' (Treiman 2012). Our findings in this respect corroborate Wu and Treiman (2007) in showing that long-range downward mobility was far from trivial in socialist China; moreover, since their analysis was limited to men, we can go further in showing that the situation is even more serious for women. Thirdly, the table reveals marked social inequalities in China. If we just focus on the top and bottom, we can see that the chances of people from salariat families finding themselves in salariat positions and avoiding peasant positions is 15.2 and 20.4 times greater for men and women respectively than those from peasant families facing the same competition. This social inequality is even greater than that found in Britain by Bukodi and Goldthorpe (2019: 81).

As a way of investigating social change in intergenerational class mobility, Figure 10.3 shows rates of total, upward, and downward mobility across the cohorts. Immobility is simply the proportion found along the diagonal of the mobility table. Within upward and downward mobility, we further differentiate long-range upward and downward mobility, as discussed above. We show the various rates for men and women separately. For total mobility, we also show the 95 per cent confidence intervals.

For both men and women, we see clear evidence of a continuing increase in mobility rates, from 49 to 69 per cent from the oldest to the youngest cohort for men, and 41 to 69 per cent for women. Total mobility is composed of upward and downward components, and here we find, again for men and women alike, that the former is steadily on the rise, while the latter is on quite a flat line. If we look more closely, we find that long-range upward mobility rates actually exceed downward rates for the youngest cohort for both men and women. Long-range downward mobility, on the other hand, is at a very low level, and there are signs of decline.

The evidence presented above on absolute mobility rates suggests a positive note on the changing social structure, with growing room at the top, more equal gender relations, and greater opportunities for upward than downward mobility, although grave class disparity is also found with particular respect to access to the salariat. Our next question is: have rising opportunities created a more equal society in China? It is to this question that we turn our attention in the following.

Panel 1: Men
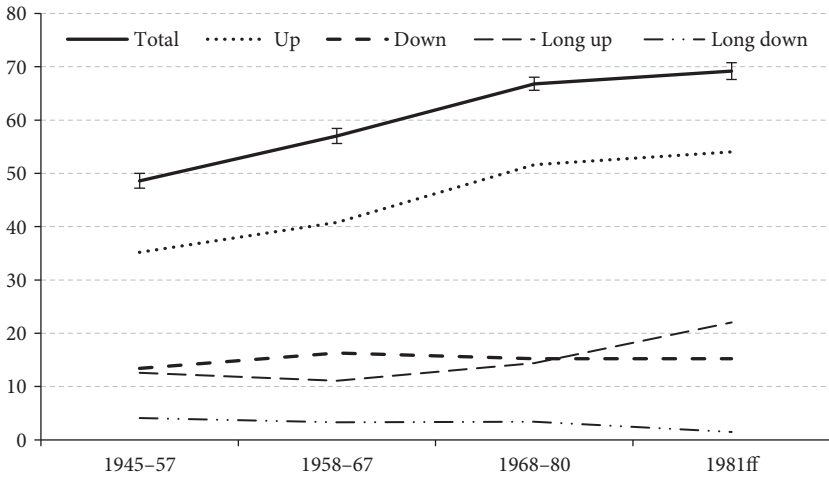
Panel 2: Women
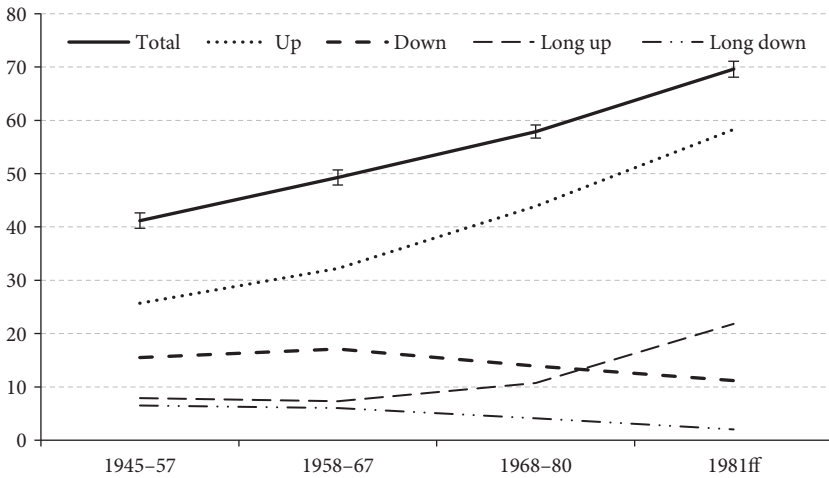
Figure 10.3 Total, upward, downward, long-range upward, and long-range downward mobility by cohort and sex.

Source: author's calculations based on data from CGSS.

10.4.2 Relative mobility

Turning to relative mobility, our research questions focus on whether or not the association between class origins and destinations is becoming more fluid at the overall level, and in which specific areas class competition is becoming more or

less strenuous. In other words, is there greater equality of opportunity across the cohorts? Are women catching up with men?

Relative mobility refers to the competition between people from different classes of origin to gain access to advantaged positions and avoid disadvantaged positions, and is expressed in odds ratios. The closer the odds ratio is to one (or log odds to zero), the weaker the origin-destination association, and the greater the social equality. The further an odds ratio rises above one, the stronger the association between origin and destination, and the more unequal the mobility chances. Conversely, the further an odds ratio falls below one, the more equal the mobility chances.

Overall trends of inequality

To address questions on relative mobility at the overall level, we use log-linear and uniform difference (UNIDIFF) models, and we fit three models. The first is the conditional independence model, which proposes that all odds ratios defining origins and destinations are at a value of one. The second is the constant social fluidity model (CnSF), which allows for an association between origins and destinations but not for three-way interactions: in other words, this model postulates that the association between origin and destination remains constant across the cohorts. The third is the UNIDIFF model, which provides an assessment of the direction and magnitude of changes in the association between origin and destination across the cohorts,[4] testing whether there is a uniform pattern for the odds ratios to be closer to (or further away from) one in a particular layer of the table. We run the models separately for men and women.

Table 10.3 shows the results of fitting the log-linear and UNIDIFF models to the mobility tables for men and women across the cohorts. For both men and women, we find that none of the three models provide an adequate fit to the data. Even though the UNIDIFF models give a statistically significant improvement in fit over the CnSF models for both men and women, the Bayesian information criterion (BIC) statistics still favour the CnSF models.

In Figure 10.4, we show the β parameter estimates returned from the UNIDIFF models for men and women, together with the 95 per cent confidence intervals, with the oldest cohort as the reference point. The data do not fully support the idea of trendless fluctuation. For men, the first three cohorts show little change, but the youngest cohort is clearly different, indicating a significant

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[4] The models can be written as follows. Baseline model (conditional independence): $\log Fijk = \mu + \lambda iO + \lambda jD + \lambda kY + \lambda ikOY + \lambda jkDY$. CnSF model: $\log Fijk = \mu + \lambda iO + \lambda jD + \lambda kY + \lambda ikOY + \lambda jkDY + \lambda ijOD$. Log multiplicative or UNIDIFF model: $\log Fijk = \mu + \lambda iO + \lambda jD + \lambda kY + \lambda ikOY + \lambda jkDY + \beta kXij$. O stands for class origin, D for class destination, and Y for cohort; Xij represents the general pattern of the origin-destination association, and βk the relative strength of this association.

Table 10.3 Results of fitting the conditional independence, CnSF, and UNIDIFF models to mobility tables for men and women, by birth cohort

Model	G²	df	p	RG²	BIC	Δ
Men						
1. Cond. ind.	4227.6	64	0.00	0.0	3595.4	18.6
2. CnSF	197.8	48	0.00	95.3	−276.3	3.2
3. UNIDIFF	179.4	45	0.00	95.8	−265.1	2.9
2. − 3.	18.4	3	0.00			
Women						
4. Cond. ind.	4835.9	64	0.00	0.0	4207.5	21.2
5. CnSF	129.4	48	0.00	97.3	−341.9	2.5
6. UNIDIFF	119.6	45	0.00	97.5	−322.3	2.4
5. − 6.	8.8	3	0.03			

Note: N = 19,511 and 18,387 for men and women respectively. RG²: percentage reduction in G². Δ: percentage of cases misclassified.
Source: Author's calculations based on data from CGSS.

rise of inequality. For women, the second and third cohorts indicate signs of growing equality, but the youngest cohort returns to the level of the oldest cohort. Overall, the data show rising inequality for men but a trendless fluctuation for women.

Locus of class competition

The findings in Figure 10.4 prompt us to make further queries. Do all kinds of class competition become fiercer from older to younger cohorts of men? Do all such competitions remain at a similar level of strength for women? Questions like these cannot be addressed using log-linear and UNIDIFF models, which, while good at capturing patterns of social fluidity at the global level, are not good at identifying specific features of social inequality at the local level (Goldthorpe and Jackson 2007). To explore the questions further, we calculate symmetrical odds ratios involving the same pairs of origin and destination classes in the same kinds of competition to gain access to certain (advantaged) and avoid certain other (disadvantaged) class positions. We do this for men and women separately, and for each cohort. In calculating the odds ratios, we also take into account the effects of year of survey.[5]

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[5] A technical complication in using the cohort approach for conducting symmetrical odds ratios pertains to the variable dating of the destination position of respondents in the same cohort, rendering it difficult to estimate the population-level fluidity at a particular date. Yet, if one's interest is not in the fluidity at any particular date, the cohort approach, as Breen et al. (2009) observe, will have advantages: people in the same cohort will have been sampled at different time points, and assuming the use of systematic surveying methods and no major population-level disruptions (conditions fully met by the data used in this study), then pooling the surveys together and designing appropriate cohorts will produce more reliable results than using a single dataset. Furthermore, the five surveys were collected

Panel 1: Men

Panel 2: Women
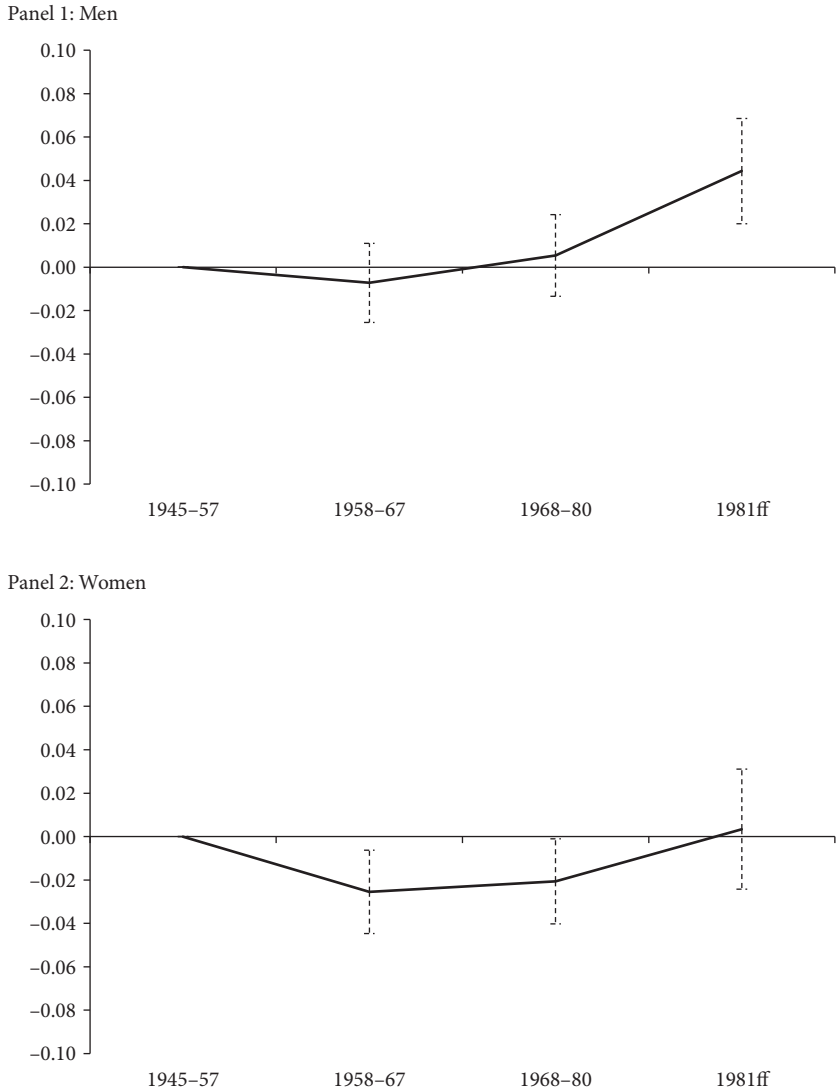
Figure 10.4 UNIDIFF parameter estimates and 95 per cent confidence intervals across birth cohorts

Source: author's calculations based on data from CGSS.

Table 10.4 shows the data for symmetrical odds ratios, with each row representing a cohort (C1 to C4). With the exception of a small number of odds ratios

very close to one another, making 'variable dating' a non-significant issue (see footnote 1). To be on the safe side, we take the survey effects into account where appropriate by controlling for year of survey in some of the modelling exercises.

shown in italics, all other odds ratios are statistically significant at the 0.05 level or above, but such significance is not otherwise indicated. The data with asterisks show significant differences with the odds ratios for cohort 1 in a particular kind of class competition.

Take the data for men. The cell value for the first row (the oldest cohort, C1) in column 5 is 11.28, indicating that compared with peasants' sons, sons from cadre and professional (salariat) families are around 11 times as likely to have a salariat rather than a peasant job. This shows marked social inequality. When we move down from the oldest to the youngest cohort (from C1 to C4), we find that the odds ratios stay at similar levels for the next two cohorts (14.84 and 13.22), but for the youngest cohort it rises sharply to 34.63, representing a highly significant change from the oldest cohort. These odds ratios suggest that social inequality for men is already marked for the older cohorts but becomes twice as severe for the youngest cohort, adding more evidence to the data for men in Figure 10.4. To the best of our knowledge, the severity of social inequality shown here is only matched by that found in early 1970s Britain for men in the competition between the higher salariat and unskilled manual workers (Goldthorpe 1987: 112).

Yet, not all class competitions become more severe for men. Only class competitions involving classes 1:5 and 2:5 become notably greater from the older to the youngest cohorts, whereas those for classes 3:5 and 4:5 experience a sharp decline, plummeting from around 23 to 25 for the two oldest cohorts to around five to six for the youngest cohorts, both representing highly significant changes; the magnitude of reduction is even higher for the competition between classes 4:5. What explains this is that in the past, working-class jobs were preserved for people with urban *hukou* and were inaccessible to peasants, rendering a huge advantage to urbanites, even those from working-class families. However, in the last few decades, access to manual working-class positions has no longer been a privilege, and peasant-workers (as they are called in China) have become the mainstay of China's 'working class'. The same picture is shown for the two younger cohorts for women. For both men and women, we see a blurring worker-peasant division, which in China's specific context marks clear social change and social progress. The manual working class and peasants are coming closer to each other, becoming more equal, or being similarly disadvantaged.

Further interrogation of processes of class mobility

We noted above that China's socioeconomic situation is highly complicated and requires a consideration not only of parents' and respondents' class, gender, and cohort, but also of *hukou* origins and uneven regional development. The relative mobility rates discussed above in terms of log-linear, UNIDIFF, and symmetrical odds ratios did not allow us to dwell deeply on such complications. We now proceed to such an analysis.

Table 10.4 Symmetrical odds ratios for the four cohorts

Men	2 Intermediate	3 Skilled manual	4 Unskilled manual	5 Agricultural
1 Salariat(C1)	1.51	2.73	6.25	11.28
(C2)	2.06	3.92	3.29*	14.84
(C3)	1.69	2.77	3.62	13.22
(C4)	2.37	6.63*	5.65	34.63**
2 Intermediate(C1)		1.15	2.05	13.81
(C2)		1.89	2.53	8.59
(C3)		1.53	1.14	6.74*
(C4)		2.16	2.45	20.22
3 Skilled manual(C1)			1.75	23.44
(C2)			2.27*	25.38
(C3)			0.98	5.23***
(C4)			2.24	6.16***
4 Unskilled manual(C1)				32.18
(C2)				28.95
(C3)				3.95***
(C4)				9.54**
Women				
1 Salariat(C1)	1.45	3.33	3.41	22.98
(C2)	1.55	4.52	3.57	21.03
(C3)	2.29	5.07	2.62	23.57
(C4)	1.89	3.47	7.02	17.95
2 Intermediate(C1)		1.77	2.25	17.17
(C2)		1.51	1.41	8.58**
(C3)		1.99	1.48	8.52**
(C4)		2.20	2.74	14.69
3 Skilled manual(C1)			1.01	16.75
(C2)			1.36	19.57
(C3)			1.34	7.15**
(C4)			1.33	9.95
4 Unskilled manual(C1)				19.39
(C2)				10.37+
(C3)				3.30***
(C4)				3.13***

$^+ < 0.10$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Source: Author's calculations based on data from CGSS.

The categories we have constructed for parents' and respondents' classes run from the professional-managerial salariat to peasants, which constitutes a fairly clear order in China's situation. Given this, we can conduct an ordered logit analysis taking into account survey year, *hukou* origin, and region as covariates, following Breen et al. (2009) and Li and Heath (2016). Again, we do this separately for men and women, and for each of the four cohorts. We use parental salariat as

the reference category, so that we can see how people from each of the other classes fare in the competition with their salariat peers to access more advantaged and avoid more disadvantaged positions.

Figure 10.5 shows the changing relationships between classes, controlling for the effects of *hukou* origin, regional differences, and time of survey. For both men and women, the social distances between the salariat and other classes increases, especially notably for men in the youngest cohort.

While the picture presented in Figure 10.5 shows an overall contour of changing class relations in accessing more advantaged and avoiding more disadvantaged social positions across the cohorts, the shifting attractions of skilled and unskilled manual positions vis-à-vis peasant positions (revealed in Table 10.4) would require additional assessments which would go beyond the space limitations of this chapter. Sociologically, differentiating between the relative importance of manual working-class positions and peasant positions is also less substantively important than differentiating between the salariat and others. Given this, we focus on access to the salariat, again controlling for the covariates as in Figure 10.5.

In Figure 10.6, we show results of logistic regression models on access to the salariat, with coefficients translated into percentage terms for ease of exposition. For both men and women, we see that origin class differences increase in the competition for privileged salariat positions from the oldest to the youngest cohort. Indeed, the class differentiation proceeds at a more rapid pace than that found in the overall competition for more advantaged positions shown in Figure 10.5. The gap between peasants' and salariat sons in attaining salariat positions is 19.6 percentage points for the oldest cohort, and becomes 28.4 points for the youngest cohort; the corresponding figures are 15.8 and 32 percentage points for women. In other words, gaining access to the salariat rather than to intermediate or working-class positions is assuming a more important role for the Chinese people.

Why, then, did the social distances become larger when the national economy was developing rapidly? Many studies have shown that while the gross domestic product was high in China, economic polarization was also taking shape, and the more privileged would make use of the resources at their disposal to help secure more favourable positions for their children in educational and career development. We can see the class differences in degree-level education in Figure 10.7. Here we find that the gap between salariat children and peasants' children in gaining a degree-level education consistently increases, moving from seven to 10, 20, and 30 percentage points for men, and from four to eight, 21, and 43 points for women, from the oldest to the youngest cohort. The clear class divergences in university education show that a rising tide does not lift all boats equally. Greater opportunities only serve to exacerbate existing class differences (see also Li and Bian 2020, forthcoming).

Panel 1: Men
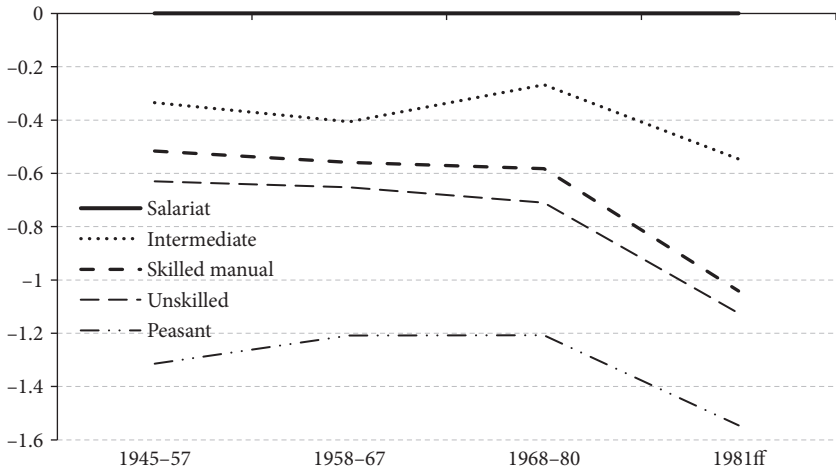
Panel 2: Women
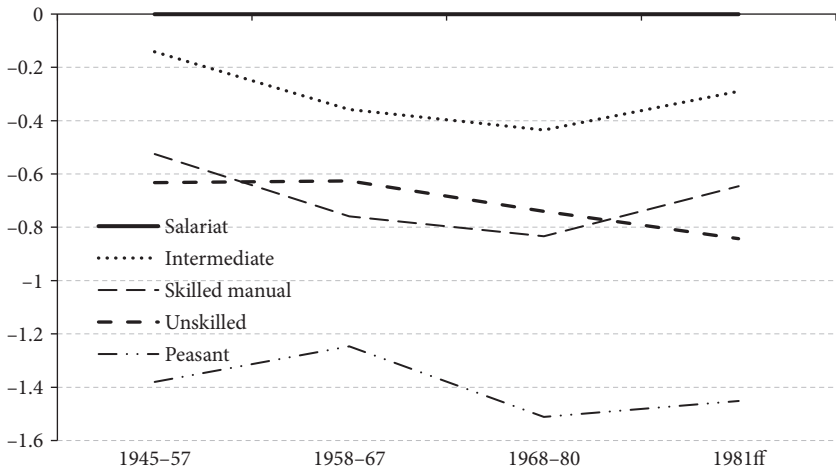
Figure 10.5 Ordinal logit models by cohort and gender: class origin effects across cohorts, controlling for survey effects, *hukou* origin, and region

Source: author's calculations based on data from CGSS.

10.5 Discussion and conclusion

In this section, we first give a brief summary of the main findings on intergenerational social mobility in China, and then move on to offer some reflections on how the Chinese case might shed some light on mobility research in the Global South.

Panel 1: Men
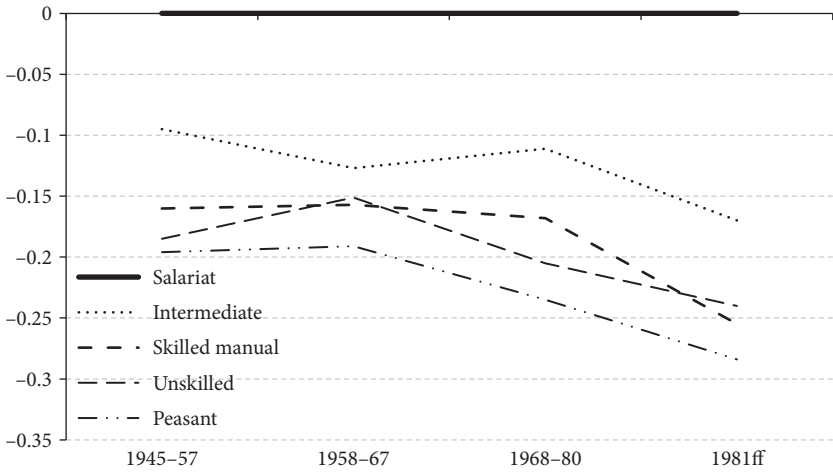
Panel 2: Women
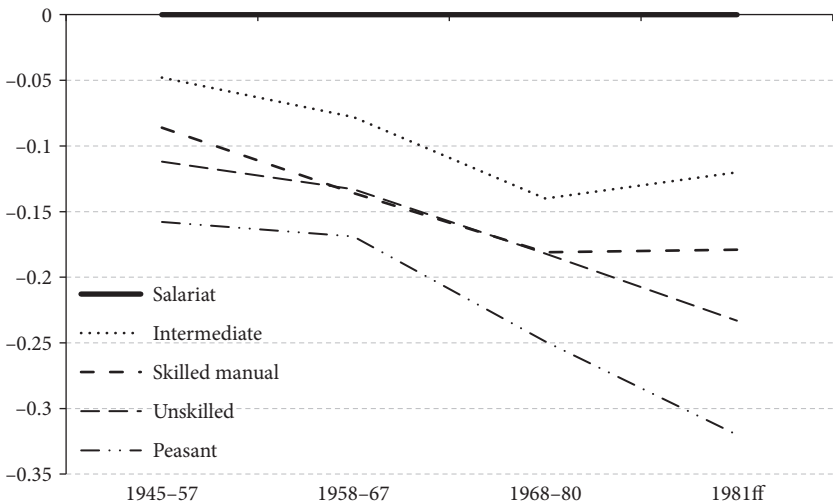
Figure 10.6 Average marginal effects on access to the salariat, by parental class, cohort, and gender, controlling for survey effects, *hukou* origin, and region

Source: author's calculations based on data from CGSS.

With regard firstly to the analysis in this study, we used the data from the five most recent years of the CGSS (2010 to 2015), as they have the greatest geographical coverage of the 31 provinces and municipalities in mainland China. We designed the class schema to reflect China's sociopolitical institutional configurations. The construction of the class schema and birth cohorts to reflect the social

Panel 1: Men
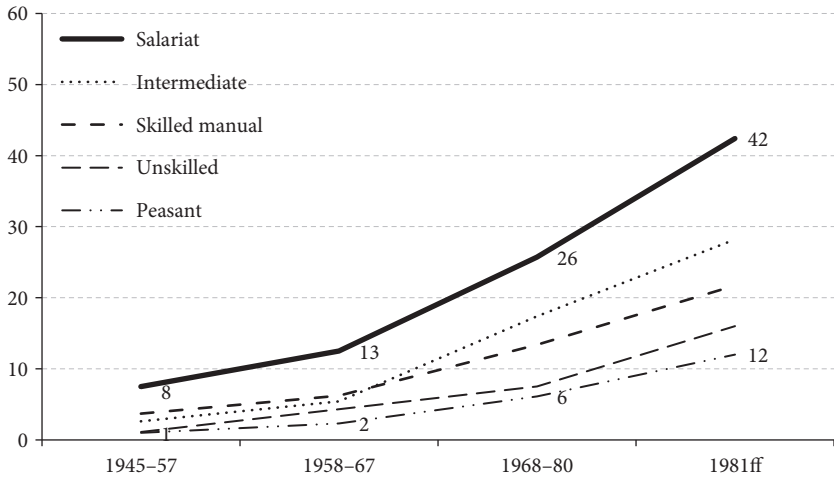
Panel 2: Women
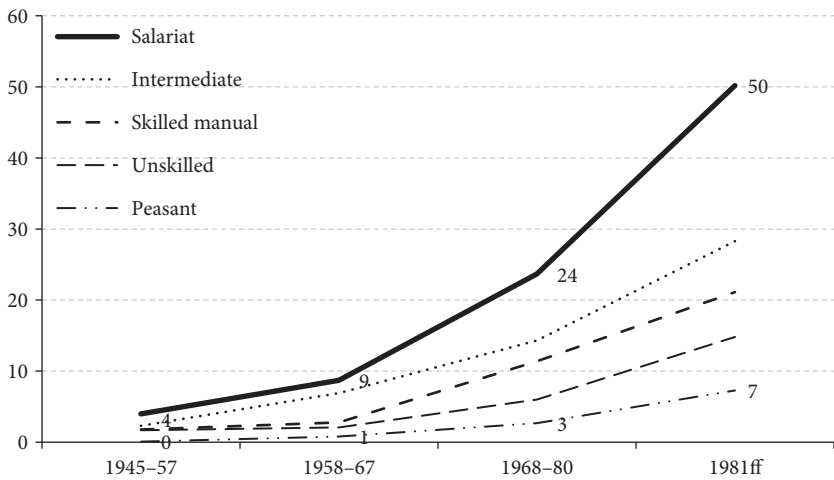
Figure 10.7 Access to degree-level education by parental class, sex, and cohort
Source: author's calculations based on data from CGSS.

changes in China during the last few decades was a delicate issue, but hopefully our analysis has shown that they served their purposes quite well. The main findings are:

- A considerable occupational upgrading has taken place during the last few decades, with the proportion involved in agricultural work declining from

around 50 per cent in the oldest cohort to around 10 per cent in the youngest cohort. The proportion engaged in professional and managerial work has doubled from around 15 to 31 per cent. A similar upgrading also has also taken place for parental class, although to a lesser extent.

- The upgrading has entailed much intergenerational class mobility and advancement, especially for women, with upward mobility rates much higher than downward mobility rates. Even the long-range upward mobility rates are at a similar level to, or a higher level than, downward mobility rates.

- However, social equality, as measured by relative mobility, was found to be declining. Further analysis showed that in the competition to access the most advantaged salariat and avoid the most disadvantaged peasant positions, men in the youngest cohort show a greater difference than those in the older cohorts. It was also found that advantages associated with skilled/unskilled positions vis-à-vis peasant positions have declined rapidly among the younger cohorts, for men and women alike, reflecting the gradual loosening of *hukou* control, industrialization, and the need for manual workers, who are largely recruited from the constant influx of migrant peasant-workers.

- We therefore found a picture of rising opportunity coupled with rising inequality. Take degree-level education as an example. As there are more opportunities for higher education, people of all class backgrounds have increased their take-up. But while peasants' sons have increased by 11 percentage points from the oldest to the youngest cohort, salariat sons have increased by 34 points. The class differentials are even bigger for women, with an increase of seven points for peasants' daughters but 46 points for salariat daughters. All classes have benefited, but those in privileged positions have benefited much more.

Our main finding of rising opportunity plus rising inequality gives substantive evidence for popular and media observations about the rigidification of the social structure in China, but it is at odds with mainstream findings on social mobility in Western (including former socialist) countries. Goldthorpe (1987), Erikson and Goldthorpe (1992), Goldthorpe and Mills (2004, 2008), Goldthorpe and Jackson (2007), and Bukodi and Goldthorpe (2019) are the best exemplars of the thesis of 'constant association' in class mobility, a thesis explained in terms of rational action theory (Goldthorpe 2007) or loss aversion theory (Kahneman 2011). Breen et al. (2009, 2010) and Li and Heath (2016) show signs of optimism in terms of educational and class attainment, that is, a somewhat weakening association between origin and destination. This, they hold, is due to the state provision of schooling, state help in higher education, and the adoption of the welfare state in developed countries since World War II, which has reduced the difference in

living conditions between the middle and working classes, or to the influx of immigrants into Western countries, which may have created a somewhat greater social fluidity in the mobility structure. Findings of increasing inequality are not common.

The endogenous mobility regimes theory (see Featherman et al. 1975) underlying the constancy thesis is based on the existence of the nuclear family, a market economy, and liberal democracy. China does not seem to meet all the criteria here, but our findings could be explained by the privileged making better use of their socioeconomic-cultural resources to consolidate their family positions, first in education, and then in the labour market. As the economy rapidly develops, socioeconomic disparity also increases.

As the countries in the Global South are so different from one another, China's mobility experience may not fit all other countries, but the underlying idea of class competition may run along similar lines.

Social mobility is fundamentally concerned with social justice, namely, how people from families with differential socioeconomic resources compete for advantaged educational and occupational positions, and how political institutions facilitate or hinder people's life chances. The current pandemic is showing substantial effects on the poor, the weak, and the vulnerable ethnic minority communities. Future research will need to assess how covid-19 has impacted on these communities.

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11

Ethnography and Social Mobility

A Review

Divya Vaid

11.1 Introduction: ethnography as an approach

This chapter discusses the significance of the ethnographic approach to the study of social mobility in the context of the developing world. It begins with a discussion on ethnography as a method and then details how the ethnographic approach contributes to our understanding of social mobility.

Ethnography has been associated with various disciplines, especially anthropology and sociology.[1] Ethnography as a complex of methods and theory, as opposed to a single method, is dedicated to the description (*graph*) of people (*ethnos*), and is hence 'the practice of writing about people' (Barnard 2000: 4). The purpose of ethnography is to explore societies and cultures in the context and flow of everyday life. Atkinson and Hammersley (2007: 3) summarize the elements of an ethnography with regard to the collection of data:

> [E]thnography usually involves the researcher participating, overtly or covertly, in people's daily lives for an extended period of time, watching what happens, listening to what is said, and/or asking questions through informal and formal interviews, collecting documents and artefacts – in fact, gathering whatever data are available to throw light on the issues that are the emerging focus of inquiry.

Hence, ethnography includes within it a collection of tools—from observation to in-depth interviews, biographies, genealogies, and sometimes surveys. Fieldwork is crucial to ethnography, which involves a detailed and long-term engagement in one or multiple sites, following the ebb and flow of everyday life. The focus can be on the mundane and quotidian along with the eventful. Ethnographers often participate in these lives in some way or another. They conduct in-depth

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[1] These disciplinary boundaries are themselves contested (Atkinson and Hammersley 2007; Barnard 2000). See Vaid (2020) for a brief discussion on the distinction between sociology and anthropology and the place of ethnography.

interviews, often free flowing rather than structured, record conversations heard in passing or reactions to events, and collect all sorts of data from the field. Part of this data collection enterprise could be a household survey, which not only elicits expected data (e.g. details of the respondent and other family members) that can be quantified but also encourages the recording of observations and interactions in the survey process. The encounter between the ethnographer and the respondents who are the subjects of study is significant. It is this encounter and the context of interactions built up over time that lend value to all the research methods employed by an ethnographer.

Observation—and especially participant observation, where the ethnographer is in close contact, interacts, and participates with the subjects of research in their setting—is often a defining characteristic of an ethnography. From that process of observation, ethnographers engage in description. Their descriptions, which begin in the form of field notes, gradually lead to the ethnography as a body of description of the social and cultural life of a group and of the individuals who are part of that group. For scholars such as Geertz (1973) ethnography enables the understanding and interpretation of societies in their context, the model of that process where society itself becomes a text to be read and analysed. Shah underscores the significance of observation, '[t]he insights of participant observation are based not only on what is said but also [on] that which is left unsaid and demonstrated only through action' (2017: 52).

The form the text may take has varied over time as ethnographies have developed. The parameters of an ethnography are shaped by place and time. An ethnography in that sense is framed by an examination of social relationships and cultural forms in a particular context. The question of place has changed since the studies by anthropologists in the early-mid twentieth century, which focused on one site (e.g. Béteille 1965), usually a small area such as a village. In later work on groups such as migrants it became essential to consider multiple sites or track flows. More recent work on virtual ethnography further strengthens the need to consider multiple, dispersed sites.[2] Even early urban sociologists (Whyte 1943) found a particular location and a group of people to anchor larger explorations. However, an awareness gradually emerged that, while social relationships and cultural forms are set in a context, they also move spatially in different scales. Scholars engaged in the study of migrant populations and diasporas have inevitably travelled to different sites, but other scholars—especially those studying urban populations—now recognize that people are in motion, whether in search of livelihoods, of education, or of anything else. Even if the particular group being engaged with ethnographically is limited to a particular space, ethnographers have realized that its location is connected to others. This emerges in the work of

[2] See Marcus (1995) for a discussion on multi-sited ethnography; see Williams (2013) on virtual ethnography.

scholars such as Bourgois (2003) and Goldstein (2003), who focus on people in a low-income area in great detail but do not lose sight of the connections between that site and the larger cities they are located in. For example, for Goldstein, while the focus is the people in a favela, the fact that they work in other parts of Rio de Janeiro and hence have broader connections must be taken into account.

The question of time is another important aspect of ethnography, where the social and cultural life of a given group of people is explored over a given period. Early ethnographers, with their emphasis on everyday life, produced synchronic work that focused on the present, but ethnographers now pay attention to the present in relation to the past. In the process ethnographers combine fieldwork in the present with approaches commonly associated with historical research and the work of chroniclers, who conduct archival research and collect oral histories (see Fuller and Narasimhan 2015 on the Tamil Brahmins).

Ethnography thus has much to contribute to the study of social mobility. It allows the tracing of upward and downward trajectories that individuals and families may experience, the ways in which people might articulate their position, what it means to be mobile, and people's anxieties and aspirations. Since ethnographers have a free-flowing way of collecting data (not strictly structured) they are able to tap into feelings and failures in ways that survey researchers may be unable to. Further, since ethnographers are closely tied to a person's everyday, they are able to observe what people do, rather than simply what they say they do. This method often requires the researcher to think on their feet and to be able to relate to that serendipitous moment and react appropriately.[3] To give the reader a sense of the flexibility required of ethnographers, it will be useful to consider briefly an example from research in India.

Dickey's (2010) work on the middle class in Madurai, a town in southern India, is a good example of how an ethnographer's long engagement in the field allows them to trace multiple generations of the same family as they move both in and out of certain class positions and deal with sometimes precarious situations. Interacting with members of the same family over two and a half decades enables Dickey to trace their life histories and experiences, as well as to specifically draw on the trajectory of mobility experienced by Anjali, a young, upwardly mobile woman she first met in 1985. The ethnographic approach allows Dickey to build the story of the everyday struggles, the ups and downs, the sacrifices and the negotiations the family as a whole, and Anjali individually, have to make in order to survive and to meet their desires for upward mobility. Survey research might not have captured how these ordinary people overcome the hurdles they unexpectedly face or how small events may have big repercussions on how families experience mobility (in this case an accident that befalls Anjali's father disrupts

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[3] I thank Patricia Jeffery for highlighting this point.

the family's plans). This example indicates the potential of an approach based on long-term intimate exchange that pays attention to everyday life in a holistic manner to show how social mobility plays out in practice.

Ethnography does not claim to provide a macro picture; nor does it provide mere micro case studies.[4] What it does is to locate larger socioeconomic processes in the lives of human beings and societies, by providing detailed descriptions of everyday life in which those processes are reflected. In this way one might find that forms of action and meaning that seem marginal can have significant consequences in shaping a research agenda. In this context, Laura Nader (2011) points out that descriptions within an ethnography are not mere descriptions but form the departure point for theorizing about human social and cultural life. Again, relating this to Anjali's story, we find that Anjali was able to take advantage of the spurt of jobs in the IT sector due to the investment her parents had made in her education. However, the story is not so straightforward; perseverance, the ability to learn and acquire cultural capital (which her family lacked) from observing others around her, and familial strategies and sacrifices gave Anjali the advantage she needed to get ahead and start her own business. However, family illness threatened the stability of the family, bringing real fears of downward mobility (see also Krishna 2011 on health and social mobility). As Dickey discusses, what may have seemed a matter of individual social mobility is in fact deeply influenced by family and in turn influences the chances of mobility of other family members. From one family's story we are able to see the effect of broader sociocultural processes on the opportunities for mobility.

In a connected vein, ethnography, due to its long-term and detailed engagement in the field, allows the researcher to question the presuppositions that may exist regarding the phenomenon they are exploring. How do the people being studied define social mobility? What are the categories respondents use to understand social mobility, which may not be terms that are in everyday use in the way that, say, class or caste is? What is the context of the discussions around social mobility in terms of time and place for the differently located groups? By paying attention to how people live out their lives and imagine the possibilities of their lives, ethnographic research helps challenge the limiting definitions and presuppositions academics and policymakers may hold (Shah 2017).

Hence, the ethnographic approach richly complements quantitative approaches by providing a sense of the lived everyday experience of people from different communities inhabiting particular contexts, and helps redefine the concept of social mobility itself.

This chapter will consider some of the key ways in which social mobility in the developing world has been explored ethnographically. Section 11.2 discusses the

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[4] Case studies have been used as a way of documenting everyday life (notably Gluckman 1940).

definitions and concepts around social mobility. Sections 11.3 and 11.4 provide an analytical frame for social mobility with regard to the social construction of mobility and the fields within which mobility plays out. With respect to the fields of mobility, the chapter explores family, labour and class, race and caste, gender and spatial mobility in different subsections. Section 11.5 discusses the interconnections between inequality and mobility; and Section 11.6 concludes.

11.2 Definitions of mobilities

Among quantitative sociologists, social mobility has been seen as movement between positions of social stratification, either intergenerational or intragenerational. This is complicated by movements between social structures, as well as physical or geographical movements. This work has been predominated by questions that speak to establishing the macro patterns of social mobility, and the mechanisms, such as education, that influence these patterns. The use of large-scale datasets, advanced quantitative techniques and cross-national comparisons is a hallmark of this work (Treiman and Ganzeboom 2014).

In contrast, while a handful of ethnographies have addressed intergenerational mobility directly, anthropologists and sociologists have looked in great detail at the different components of social mobility, such as questions of class and inequality, labour, migration and so on. Hence, a wider net must be cast to get a full sense of the contribution ethnographers have made to the study of social mobility.

The broader field of mobility research suggests how social mobility is a product of interconnections between various social processes. For Salazar et al. (2017: 2), 'Mobility research calls attention to the myriad ways in which people, places, and things become part of multiple networks and linkages, variously located in time and space.' While the focus of their work is broadly on migration, migration is itself crucial to social mobility opportunities, and lack of migration opportunities could be an indicator of strong social mobility barriers. For example, the intersection between the spatial and the economic is explored by Osella and Osella (2000). They discuss 'the modern search for upward social mobility', as the 'mobility project' (p. 8) of an ex-'untouchable' caste, the Izhavas (primarily agrarian labourers and 'toddy tappers') in Kerala, India. Mobility for their respondents is seen in terms of 'progress'—in material or economic terms through jobs in the neoliberal economy and cultural or social progress, as well as in terms of the types of houses they occupy, the way marriages and festivals are celebrated, whether 'liberal ideas' are held, and so on. However, this desire for 'progress' does not come without baggage, which includes the suffering of those that do not 'live up to the group endeavour' (p. 9). To further complicate the definition the Osellas use, they talk about 'capital' beyond the economic, in terms of symbolic, social,

and cultural capital, which they see as important to the Izhavas' claims for group and individual mobility (p. 11). Mobility is then seen as a way to express status and lifestyle. In all of this, the possibility and experiences of migration, both long and short range, are crucial to how the Izhavas experience progress and achieve some measure of upward social mobility.

In this context, this chapter speaks to the different components that make up the experiences and contours of social mobility rather than the patterns and trends in that mobility. These components of mobility include whatever influences people's lived experiences of mobility (labour, class, caste, race, gender, etc.) as well as what influences their opportunities for mobility (education, capital, etc.) or what reproduces inequalities (e.g. the family).

This review engages with and arranges the vast body of work around these themes within two larger frameworks. The first is the social construction of mobility; and the second is the fields of mobility. Some of the mobility themes apply to both frameworks.

11.3 The social construction of mobility

The social construction of mobility is the way that ideas of mobility are articulated and understood by the subjects of the study: either individuals or groups. Social mobility can be seen as a construction in relation to the following three components: aspirations, family, and education. In terms of aspirations, ethnographers have looked at the idea of how people in the middle class, or moving into the middle class, make claims for belonging to that class. This contrasts with the raw numbers of those who constitute that class, or move in and out of it. Further, what social mobility could be, is articulated through the family—for instance, how aspirations are understood and constructed. In addition, education offers ideologies. Education is a pathway to social mobility, but it is also a way to learn about aspiring, since it is through education that we may learn to do 'better things' or at least to encounter the values that influence behaviours oriented towards claims of social mobility.

What seems to define attempts at achieving mobility is the aspiration for mobility. This could involve attempts to secure certain forms of work in the new economy in contrast to professions that were in demand before. An example is Upadhya's (2011) work on the IT industry in Bangalore, India. IT work is seen as high-status and thus coveted in the modern economy. This industry is celebrated for apparently enabling a wider demographic to aspire to higher paying jobs in the new economy. Upadhya (2007) argues that, while this is not the case in reality and those who enter this industry are fairly homogeneous in terms of urban, middle-class, and upper-caste locations, the belief in the possibilities for mobility that this industry opens up remain strong.

Aspirations can also pertain to matters of lifestyle and self-styling, as seen in studies of beauty pageants in Indonesia (Long 2013). Being chosen for a beauty pageant is a sign of having done better than one's peers and to be constantly improving oneself. So, while mobility is about work, it is also about expressing status and lifestyle (Appadurai 1996). More widely, it encompasses changes in our understanding of categories such as class (Fernandes 2000). Whether mobility in real economic terms has been achieved or not is a different matter, but aspirations indicate how people express a desire for mobility. To express a desire for mobility is itself political—groups that have been marginalized may find that their aspirations for, and attempts to achieve, mobility are challenged (Bobo 2009 on race in the US; Jodhka 2012 on caste in India).

Ethnography has been effective in directing our attention to larger values such as the concept of a 'good life'. Attention to aspirations will guide an understanding of a 'destination' that is not known, but that is constantly worked upon and worked towards, sometimes over lifetimes, as Kleinman (2006) points out in his ethnographic portraits of well-known individuals and ordinary respondents in China and the United States. The significance of aspirations is also seen in Fischer's (2014) comparative study spanning Europe and South America. In his contrast between impoverished Guatemalan coffee farmers and middle-class German shoppers, Fischer focuses on the idea of the 'good life'. He states:

> Coffee production provides a path for upward mobility for small producers: it stokes aspirations and channels agency; its mode of production feeds into established family and community social networks; and it provides a sense of dignity through control over one's own means of production (2014: 140).

Claims to upward mobility come along with anxieties over non-recognition of the claims, as well as fears of downward mobility. Dickey (2012) comments in detail on these anxieties and how they are manifested, especially among young people. Those who are upwardly mobile do not always fit in with their group of origin; nor are they easily accepted by the destination group. This leads to anxieties around 'performing' class in terms of language, behaviour, and values, which can vary from context to context and include both work performance and daily comportment.[5]

Where does one learn, or pick up, ideas about and orientations to particular forms of behaviour? One primary way is through the family. Families often produce our ideas and introduce us to concepts such as class, caste, and race, as well as defining how they are understood. In Donner's (2008) work on maternity

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[5] In his comparative study using biographical interviews with upwardly mobile individuals in India, France and the United States, Naudet (2018) discusses how people who have experienced mobility reconcile with their attained positions and underlines the tensions involved.

and middle-classness in Kolkata, the role of women in educating children is framed within the family, which inculcates values and attitudes that are crucial to constructing middle-class identity and aspirations of upward mobility. We learn to aspire—and the limits of what we can aspire to—within the family. The next section discusses the family further.

Education has been tied closely to the project of social and spatial mobility. The modernization thesis expected an increase in industrialization to move societies from ascription to achievement. Education was to be the panacea (see Vaid 2018). For instance, providing new skills and upgrading old ones to enable a population to take advantage of economic changes has been a feature of most development states. Liu (2000) in his study on rural life in post-reform China shows how education, among other things, enables people to escape the stigma of backward-ness (which is referred to as 'dead brains' by his respondents). People from the most marginalized regions of China are seen by others as poorly educated and unsophisticated; they then have a desire for skilling to overcome this. The question of skills also becomes interesting in the work on IT sector workers, who are seen to possess certain skills, training, and values that have high financial worth and that offer a chance for social mobility (Upadhya 2011).

While education can be an investment for the future (Valentin 2017 on Nepal), it can be limiting. Jeffrey (2010) in his ethnography of young men in Uttar Pradesh, India, finds that some of them are neither here nor there: due to their caste or other location and due to the absence of suitable work they are unable to benefit from the possibilities of upward mobility that education was to have given them, and they are no longer able to engage in the 'traditional' work of their families since education leaves them unequipped to engage in 'manual work'. Over time, Jeffrey observes, their families begin to withdraw their sons from education, since beyond a minimum level this education has no obvious return to them in the labour market (see also Donner's 2017 review for a discussion of this liminal position). Education, then, provides the possibility and the idea of mobility; but it can also be constraining.

11.4 Fields of social mobility

By fields, I refer to the sites and relationships where struggles for capital and mobility are played out; for example, in the labour market or the caste structure.[6] These fields include themes or topics that ethnographers have explored or studied, even if they have not directly addressed social mobility, as these themes

[6] This relates to the work by scholars such as Bourdieu, who saw field as a kind of social arena (see Jenkins 2002 on Bourdieu's use of field). Osella and Osella (2000) provide an interesting discussion on the field.

nevertheless constitute aspects of mobility, especially insofar as they help us understand how mobility plays out in everyday life across the world and in ways that make us question our presuppositions.

As a sociological concept social mobility appears to presume a narrative of progress and linear movement and improvement. It is a concept that is embedded in the experiences of the Global North. While issues of race have been predominant in the American case, the Global South enables a complex engagement with the concept of social mobility, as we see an intersection of categories such as ethnicity and race with others such as class and caste in ways that cannot be predicted. For example, the narrative of modernity in postcolonial India emphasized the gradual displacement of caste, yet caste persists (Fuller 1996). In parts of postcolonial Africa, ethnicity and tribe remain important politically.

Osella and Osella's (2000) research highlights this complexity. They find that the Izhavas' experiences of upward mobility, of gaining education and entering spaces earlier barred to them, is only a partial 'success'. They find that 'while the hated "avarna" tag remains, Izhavas have gone some way towards re-defining themselves as non-untouchables. At the same time, new economic opportunities have significantly increased economic differentiation within the caste' (2000: 16). So, the Izhavas' experience shows how in some ways social mobility proceeds along expected lines (in terms of economic improvement), and yet social and cultural barriers to mobility persist.

The following subsections explore some of the key fields in which social mobility is played out and experienced. The ensuing discussion will also suggest how social mobility is experienced in unpredictable ways.

11.4.1 Family

In discussions on inequality and mobility the family is seen as significant. Donner (2017), in a review summarizing ethnography's contribution to work on the middle class across the world, underlines the role of the family, and asserts that 'in many instances ethnography demonstrates how whole families are united, often across two generations, in the attempt to create environments within which the home gains in importance precisely because futures are meant to be realized through children and their upbringing'. Families both sustain desires for social mobility and protect themselves from the possibility of failure.

This creates pressures within and between families to control scarce resources. Within families, not only are resources differentially distributed—due to gender, for instance—but also families make every attempt to prevent downward mobility and encourage upward mobility. This implies that those families that are already privileged are able to maintain their privileges and to exclude others who may threaten their position. This can be seen through arguments against state-

sanctioned reservations or affirmative action in education and employment institutions. This affirmative action is seen by some as un-'meritorious', whereas using social networks, and cultural capital, is not (see chapters in Thorat and Newman 2010).

Families ensure, or attempt to ensure, upward social mobility opportunities for their members through elite closure, through the use of networks to get their children into select schools, into particular jobs, and so on. Hence, while the family provides the social construction of mobility by helping develop ideas of mobility aspiration, it also helps more directly by providing economic, social, and cultural capital to make things possible (see Béteille 1993; for more on capital see Bourdieu 1986).

Social and familial networks allow individuals and groups to sustain losses or advance socioeconomic and political interests (Granovetter 1983). Networks also serve as conduits of information flows, especially with regard to the labour market. Benei (2010) in her work in Kolhapur, India, discusses how extended family networks play out. For mercantile groups these networks are a source of capital. Falzon (2004) shows this in his ethnographic and archival work on the Sindhi trading community's diaspora spread across India and Europe, where extended kin ties are key to creating a home abroad and pursuing economic activities and mobility projects.

Because of their engagement with the same family or sets of families over a sustained period, ethnographers are able to capture these processes, as well as differences in how families negotiate positions for their members. Benei's (2010) analysis of the life histories of members of the same family 'illuminates how, within a given family, choices may be made according to individual potentialities, while other decisions are a matter of contingency'. A macro perspective might not capture these nuances (see also Dickey 2012).

11.4.2 Labour and class

Two important areas in which social change has been explored by ethnographers—in research on the working class as well as the middle class—are labour and class.

Studies on the working class have focussed on changes in what it means to be a factory worker and what implications this has for the working class. At the same time, these studies have attempted to locate the working class in a regional and local political context. Sanchez's (2016) work on the steel town of Jamshedpur and Parry's (1999) study of the Bhilai industrial area are examples of this contextualization. Parry's work is significant in showing how the making of a working class in a central Indian factory town reflected on imaginations of progress and movement, in the shift from rural to urban areas.

In addition to work on the formal economy, the Marxist approach to the informal economy is interesting. In many countries in the developing world, the informal sector is much larger than the formal. Hart's (1973) work on inequality through the migration of low-income workers within Ghana is an important early discussion on the informal sector. Constable's (2007) work on Filipino and other Southeast Asian labour migrants in Hong Kong focuses on domestic maids as labour migrants. This multi-sited ethnography is able to trace their movement and changes in the work they do. Opportunities for movement improve conditions back at home for the families of women who migrate for work. There is also work on activism within the working-class movement; for instance, Werbner's (2014) work on activism and working-class culture in Botswana reveals greater assertion by marginalized groups and hence a kind of political mobility.

There has been substantial work on the middle class around the world. The focus is often on the meaning of 'middle class' and how this has changed over time (for instance, Fernandes's 2000 discussion on the old and new Indian middle class). Other anthropologists have responded to this through field engagements; for instance, Donner's (2008) work on Kolkata and Dickey's work on Madurai (2012), which show how the understanding of what the middle class is, and the language in which that understanding is expressed, have changed over time among local residents. This language is tied to claims of status mobility. Ethnographers have therefore looked more at what it means to be a member of a particular class and how such meanings change in relation to differing socio-economic conditions and experiences of mobility. Donner (2017) states that 'Almost inevitably being middle-class is closely related to earlier forms of unequal status, which feed into the way it is marked and reproduces power relations, in particular through racialized or hierarchical idioms like caste.'

Fuller and Narasimhan (2015) provide an example of this in their work on the middle-classness of the Tamil Brahmins in Tamil Nadu. The Tamil Brahmins were historically prominent land owners in South India and due to their educational attainment dominated white-collar work. This enabled them to transition to urban areas, move into other forms of work in the modern economy, and take advantage of transnational circuits. In the process, the socioeconomic advantages they held in a site where caste dominated transferred into other areas and times.

We see that while the focus in quantitative sociology has been on intergenerational class mobility, especially as indexed by occupation, this form of movement is not central to the ethnographic work on mobility,[7] whose focus is more on lived experience and on locating class in relation to other categories. For instance, Nash (1993) in her work on mine workers in Latin America, shows how class intersects with aspects of racial inequality. In turn, James (2019) finds that the economic

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[7] While some (Osella and Osella 2000) do look at the nature of change in occupations, mobility is seen mostly through other categories, such as caste.

approach in locating and understanding the new middle class in Kenya and South Africa is limiting, and she draws attention to other facets, such as religion,[8] and the role they play in constructing a class identity.

11.4.3 Race and caste

Race and caste are distinct markers of social stratification and, while they do not fit into a class framework directly, are significant, as they speak to an ascriptive, essentialized form of difference. Race in the context of social mobility has been seen either as a critical barrier or as an advantage. Bourgois's (2003) notable study of Hispanics in a low-income area of New York City comes to mind. Many of the residents in such areas are caught in a circle of crime. However, when they attempt to leave the illegal world behind, their race and their lack of social and cultural capital prevent them from doing so.

Social mobility research in some contexts, especially India, has been dominated by a focus on caste. The emphasis on caste (and hierarchy) has also rendered it a 'gatekeeper concept' to an understanding of Indian society and its complexities (Appadurai 1986). This has led to the essentializing of India as a caste society, which has implications for any comparative project of which India could be a part.

The Dumontian (Dumont 1970) perspective of India as representing 'homo hierarchicus', versus Europe as representing 'homo equalis', epitomizes this distinction. The orientalist view of the 'closed' nature of Indian society, where little if any mobility was possible, is a part of this trope, derived mainly from a 'book' view rather than a 'field view' (Jodhka 1998). Srinivas's discussion of *Sanskritisation*, or the upward mobility of castes through emulation, is one way that caste mobility has been approached. Interestingly, while Srinivas does not refer to it, the basic idea behind *Sanskritisation*, that of emulating a reference group, was discussed much earlier by Tarde, whose work was discussed by Ambedkar (1916) (see also Marriott 1968). Srinivas's work among the Coorgs (1952), and his later analyses, led him to discuss how certain rituals and practices associated with the so-called upper castes (later expanded to include the 'dominant castes'— numerically, materially, and politically dominant in a region) were emulated by the so-called lower castes in a desire to claim upward mobility (Charsley 1998). These claims to upward mobility are rarely uncontested. Instances of violent suppression indicate the control exercised by the privileged in attempting to keep others out (Jodhka 2012).

Much fieldwork (Fuller 1996) has pointed to the persistence of caste in one form or another in the everyday lives of people (in marriage especially). This has

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[8] The role of religion and religious networks in socioeconomic change and in preventing downward mobility is worth considering (see Vaid 2020 for a discussion).

repercussions not only for patterns of mobility in terms of opportunities to be mobile, but also in terms of experiences of social mobility. Osella and Osella (2000) engage with the 'ideologies which support or thwart' mobility (p. 8). Their work on the Izhava caste mentioned earlier questions the assumptions of modernity and change by exploring a group who are both socially and geographically mobile. They find that, 'Modernity and progress are experienced not as linear, positive trajectories, but as ambivalent: material advancement sometimes brings social advancement, but often involves suffering and separation . . .' (p. 9). They point to 'several parallels between caste and ethnicity, caste in no way making the South Asian experience unique and incompatible with other forms of differentiation' (p. 10). This challenges the exceptional aspect of caste, allowing a comparison with race and ethnicity and other markers of community that can shape experiences of social mobility (see Pandey's 2013 comparison of Dalits in India and African Americans in the US).

Further, the differentiation within castes is seldom captured by macro studies on occupational mobility. Harriss (2016: 30), for instance, in his discussion of the 'Slater villages', concludes that 'there is qualitative evidence of the decline, if not the demise of landed caste power [. . .] and the increasing assertion of Dalits'. Though he warns against 'overgeneralizing', there is evidence of upward mobility among Dalits as well as of differentiation: not all Dalits across the villages have done equally well. Similarly, Fuller and Narasimhan (2015) discuss the ambivalent position of priests in Tamil Nadu. While they are Brahmins, they are 'conventionally regarded as inferior by other Brahmins' (see Parry 1980 on the priests of Varanasi).[9] They observe that, while some priests may work with larger temples or be employed overseas, a majority of them, 'owing to their low status and poverty, are unhappy with their lot and want their sons to take up secular employment instead. Many have done so and the Brahman middle class now includes priests' descendants' (Fuller and Narasimhan 2015: 188). This heterogeneity within castes is significant for a full understanding of desires for social mobility, and such nuances are seldom captured by large-scale survey-based papers.

11.4.4 Gender

The exclusion of women from social mobility analysis has been much debated. The 'conventional' approach argued that the intermittent engagement of women in the labour market meant that their inclusion in mobility studies added little to an understanding of patterns. In contrast, the 'individual' and 'joint' approaches

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[9] This could also be because priests require patrons and hence their position is dependent (Madan 1965).

called for the inclusion of women for a more rounded understanding (Szelenyi 2001).

In the anthropological literature, women's engagement in the labour market. and the repercussions for social mobility has been studied in its own right. For instance, Ong (1987) focuses on female factory workers in Malaysia and finds that factory work opens up opportunities not previously available to women, but that these women have to deal with 'changing positions within the family, the village and the labour process and wider society' (p. 4). This has implications for their status and social mobility, but also leaves them open to a wider public gaze that is inevitably loaded with negative possibilities and societal criticism—regarding, for instance, what women wear and where they work.

Constable's (2007) Filipino migrants to Hong Kong are able to improve family status back home thanks to two processes: financial mobility, due to remittances, and status improvement due to out-migration to a first world country. However, there are limits to how much status can be negotiated. While conditions and opportunities for their families improve and their own bargaining power in their families back home changes due to their migration, they remain low-status domestic workers (see Frantz 2008 on Sri Lankan maids in Jordan).

In other contexts women's labour is seen as secondary to men's. Mies's (1981) ethnography of women lace workers in a small town in southern India explores gender and work. These women, often the sole earners in their families, do not consider themselves, nor do their families, to be the household head. This is because their work is carried out within the home, and they seldom directly engage with the 'market'; an engagement mediated by male family members.

Interestingly, a socially mobile family is likely to withdraw women from low-status work. For instance, De Neve (2011) in his work on factory workers in Tiruppur, India, finds that, as the husband's job improves, claims to middle-classness are made through women's labour market withdrawal. This is another example of how experiences from the developing world help us understand social mobility more broadly.

11.4.5 Migration

A survey of anthropological literature shows that the term mobility is often used to refer to movement that falls within the ambit of migration studies. Sociologists contributing to mobility studies have emphasized their interest in migrants, migration networks, and people on the move—from labour migrants to tourists (see Urry 2007).

Ethnography enables the tracing of flows of movement between locations, and the exploration of how people make a place for themselves in a world of movement, in ways that are critical to social mobility experiences. The participation of

the Izhavas over several decades in migration flows to different Gulf states has not only enabled them to achieve economic improvement, but has also facilitated an increase in their socioeconomic and political status in Kerala in relation to many other populations that might previously have held a higher caste and socioeconomic status (Osella and Osella 2000). Migration becomes a pathway to social mobility over time.

Social mobility is implicit in migration. An emerging body of work from Nepal indicates this process. People from Nepal have historically been a part of different migration chains, from searching for work in India (Sharma 2019) to joining military services in India and Britain (Seeberg 2015) to recent moves to the Gulf States. While many of these migrants may not be in high-end professions and may even be caught in risky or exploitative forms of work—as in the construction industry in the Gulf (Brusle 2012)—the remittances that are sent, comprising money, ideas, and practices picked up during their travels, offer a chance for families to improve their socioeconomic status. This process is often messy. Studies of migrants from Sri Lanka who go to work as maids in the Middle East (Frantz 2008) show that participating in migration chains can complicate kinship relations back home. Nevertheless, migration remains a way of enabling social mobility, especially when conditions at home may not permit it (see Constable 2007).

Apart from labour migrants, who often end up in low-paid blue-collar work, educated middle-class populations also participate in migration chains. While the decision to migrate varies, Shah (2006) and Sharma (2019) have pointed out that migration for many young adults may be a stage in life before settlement. The history of migration from South Asia to North America and Western Europe in the second half of the twentieth century also includes people from backgrounds that enjoy a certain social status. High-skilled migrants nevertheless migrate to seek a 'better life' and invariably attain a higher status. This is the story featured in many studies of IT sector workers in North America, which illustrates mobility that may be personal and may result in larger transformations in community life in the diaspora and back home (see Shukla 2003). Scholars who have explored communities that move back and forth between two or more places have shown how status can be enhanced by re-investment in the home country. An example of this is Gardner's (1995) work on Bangladeshi immigrants to the UK, who reinvest in 'Londoni' houses in Bangladesh that are a mark of enhanced socioeconomic wellbeing. While they may remain relatively marginalized minorities in the UK, these populations have moved ahead in Bangladesh.

Studies of forced migration highlight a different aspect of mobility. Work on displacement shows how loss may relate not only to tangible goods but also to political and socioeconomic status. Studies of Greek Cypriot refugees (Loizos 2008), Partition refugees (Chatterjee 1992), Kashmiri Pandits (Datta 2017), dam-displaced populations in Africa (Colson 1971) and Chagos Islanders

(Jeffery 2011), have shown how displacement and dispossession often lead to downward mobility in terms of socioeconomic and political status. Studies that have focused on lives rebuilt after displacement are inevitably testimonies of attempts to recoup losses and to reclaim lives of some worth. They indicate how this experience varies across different kinds of people. There are those who enjoyed a high socioeconomic status before displacement, for whom downward mobility is acutely felt, and there are those who were marginalized socioeconomically to begin with but who have also lost any political status they may have had, as is the case with the Rohingyas. What is important is that migration as a form of spatial mobility is closely connected to questions of social mobility. For some migrants, migration is a path towards upward movement and overcoming barriers, for others it eventually leads to downward mobility and lives marked by heightened precariousness.

11.5 Inequality

The absence of mobility is often related to heightened inequality. One can find the intersection of different fields and constructions of mobility in the larger rubric of inequality. Anthropologists have conceived of inequality in terms of relations of gender, class, caste (in South Asia for instance), race (in Latin America and Africa), and access to space (as studied by urban sociologists). This section will refer to studies that offer ways of approaching the larger questions of inequality and social mobility. How does one explore the lives of people trapped at the margins or the lives of those who control socioeconomic and political life in society?

One seminal text in this field is *Vita* (Biehl 2013), which explores the lives of the abandoned in a Brazilian city. This ethnography not only portrays their lives in detail, but also locates their abandonment in the context of family conflict, failures of the welfare state, and neoliberal policies on the care of citizens. The book also shows what happens to people who fall through the safety net and who can never escape their marginal locations. In contrast are the studies of elites, who are able to manage networks to maintain their hold on socioeconomic and political power (see Sumich 2018 on Mozambique). Social interactions between different classes on a daily basis are explored in studies of those who work as domestic and other informal labour (Goldstein 2003 on Brazil; Ray and Qayum 2009, and Inglis 2019 on India).

Ethnography allows us to see the experiences of inequality and suffering wrought by unequal economic, social, and political relations in daily life, especially for those facing socioeconomic precarity, as in the work of Han (2012) on working-class people caught in debt in Chile, and James (2014) on indebtedness

in South Africa.[10] Through ethnographies we see how some political-economic-social institutions determine the capacities of individuals as members of collectives and how inequality can be either circumvented and challenged or sustained.

Inequality has been a spatial phenomenon where access to the city or to facilities, in terms of basic needs, has been unequal. Work on urban spaces in Latin America has been testament to this awareness (Caldeira 2000 on gated communities in São Paulo). Studies of migration to the city emphasize that a move to the city can provide some kind of renegotiation of status, either for women or for marginalized groups. Nevertheless, this involves dealing with questions of precariousness and insecurity, as these migrants occupy the lower socioeconomic strata of an urban population (Constable 2007). Parry (2003) writes about the promise of the city for people from the village. He describes how the village becomes a 'waiting room' for people who see the urban as a place where a better life is available. The question of space has therefore been integral to discussions of inequality and mobility.

11.6 Conclusions

The ethnographic approach has much to contribute to the field of social mobility and inequality research. The emphasis on long-term engagement in the field, where understanding and interpretation rather than simply explanation are vital, the ability to map families and kin and engage with them informally, the flexibility to react to chance events, which a pre-determined scheme might not allow, and the reflexivity or awareness of the scholar's own social location and presuppositions, all make the ethnographic method significant.

Beyond field-based visits to a site, ethnographers have used tools such as genealogies, life histories, and quantitative techniques to build narratives of movement and social change. For example, Eberhard (1962) uses data spread over 800 years to trace the genealogies and movements of two South Chinese clans. Benei (2010) focuses on members of one extended family using life histories to trace their choices and behaviours. Moser (2009) uses a unique combination of long-term ethnographic work and econometric analysis to study intergenerational asset accumulation and poverty and the possible policy implications in Indio Guayas, Ecuador.

One of the advantages of comparative surveys on social mobility has been the possibility of tapping into longitudinal, and in some cases panel, data. Ethnography, too, allows 'revisits' to the field. An ethnographic revisit is a type of 'diachronic' comparison, as distinct from visits to 'different spaces contemporaneously', i.e. synchronically (Burawoy 2003: 646). It is rich with possibilities to

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[10] For a discussion on precarity, see https://journal.culanth.org/index.php/ca/precarity-commentary-by-anne-allison (accessed December 2019).

study change as it happens. For social mobility analysis, the possibility of being able to map social mobility onto other changes occurring in the economy and broader society at the site is a considerable advantage. For instance, Himanshu et al. (2016: 7), argue that 'why some households remain poor and others move up the ladder' can only really be captured by longitudinal studies of changes, and these studies especially help to separate 'individual/household behaviour from external factors, such as government policy'.

However, the ethnographic revisit is not without its challenges (see Simpson 2016). The key challenge is 'to disentangle movements of the external world from the researcher's own shifting involvement with that same world, all the while recognizing that the two are not independent' (Burawoy 2003: 646). Burawoy brings out the idea of 'reflexivity' in relation to ethnography generally. This is important, since the researcher's own identity can sometimes influence access to the site itself (see the discussion by Beteille 1965).

In addition to the possible research impact of the 'biases of the individual researcher' (Harriss 2016: 32; Jeffery 2016: 58), the absence of comparability in village studies, lack of precision, loss of data, issues of recall, and confidentiality, becoming too embedded in the field, are some of the wider challenges mentioned by ethnographers (Harriss 2016: 31; Jeffery 2016: 52).

Despite the possible limitations of the ethnographic approach (as for any other method), the possibility of marrying quantitative and qualitative techniques within an ethnography is powerful. For instance, Jeffery (2016), in her extensive studies in North India (alone and with colleagues) since 1982, began her work with a village census, which progressed to 'semi-structured' 'informal conversations' with 82 key informants (women and men), her persistent and detailed engagement in the same site allowing her to trace members of the same families. Such studies, then, are able to raise issues of keen interest to social mobility researchers more broadly.

The significance of this detailed, engaged and long term work for public policy is clear. How individuals and collectivities articulate, experience and reposed to change, for instance during a pandemic; or, to opportunities; and, what constrains and encourages their choices allows a nuanced understanding of social mobility. The detail ethnography provides makes it ideal for examining how policy is understood and responded to by ordinary people in ways that may be difficult to predict. Ethnography thus permits a dynamic understanding of public policy from the ground.

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12

Measuring Social Mobility in Historic and Less Developed Societies

Gregory Clark

12.1 Introduction

Social mobility rates, as conventionally measured, require considerable amounts of information. We must link parents and children across generations, and link both parents and children to a common social or economic status scale. Such data are readily available in areas such as modern Nordic countries, where every individual is assigned by the government a unique identifier at birth and this identifier is used to track individuals in education, employment, medical care, and taxation.

But if we want to measure social mobility rates in less-developed societies, such as India since independence, or in any society before the last 50 years, we immediately run into data problems using conventional techniques. For the nineteenth and early twentieth century it is possible to link families using successive censuses, as for England 1841–1911 and the USA 1850–1940. But the linkage of individual parents and children through censuses, where spelling of surnames and first names is highly idiosyncratic, is a difficult and time-consuming process. Here there has been vigorous debate about the accuracy of matching algorithms, with claims that many parent–child matches are mistaken and also that matches are more likely when both parent and child are of higher social status, overestimating persistence in status across generations (see Ruggles et al. 2018).

We shall also see below that there are reasons to question whether the conventional estimates of social mobility, focusing just on parent and child, reveal its true rate for more generalized measures of status.

Another problem is that markers of social status can vary significantly across societies and time periods in how well they indicate underlying social status. In the nineteenth century in the USA vast numbers of men were described as 'farmers'. But farmers varied enormously in social status, from smallholders with a few rented acres to large-scale operators with many hired labourers.

The reported correlation of occupational status in nineteenth-century USA is around 0.3 between fathers and sons, implying high rates of social mobility. For England that correlation at the same time is around 0.45 (see Table 12.1). Is that

Table 12.1 Convention intergenerational mobility estimates, England, births 1840–1929

Birth period of sons	Ln wealth at death	Higher education	Occupational rank
1840–69	0.403	0.458	0.529
	(0.020)	(0.015)	(0.015)
1870–99	0.311	0.353	0.446
	(0.018)	(0.014)	(0.013)
1900–29	0.247	0.246	0.415
	(0.022)	(0.020)	(0.019)
All	0.352	0.358	0.465
	(0.012)	(0.009)	(0.009)

Note: standard errors in parentheses.
Source: Families of England database.

because nineteenth-century England was a much less mobile society, or because as a much more urbanized and industrialized society it had occupational titles much more revealing of true social status?

What is proposed in this chapter is another way of measuring social mobility in early or less institutionally developed societies, which uses the status of surnames. This measure has several advantages for measuring mobility in such societies. First, it can be done without having to link individuals across generations, so it is informationally less demanding. Without having to link individuals across generations this method can be employed using information on status from censuses, voter rolls, and probate records.

Second, this method is not affected by the degree of errors and noise in status measures across different societies. It will work just as well for relatively imprecise measures of status as for much more finely calibrated measures.

Further, it is possible to use surnames to estimate intergenerational mobility rates even when we have just three pieces of information:

   i. the general frequency of surnames or surname types;
  ii. the frequency of these surname types among some elites or underclasses—university students, doctors, property holders, or convicted criminals, for example; and
 iii. a measure of how elite or how disadvantaged the high-status or low-status group is.

The chapter shows how to estimate intergenerational mobility rates using surnames. It discusses how to interpret these results compared with conventional estimates. Finally, it also outlines the elements that can frustrate such estimates.

12.2 Measuring social mobility rates in general

We assume social status can be measured by a cardinal number y which measures some aspect of social status such as income, wealth, occupational status, longevity, or height. Conventionally, social mobility rates have been estimated by economists from the estimated value of β in the equation:

$$y_t = \alpha + \beta y_{t-1} + u_t \qquad (12.1)$$

Where y is the measure of social status, t indexes the generation, and u_t is a random shock. β will typically lie between 0 and 1, with lower values of β implying more social mobility. β is thus the persistence rate for status, and $1 - \beta$ the social mobility rate. If the variance of status on this measure is constant across generations then β is also the intergenerational correlation of status. And in this case β also estimates the share of the variance of status in each generation that is explicable from inheritance. This share then will be β^2. The reason for this is that if σ^2 measures the variance of the status measure y, and σ_u^2 measures the variance of the random component in status, then, from Equation (12.1):

$$var(y_t) = \beta^2 var(y_{t-1}) + var(u_t)$$

$$\sigma^2 = \beta^2 \sigma^2 + \sigma_u^2$$

If Equation (12.1) is the correct description of the inheritance of social status in any society, then in steady state any measure of status such as the logarithm of income or wealth will show a normal distribution.

Equation (12.1) involves a number of strong simplifying assumptions. It assumes, for example, that social mobility rates are the same across the whole of the status distribution, from top to bottom. But we shall see that the empirical evidence is that this assumption is not too far from reality.

12.3 Measuring mobility rates from surnames

For the reason above, we have until recently had no idea of what social mobility rates were in pre-industrial societies. We have had no idea whether, for example, the Industrial Revolution in England was associated with a period of enhanced social mobility compared with what came before and what came after.[1]

However, in many societies people have surnames, and these surnames are inherited unchanged through the patriline. Men bearing the surname *Boscawen*

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[1] See Clark and Cummins (2014b) for a review of the evidence on this.

born in England in 1900–30, for example, are descended from someone in the group of men bearing the surname *Boscawen* in 1870–1900. Thus, using surnames to group people, we can identify groups of sons who collectively are descended from a group of fathers, without knowing the exact descent relationships. The fact that surnames can proxy for the transmission of the Y chromosome between generations has long been of interest to geneticists (see, for example, King and Jobling 2009). However, only recently have there been attempts to utilize surnames to estimate social mobility rates.[2] Here we describe two methods of estimating intergenerational social mobility from surnames.

Instead of estimating β from:

$$y_t = \alpha + \beta y_{t-1} + u_t,$$ (12.2)

we can use:

$$\bar{y}_{kt} = \alpha + \beta \bar{y}_{kt-1} + \bar{u}_{kt},$$ (12.3)

where k indexex surname groups and $\bar{0}$ indicates averages. We can, for example, compare the average status of everyone born with the surname *Boscawen* in 1800–29 with that of those born with this surname in 1830–59, the 30-year interval between the time periods here representing the assumed average length of a generation.

This averaging across surnames would be expected to produce an attenuated estimate of the β lining fathers and sons for several reasons. First, we have to take all those born with a class of surnames in a time interval $(t, t + n)$ and compare them to those born in the time interval $(t + 30, t + n + 30)$, the 30 years representing the average interval between generations. This introduces error in that some children of the generation born in the interval $(t, t + n)$ will not be born in the interval $(t + 30, t + n + 30)$. And some of those born in the interval $(t + 30, t + n + 30)$ will have fathers not born in $(t, t + n)$. Second, the surname method counts those in $(t, t + n)$ who have no children equally with those who have large numbers of children. Third, the surname method includes wives of men bearing the surnames, who adopted those surnames on marriage. Fourth, there will potentially be some adopted children among the younger generation, as well as those who changed surnames from their birth surname. For all these reasons the surnames can only provide an imperfect estimate of the average of the actual parent–child status linkages. This imperfection should bias the surname estimates towards 0.

However, in practice these surname estimates of β are always much greater than the β estimated from individual family linkages. To take an example, I have

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[2] Weyl (1989) used surnames to identify social groups, and to measure their relative status in the modern US, but did not attempt to measure rates of regression to the mean.

assembled (along with Neil Cummins) a large genealogical database for families in England of 371,000 individuals born in the period 1750–2019, based around families with rarer surnames. Such surnames make it much easier to link individuals across generations. For these families we have multiple measures of social status. Looking just at men, these include wealth at death (for deaths 1858 and later), attainment of higher education (university or equivalent), and occupational rank at the age of 40. Table 12.1 shows the intergenerational correlation of status on these measures for the generations born in 1840–69, 1870–99, and 1900–29 compared with their fathers, where the lineages included are those which had average status in the nineteenth century. These correlations average around 0.4.

With the same database, we can implement an estimate of social mobility through surnames by instead looking at the average social status of all men with high-status surnames (measured by average wealth at death by surname for 1858–87) relative to men with average-status surnames. Table 12.2 shows by period the difference in wealth, education, and occupational status between the high-status surnames and average surnames. What is surprising is how slowly the status of the elite surnames, on all dimensions, are regressing towards 0. Taking just the ratio status from one period to the next, we can derive an implied correlation of status across generations, as shown in Table 12.3.

As can be seen, these estimates in Table 12.3 show much greater persistence of status than the estimates for the individual father–son combinations, with correlations that average 0.74 as opposed to 0.4.

Why are these results so different? The reason is that social mobility in any society seems to be described by a process that is more complicated than would be suggested by Equation (12.1) above. At the family level, observed status y seems to be composed of both an underlying individual family status x and also a substantial transitory component u where:

Table 12.2 Difference in status between elite and average surnames, men

Birth period	Ln wealth at death	Higher education	Occupational rank
1810–39	3.628	0.328	0.318
	(0.102)	(0.011)	(0.007)
1840–69	2.625	0.250	0.264
	(0.079)	(0.008)	(0.005)
1870–99	1.604	0.166	0.179
	(0.064)	(0.007)	(0.005)
1900–29	1.125	0.146	0.147
	(0.069)	(0.009)	(0.006)

Note: standard errors in parentheses.

Source: Families of England database.

Table 12.3 Intergenerational correlations of status revealed by surnames

Birth period of sons	Ln wealth at death	Higher education	Occupational rank
1840–69	0.724	0.762	0.831
	(0.038)	(0.037)	(0.025)
1870–99	0.611	0.664	0.677
	(0.038)	(0.044)	(0.027)
1900–29	0.701	0.877	0.819
	(0.053)	(0.061)	(0.036)
All	0.677	0.763	0.772
	(0.021)	(0.032)	(0.021)

Note: standard errors in parentheses.

Source: Families of England database.

$$y_t = x_t + u_t \qquad\qquad .(12.4)$$

The underlying status is inherited strongly, so that:

$$x_t = bx_{t-1} + e_t, \qquad\qquad (12.5)$$

Where b is in the order of 0.7–0.8. In this case if we regress, as is conventionally done,

$$y_t = \beta_1 y_{t-1} + v_t, \qquad\qquad (12.6)$$

so that we are looking at the parent–child correlation, then $E(\hat{\beta}_1) = \frac{\sigma_x^2}{\sigma_y^2} b$ But if we look over n generations, where β_n is the correlation across n generations, $E(\hat{\beta}_n) = \sigma_x^2 \sigma_y^2 b^n$. Thus, if we observe someone with above mean status in period 0, as in Figure 12.1, the typical path of their descendants towards mean status across n generations will be one of fast regression to the mean in the first generation, followed by a much slower, constant regression in each of the subsequent generations.

The transitory component in social status exists for two reasons. First, all measures of status are made with substantial amounts of error. That creates an appearance just of enhanced mobility across single generations. Second, there is an element of luck in the actual status attained by individuals.

This means that social mobility has two components, both of which are needed to describe the full process. There is the short-run parent–child mobility, the rate of which can vary substantially across aspects of status such as wealth, education, income, occupational status, and longevity. Then there is the underlying long-run persistence, which may be the same across all aspects of status.

If we have independent information on which of a set of surnames have on average high or low social status, then the intergenerational correlation of status
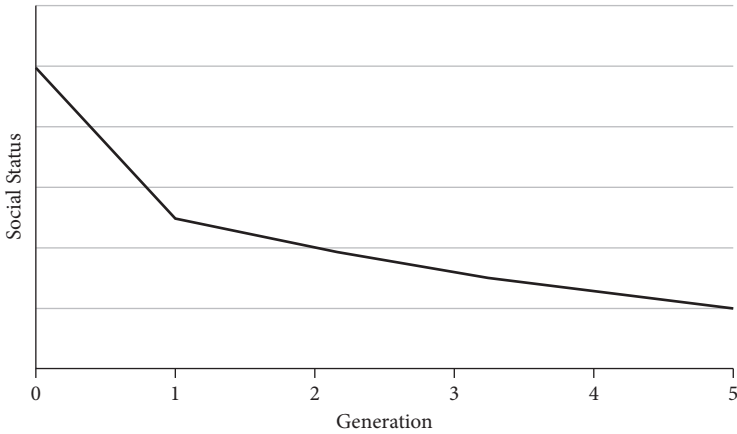
Figure 12.1 Typical path of regression to the mean for an individual family
Source: see text.

observed for surnames will reveal the underlying long-run persistence rates within a society.

The surname studies identify this underlying persistence rate, because by averaging across people by surname we reduce the transitory component in Equation (12.3) above to 0, so that for each generation we now observe for each surname, or surname group or type, the underlying $\bar{x}$.

The underlying long-run persistence rate is what matters if we are looking at group social mobility rates within a society. For example, suppose we want to know how long it will take some elite or underclass group to come to average social status; b will give an indication of this. Note that the b estimated above for richer surnames in England is estimated in a society where most of the surname holders were white, and had similar religious affiliations, and in a society without explicit barriers to intermarriage between social groups. That persistence rate, at 0.7–0.75, is still very strong. It implies that the holders of the wealthy surnames identified in Table 12.2 will only converge to within 10 per cent of average wealth at death after another seven generations from those born in 1900–29, or for those born in 2110–49 (assuming a persistence parameter of 0.7).

If we go to a society such as India, where there are strong barriers to intermarriage between such social groups as Hindus and Muslims, or between low-caste and high-caste Hindus, then we observe even lower rates of surname status mobility across generations when we look at surnames associated with specific social groups such as Muslims or Brahmins. There, in recent generations, despite the substantial system of reservations in higher education and in government employment, the persistence rate is more in the order of 0.9.

The underlying persistence rate can also be used to estimate the effects of educational and other reforms on the convergence of group social status.

12.4 Estimating long-run mobility rates from surnames, with direct measures of surname status

Where we have direct measures of social status by surname, implementing the estimation of the underlying social mobility rate b, as seen in Equation (12.4) above, is straightforward. We need only identify groups of surnames that are preselected as having high or low status and then examine what happens to the average status of these surnames over time. We need to make an assumption about what generation lengths are to get the intergenerational correlation b. But with surname averages it is possible to also estimate intergenerational correlations using periods shorter than a generation length, such as a decade. It is just a matter of the size of the dataset.

One such source of status by surname and vintage even in poorer societies is electoral registers. These are often public documents that list, for the voters of a polity, their age and some measure of their social status, such as their address or their occupation. Thus the 2004 electoral register for Chile records, for 6 million voters, their name, age, location, and occupation. This allows people to be assigned a measured status in two ways.[3] The first is based on the average earnings of their occupation. The second is based on the average earnings of people living in their municipality. This then allows estimates of average social status by surname type for those born between 1920–79, two complete generations.[4] Below is laid out, using the Chilean data, exactly how the procedure is implemented.

Similarly, the electoral registers for the UK for 2003–10 are publicly available. These give people's ages to within three years, as well as their exact address.[5] Online measures are available of average house values specific to around 1.1 million postal codes in the UK, where these average values vary between £40,000 and £59,000,000. Measures of social deprivation by postcode are also available online from the UK government, giving area averages of such measures as income, education, health, and crime rates (Ministry of Housing, Communities and Local Government 2019).

The entire electoral register for West Bengal in India is available online (Chief Electoral Officer, West Bengal 2019). This lists voters by age and by street address. As long as we can assign average social status to these addresses, we can again estimate social mobility rates by looking at the rate of convergence of surname status to the mean as we go from older to younger voters.

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[3] For details on the sources for Chile see Clark et al. (2014: 199–211).

[4] Since people only have occupational statuses once they complete school, this measure can only be computed for those aged 25 and above.

[5] There is one drawback of the UK data, which is that people had to agree to the data being made public. About half of the electorate is covered by the public register.

Even where electoral registers do not give voter ages, we can again measure the rate of social mobility as long as older registers are available and there is some indicator of voter status. Thus, the electoral registers from Australia for 1903–80, which give voter occupations, are available. We can then track the average status of high- or low-status surnames across multiple generations.[6]

In the case of Chile, to identify elite and underclass groups of surnames for the period 1920–49 we can use two procedures. First, surnames in an immigrant society like Chile can be classified by ethnic and national origin. Thus, there is a class of surnames associated with the Mapuche, the main surviving indigenous population of Chile (Galdames et al. 2008). There are also distinctive surnames associated with immigrant groups of Basque, German, French, and Italian origin. Basque settlers, for example, were an early elite in colonial Chile. In the nineteenth century, Chile attempted to recruit educated northern European immigrants, so modern-day Chileans with, for example, German surnames are the descendants of a nineteenth-century elite.

But, further, we can identify, as in the case of England, rare surnames associated with earlier wealth in Chile in the nineteenth and early twentieth centuries, including the wealthy from all ethnic groups. An agricultural rent report was compiled, for example, in 1853 to determine agricultural taxes. The average rental value of a parcel of land in the 1853 report was 379 pesos. We can thus classify holders of land parcels of rental value greater than 1,500 pesos as wealthy in 1853. From the list of surnames that show up among wealthy landowners in 1853, we selected those surnames that appeared less than 30 times in contemporary Chilean population censuses. Rarer surnames were used since these are the ones that when found among landowners will have on average high status. There is a second list of large landholders in 1920, from which again we can select rare surnames.

Table 12.4 shows the numbers of people from each of four such surname groups listed with an occupation in the 2004 electoral register born in 1920–49 and 1950–79.[7] For the country as a whole there are 2.3 times as many people recorded with an occupation in 1950–79 as earlier. But interestingly, for the low-status group, the Mapuche, the ratio in 1950–79 compared to 1920–49 is greater than average at 2.47. For the high-status groups the ratio of 1950–79 to 1920–49 is lower than average.

The table also shows the average log occupational earnings of each group, relative to the average for all electors. Logarithms are used here since occupational earnings are positively skewed. Thus Columns 5 and 6 show, for birth cohorts 1920–49, and 1950–79,

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[6] Similarly, electoral censuses in Canada, 1935–80, and New Zealand, 1920–81, give occupations for voters.
[7] Most males of working age had listed occupations, so there is no reason to think that omitted occupations will bias the results.

Table 12.4 Estimated Chilean social mobility rates, births 1920–79

Surname group	N 1920–49	N 1950–79	Ratio N	Ave. occupational earnings, 1920–49	Ave. occupational earnings, 1950–79	Implied b
Mapuche	7,036	17,389	2.47	−0.304	−0.239	0.79
Basque	8,755	17,841	2.04	0.225	0.169	0.75
Large landowners, 1853	2,731	5,201	1.90	0.396	0.371	0.94
Large landowners, 1920	1,680	3,069	1.83	0.450	0.415	0.92
All	895,145	2,059,057	2.30	0.000	0.000	-

Note: The numbers reported in each period are of those whom the electoral register lists with an occupation.

Source: based on data from Clark et al. (2015: table 2).

$$\frac{1}{N_{ik}} \sum_i \ln w_{ik} - \frac{1}{N} \sum_i \ln w_i \qquad (12.7)$$

where $\ln w_i$ is the log occupational earnings for each elector, N is the total number of electors with occupations, N_{ik} is the number of electors with occupations in surname group k, and w_{ik} is the log occupational earnings of each member of group k.

For those with Mapuche surnames born in 1920–49 the value of −0.304 implies that their average occupational earnings are only 74 per cent of the overall average for this birth cohort. For those with the rare surnames of large landowners in 1920 the value of 0.450 for the 1920–49 birth cohort implies that their average occupational earnings are 57 per cent higher than the overall average for this birth cohort.

The b estimate in the final column comes from the equation:

$$\overline{\ln w_{k1}} = b \overline{\ln w_{k0}}, \qquad (12.8)$$

where the subscript 1 indicates the generation born in 1950–79 and the subscript 0 the generation born in 1920–49. As can be seen, these estimates suggest strong persistence of occupational status for both the high-status and the low-status groups. The estimates of b range from 0.75 to 0.94.

12.5 Estimating social mobility rates from surnames with even less information

A nice feature of using surnames to estimate social mobility rates is that we can derive the long-run underlying correlation of status with even less information

than is used in the first example above. In particular, suppose that all we know about a society is the general distribution of surnames in the population, the distribution of surnames among an elite, and what percentage of the population that elite represents. We can still get a good estimate of social mobility rates.

In England, for example, we know the general distribution of surnames in 1538 and later.[8] We know the distribution of surnames at Oxford and Cambridge universities, the only universities in England until 1836 and always the most prestigious universities, from 1200 onwards. And we also know what share of males attended these two elite universities from at least 1500 onwards. This allows an estimate of the persistence of educational status in England from 1500 to 2015.

Suppose, for example, the variance of status in an elite or underclass set of surnames can be assumed to be the same as that for the population as a whole. Then the situation is as in Figure 12.2. For names in general we will find that about 1 per cent are at Oxford or Cambridge. But for more elite surnames a higher fraction will be present at the university. Thus, for each period after 1500 we can estimate for each surname its relative status, the measure being:

$$Relative\ representation \ = \ \frac{Share\ of\ surname\ z\ at\ Oxbridge}{Share\ of\ surname\ z\ in\ Oxbridge\ age\ cohort} \ = \ RR_z.$$
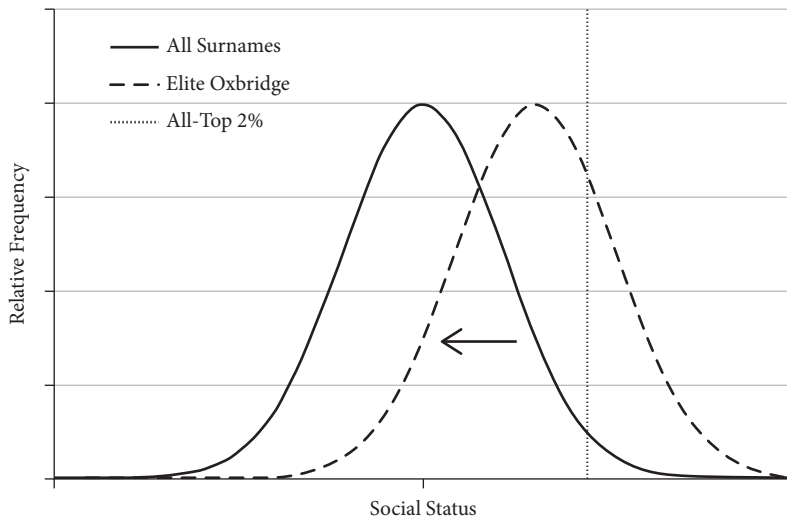
Figure 12.2 Regression to the mean of elite surnames
Source: based on Clark et al. (2014), figure 18.1.

[8] There are extensive records of baptisms and marriages from parish records in England for 1538–1837, and then national registers of births, deaths, and marriages for 1837–2019.

That is, we take the ratio of the share of people at Oxford or Cambridge with a given surname, compared to the share in the population as a whole aged 18–22 who have that surname. By definition, for the average surname in England in any period this number will be 1. But for high-status surnames the number will exceed 1, and for low-status surnames it will fall below 1.

From the relative representation estimate for each surname we can derive an implied mean status of each surname, measured in standard deviation units.[9] If, for example, the Oxbridge elite represents the top 1 per cent in educational status, and a surname is 10 times more common among Oxbridge students than in the population as a whole, then its implied average status is 1.04 standard deviations above the mean. If the relative representation is 30 then the implied average status is 1.80 standard deviations above the mean. Then the implied intergeneration correlation of status for these surnames across a generation (assumed, as before, to be 30 years) will just be the estimated mean status in generation $t + 1$ divided by that in generation t.

To see how this works in practice, let us construct a set of surnames that was elite in England in terms of educational status in 1800–29. To do this we simply include all English surnames where less than 500 people held the surname in the census of 1881, but someone with that surname attended Oxford or Cambridge in 1800–29.[10] This generates 2,354 individual surnames held by Oxbridge students in these years. These surnames were held by 277,247 people in 1881, and by 473,595 people in 2002. To estimate the population share with these rare surnames in each student cohort we use records of marriages in England for 1837–1915, and records of births for 1916–95. The share of the population with this sample of rare surnames in each generation of students, again taking a generation as 30 years, is shown in the second column of Table 12.5. This share was around 1.16 per cent of the population in 1800–29, but had fallen to 0.85 per cent by 2010–13. This reflects the substantial migration of people from Ireland and Scotland into England in the period 1800–1950, and then later migrations from Europe and elsewhere into England in 1950 and later.

Table 12.5 shows the numbers of students with these surnames at Oxbridge in each 30-year period starting in 1800, as well as the total numbers of students observed in each period.[11] Column 5 shows the share of these surnames as a share of all Oxbridge students with English surnames. As can be seen, in 1800–29 these surnames represented more than 21 per cent of students despite being held by an estimated 1.2 per cent of the population. The last column shows the relative representation of these surnames at Oxbridge from 1800 to 2013 by period.

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[9] The key assumption here is that the variance of status within holders of each surname is the same as the variance of status for society as a whole. We consider below how reasonable this assumption is.

[10] We use the 1881 census to find the rarer surnames because this is one of the most carefully digitized nineteenth-century censuses.

[11] If a surname occurred multiple times that was counted.

Table 12.5 Rare surnames at Oxbridge, 1800–29

Generation	Share populationrare Oxbridge surnames %	Rare surnames 1800–29at Oxbridge	AllOxbridge attendees	Share rare 1800–29 surnames Oxbridge %	Relative representation
1800–29	1.16	3,991	18,650	21.57	18.57
1830–59	1.16	2,856	24,415	11.82	10.17
1860–89	1.13	2,951	38,678	7.84	6.93
1890–1919	1.09	1,477	30,961	5.02	4.61
1920–49	1.04	1,917	67,927	3.08	2.96
1950–79	0.99	2,628	156,645	1.86	1.87
1980–2009	0.85	2,383	222,063	1.32	1.55
2010–13	0.85	437	49,243	1.28	1.51

Source: based on data from Clark and Cummins (2014a: table 3).

There is a steady decline in that relative representation across generations, though it is still around 1.5 in 2010–13.[12]

What is the persistence rate of educational status implied by the last column of Table 12.5? To calculate that, we translate the relative representation of the rare surnames into an implied deviation of mean educational status for this group from the social mean as in Figure 12.2. To do this we need to estimate for each generation what the percentage of the population is that attend Oxford or Cambridge, to establish how elite this set of students is.

Column 3 of Table 12.6 shows this estimate. It is calculated, for example, that in 1830–59 only 0.6 per cent of each generation (of males in this case) attended Oxford or Cambridge. By 2010–13 the estimated share of the population cohort attending Oxford or Cambridge had risen to 1.24 per cent. This then yields the estimate in column 4 of what the average educational status of the elite surnames was for each generation, measured as standard deviation units above the social mean. For 1830–59 the estimated mean deviation is 0.97 SD units, while by 2010–13 that had fallen to 0.16 SD units.

Note that in Table 12.6 we use only 1830–59 and later to estimate the inter-generational correlation of status. We do so because, as is portrayed in Figure 12.1, the regression towards the mean of surname status in the first generation will be faster than in later generations because in that generation we observe both the more rapid short run mobility as well as the slower underlying mobility. In later generations, where we have a pre-established set of elite surnames, the numbers of

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[12] To calculate the relative representation in the periods after 1829, an allowance has to be made for the increasing share of foreign students at Oxbridge. The England and Wales surname share of students is calculated from 1830 on by period as 0.99, 0.97, 0.95, 0.92, 0.90, 0.82, and 0.69.

Table 12.6 Implied persistence rates for 1800–29 elite rare surnames

Generation	Relative representation	Oxbridge elite share %	Implied mean status (standard deviation units)	Implied b
1830–59	10.17	0.62	0.97	-
1860–89	6.93	0.53	0.76	0.79
1890–1919	4.61	0.48	0.58	0.76
1920–49	2.96	0.70	0.42	0.72
1950–79	1.87	1.16	0.25	0.60
1980–2009	1.55	1.27	0.18	0.70
2010–13	1.51	1.24	0.16	0.89
All				0.73

Source: based on data from Clark and Cummins (2014a: table 3).
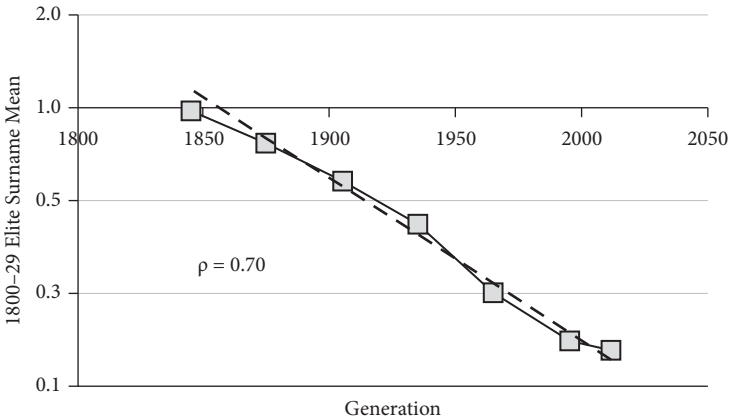
Figure 12.3 Mean status, rare elite surnames, Oxbridge, 1830–2013
Source: Table 12.6.

surname holders at Oxford and Cambridge will give an unbiased estimate of the average educational status of the target surnames, and of underlying social mobility rates. These estimates mean statuses by generation are graphed in Figure 12.3, where the vertical axis is graphed as a log scale.

Once we know the implied mean of status for the 1800–29 elite rare surname group for 1830–2013, we can then calculate for each period the implied correlation of status b with the previous generation. From Equations (12.3) and (12.4), and assuming with averaging that $\bar{y}_t = \bar{x}_t$—that is, that the average measured educational status of the surnames is the average actual status,

$$\bar{y}_{t+1} = b\bar{y}_t + \varepsilon_{t+1}, \tag{12.9}$$

where ε_{t+1} is an error term corresponding to various mismeasurements. These are errors in measuring of the share of the surname population in each cohort, the share of these names at Oxbridge (in some periods we have just a sample of Oxbridge students, not the population), the share of the domestic population among Oxbridge students, and the degree of eliteness that Oxbridge attendance implies.

The unbiased estimated value of b for each period is then

$$\frac{\bar{y}_{t+1}}{\bar{y}_t}. \tag{12.10}$$

These estimates are shown in the final column of Table 12.6. The average is 0.74, though the individual b estimates range from 0.60 to 0.99.

Suppose we assume, however, that this variation is just the product of the aforementioned measurement errors, and fit one b value to the whole of the data. To do this, note that Equation (12.8) implies:

$$\bar{y}_{t+n} = b^n \bar{y}_t + \varepsilon^*_{t+n} \tag{12.11}$$

or

$$\ln \bar{y}_{t+n} = \ln \bar{y}_t + \ln(b).n + \ln \varepsilon^*_{t+n}. \tag{12.12}$$

So just by estimating the coefficient h in the OLS best-fitting relationship:

$$\ln \bar{y}_{t+n} = g + h.n$$

we can estimate the best fitting b for the whole set of observations, assuming that this has a constant value. The b estimated in this way is 0.70, with 5 per cent confidence bounds of (0.67, 0.72). As Figure 12.3 shows the R^2 of this fit is good, being 0.988.

Three things stand out in this estimate. First, there is a high degree of persistence of status implied in the estimates. Second the estimated persistence here is very similar to that found for wealth, education, and occupation in the high-status surnames in the lineage dataset discussed above. But third is the seeming constancy of this strong persistence over generations.

Over the course of the generations entering college in 1830–2013, the social and institutional circumstances of England changed considerably. England came late to the idea of state support for education. Until late in the nineteenth century, education was largely organized through an ad hoc system of charity schools, religious schools, and local private provision. Thus, only with the Forster Act of 1870 was there any requirement of school attendance. And this requirement was

only for the ages of 5–10, with exemptions for children who were sick, working, or living too far from a school. Also, before 1870 central government support for education was minimal. Not until 1833 did the central government direct any monies in support of constructing or maintaining schools.

Over the years 1880–1918 there were a series of parliamentary acts that expanded significantly both educational requirements and state support for education: the Elementary Education Act 1880, the Elementary Education (School Attendance) Act 1893, the Conservative Education Act 1902 (Balfour Act), and the Fisher Education Act 1918. Through these acts, required school attendance was extended eventually to the ages of 5–14. School fees were also abolished for all children in publicly supported schools.

The Education Act of 1944 extended compulsory schooling to the age of 15. It also codified a tripartite system of education. At 11, students were assigned, based on an exam, either to elite grammar schools or to more vocational secondary modern or technical schools.

Thus, we see families experience substantially different social and institutional regimes with respect to education across the course of their histories. Those cohorts born 1780–1869, and entering college 1800–90, mostly existed in the laissez-faire era, where there were no schooling requirements and there was only private and religious support for education for the poor. The cohort born 1870–99, and entering college 1890–1920, experienced the modest beginnings of the modern welfare state in education. Compulsory education was imposed for the first time, and state support to parents extended. Finally, the cohort born 1900–29, and entering college 1920–50, experienced for the first time substantial state-imposed educational requirements, with most children born in this cohort required to attend school to the age of 14, and with public funding of the costs of schooling. But remarkably the extension of state support for schooling seemingly had no impact on long-run mobility rates.

If we take the 2,354 rarer surnames which appear in the rolls of students at Oxford and Cambridge in 1800–29 then we can also look at how this group did on other measures of social status in England in 1830–2019. One of these is the political elite. We know the names of all of the 460–533 members of parliament (MPs) from England and Wales for every year in this interval. Table 12.7 shows the total numbers of MPs entering parliament by 30-year period from 1800 on, where we count each member just once, by their year of first entry to parliament. This is a much smaller group than students enrolling at Oxford and Cambridge, so the results are noisier. But as columns 3 and 4 show, the rare surnames enrolling at Oxford and Cambridge in 1800–29 were also heavily over-represented among MPs, and continued to be over-represented even in the period 2010–19.

Table 12.8 shows the calculated persistence rates of these surnames among the political elite under alternative assumptions about how elite a class MPs were and are. We start with the generation of politicians entering parliament in 1830–59,

Table 12.7 Social status as measured by MPs, 1800–2019

Generation	All MPs	Rare surname MPs	Share rare surnames MPs (%)	Relative representation among MPs
1800–29	2,064	396	19.2	16.51
1830–59	2,473	417	16.9	14.51
1860–89	1,848	225	12.2	10.76
1890–1919	1,779	122	6.9	6.30
1920–49	1,914	75	3.9	3.77
1950–79	1,421	47	3.3	3.33
1980–2009	1,107	32	2.9	3.41
2010–19	488	9	1.8	2.18

Source: based on data from Clark et al. (2014: 102–5), with data updated from 2013 to 2019.

Table 12.8 Social mobility as measured by MPs, 1830–2019

Generation	Assumed eliteness MPs (%)	Raremean status	Implied b	Assumed eliteness MPs (%)	Raremean status	Implied b
1830–59	0.4	1.09	–	0.1	0.96	–
1860–89	0.2	0.86	0.79	0.1	0.91	0.87
1890–1919	0.2	0.63	0.73	0.1	0.79	0.75
1920–49	0.1	0.43	0.69	0.1	0.60	0.70
1950–79	0.1	0.38	0.88	0.1	0.42	0.90
1980–2009	0.1	0.38	0.99	0.1	0.38	1.02
2010–13	0.1	0.24	0.48	0.1	0.39	0.47
Average			0.76			0.79

Source: based on data from Clark and Cummins (2014a: table 8).

since the typical age of entry to parliament would be 20–30 years later than entry to college. The first assumption is that since the number of MPs increased little between 1800 and 2019 yet the population of England increased nearly eightfold, MPs represented an increasingly elite segment of society. Thus, MPs are assumed to now represent the top 0.1 per cent in terms of social status, compared with the top 0.4 per cent in 1830. Column 3 shows the implied average status of the rare Oxbridge surnames in terms of the political elite by generation and Column 4 the implied persistence rate of that status. Figure 12.4 shows the average status by generation and the fitted overall mobility rate, which is 0.78.

How sensitive is the estimated persistence rate ρ to assumptions about the eliteness of MPs in England? To test this, Table 12.8 also shows the calculation of ρ if we just assumed that MPs represented a constant elite of the top 0.1 per cent of the population throughout the period. As can be seen in Figure 12.5, the results
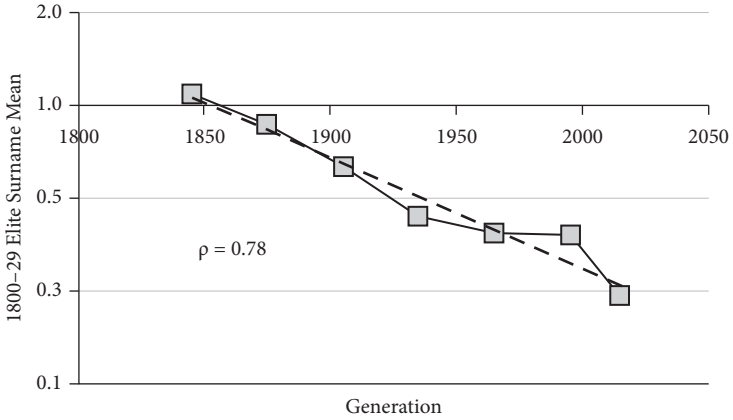
Figure 12.4 Social mobility rates, political elite, 1830–2019
Source: Table 12.8.
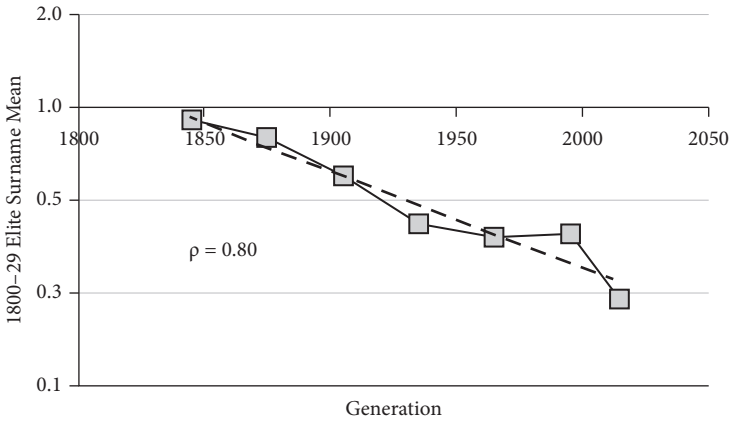
Figure 12.5 Social mobility rates, political elite, 1830–2019, alternative assumptions
Source: Table 12.8.

change very little with this change in assumptions. The estimated ρ changes from 0.78 to 0.80.

12.6 Mobile and immobile societies

Clark et al. (2014) applies the methods above to a variety of societies: the USA, England, Sweden, Chile, China, Japan, and India. In all cases and all periods the rate of long-run social mobility is low, with the implied intergenerational correlation mostly in the range 0.7–0.8. What this means, however, is that surnames

which were established more than three hundred years ago will not as a class exhibit much variation in average social status. This is true, for example, for two classes of elite surnames established long ago in England: the surnames of the Norman conquerors of 1066, and surnames of native English created around 1200–1300 that referred to places (Berkeley, Sussex, Rockingham, etc.). The processes of social mobility may be slow, but given enough time it will do its work. In most of these societies there are no persistent social classes.

However, there are societies where we can observe even slower rates of social mobility in surnames, and where there seem to be near-permanent social classes. One of these is India.

As in many societies, the Indian upper classes were the first to adopt surnames. In Bengal, where the East India Company established its rule in 1757, upper-class Hindus seem to have been already using surnames by the time of the British conquest. For the upper classes in Bengal, family surnames date from the arrival of the British in the eighteenth century or earlier. Petitioners to the East India Company courts in Bengal in the late eighteenth century typically have surnames, and these names are still common in Bengal: Banarji, Basu, Chattarji, Datta, Ghosh, Haldar, Khan, Mandal, Mitra, Sen (Government of Bengal Political Department 1930). Similarly, when the Hindoo College was established in Calcutta in 1817, its initial directors, governors, and secretary, upper-class Hindus, were all men with surnames: Roy, Bahadur, Thakoor, Deb, Sinha, Banerjee, Doss, Mukherjee.

Within Bengali surnames the most elite now are those belonging to the Kulin Brahmin group: Mukherjee, Banerjee, Chatterjee, Ganguly, Bhattacharjee, and Chakrabarti.[13] Among judges and registered doctors in West Bengal in 2011 these names are four to five times over-represented compared with their population shares, as can be seen in Figure 12.6. This implies extremely slow rates of social mobility at the group level over the years 1800–2011.

The same figure shows the dramatic under-representation of two other sets of surnames. The first are surnames associated with the Muslim community. These surnames have a relative representation among judges and doctors that is 0.12.

The second set of surnames are those associated with lower-caste Hindu groups that had little or no representation among physicians before independence. The main one is Shaw/Show, held by 3.7 per cent of men on the Kolkata voting rolls. Others are Rauth/Routh, Paswan, Dhanuk, Balmiki, and Mahata/Mahato. Together these surnames are held by 7 per cent of the population of West Bengal. These surnames show a relative representation among elites in 2010–13 that is 0.05–0.08.

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[13] 'Kulin' designates a superior Brahmin group.
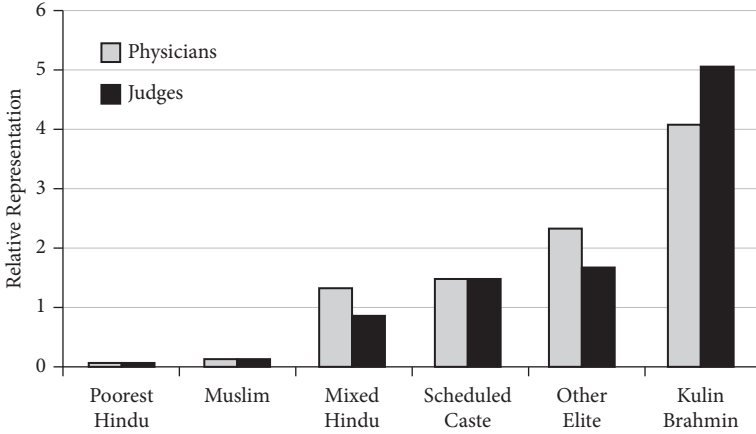
Figure 12.6 Representation of different surname types in Bengal elites, 2010–13
Source: based on Clark et al. (2014), figure 8.2.

Since we can get records of who were the doctors in the Province of Bengal under British rule in 1860–1947 and who were registered doctors in West Bengal after Indian independence, we can thus estimate social mobility rates by surname types in Bengal as long as we can estimate what the population frequencies of the surname types were over the period 1860–2013. Figure 12.7 and Table 12.9 show the relative representation of surname groups in Bengal among doctors for 1860–2011.

For the Muslim population, their representation is shown relative to the entire population and is always very low. Muslims always constituted a tiny share of doctors compared with their population share.[14] The partition of Bengal in 1947 into largely Hindu West Bengal and mainly Muslim East Pakistan significantly reduced the Muslim population share in West Bengal relative to colonial Bengal. The removal of a large fraction of the population containing very few doctors has the effect of decreasing the relative representation of all the Hindu surname groups among physicians post-1947. Their share of doctors increased little as their population share increased. Since this partition-created decline gives a spurious impression of social mobility, for these other groups, relative representation is shown always with respect to the non-Muslim population only.

Census reports exist giving the Muslim share of the population in Bengal and West Bengal for each decade from 1871 on. Thus, there are good measures of the relative representation among physicians in Bengal from 1860 on. The striking feature is the very low representation of Muslims among physicians in all periods.

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[14] Because Muslim and Hindu first names are also distinctive, the fraction of Muslim physicians in Bengal in the years 1860–2011 is easily estimated.
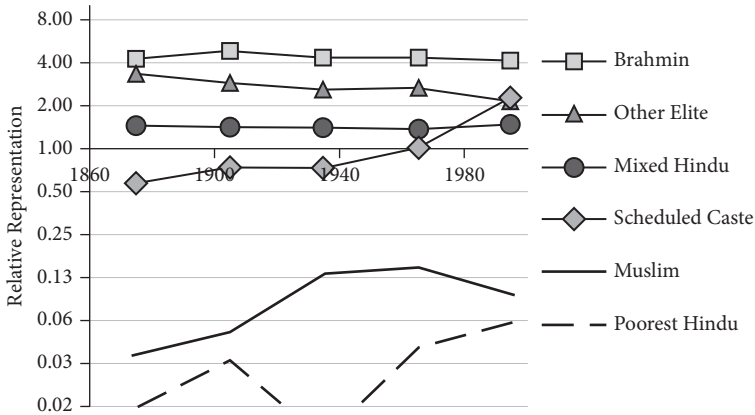
Figure 12.7 Relative representation of surname types among doctors in Bengal, 1860–2011

Source: based on Clark et al. (2014), figure 8.3.

Table 12.9 Relative representation of surname types among doctors in Bengal, 1860–2011

Period	Muslim	Brahmin	Other elite	Poor Hindu	Scheduled caste	Mixed Hindu
1860–89	0.04	4.19	3.39	0.02	0.57	1.49
1890–1919	0.05	4.73	2.92	0.03	0.73	1.42
1920–46	0.13	4.30	2.60	0.01	0.72	1.45
1947–79	0.15	4.27	2.71	0.04	1.01	1.40
1980–2011	0.10	4.05	2.15	0.06	2.26	1.51

Source: based on data from Clark et al. (2014: figure 8.3).

Under British rule, Muslims experienced limited upward mobility. The implied persistence of status is high, with a calculated intergenerational correlation of 0.91.

However, from the 1970s until very recently, the Muslim community in West Bengal saw a further decline in representation among physicians, with no implied regression to the mean. Indeed, starting with the generation entering practice since independence in 1947, the implied persistence coefficient is 1.2, indicating that the Muslim community has been diverging further from the mean.

Bengal's system of reserving educational places and employment opportunities for disadvantaged castes and tribes explicitly excluded Muslims and Christians before 2014: only Hindus, Sikhs, and Buddhists were eligible.[15] Thus, Muslims

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[15] In 2013 a law was passed reserving 17 per cent of places in state-run universities for 'other backward classes'.

have been disadvantaged in admission to medical practice in West Bengal, compared with the Hindu, Sikh, and Buddhist populations, since independence. They could compete on equal terms for the unreserved positions in medical schools, but the advantages offered by the reservation system to other disadvantaged groups effectively penalized Muslims. This situation helps explain the surprising negative social mobility implied for the Muslim community in recent generations. However, even absent the disadvantages imposed by the reservation system, there would be no group-level social mobility among Muslims in the period 1947–2011. Examination of the recent records of applicants to university in Bengal shows that a switch to a pure merit entry system would increase the numbers of people with Muslim surnames by very small amounts. The near absence of social mobility of the Muslim population cannot be attributed to the Reservation System.

Even within the Hindu population, there has been very little social mobility among surname groups in Bengal from 1860 on. The Brahmin group of surnames is almost as heavily over-represented among the non-Muslim population in the period 1980–2011 as it was in the period 1860–89. Other elite Hindu surnames show a slow rate of decline in status. But the relative representation of mixed Hindu surnames, those which are held by both the upper castes, but also the scheduled castes, does not change.[16] And the relative representation of poor Hindu surnames of the nineteenth century, those with the highest potential for regression to the mean, also changes little. The only group showing a marked change in status is the group of surnames associated with scheduled caste lists for positions in universities and the police. This group went from being modestly disadvantaged among non-Muslim groups in 1860 to being one of the most elite surname groups, as measured by their relative representation among physicians now.

India here seems very distinct from England over the last 150 years. Note that India may well have similar rates of social mobility within such collections of families as the Kulin Brahmin surname group. People could be changing social position within the Brahmin or other social group at much faster rates than the glacial pace of social mobility we observe for the group as a whole. The methods here are simply comparing Brahmin surnames as a group with those of, for example, the Muslim population.

Why is social mobility, at least at the group level, so low within India? One interesting difference between India and societies such as England is the high degree of group marital endogamy still found in India. As late as the 1960s, caste endogamy still seemed to be the rule for most marriages in Bengal, as seen in a detailed study of a modest-sized town in Bengal in the late 1960s (Corwin 1977).

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[16] Such surnames include Das, Dasgupta, Majumdar, Ray, Roy, Saha, and Sarkar.

Another study, looking at marriages in rural villages in Karnataka and Uttar Pradesh in 1982–1995, found that of 905 marriages in the study, none involved couples who differed in their caste status (Dalmia and Lawrence 2001). In a high-caste group in Hyderabad, Kayasthas, only 5 per cent of marriages were outside the caste even by 1951–75 (Leonard and Weller 1980: tables 1–3). However, information on the degree of endogamy for marriages in Bengal in the 1970s and 1980s, which produced the most recent crop of physicians, is not readily available.

One source of information on the likely endogamy rate is the 2010 Kolkata voter roll, which gives surnames, first names, and ages of all voters. Many first names are highly specific to the Hindu, Muslim, and Christian/Jewish communities. Women who marry into one of these groups from another group will almost always have different first names from women born within the group. Also, if families with surnames associated with one group are assimilated into another group then, as a result of intermarriage and adoption of at least some elements of the culture of the wives, the children will again have different first names.

As Table 12.10 shows, the percentage of women in the Kulin Brahmin surname group with non-Hindu first names is extremely small. Because Muslims constitute nearly a quarter of the Kolkata population, this implies that intermarriage rates between Kulin Brahmin men and women of Muslim origin are extremely low, in the order of 0.1 per cent. A similar result holds for other high-caste Hindu surnames.

More women with Muslim surnames have Hindu first names: 0.9 per cent. But given the near-total absence of any sign of Muslim women's marriage into high-caste Hindu groups, if these findings are indicative of marriage alliances they are likely with lower-caste Hindus.

Intermarriage between Christians and high-caste Hindus appears to be substantially more common. Christian surnames account for a very small share of the surname stock in Kolkata, about 0.3 per cent, and are mainly Portuguese in origin. Given this small Christian population, the small share of women with high-caste

Table 12.10 Female first name origins by surname group

First-name type	Incidence in surname group (%)			
	Kulin Brahmin	Other high-caste Hindu	Muslim	Christian
Muslim	0.1	0.1	98.9	0.4
Christian	0.3	0.6	0.2	57.4
Hindu and Christian	0.0	0.0	0.0	11.9

Source: based on data from Clark et al. (2014: table 8.5).

surnames who have Christian surnames is nevertheless suggestive of significant intermarriage.

An alternative explanation for these female Christian first names may be that high-caste Hindu girls are given Christian first names at birth. The possibility of significant intermarriage between Christians and Hindus is, however, supported by the fact that just over 30 per cent of women with Christian surnames have first names that are Hindu. Also, almost 12 per cent of women with Christian surnames have a combination of Christian and Hindu first names.

The first name and surname evidence suggests almost no intermarriage between the largely poor Muslim community and either Hindus or Christians. Within the Hindu community, first name evidence does not allow us to determine the degree of marital endogamy within castes because many female first names are common to high- and low-caste groups.

If the marital endogamy of castes and religions in India explains low average social mobility for surname groups, we should find higher rates of social mobility for individual families within these groups. Families sharing the surname Banerjee, for example, will have the same rates of mobility as in any other society. It is just that the average status of the Banerjees will not converge towards that of the Shaws. We should also find that over time, all the major Kulin Brahmin surnames have the same average social status. This hypothesis is borne out by the incidence of these surnames among physicians.

Interestingly, other societies where there is evidence of an absence of normal rates of social mobility for some subgroups within the population also tend to be characterized by high degrees of marital endogamy within such groups. Thus, in Egypt, for example, the Christian Coptic population has remained an elite within a society that is more than 90 per cent Muslim for more than 1,000 years. But Christian and Muslim populations in Egypt show an almost complete absence of intermarriage.

12.7 Limitations of surname estimates

A key element of the surname estimates of mobility is that children inherit surnames strictly from one parent, typically the father. This condition can be shown to hold for England going back even as far as 1300. Thus, for the sample of families discussed above for England, when comparing individual estimates of social mobility with surname estimates, we have 72,853 men who were born and died in the period 1760–2019. Of these, 1,076 died with a different surname than they were given at birth, 1.5 per cent. But most of these changes were minor spelling variations: Skurr became Scurr, Beckerleg became Beckelegge. Another cause of name changes was the adoption of a hyphenated surname, sometimes adding the wife's name on marriage. Thus Leschalles became Pige-Leschalles.

Radical changes from one surname to another, such as when Twine became Methold, were rare—less than 0.2 per cent of men.

We can deal with the first source of changes, irregular spelling, by making sure to include all spelling variants of surnames. We can deal with hyphenation by counting all instances of the surname as including those where it is a component in a hyphenation. With that correction, surnames show very high fidelity across multiple generations.

However, there are many societies where surnames can change substantially across generations. Thus, in most of the Nordic countries surnames for the lower classes, until the end of the nineteenth century, were patronyms that changed each generation: Magnus Ollson's children would have the surname Magnusson. Also, the low status of names of this class, ending in -son, in societies such as Sweden has led in recent years to many people dropping such surnames and acquiring new ones, often at the time of marriage. It is possible to estimate social mobility rates for Sweden using surnames going all the way back to the eighteenth century, but only by looking at the small class of aristocrats and university graduates who had already adopted fixed, hereditable surnames by the eighteenth century.

In Japan there has been a long-standing practice of adult adoption, common among the Samurai, whereby higher-status families without a son would adopt a 'surplus' son from another family, who would take the family name and ensure the continuity of the family. This is still an active practice, particularly among families running family business enterprises, and the great majority of adoptions in Japan are of adult males. Such a practice will lead surname estimates of mobility to overstate the persistence of status, since families will only adopt from a select group of candidates.

There are other societies where lower-class people have no surname, or surnames are just honorifics that change with each generation. Thus, in Muslim or lower-caste Indian communities women may adopt honorific surnames such as Begum, Bibi, or Devi.

In some societies, such as India, surnames carry such a strong signal of social status that there should be significant incentives for people, especially those upwardly mobile, to adopt higher-status surnames. Such name-switching is limited, however, by the fact that people live in communities, and within extended families, where such opportunistic surname changes would attract social opprobrium. Thus, despite the known high status of such Brahmin surnames as Banerjee, Chatterjee, Ganguly, Goswami, and Mukherjee in West Bengal, the electoral register for Calcutta shows a strong decline in the percentage of Brahmin surnames at younger ages (reflecting both lower fertility among upper-class Indians and also greater adult longevity). If there were many people adopting such surnames in their 20s or 30s, and passing them on to their children, we would not see such a pattern.

A more technical concern about the quality of surname estimates arises in the case where there is the most limited information. That is where we know just the population shares of surnames in the society as a whole, and among some elite or underclass. To get intergenerational mobility estimates we have to make assumptions about exactly how elite or underclass the target group is. We also have to assume that status follows a normal distribution, and that this distribution has the same variance for the higher-status surnames as for the population as a whole.

How reasonable are these assumptions, and how sensitive are the estimates to them? We see above for English MPs that that the elite cut-off level does not seem to have much effect on the estimate. But the assumption that elite groups have the same variance of status as the population as a whole can be demonstrated to be incorrect for the English sample for 1810–1929 discussed above. For high-status surnames the standard deviation of wealth at death or occupational rank is higher than for the general population.[17] How this affects the persistence estimates is hard to estimate theoretically. It implies that when we employ the assumption of constant variance we will initially overstate the mean status of the elite surname groups looking just at what fraction cross a given elite threshold. But as these surname elites converge towards average status their variance should also change. So, the estimates of persistence rates might be lower than the complete measures show, or might be higher. However, with the English data for 1810–1929 discussed above we can compare the estimates of intergenerational correlations of status derived from complete information on status by surname in each generation, and those derived by observing just the fraction of persons above a cut-off level. For wealth, higher education, and occupational status 1810–1929 the individual level estimates of persistence average 0.74. The estimates using instead just some arbitrary cutoff of status average 0.83.

Thus, the methods of estimating intergenerational persistence of status that use the least information may tend to overestimate somewhat the levels of persistence. But any such bias is small relative to the difference between surname persistence rates and one-generation individual persistence rates. Surname studies clearly identify much more substantial long-run persistence of status than one-generation studies have been able to identify.

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[17] This is also true for occupational status in Australia during the period 1903–80: see Clark et al. (2020).

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PART V
DRIVERS AND INHIBITORS

13

Social Mobility and Human Capital in Low- and Middle-Income Countries

Jere R. Behrman

13.1 Introduction

Social mobility—movement from lower to higher education, occupational status, social class, or income—is a major hope of economic development and, for many, the mantra of a good society. Social mobility may be intergenerational (children's outcomes in comparison with their parents') or intragenerational (within children's lifecycles), and social mobility may be absolute (are children better off than their parents?) or relative (in comparison with other members of the same generation, in which case upward mobility for one individual must be accompanied by downward mobility for at least one other individual). Concerns about rising inequality have engendered renewed interest in social mobility, including in low- and middle-income countries (LMICs). This chapter assesses what we know—and do not know—about roles of parental human capital and endowments in determining children's human capital and how children's human capital affects other indicators of social mobility in LMICs, as well as how market imperfections such as information and credit constraints may impede social mobility.

Section 13.2 defines human capital and parental endowments and gives simple frameworks for guiding summaries of what we know and do not know about roles of human capital and parental endowments in social mobility in LMICs. Section 13.3 discusses determinants of children's human capital—cognitive skills, socioemotional skills, and health—which pertain directly to some indicators of mobility. Section 13.4 considers impacts of these forms of human capital, which pertain to some other indicators of mobility, such as incomes and earnings. Section 13.5 summarizes and discusses gaps in the literature.[1]

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[1] Literatures are huge on some topics covered, e.g. entire handbooks on education. As background for this chapter, a systematic search was undertaken on human capital and mobility in LMICs, and 132 studies were identified in the last three years alone, and these do not include all relevant studies. It is not possible to review all this literature in this chapter, so coverage is selective.

13.2 Definitions, frameworks, and estimation issues

13.2.1 Definitions

Human capital is a vector of stocks for cognitive skills, socioemotional skills, and health at some age that reflects investments in humans up to that time that have longer-run returns/impacts over the lifecycle. Human capital is *not* equivalent to schooling attainment, though some literature assumes so. Schooling attainment is one important input/investment in production of important forms of human capital, e.g. cognitive development. But there are other important inputs into this production, including home and community environments, schooling quality, training, and learning-by-doing during all lifecycle stages. Moreover, in LMIC contexts, other forms of human capital than cognitive skills may be critical, including health and nutritional status. Recent *Lancet* estimates, for example, are that ~250 million children <5 years in LMICs are at risk of not reaching their developmental potential (Black et al. 2017). The primary indicator used for these estimates, accounting for ~170 million children, is chronic undernourishment measured by stunting. Parental endowments are also a vector including economic resources, health, marital status, education, genetic factors, and social connections, not all of which are observed in data.

13.2.2 Frameworks

Figure 13.1 gives a very simple framework of investments in and resulting children's human capital over five lifecycle stages: (1) early life; (2) preschool ages; (3) childhood and adolescence; (4) young adulthood; and (5) mature adulthood. For each stage, children start with accumulated human capital from the previous stage, which influences rates of return to investments in the current stage through dynamic complementarities across stages, with possibilities of critical windows of opportunities particularly in early stages and adolescence (Cunha and Heckman 2008). There are also static complementarities among children's human capital components within stages, so that e.g. better nutrition improves concurrent learning. Within each stage there are family inputs/investments (shaded box on left) and public investments (box on lower left), among the elements of which there also may be complementarities. These investments occur within a lifecycle framework with demand-side (family) and supply-side (health clinics, preschools, schools, training programmes, credit markets, information markets) determinants, the returns to which depend on policy and market environments over the lifecycle.

 Parental human capital and endowments may affect children's development over children's lifecycles. Direct effects are likely to be focused in earlier lifecycle stages, but indirect effects percolate from earlier to later stages through accumulated
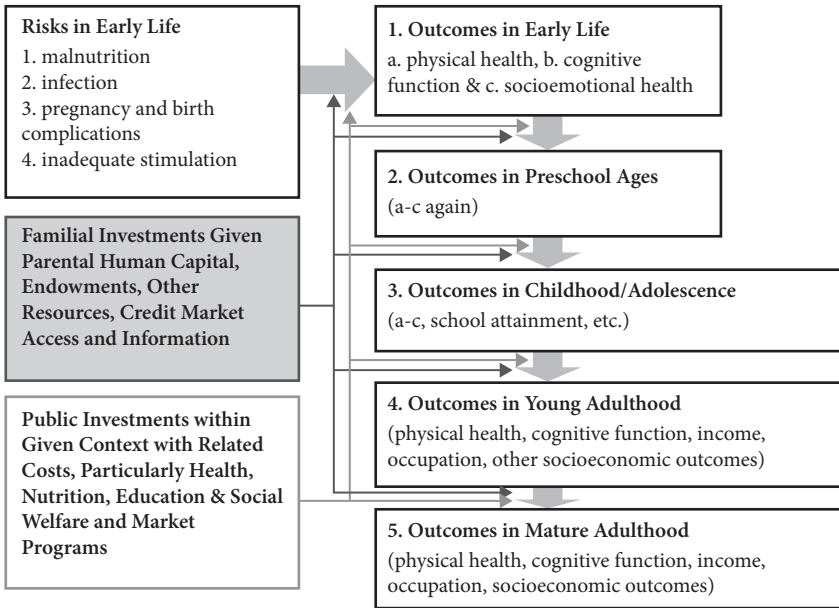
Figure 13.1 Human capital, parental endowments and social mobility within lifecycle framework

Source: author's illustration.

children's human capital from stage to stage. Similarly, policies may have direct effects in any lifecycle stage and indirect effects in subsequent stages. Thus, parental human capital and endowments play major roles as determinants of developments over their children's lifecycles, and children's human capital plays major roles as outcomes of interest in themselves and of transferring effects across lifecycle stages. Motives for parental investments in their children include altruism (which may be inversely associated with parental socioeconomic status (Das 2007)) and to increase probabilities of reverse transfers when parents become elderly (likely more important in LMICs than in high-income countries (HICs) because of less-developed social security and old-age pension systems (Lillard and Willis 1997)).

Intergenerational social mobility typically refers to how correlated are parental characteristics (e.g. schooling, occupation, income) with their children's characteristics, preferably, but not always, at the same ages. Intragenerational mobility refers to how correlated are children's characteristics across different children's ages. The smaller such correlations ceteris paribus (e.g. given variances within each generation), the greater is mobility.

Economic models of parental investments in children focus on perceived marginal costs and marginal returns to such investments given parental human capital and endowments and market and policy contexts. At one extreme, with perfect markets including those for information and for capital, the children's

equilibrium human capital is determined as in the Becker Woytinsky Lecture (Becker 1967) (Figure 13.2a) and the Becker and Tomes 'wealth model' (Becker and Tomes 1986; Becker 1991; Behrman et al. 1995). With all markets perfect, equilibrium human capital stocks H_0 are where expected rates of return (solid downward-sloping line—downward-sloping because of diminishing returns to fixed children's endowments such as innate abilities) on human capital equals market rates of interest (horizontal solid line, indicating that marginal costs to families do not change with investment levels given perfect capital markets). In this case, two identical children from very different families have the same equilibrium human capital stocks. But the assumption of perfect markets is extremely strong and requires not only perfect capital and information markets but also perfect markets for other inputs, such as parental endowments including genetic endowments and all the inputs into early-life nurturing care. Given that there are not markets for parental genetic endowments and genetic endowments are intergenerationally correlated, for example, even if all other markets were perfect, children with higher parental genetic endowments ceteris paribus have higher expected rates of return to every human capital level if, as is widely believed, genetic ability endowments are complementary with human capital, such as in the dashed line in Figure 13.2a—and thus higher levels of equilibrium human capital H_a.

If capital markets are imperfect, marginal capital costs may be upward-sloping (Figure 13.2b), with cheaper access for families with more resources (solid line) than for families with less resources (dashed line), resulting in higher children's human capital in the former (H_b) than the latter (H_c) ceteris paribus. If the only imperfection is in information markets and better-informed households have higher expected returns to human capital (solid line, Figure 13.2c) than less-well-informed households (dashed line), equilibrium human capital is higher for better-informed households (H_d) than for less-well-informed households (H_e). The general perception is that parents with more resources have higher expectations about human capital returns than do poorer households.
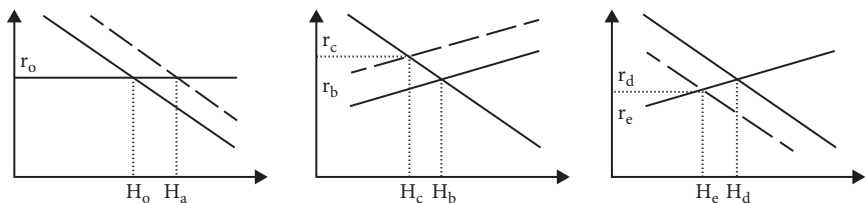
Figure 13.2 Becker's Woytinsky lecture—intersection of marginal rate of return and marginal costs determine equilibrium interest rate (r) and equilibrium human capital (H)

Source: author's illustration.

Further, note that parents may have other objectives than simply maximizing their children's expected wealth. Parents may care about the distribution of potential earnings among their children (Behrman et al. 1982). Or parents may not have unified preferences, in which case parental human capital embodied in and resources under mothers' control have different (usually perceived to be stronger) effects than those for fathers, or there may be stronger mother–daughter and father–son relations than cross-gender intergenerational relations (King and Lillard 1987; Alderman et al. 1995). Moreover, families are embedded in kin networks, so that human capital and endowments of other kin (e.g. grandparents, uncles, aunts) or ethnic group members may affect investments in children, perhaps resulting in lower social mobility than would seem to result were parents alone to be relevant (Jones 1998; Zeng and Xie 2014; Reynolds et al. 2018).

Using the implied relations between parental characteristics and children's outcomes, the extent of absolute mobility can be estimated in terms of, say, income or schooling attainment between parents and their children or between children's different lifecycle stages. For relative mobility the question is how movements for a particular child compare with movements for other children.

One final important point: this framework is within particular historical market, policy, and sociocultural contexts. Contexts vary substantially between LMICs and HICs, and among and within LMICs because of differential market development inter alia. Therefore, it is naïve to assume without further empirical testing that mobility determinants in one context carry over to others. What happens in one context may be suggestive for others, but generalizations need to be tested in other contexts, the more so the more important are nonlinearities including interactions and the more different are contexts.

13.2.3 Estimation issues in investigating impacts of parental human capital and endowments on child outcomes

The nature and quality of data are critical. Many observed variables are measured with considerable errors, which if random tend to bias coefficient estimates of right-side variables towards zero, a bias exacerbated with fixed-effects estimates (e.g. within-family estimates). Instrumental variables can control for random measurement errors (e.g. schooling reports from other sources for sibling fixed-effects estimates if errors in such reports are not correlated with errors in own reports (Ashenfelter and Krueger 1994; Behrman et al. 1994)).

Also, important variables are not observed in available data. Examples are information on mental health and on some intergenerationally correlated endowments, e.g. genetics, family culture, family connections. Consider the following relations between parental human capital/endowments and children's human capital (Behrman and Taubman 1985). Z is an outcome for which

intergenerational social mobility is being estimated for children (c) that depends linearly on the same outcome for the children's parents (p), child endowments E, and a stochastic term u for random events and measurement error in Z_c:

$$Z_c = a_0 + a_p Z_p + a_e E_c + u_c. \tag{13.1}$$

Endowments are included because there are likely to be unobserved multigenerationally correlated genetic, environmental, and preference factors that affect Z_c, as noted in the discussion of Figure 13.1. Assume that these endowments are generated by:

$$E_c = b_0 + b_p E_p + v_c. \tag{13.2}$$

To understand implications of these endowments for estimation of parental effects a_p
in relation (13.1), assume that parameters in (13.1) are stable across generations and that a one-generation lagged version of relation (13.1) in which gp refers to grandparents determines Z_p:

$$Z_p = a_0 + a_p Z_{gp} + a_e E_p + u_p. \tag{13.1A}$$

The compound disturbance term in (13.1) includes E_c, but E_c depends on E_p (relation (13.2)) and Z_p also depends on E_p (relation (13.1A)), so Z_p is correlated with the compound disturbance term. Therefore, ordinary least squares (OLS) estimates of a_p are biased unless either a_e or $b_p = 0$ because they include correlated impacts of unobserved multigenerationally correlated endowments. One way to deal with this estimation problem is to use good instruments for Z_p. Another is to use family (or sibling) fixed effects to control for E_c Most studies related to intergenerational mobility for LMICs do not deal with estimation problems due to unobserved endowments, endogeneity, and measurement errors. The next two sections focus on studies that attempt to do so.

13.3 Determinants of children's human capital

Investments in children's human capital determine mobility as indicated directly by human capital measures themselves or other outcomes determined importantly by these human capital measures (Section 13.4). I now review selected studies on parental human capital and endowment determinants of three critical child human capital outcomes: cognitive skills, socioemotional skills, and health and nutritional status. For each there is a table that includes columns for: (1) table number-study number (used as references in the text); (2) country; (3) dependent

variable(s); (4) children's ages for dependent variable(s); (5) determinants; (6) children's ages for determinant; (7) signs of significant effects (0 if not significant); (8) estimation method; and (9) references (see Tables 13.1–13.6).

13.3.1 Cognitive skills

I begin with cognitive skills and an important input into cognitive skill production, schooling attainment, because these are the human capital components most emphasized in related economics literatures. Cognitive skill development begins in early life (lifecycle stages 1–2, Figure 13.1), continues during schooling ages (lifecycle stage 3), and in post-school ages in which learning occurs from experience as well as training (lifecycle stages 4–5). Some important points in studies in Table 13.1 are:

Conception through preschool ages (lifecycle stages 1–2)

- Shocks in utero or early childhood have persistent effects on children's cognitive skills, but parental human capital, parental endowments, conditional cash transfers (CCTs), preschools, and prenatal and vaccine programmes buffer impacts of negative shocks more so in better-off families (1–1, 1–2, 1–3, 1–4, 4–3, 6–13).
- Improved parenting developed through home visits or small mothers' groups and preschools are important positive factors in early-life cognitive skills development, particularly for children from poorer families (1–5, 1–6, 1–7, 1–8, 1–9).
- Fairly strong socioeconomic gradients in preschool child cognitive skills by parental wealth, income, and schooling attainment begin at early ages and persist and sometimes enlarge by school ages (1–10, 1–11, 1–12).
- Most studies do not use parental cognitive skills to represent this dimension of parental human capital, but instead use an imperfect proxy, schooling attainment. An exception is analysis that finds that Chilean maternal numeric and verbal cognitive skills significantly predict early childhood cognitive and language skills for children ages 1–7 years even when controlling for maternal schooling attainment (1–13).
- Though mothers' time allocation to children is widely considered an important input into early childhood development, one recent study finds no robust significant association using alternative estimation methods (OLS with multiple controls, instrumental variables (IV), propensity score matching (PSM)) between the proportion of time since birth that Chilean mothers have worked and cognitive skills of three-year-olds (1-14).
- Household structure, more likely to include extended families in LMICs than in HICs, may be an important aspect of how family background affects child

Table 13.1 Selected studies on parental human capital and endowment determinants of children's cognitive skills and schooling

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
1–1	Chile	Cognitive skills (poor)	7	Earthquake	in utero	_	NE, DD	Torche, F. (2018). 'Prenatal Exposure to an Acute Stressor and Children's Cognitive Outcomes'. *Demography*, 55 (5): 1611–39. I4
		Cognitive skills (middle)				0		
1–2	Indonesia	Raven's scores, math (low quantiles)	8–15	Ramadan fasting and stress	in utero	_	NE, quantile	Majid, M. F., J. R. Behrman, and S. Mani (2019). 'Short- and Long-term Distributional Consequences of Prenatal Malnutrition and Stress: Using Ramadan As a Natural Experiment'. *British Medical Journal Global Health*, 4: e001185.
		Raven's scores, math (high quantiles)				0		
1–3	Mexico	Schooling attainment, post-sec enrolment	12–18	Negative rainfall shocks, CCT	0–1 rain, 0–18 CCT	negative, mitigated by CCT	NE, RCT	Adhvaryu, A., T. Molina, A. Nyshadham, and J. Tamayo (2019). 'Helping Children Catch Up: Early Life Shocks and the PROGRESA Experiment'. *Journal of Political Economy*, 117(3): 453–503.

1–4	Nicaragua	Cognitive skills, boys	10	CCT	<2	+	RCT	Barham, T., K. Macours, and J. A. Maluccio (2013). 'Boys' Cognitive Skill Formation and Physical Growth: Long-term Experimental Evidence on Critical Ages for Early Childhood Interventions'. *American Economic Review*, 103(3): 467–71.
1–5	Jamaica	Adult IQ, schooling attainment, exams, general knowledge	22	Home parenting visits	0.75–4	+	RCT	Walker, S. P., S. M. Chang, M., Vera-Hernández, and S. Grantham-McGregor (2011). 'Early Childhood Stimulation Benefits Adult Competence and Reduces Violent Behavior'. *Pediatrics,* 127: 849–57.
1–6	Colombia	Bayley's cognitive & receptive language	2.5–3.5	Home parenting visits	1–3.5	+	RCT	Attanasio, O., C. P. Fernández, E. O. A. Fitzsimons, S. M. Grantham-McGregor, C. Meghir, and M. Rubio-Codina (2014). 'Using the Infrastructure of a Conditional Cash Transfer Program to Deliver a Scalable Integrated Early Child Development Program in Colombia: Cluster Randomized Controlled Trial'. [10.1136/bmj.g5785]. *British Medical Journal*, 349.
		Expressive language, fine & gross motor skills, weight, height, haemoglobin				0		

Table 13.1 *Continued*

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
1–7	India	Cognitive skills, language	0.5–3.5	Home or group parenting visits	0.8–3.5	+	RCT	Attanasio, O., B. Augsburg, J. Behrman, B. Caeyers, M. Day, S. Grantham-McGregor, P. Jervis, P. Makkar, C. Meghir, A. Phimister, M. Rubio-Codina, and K. Vats. (2019). *Comparison of the Effectiveness of Home Visits Vs. Group Sessions in the Implementation of Early Childhood Development Interventions: An Open-Label Cluster Randomised Control Trial.* London: Institute of Fiscal Studies.
1–8	73 countries	Schooling attainment	15–19	Preschool	Preschool	+	Country FE, control for mortality	Engle, P. L., L. C. H. Fernald, H., Alderman, J. Behrman, C. O'Gara, A. Yousafzai, et al. (2011). 'Strategies for Reducing Inequalities and Improving Developmental Outcomes for Young Children in Low-income and Middle-income Countries'. *Lancet*, 378(9799): 1339–53.
1–9	Argentina	Standardized tests, math & Spanish	7–9?	Preschool	3–5	+	NE, municipality & school FE	Berlinski, S., S. Galiani, and P. Gertler (2009). 'The Effect of Pre-primary Education on Primary School Performance'. *Journal of Public Economics*, 93(1–2): 219–34.

1–10	Madagascar	Child development tests	3–6	Wealth, mothers' schooling	3–6	+	Longitudinal	Fernald, L. C. H., A. Weber, E. Galasso, and L. Ratsifandrihamanana (2011). 'Socioeconomic Gradients and Child Development in a Very Low Income Population: Evidence from Madagascar'. *Developmental Science,* 14(4): 832–47.
1–11	Ethiopia, India, Peru, Vietnam	Vocabulary tests, height	1–12	Household assets, parental schooling	1–12	+	Longitudinal	Reynolds, S. A., C. Andersen, J. Behrman, A. Singh, A. D. Stein, L. Benny, L.,...L. C. H. Fernald (2017). 'Disparities in Children's Vocabulary and Height in Relation to Household Wealth and Parental Schooling: a Longitudinal Study in Four Low- and Middle-income Countries'. *SSM – Population Health,* 3(Supplement C): 767–86. Lopez-Boo, F. (2013). *Intercontinental Evidence on Socioeconomic Status and Early Childhood Cognitive Skills: Is Latin America Different?* Washington, DC: Inter-American Development Bank.
1–12	Chile, Colombia, Ecuador, Nicaragua, Peru	Receptive language	3–6	Wealth	3–6	+	Longitudinal	Schady, N., J. Behrman, M. C. Araujo, R. Azuero, R., Bernal, D. Bravo,... R. Vakis (2015). 'Wealth Gradients in Early Childhood Cognitive Development in Five Latin American Countries'. *Journal of Human Resources,* 50(2): 446–63.
1–13	Chile	Cognitive, language, motor, socioemotional	0–7	Mothers' verbal and numeric scores	0–7	+	Longitudinal	Abufhele-Milad, A. (2017). *Three Essays on Early Childhood Development from Chile.* (Ph.D.) Philadelphia, PA: University of Pennsylvania.

Continued

Table 13.1 *Continued*

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
1–14	Chile	Batelle, PPVT	3	Maternal labour-force participation	0–3	0	IV, PSM	Reynolds, S. A., L. C. H. Fernald, and J. R. Behrman (2017). 'Mothers' Labor Market Choices and Child Development Outcomes in Chile'. *SSM – Population Health*, 3(Supplement C): 756–66.
1–15	Chile	PPVT	1.5–7	Grandparents co-residence	1.5–7	+	Individual FE	Reynolds, S. A., L. C. H. Fernald, J. Deardorff, and J. R. Behrman (2018). 'Family Structure and Child Development in Chile: a Longitudinal Analysis of Household Transitions Involving Fathers and Grandparents'. *Demographic Research*, 38: 1777–1814.
				Father co-resident		0		
1–16	Ethiopia, India, Peru, Vietnam	PPVT	5, 8	Improved water, toilet access	1, 5	+	Longitudinal	Dearden, K. A., A. T. Brennan, W. Schott, B. T. Crookston, et al. (2017). 'Does Household Access to Improved Water and Sanitation in Infancy and Childhood Predict Better Vocabulary Test Performance in Ethiopian, Indian, Peruvian, and Vietnamese Cohort Studies?'. *BMJ Open*, 7(7).

1–17	Peru	PPVT	8	CCT	0–8	0	Child FE	Sanchez, A., G. Melendez, and J. R. Behrman (2020). 'Impact of Juntos Conditional Cash Transfer Program on Nutritional and Cognitive Outcomes in Peru: Comparison Between Younger and Older Initial Exposure'. *Economic Development and Cultural Change*.
1–18	Peru	PPVT, grade attainment	5–7	CCT	4–7	0	PSM, DD	Andersen, C. T., S. Reynolds, J. R. Behrman, B. Crookston, K. Dearden, J. Escobal, J.,... L. C. H. Fernald (2015). 'Participation in the Juntos Conditional Cash Transfer Program in Peru Is Associated with Changes in Child Anthropometric Status but Not Language Development or School Achievement'. *Journal of Nutrition*, 145(10): 2396–405.
1–19	Mexico	Grade attainment	15–21	CCT	9–15	+	RCT, DD, PSM	Behrman, J. R., S. W. Parker, and P. E. Todd (2011). 'Do Conditional Cash Transfers for Schooling Generate Lasting Benefits?: A Five-Year Followup of PROGRESA/Oportunidades'. *Journal of Human Resources*, 46(1): 93–122.
1–20	Mexico	Math	14–18	Performance incentives	14–18	+	RCT	Behrman, J. R., S. W. Parker, P. E. Todd, and K. I. Wolpin (2015). 'Aligning Learning Incentives of Students and Teachers: Results from a Social Experiment in Mexican High Schools'. *Journal of Political Economy*, 123(2): 325–64.

Table 13.1 *Continued*

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
1–21	China	Math, language	9–11	Absence of both parents	9–11	-	Dynamic panel estimates	Zhang, H., J. R. Behrman, C. S. Fan, X. Wei, and J. Zhang (2014). 'Does Parental Absence Reduce Cognitive Achievements? Evidence from Rural China'. *Journal of Development Economics*, 111(0): 181–95.
1–22	China	School dropout	7–18	Grandparents co-residence, schooling	7–18	-		Zeng, Z., and Y. Xie (2014). 'The Effects of Grandparents on Children's Schooling: Evidence from Rural China'. *Demography*, 51(2): 599–617.
1–23	China	Schooling attainment	16+	Parental schooling	0+	0	Adult twins FE	Hu, Y., J. R. Behrman, J. R., and J. Zhang (2020). 'The Causal Effects of Parents' Schooling on Children's Schooling in Urban China'. *Journal of Comparative Economics*.
1–24	Malaysia	Schooling attainment		Parental schooling		+	Control for unobserved endowments	Lillard, L., and R. Willis (1994). 'Intergenerational Education Mobility: Effects of Family and State in Malaysia'. *Journal of Human Resources,* 29:4(Fall): 1126–66.
1–25	Dominican Republic	Schooling attainment	18	Return to schooling	14	+	RCT	Jensen, R. (2010). 'The (Perceived) Returns to Education and the Demand for Schooling'.*Quarterly Journal of Economics*, 125(2): 515–48.

1–26	Malawi	School enrolment (high performers)	10–15	Information on child ability	9–14	+	RCT	Dizon-Ross, R. (2019). 'Parents' Beliefs About Their Children's Academic Ability: Implications for Educational Investments'. *American Economic Review*, 109(8): 2728–65.
		School enrolment (low performers)				-		
1–27	Vietnam	School enrolment	10–18	Wealth (consumption)	10–18	+	2SLS, FIML, hazards	Glewwe, P., and H. Jacoby (2004). 'Economic Growth and the Demand for Education: Is there a Wealth Effect?'. *Journal of Development Economics*, 74 (1): 33–51.
1–28	Vietnam	School attainment, school progression	6–17	Predicted income	6–17	+	IV, control for censoring, school and commune FE	Behrman, J. R., and J. C. Knowles (1999). 'Household Income and Child Schooling in Vietnam'. *World Bank Economic Review*, 13(2): 211–56.
1–29	Peru	School progression	7–12	Household wealth	7–12	+		Jacoby, H. (1994). 'Borrowing Constraints and Progress Through School: Evidence from Peru'. *The Review of Economics and Statistics*, 76 (1): 151–60.
				Credit-constrained, closely spaced		-		
1–30	Malaysia	School attainment	Mean=25 (SD=5.7)	Fathers' permanent earnings and at child age 18	18	+	Longitudinal	Lillard, L. A., and M. R. Kilburn (1995). *Intergenerational Earnings Links: Sons and Daughters*. Santa Monica, CA: The RAND Corporation, mimeo.

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Table 13.1 *Continued*

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
1–31	Ghana	Timing of school investment	12–18	Income	12–18	+	Longitudinal	Glewwe, P., and H. Jacoby (1993). 'Estimating the Determinants of Cognitive Achievement in Low Income Countries: The Case of Ghana'. Living Standards Measurement Study no. 91. Washington, DC:World Bank.
1–32	Bangladesh, Malawi, Zambia	English literacy, numeracy for low-schooled girls	19+	adolescent childbearing	14+	Minus but moderated by schooling	RE, FE	Psaki, S. R., E. Soler-Hampejsek, J. Saha, B. S. Mensch, and S. Amin (2019). 'The Effects of Adolescent Childbearing on Literacy and Numeracy in Bangladesh, Malawi, and Zambia'. *Demography*, 56 (5): 1899–1929.
1–33	Mexico	Cognitive function	60+	Age, diabetes	60+	Minus but moderated by schooling		Avila, J. C., B. Downer, S. M. Arango, and R. Wong. (2018). *The Moderating Role of Education in the Relationship Between Diabetes and Cognitive Function Among Mexican Older Adults.* Population Association of America Annual Meetings.

Note: * FE = Fixed Effects, NE = Natural Experiment, PSM = Propensity Score Matching, RCT = Random Controlled Trial, DD = difference in difference, RE = Random Effects.

Source: Author's compilation.

Table 13.2 Selected studies on parental human capital and endowment determinants of children's socioemotional skills

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
2–1	Jamaica	Violent behaviour, fighting, depression symptoms, social inhibitions	22	Home parenting visits	0.75–4	–	RCT	Walker, S. P., S. M. Chang, M., Vera-Hernández, and S. Grantham-McGregor (2011). 'Early Childhood Stimulation Benefits Adult Competence and Reduces Violent Behavior'. *Pediatrics*, 127: 849–57.
		anxiety				0		
2–2	Chile	Child Behavioural Checklist (CBCL)	3	Maternal labour-force participation	0–3	0	IV, PSM	Reynolds, S. A., L. C. H. Fernald, and J. R. Behrman (2017). 'Mothers' Labor Market Choices and Child Development Outcomes in Chile'. *SSM—Population Health*, 3 (Supplement C): 756–66.
2–3	Chile	Child Behavioural Checklist (CBCL)	1.5–7	Grandparents co-residence, father co-resident	1.5–7	0	Individual FE	Reynolds, S. A., L. C. H. Fernald, J. Deardorff and J. R. Behrman (2018). 'Family Structure and Child Development in Chile: a Longitudinal Analysis of Household Transitions Involving Fathers and Grandparents'. *Demographic Research*, 38: 1777–1814.
2–4	South Africa	Executive function	7–10	Economic well-being	7–10	+	Structural equation models	Turbeville, A., J. L. Aber, S L. Weinberg, L. Richter, and A. van Heerden (2019). 'The Relationship Between Multidimensional Economic Well-being and Children's Mental Health, Physical Health, and Executive Function Development in South Africa'. *Developmental Science*, 22(5).

Table 13.2 *Continued*

Study Number	Country	Dependent Variable(s) Definition	Child Age (Years)	Determining Variable(s) Definition	Child Age (Years)	Sign if Significant (0 if not)	Methods*	Reference
		Caregiver reported internalizing				-		
		Child reported internalizing, externalizing, prosocial: Caregiver reported externalizing, prosocial				0		
2–5	Colombia	Socioemotional skills	15–64	Mothers' schooling attainment	15–64	+	Economic structural models	Acosta, P.., N. Muller, and M. Sarzosa (2015). 'Beyond Qualifications: Returns to Cognitive and Socio-Emotional Skills in Colombia'. IZA Discussion Paper 9403. Bonn: Institute for the Study of Labor (IZA).

Note: * FE = Fixed Effects, NE = Natural Experiment, PSM = Propensity Score Matching, RCT = Random Controlled Trial, DD = difference in difference.

Source: Author's compilation.

Table 13.3 Selected studies on parental human capital and endowment determinants of children's health and nutritional status

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
3–1	Ethiopia, India, Peru, Vietnam	High-stunting-probability-trajectory	1–22	High wealth, maternal schooling	1–22	–	Longitudinal growth trajectories	Schott, W., E. Aurino, M. E., Penny, and J. R. Behrman (2019). 'The Double Burden of Malnutrition among Youth: Trajectories and Inequalities in Four Emerging Economies'. *Economics & Human Biology*, 34: 80–91.
		High-overweight-probability-trajectory		High wealth, urban residence		+		
3–2	Ethiopia, India, Peru, Vietnam	Height	15	Wealth	5–15	Plus, more so for boys or if low HAZ at 5	Longitudinal conditional growth models	Duc, L. T. (2019). 'Household Wealth and Gender Gap Widening in Height: Evidence from Adolescents in Ethiopia, India, Peru, and Vietnam'. *Economics & Human Biology,* 34: 208–15.
3–3	Brazil, Guatemala, Philippines, South Africa	Birthweight	0	Prenatal care	Before birth	0	Longitudinal	Liu, X., J. R. Behrman, A. D. Stein, L. S. Adair, S. K. Bhargava, J. B. Borja, …H. S. Sachdev (2017). 'Prenatal Care and Child

Continued

Table 13.3 *Continued*

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
								Growth and Schooling in Four Low- and Medium-income Countries'. *PloS One*, 12(2).
		HAZ at 2, schooling attainment	2, 20+			+		
3–4	Mexico	Birthweight	0	Local violence	Before birth	Plus for low-income	Administrative district data	Torche, F., and A. Villarreal (2014). 'Prenatal Exposure to Violence and Birth Weight in Mexico: Selectivity, Exposure, and Behavioral Responses'. *American Sociological Review*, 79(5): 966–92.
3–5	Ethiopia, India, Peru, Vietnam	HAZ at 1, unpredicted change in HAZ 1-8	1–8	Parental schooling, consumption, mothers' heights	1	+	Longitudinal	Schott, W., B. T. Crookston, E. A. Lundeen, A. D. Stein, J. R. Behrman, and Team, Y. L. D. a. C. o. C. G. P. (2013). 'Child Growth from Ages 1 to 8 Years in Ethiopia, India, Peru and Vietnam: Key Distal Household and Community Factors'. *Social Science & Medicine,* 97: 278–87

3–6	India	Nutrients	All children	Prices	All children	Minus, larger absolute values for girls	Individual FE	Behrman, J. R., and A. B. Deolalikar (1990). 'The Intrahousehold Demand for Nutrients in Rural South India: Individual Estimates, Fixed Effects and Permanent Income'. *Journal of Human Resources*, 25(4): 665–696.
				Permanent income		0		
3–7	India	Survival for girls—boys	Preschool	Favourable rainfall	0–2	Plus for landless households	Household FE	Rose, E. (1999). 'Consumption Smoothing and Excess Female Mortality in Rural India'. *The Review of Economics and Statistics*, 80I(1) (February): 41–49.
3–8	South Africa	BMI, waist circumference/height, caregiver reported general health & quality of life	7–10	Economic well-being	7–10	+	Structural equation models	Turbeville, A., J. L. Aber, S. L. Weinberg, L. Richter, and A. van Heerden (2019). 'The Relationship Between Multidimensional Economic Well-being and Children's Mental Health, Physical Health, and Executive Function Development in South Africa'. *Developmental Science*, 22(5).
		Child reported quality of life				0		

Continued

Table 13.3 *Continued*

Study Number	Country	Dependent Variable(s)			Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)		Definition	Child Age (Years)	Sign if Significant (0 if not)		
3–9	21 studies 17 programmes	HAZ			Cash transfer programmes		Plus but not sig on average, more for CCTs, girls and more vulnerable	Meta-analysis	Manley, J., S. Gitter, and V. Slavchevska (2013). 'How Effective Are Cash Transfers at Improving Nutritional Status?'. *World Development*, 48: 133–55.
3–10	Bangladesh	HAZ, dietary diversity	0–2		Rice yields	0–2	0		Headey, D., and J. Hoddinott (2016). 'The Nutritional Impacts of Bangladesh's Green Revolution'. *Agricultural Systems*, 149: 122–31.
3–11	Guatemala	HAZ	2		Reference distribution	0	+	Economic structural model, IV	Wang, F., E. Puentes, J. Behrman, and F. Cunha (2019). *You Are What Your Parents Think: Height and Local Reference Points*. Houston, TX: University of Houston.
					Income		Plus but small		
3–12	Bangladesh	Children's dietary diversity	0–5		Mother's nutritional knowledge	0–5	Plus only if good market access	IV	Hirvonen, K., J. Hoddinott, B. Minten, and D. Stifel (2017). 'Children's Diets, Nutrition Knowledge, and Access to Markets'. *World Development*, 95: 303–15.

3–13	India	M-F child survival difference	0–5	Adult F employment rate	0–5	–		2SLS	Rosenzweig, M. R., and T. P. Schultz (1982). 'Market Opportunities, Genetic Endowments, and Intrafamily Resource Distribution: Child Survival in Rural India'. *American Economic Review*, 72(4): 803–15
				Adult M employment rate		0			
3–14	56 countries	Stunting	0–5	Parental schooling	0–5	Modest, larger for mother, increasing with schooling, increasing with wealth, larger if higher prevalence of undernutrition, higher with school quality, smaller with control for FE & cohort ranking		FE, cohort rankings	Alderman, H., and D. D. Headey (2017). 'How Important is Parental Education for Child Nutrition?'. *World Development*, 94: 448–64.

Note: * FE = Fixed Effects, NE = Natural Experiment, PSM = Propensity Score Matching, RCT = Random Controlled Trial, DD = difference in difference.

Source: Author's compilation.

Table 13.4 Selected studies of impacts of children's cognitive skills and schooling

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
4–1	Guatemala	Wages	26–42	Cognitive skills	26–42	+	IV, RCT	Behrman, J. R., J. F. Hoddinott, J. A. Maluccio, and R. Martorell (2017). 'Brains Versus Brawn: Labor Market Returns to Intellectual and Physical Human Capital in a Poor Developing Country'. International Food Policy Research Institute Discussion Paper 1487. Washington, DC: IFPRI.
				Fat-free mass		0		
4–2	Colombia	Labour-force participation, schooling, wages, job quality	17–64	Cognitive skills	17–64	+	Economic structural model	Acosta, P., N. Muller, and M. Sarzosa (2015). 'Beyond Qualifications: Returns to Cognitive and Socio-Emotional Skills in Colombia'. IZA Discussion Paper 9403. Bonn: Institute for the Study of Labor.
4–3	China	Schooling attainment	17–21	Cognitive skills	9–21	+	Longitudinal data, IV	Glewwe, P., Q. Huang, and A. Park, A. (2017). 'Cognitive Skills, Noncognitive Skills, and School-to-work Transitions in Rural China'. *Journal of Economic Behavior & Organization*, 134: 141–64.
		Wage rates conditional on schooling				0		

4–4	Jamaica	Earnings	22	Home visit stimulation	0.75–4	+		RCT	Gertler, P., J. Heckman, R. Pinto, A. Zanolini, C. Vermeerch, S. Walker … S. Grantham-McGregor (2014). 'Labor Market Returns to an Early Childhood Stimulation Intervention in Jamaica'. *Science*, 344(6187): 998–1001.
4–5	China	Earnings	18–65	Schooling attainment	0+	3.8% with FE, ME; 8.4% OLS		Twins FE	Li, H., P. W. Liu, and J. Zhang (2012). 'Estimating Returns to Education Using Twins in Urban China'. *Journal of Development Economics*, 97(2): 494–504.
4–6	Philippines	Earnings	20–44	Schooling attainment	0+	+		IV, panel data, administrative links	Maluccio, J. A. (1998). 'Endogeneity of Schooling in the Wage Function: Evidence from the Rural Philippines'. FCND Discussion Paper 54. Washington, DC: International Food Policy Research Institute.

Note: * FE = Fixed Effects, NE = Natural Experiment, PSM = Propensity Score Matching, RCT = Random Controlled Trial, DD = difference in difference.

Source: Author's compilation.

Table 13.5 Selected studies of impacts of children's socioemotional skills

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
5–1	China	Schooling attainment	17–21	Socioemotional skills	9–21	+	Longitudinal data, IV	Glewwe, P., Q. Huang, and A. Park (2017). 'Cognitive Skills, Noncognitive Skills, and School-to-work Transitions in Rural China'. *Journal of Economic Behavior & Organization*, 134: 141–64.
		Wage rates conditional on schooling				0		
5–2	Colombia	Labour-force participation, schooling	17–64	Socioemotional skills	17–64	+	Economic structural model	Acosta, P., N. Muller, and M. Sarzosa, (2015). 'Beyond Qualifications: Returns to Cognitive and Socio-Emotional Skills in Colombia'. IZA Discussion Paper 9403. Bonn: Institute for the Study of Labor.
		Wages, job quality				0		
5–3	Chile, Argentina	Wage rates, labour-force participation, employment	25–30	Self-efficacy	25–30	+	Cross-sectional association	Bassi, M., M. Busso, S. Urzúa, and J. Vargas (2012). *Disconnected: Skills, Education and Employment in Latin America*. Washington, DC: Inter-American Development Bank.

5–4	Peru	Earnings conditional on schooling attainment	14–50	Cognitive skills, perseverance facet of Grit, emotional stability Agreeableness	14–50	+ -	IV	Díaz, J. J., O. Arias, and D. V. Tudela (2013). *Does Perseverance Pay as Much as Being Smart? The Returns to Cognitive and Non-cognitive Skills in Urban Peru*. Lima: GRADE.
5–5	Bangladesh	Wages	32.3 mean, 8.5 SD	Cognitive skills	32.3 mean, 8.5 SD	+	Quantile estimates	Nordman, C. J., L. R. Sarr, and S. Sharma (2015). 'Cognitive, Non-Cognitive Skills and Gender Wage Gaps: Evidence from Linked Employer-Employee Data in Bangladesh'. IZA Discussion Paper 9132. Bonn: Institute for the Study of Labor.
				Personality traits		0, except some quantiles for females		
5–6	9 MICs: Armenia, Bolivia, Colombia, Georgia, Ghana, Kenya, Serbia, Ukraine, Vietnam	Earnings	25–54	Openness to new experience, risk-taking	25–54	+	Selectivity control, quantile estimates	Gunewardena, D., E. M. King, and A. Valerio (2018). 'More Than Schooling: Understanding Gender Differences in the Labor Market When Measures of Skill Are Available'. World Bank Policy Research Working Paper 8588. Washington, DC: World Bank.
				Hostile attribution bias		-		

Note: * FE = Fixed Effects, NE = Natural Experiment, PSM = Propensity Score Matching, RCT = Random Controlled Trial, DD = difference in difference.

Source: Author's compilation.

Table 13.6 Selected studies of impacts of children's health and nutritional status

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
6–1	Low-income	Multiple outcomes over life cycle	0–60	Birthweight	0	+	Mixed	Alderman, H., and J. R. Behrman (2006). 'Reducing the Incidence of Low Birth Weight in Low-Income Countries has Substantial Economic Benefits'. *World Bank Research Observer*, 21(1): 25–48.
6–2	Low-income	Benefits/costs	0	Interventions to reduce low birth weight	Prebirth	+	Mixed	Behrman, J. R., H. Alderman, and J. Hoddinott (2004). 'Hunger and Malnutrition'. In B. Lomborg (ed.), *Global Crises, Global Solutions*. Cambridge: Cambridge University Press.
6–3	Chile	Language	0.5–7	Birthweight	0	+	Twins FE	Abufhele-Milad A. (2017). *Three Essays on Early Childhood Development from Chile*. Philadelphia, PA: University of Pennsylvania.
		Cognitive, socioemotional, motor				0		
6–4	Chile	Math, Spanish	10	Birthweight	0	Plus for low SES, not middle SES	Twins FE	Torche, F., and G. Echevarría (2011). 'The Effect of Birthweight on Childhood Cognitive Development in a Middle-income Country'. *International Journal of Epidemiology*, 40(4): 1008–18.

6–5	China	Math, language	15	Birthweight	0	Plus, more for females	Twins FE	Rosenzweig, M. R., and J. Zhang (2013). 'Economic Growth, Comparative Advantage, and Gender Differences in Schooling Outcomes: Evidence from the Birthweight Differences of Chinese Twins'. *Journal of Development Economics*, 104(0): 245–60.
		Schooling attainment, wages	18–29		0	Plus for females		
6–6	Guatemala	Schooling, females	5–42	Protein supplement	0–2	+	RCT	Maluccio, J. A., J. F. Hoddinott, J. R. Behrman, A. R. Quisumbing, R., Martorell, and A. D. Stein (2009). 'The Impact of Nutrition During Early Childhood on Education among Guatemalan Adults'. *Economic Journal*, 119 (537): 734–63.
		Schooling, males				0		
		Reading comprehension	26–42			+		
		Raven's test				+		
6–7	Guatemala	Wage rate, females	26–42	Protein supplement	0–2	0	RCT	Hoddinott, J. F., J. A. Maluccio, J. R., Behrman, R., Flores, and R. Martorell (2008). 'Effect of a Nutrition Intervention During Early Childhood on Economic Productivity in Guatemalan Adults'. *Lancet*, 371(9610): 411–16.
		Wage rate, males				+		
		Hours worked				0		

Continued

Table 13.6 *Continued*

Study Number	Country	Dependent Variable(s) Definition	Child Age (Years)	Determining Variable(s) Definition	Child Age (Years)	Sign if Significant (0 if not)	Methods*	Reference
6–8	Guatemala	Reading comprehension	26–42	HAZ	6	0	IV	Behrman, J. R., J. F. Hoddinott, J. A. Maluccio, E. Soler-Hampejsek, E. L. Behrman, R. Martorell, . . . A. D. Stein, (2014). 'What Determines Adult Cognitive Skills? Influences of Pre-School, School and Post-School Experiences in Guatemala'. *Latin American Economic Review*, 23(4): 1–32.
		Raven's tests				+		
6–9	Guatemala	Women's children's birthweight, height	30–49	Protein supplement	<15	+	RCT	Behrman, J. R., M. C. Calderon, S. H. Preston, J. F. Hoddinott, R. Martorell, and A. D. Stein (2009). 'Nutritional Supplementation of Girls Influences the Growth of their Children: Prospective Study in Guatemala'. *American Journal of Clinical Nutrition*, 90(5): 1372–79.
6–10	India	School attainment, current enrolment	13–18	Protein supplement	<6	+	PSM	Nandi, A., A. Ashok, S. Kinra, J. R. Behrman, and R. Laxminarayan (2016). 'Early Childhood Nutrition Is Positively Associated with Adolescent Educational Outcomes: Evidence from the Andhra Pradesh Child and Parents Study (APCAPS)'. *Journal of Nutrition*, 146(4): 806–13.
		School tests				0		

6–11	India	School attainment, employment, age of marriage	20–25	Protein-enhanced nutritional supplement	<6	+	PSM	Nandi, A., J. R. Behrman, S. Kinra, and R. Laxminarayan (2018). 'Early-life Nutrition is Associated Positively with Schooling and Labor Market Outcomes and Negatively with Marriage Rates at Age 20–25 Years: Evidence from the Andhra Pradesh Children and Parents Study (APCAPS) in India'. *Journal of Nutrition*, 148(1): 140–46.
6–12	India	Menarcheal age, age at first pregnancy, age of partnering	20–25	Protein-enhanced nutritional supplement	<6	+	PSM	Nandi, A., J. R. Behrman, M. M. Black, S. Kinra, and R. Laxminarayan (2020). 'Relationship Between Early-life Nutrition and Ages at Menarche and First Pregnancy, and Childbirth Rates of Young Adults: Evidence from APCAPS in India'. *Maternal & Child Nutrition* 16(1). e12854.
6–13	Peru	Receptive vocabulary	5	HAZ	1	-	IV	Cueto, S., J. León, A. Miranda, K. Dearden, B. T. Crookston, and J. R. Behrman (2016). 'Does Pre-school Improve Cognitive Abilities Among Children with Early-life Stunting? a Longitudinal Study for Peru'. *International Journal of Educational Research*, 75: 102–14
				Years formal preschool	3–5	+		
				Years formal preschool*HAZ		+		
				Years community preschool		0		

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Table 13.6 *Continued*

Study Number	Country	Dependent Variable(s)		Determining Variable(s)			Methods*	Reference
		Definition	Child Age (Years)	Definition	Child Age (Years)	Sign if Significant (0 if not)		
6–14	Pakistan	School enrolment by age 7	7	HAZ	5	+	IV prices and price shocks	Alderman, H., J. Behrman, V. Lavy, and R. Menon (2001). 'Child Health and School Enrollment: A Longitudinal Analysis'. *Journal of Human Resources*, 36(1): 185–205.
6–15	Ghana	Age school enrolment	6–15	HAZ	6–15	-	2SLS, control for censoring	Glewwe, P., and H. Jacoby (1993). *Delayed Primary School Enrollment and Childhood Malnutrition in Ghana*. Washington, DC: World Bank.
6–16	Zimbabwe	Height, school attainment	18 mean, 7.2 SD	HAZ	0.6–6	+	Maternal FE, IV	Alderman, H., J. Hoddinott, and B. Kinsey (2006). 'Long Term Consequences of Early Childhood Malnutrition'. *Oxford Economic Papers*, 58(3): 450–74.
		Age initiated school				-		
6–17	Philippines	School achievement tests	11	HAZ	6–7	+	Siblings differences 2SLS	Glewwe, P., H. G. Jacoby, and E. M. King (2001). 'Early Childhood Nutrition and Academic Achievement: A Longtitudinal Analysis'. *Journal of Public Economics*, 81: 315–68.
		Age of school enrolment	6+			-		
		Grade repetition	6–11			-		
		Home work hours, help with homework, absenteeism, years of preschool	6–11			0		

6–18	Ethiopia, India, Peru, Vietnam	PPVT, math	5, 8	HAZ	1, 1–5, 5–8	+	Conditional growth model	Georgiadis A., L. Benny, B. T. Crookston, L. T. Duc, P. Hermida, S. Mani et al. (2016). 'Growth Trajectories from Conception Through Middle Childhood and Cognitive Achievement at Age 8 Years: Evidence from Four Low- and Middle-income Countries'. *Social Science & Medicine: Population Health*, 2016(2): 43–54.
6–19	Ethiopia, India, Peru, Vietnam	PPVT, math	12	HAZ	1, 1–12	+	Conditional growth model	Kowalski, A., A. Georgiadis, J. R. Behrman, B. Crookston, L. Fernald, A. D. Stein (2018). 'Linear Growth Through 12 Years is Weakly but Consistently Associated with Language and Math Achievement Scores at Age 12 Years in Four Low- or Middle-income Countries'. *Journal of Nutrition*, 148(11): 1852–59.
6–20	Jamaica	12 cognitive & educational tests	22	Macro nutrient supplement to family	0.8–4	0	RCT	Walker, S. P., S. M. Chang, M., Vera-Hernández, and S. Grantham-McGregor (2011). 'Early Childhood Stimulation Benefits Adult Competence and Reduces Violent Behavior'. *Pediatrics*, 127: 849–57.
6–21	Colombia	Fine & gross motor skills, weight, height, haemoglobin	2.5–3.5	Micronutrient supplement (sprinkles)	1–3.5	0	RCT	Attanasio, O., C. P. Fernández, E. O. A. Fitzsimons, S.M. Grantham-McGregor, C. Meghir, and M. Rubio-Codina (2014). 'Using the Infrastructure of a Conditional Cash Transfer Program to Deliver a Scalable Integrated Early Child Development Program in Colombia: Cluster Randomized Controlled Trial'. [10.1136/bmj.g5785]. *British Medical Journal*, 349.

Note: * FE = Fixed Effects, NE = Natural Experiment, PSM = Propensity Score Matching; RCT = Random Controlled Trial, DD = difference in difference.

Source: Author's compilation.

development. Examination of changes in Chilean household structure finds that grandparents' presence in extended households is associated with increased child performance on vocabulary tests but that fathers' presence is not (1-15).

- Improved early-life water and sanitation access is associated with parental human capital and endowments and predicts better performance on vocabulary tests in early school ages in diverse contexts of Ethiopia, India, Peru, and Vietnam (1-16).

School ages (lifecycle stage 3)

- Evidence is limited on impacts of parental human capital and endowments on school-aged children's cognitive skills. CCTs that augment family resources have widespread impacts on school attendance and attainment, but evidence is mixed on impacts on cognitive achievement (1-17, 1-18, 1-19 (also see Fiszbein and Schady 2009)). When transfers to students and teachers in Mexican high schools are conditioned on levels and improvements in mathematics performance, however, fairly large (~0.60 SD) gains are found (1-20). For rural China, where >60 million children are left behind when parents migrate to urban areas for work, dynamic panel estimates that control for both unobserved individual heterogeneity and endogeneity indicate that both parents' absence reduces children's contemporary cognitive achievements by >5 percentile points for math and Chinese (1-21). Several studies also suggest the importance of nutrition for school-age cognitive skills (Section 13.4).

Though there are few studies on cognitive skills determinants, there are many studies on schooling attainment:

- Significant relations are found between parental and child schooling attainment and, in one study on rural China, about equal effects for (only) co-resident grandparents (supporting the interpretation that interaction with more-schooled grandparents is important instead of simply grandparental schooling being a proxy for other factors) (1-22). Conventional wisdom is that relations are stronger for mothers' schooling than for fathers' schooling, but a survey of 237 estimates reports larger coefficients for mothers' than for fathers' schooling for relations with children's schooling as dependent variables in about half of the estimates (Behrman 1997). Moreover, fathers' schooling may be in part proxying for household/wealth, so that its coefficient declines when wealth is included (Maluccio 1998). Most of these studies are associational and cannot be given causal interpretations if there are intergenerationally correlated endowments (Section 13.2).

- A few studies attempt to control for such estimation problems. OLS estimates for China indicate that one-year increases in maternal and paternal schooling are associated, respectively, with 0.4 and 0.5 more years of children's schooling (1-23). However, with control for genetic and other endowments with within-twins fixed effects and for measurement error using cross-twins reports, mothers' and fathers' schooling have no significant effects. A study for Malaysia also finds that there is a common latent endowment component not only between parents' and their children's schooling but also with other relatives (1-24).

- In Figure 13.2, parents invest in their children's human capital based on perceived returns (downward-sloping lines). These perceptions may be inaccurate. Perceived returns to secondary school in the Dominican Republic are extremely low, despite high measured returns (1-25). Students at randomly selected schools who are given information on higher measured returns complete on average 0.20–0.35 more years of school over the next four years than those who are not. This information effectively shifts perceived rates of return to schooling in Figure 13.2c from the dashed to the solid line. A field experiment in Malawi finds that poor parents' baseline beliefs about their children's academic performance are inaccurate, but providing clear and digestible academic performance information causes parents to update their beliefs and adjust their investments: increase school enrolments of higher-performing children, decrease enrolments of lower-performing children, and choose educational inputs that are more closely matched to their children's academic level (1-26). Heterogeneity analysis suggests information frictions are worse among the poor. Thus, improved information effectively shifted perceived rates of return in Figure 13.2c from the dashed to the solid line for higher-performing children and vice versa for lower-performing children. These two studies suggest the importance of imperfect information markets in parental decisions to invest in their children. While the former suggests that better information for poor parents is likely to increase their children's mobility, the latter indicates that that is likely to be true only for better-performing children.

- In Figure 13.2, parental resources per se affect investments in children if there are capital market imperfections. Parental resources are significant predictors of children's schooling for the Philippines and Vietnam, using panel data to control for unobserved endowments (1-27, 4-6). A review of 42 studies of children's schooling for 21 countries reports that in ~60 per cent of the cases income has significant coefficient estimates, with a medium income elasticity of 0.07 (1-28). The same study reports estimates for Vietnam with income elasticities about five times as large for grades completed per year and total grades completed, with somewhat larger effects for girls, if income is instrumented to control for measurement error and longer-run than

annual parental resources are relevant for children's schooling decisions. For Peru, progress through school is consistent with borrowing constraints restraining households that appear by their loan activity to be constrained in capital markets, but not for other households (1-29). For Malaysia, children's schooling attainments are associated with their fathers' positions in earnings cycles, suggesting the importance of credit constraints (1-30). For Ghana, income affects timing of schooling investments (1-31).

Post-school ages (lifecycle stages 4–5)

Production function estimates for verbal and non-verbal cognitive skills using data following Guatemalans for ~35 years and treating human capital as endogenous indicate that for adults aged 26–42 years: (1) school attainment has significant effects on adult verbal cognitive skills but not on adult non-verbal cognitive skills; and (2) preschool (associated with nutrition) and post-school experiences (associated with skilled occupations) also have substantial positive significant effects on adult cognitive skills (6–8). The findings: (1) reinforce the importance of early-life nutritional investments (Section 13.4); (2) support the importance of childhood nutrition and adult work complexity for higher non-verbal cognitive skills; (3) call into question interpretations of studies reporting productivity impacts of cognitive skills that do not control for endogeneity; and (4) point to limitations in using adult school attainment alone to represent human capital. Between young (26–42 years of age) and mature (38–55 years of age) adulthood, reading comprehension and non-verbal cognitive skills declined significantly in this sample because of early ageing in such contexts. These changes point to the importance of taking age into account in characterizing social mobility in LMICs as indicated by cognitive skills. Results from a few very different LMICs (Bangladesh, Malawi, Mexico, Zambia) reinforce that age is important not only because of fluctuations in measured outcomes for young adults but also because cognitive skills change and often deteriorate with age, with schooling playing a moderating role (1–32, 1-33).

13.3.2 Socioemotional skills

Emphasis in the economic literature recently has increased on the importance of socioemotional ('noncognitive') skills but there are relatively few studies on determinants of socioemotional skills in LMICs. Some studies noted above on cognitive skills also find that improved parenting developed through home visits or small mothers' groups is important in early-life socioemotional skills development, particularly for children from poorer families (1–6, 1–7). A well-known Jamaican randomized controlled trial (RCT) reports that early-life stimulation before age 4 reduces violent behaviour, depression, and social inhibitions at age 22

(2–1). The one study noted above that uses indicators for Chilean maternal numeric and verbal cognitive skills also finds that these skills significantly predict early childhood socioemotional skills for children ages 1–7 years even when controlling for maternal schooling attainment (1–13). Chilean maternal labour-force participation does not significantly affect child behavioural measures in addition to not affecting their cognitive development (1–14, 2–2). Changes in household structures are not significantly associated with socioemotional skills in preschool-age Chileans, in contrast to associations with cognitive skills noted above (1–15, 2–3). South African family economic well-being is significantly positively associated with children's executive function and negatively with care-givers' perceptions of internalizing, though not children's reported internalizing, externalizing, or prosocial, nor caregivers' perceptions of externalizing or pro-social (2–4). For urban Colombian adults, higher levels of mothers' schooling attainments significantly predict better scores on adults' (1) extroversion and openness to experience; (2) emotional stability and hostile attribution bias; and (3) conscientiousness, grit, and decision making (2-5).

13.3.3 Health and nutritional status

The first 1,000 days after conception are widely thought to be a critical period (lifecycle stage 1 in Figure 13.1). Some influential studies claim that the window of opportunity is virtually closed after 2–3 years of age (Victora et al. 2008; Victora et al. 2010). Birthweight is the most readily available and most commonly used prenatal indicator. Low birthweight (<2500 gm) is widespread in many LMICs, particularly in South Asia with prevalence of 27 per cent, with sub-Saharan Africa and the Middle East and North Africa next (11–14 per cent) (UNICEF 2019). Stunting is the primary indicator of chronic undernourishment. About a quarter of children <5 years are stunted, with prevalences of ~33 per cent in sub-Saharan Africa and South Asia, predicted to be 142 million in 2020 (de Onis, Blössner, and Borghi 2011; UNICEF 2019). While stunting prevalence has declined secularly, overweight/obesity prevalence has increased rapidly; among children <5 years, overweight/obese numbers are predicted to be 59.4 million in 2020, 84 per cent of whom in LMICs (de Onis, Blössner, and Borghi 2010). Thus, many LMICs are characterized as having a double burden of malnutrition—large though declining chronic undernutrition and rapidly expanding overnutrition.

The following trajectories in stunting and overweight from age one year to mid-adolescence and from mid-childhood to early adulthood are identified in two cohorts in Ethiopia, India, Peru, and Vietnam (3–1): (1) catch-up growth; (2) increasing stunting probabilities; and (3) increasing overweight probabilities. Multinomial logits reveal that higher wealth quartiles and maternal schooling are protective against high-stunting-probability-trajectory-group membership,

but higher wealth and urban residence predict high-overweight-probability-trajectory-group membership. Another study using the same data investigates relations between household conditional wealth (i.e. wealth at age 15 not predicted by wealth at age five, thus controlling for wealth at age five and any correlated factors) and children's heights at age 15, and finds heterogeneities: (1) associations of conditional wealth with adolescent heights are stronger for boys than girls; and (2) growth of children after age five who were stunted at that age is significantly more responsive to conditional wealth than growth of non-stunted children (3–2). For Nicaraguan boys of age 10, exposure to a CCT before age two does not appear critical for physical growth due to subsequent catch-up, though it does appear critical for cognitive skills (1–4).

Prenatal care is widely emphasized by the World Health Organization and others as critical for birth outcomes, and the extent of prenatal care is associated with parental education and other resources. However, prenatal care utilization is not significantly associated with birthweights in Brazil, Guatemala, the Philippines, and South Africa, but a unit increase in prenatal care utilization is significantly associated with 0.09 higher height-for-age z score (HAZ) at two years (and, as noted above, more schooling grades attained) (3–3). On the other hand, fixed-effects analysis of monthly panel with all births in Mexico from 2008 to 2010 merged with municipality-level homicide data finds that exposure to homicides in first trimesters of gestation *increases* infant birthweights and reduces proportions of low birthweights (3–4). The authors suggest that mechanisms driving this surprising effect are increases in mothers' health-enhancing behaviours (particularly prenatal care) in response to exposure to violence. This positive effect is strong among urban women with low socioeconomic status (SES)—and null among the most-advantaged women. In the Young Lives longitudinal data for Ethiopia, India, Peru, and Vietnam, HAZ in early life and to a lesser extent subsequent changes in HAZ both are predicted by parental schooling (with variation in whether fathers' or mothers' schooling has larger associations), parental household consumption, and maternal height (3–5). For rural India, favourable rainfall shocks in childhood increase girls' survival probabilities more than they increase boys' survival probabilities in landless households, and price shocks have greater impact on girls than on boys, both of which suggest families treat girls more as luxuries at the margin when there are real income changes (3–6, 3–7). In South Africa, household economic well-being is associated significantly with children's body-mass index (BMI), waist circumference/height, caregivers' perceptions of children's general health and quality of life, but not significantly with children's perceptions of quality of life (3–8).

A meta-analysis finds that average impacts of income transfers from social protection programmes on HAZ are positive but small and not statistically significant, though larger for girls, more vulnerable households, and CCTs (3–9). Another study finds no impacts of Green Revolution-induced rice

productivity increases on Bangladeshi children's HAZ and dietary diversity (3–10). These studies suggest that interventions designed to increase household incomes may improve children's nutritional status only when they are linked to mechanisms that also improve children's diet quality. Estimates of Guatemalan parental protein allocation decisions indicate fairly small income elasticities but that the reference population for the distribution of HAZ that the parents use is important and that parents use the local distribution of HAZ for two-year-olds in making their decisions regarding proteins to feed their new-born children (3–11). A structural behavioural model suggests that if parents used height distributions for well-nourished children, which arguably represent their children's true potential, rather than local distributions, they would invest significantly more in their children's protein intakes and their children's heights would be significantly higher. This would be tantamount to moving from the dashed to the solid line in Figure 13.2c with better information markets. A study on Bangladesh finds that maternal nutritional knowledge, instrumented to control for endogeneity and measurement error, has significant impact on children's dietary diversity if and only if households have good market access, illustrating one way in which context matters (3–12). Another study suggests that information related to expected long-run returns affects Indian parental investments in their children, with female–male survival rates responsive to female–male employment rates (3–13).

A 2017 study analyses relations between parental schooling and stunting using 376,992 preschool children from 56 LMICs (3–14). It compares a naïve OLS model to specifications that include cluster fixed effects and cohort-based schooling rankings to attempt to reduce biases from omitted variables and finds that estimated nutritional effects of parental schooling are: (1) substantially reduced with fixed effects and cohort rankings; (2) larger for mothers than for fathers, particularly for higher schooling levels; (3) minimal for primary schooling but generally increasing with more schooling; (4) increasing with household wealth; (5) larger with higher burdens of undernutrition; (6) larger with higher schooling quality; and (7) highly variable across country sub-samples. The authors conclude that their more-stringent models imply that achievement of very ambitious schooling targets would only lead to modest reductions in stunting rates in high-burden countries, and they speculate that schooling might have more impact on the next generation's nutritional status if school curricula focused on directly improving health and nutritional knowledge of future parents.

13.4 Impacts of children's human capital

For children's human capital to affect social mobility, either it must represent directly an indicator of interest for mobility (e.g. cognitive skills, schooling attainment) or have impacts on indicators of interest for social mobility (e.g.

occupation, income) and therefore be channels through which, for example, parental human capital and endowments affect children's lifecycle outcomes. Thus, the effects of children's human capital on various outcomes are of interest for investigating social mobility. I now review studies on impacts of the three components of children's human capital in Section 13.3 on outcomes over children's lifecycles with emphasis on studies that attempt to deal with estimation challenges.

13.4.1 Cognitive skills

Very few studies attempt to control for endogeneity of cognitive skills in estimates for LMICs. One study reports significant positive effects of Guatemalan adult cognitive skills on wages using instruments from ~35 years of the lifecycle, including early-life experimentally allocated nutritional supplements to treat cognitive skills and physical human capital as endogenous, and finds significant and substantial effects for cognitive skills (about two-thirds larger in IV than in OLS estimates), but not for the physical human capital measure even in a fairly poor agrarian economy (except for a sub-sample selected into physically intensive occupations) (4–1). Another study finds significant positive effects of cognitive skills on schooling, labour-force participation, wages, and job quality using structural models for urban Colombia adults (4–2). A third study finds significant positive effects of cognitive skills on schooling attainment, but not on wage rates conditional on schooling among rural Chinese aged 17–21 (4–3). A fourth study finds that a Jamaican home-visit parenting/stimulation RCT programme for children under four that resulted in improved adult cognitive indicators at age 22 also increased earnings at age 22 (1-5, 4-4).

There are many studies of schooling attainment associations with a range of outcomes in LMICs. Many in the economics literature focus on wages/earnings (Psacharopoulos and Patrinos 2004). But most are simply OLS associations without control for possible: (1) measurement error (which, if random, tends to bias estimates towards zero); or (2) unobserved endowments such as genetic ability or family background that are likely to affect schooling and wages/earnings in addition to any effects through schooling (which are likely to bias OLS coefficients away from zero). A few studies for LMICs attempt to deal with these issues. For urban China, a study estimates wage relations using twins data to control for unobserved endowments and cross-twins schooling reports to control for measurement error (4–5). Their OLS estimates suggest that an additional year of schooling increases earnings by 8.4 per cent. Their within-twins fixed-effects estimates with control for measurement error are 3.8 per cent, suggesting that most of estimated OLS schooling returns are due to omitted abilities or other family effects. For the rural Philippines, in contrast, using

panel data to provide relevant instruments (particularly distance to schools and measures of household resources at schooling ages) to endogenize investments in schooling in wage functions, the estimated return to schooling increases more than 60 per cent when schooling is endogenized, suggesting dominance of measurement error and increasing returns to higher schooling in OLS estimates (4–6).

13.4.2 Socioemotional skills

Evidence is increasing that socioemotional skills affect important economic outcomes in HICs. There is fairly limited, though recently increasing, evidence for LMICs:

- Significant positive effects of socioemotional skills on schooling attainment, but not on wage rates conditional on schooling among rural Chinese aged 17–21 (5–1).
- Socioemotional skills not associated with higher earnings, holding formal jobs or high-qualified occupations but with labour-market participation in Colombia (5–2).
- For Argentina and Chile, self-efficacy associated with higher labour-force participation, employment probabilities, and wages, with larger associations for workers with post-secondary degrees (5–3).
- For Peruvian workers aged 14–50 socioemotional and cognitive skills equally rewarded in labour markets (5–4): a one standard-deviation change in cognitive skills and in the perseverance facet of grit each increases earnings 9 per cent, conditional on schooling and earnings 5 per cent higher for emotional stability and 8 per cent lower for agreeableness.
- For Bangladeshi formal-sector wages, personality traits have little explanatory power on average, but quantile regressions indicate that they matter in parts of conditional wage distributions, especially for females (5–5).

Quantile estimates for nine middle-income countries (MICs) indicate that earnings have positive associations with openness to new experiences and risk-taking behaviour, and negative associations with hostile attribution bias (5–6).

13.4.3 Health and nutritional status

There is systematic evidence on effects of physical health/nutritional status but not on mental health effects on relevant outcomes in LMICs.

Health/nutrition at birth (lifecycle stage 1)

The gains from moving low-income country babies out of low-birthweight status (based on estimates deemed the best available), with moderate discount rates (5 per cent), are mostly from increased adult productivities, not relatively short-run gains in infancy emphasized in previous biomedical literature (though this depends critically on valuation of adverted mortality) (6–1). Benefit–cost ratios range from 0.6 to 35.2 (6–2). For Chile, birthweight differences within twins pairs, which control for unobserved family and genetic factors that twins share, have no effects on cognitive scores for children <3 years, positive effects for children 3–7 years, and substantial effects on first graders' math and fourth graders' math and language test scores for low-income families (6–3, 6-4). The within-twins estimates also indicate significant effects of birthweight on early-life anthropometrics (weight-for-age z score (WAZ), HAZ) and significant associations of WAZ with cognitive and HAZ with socioemotional indicators. A study using Chinese twins data finds impacts of birthweight on schooling attainment, cognitive achievement as measured by ninth-grade language and math tests, and wages (6–5). These effects are significantly larger for females, which the authors interpret to reflect comparative advantage of females in more-skilled occupations that have become more prominent.

Health/nutrition in infancy and preschool ages (lifecycle stages 1–2)

Estimates based on an experimentally allocated protein-enhanced supplement for Guatemalan children <2 years indicates long-run mostly positive significant effects over the lifecycle increasing: female schooling by 1.2 grades, adult female and male reading comprehension and cognitive abilities by ~0.25 standard deviations, male wage rates by >40 per cent, and birthweights for children of women who received the supplements by >100 gm (6–6 through 6-9). For rural India, propensity-score-matching estimates using longitudinal data from a controlled protein-energy supplement nutritional trial in 1987 to 1990 when children were <6 years report that children born in intervention villages at ages 8–15 are 7.8 per cent more likely to be enrolled in school and complete 0.84 more schooling grades than children born in control villages, but no association between supplementary nutrition and performance on school tests (6–10), and at ages 20–25 have more schooling attainment, are more likely employed, and have higher ages of marriage and parenting (6–11, 6-12). For Peru, preschool children with higher HAZ gain more vocabulary from formal preschools (6–13). For Pakistan, estimates using price shocks as instruments (which results in substantially larger estimates than OLS) find substantial reductions in school starting ages for children with higher preschool HAZ, larger for girls (6–14). For Ghana, preschool undernutrition also results in significant schooling delays (6–15). For Zimbabwe, higher preschool HAZ results in greater height, earlier enrolment ages, and greater school

attainment (6–16). For the Philippines, estimates using sibling information for instruments (which result in substantially larger estimates than OLS) find that better-nourished children at ages of initial enrolment decisions perform significantly better in school at ~11 years, partly because they enter school earlier and have more time to learn, but mostly because of greater learning productivity per year, with particularly large effects for more undernourished children (6–17). A unit increase in HAZ would have effects on student achievement equal to 1.1 grades of school (2.1 grades for the most-undernourished children) with benefit–cost ratios >3. For Ethiopia, India, Peru, and Vietnam, growth trajectory models emphasize the importance of nutritional status at age ~1 year, but also the changes in nutritional status (not predicted by nutritional status at age 1) after age 1 for vocabulary and math performance at 8 and 12 (6–18, 6-19).

Thus, these estimates suggest that there are significant dynamic cross productivities between preschool nutrition and education, illustrating how better early-life nutrition in lifecycle stages 1–2 affects school-age cognitive and schooling outcomes in lifecycle stage 3, which in turn are likely to affect adult outcomes in lifecycle stages 4–5. A few studies do not find significant effects of early-life nutritional interventions, but the interventions they consider either were macro-nutrients that partially were significantly redistributed to other family members for children who mostly were older than the critical early-life growth period (6–20) or micronutrient powders (6–21).

13.5 Conclusions

13.5.1 Overall summary

Parental human capital and endowments often play significant roles in affecting social mobility. They may be important determinants of children's human capital, which may be of interest in itself as commonly used indicators of mobility and which may be transmission channels for subsequent outcomes such as adult earnings that are of interest for social mobility. But it is important, particularly for LMICs, to include a wider definition of human capital than just, for example, schooling, on which much previous literature has focused. In particular, in many LMICs physical health and nutritional status are important dimensions of children's human capital, especially for early-lifecycle stages. Also, estimates of how observed components of human capital and endowments affect children's human capital and various outcomes often vary considerably from simple associations—sometimes are considerably larger with control for measurement error and non-linearities and often are much smaller with control for unobserved endowments for which human capital in part may serve as a proxy. Unobserved parental endowments related, for example, to genetic endowments, family culture, and

family connections, often have substantial effects so that focusing only on observed components is likely misleading and overstates social mobility since these endowments are likely to be less affected by policy interventions than observed parental and child human capital.

As with any empirical topic it is unlikely that any single characterization of parental human capital and endowments and social mobility fits most LMICs. There is too much heterogeneity in market development, policies, culture, demography, and resources. Capital and information markets are likely to vary, with direct effects on investments in children. Parental knowledge about child development, for example, may be useful only if there are considerable market or policy alternatives. The incentives to invest in various dimensions of child development also are likely to depend importantly on current and expected future macro developments.

The estimates summarized above have important policy implications. They suggest that parental human capital and endowments often have significant effects on children's outcomes and thus social mobility. These effects are larger in some studies for those who are thought to be more vulnerable (e.g. undernourished, girls, low-SES families) though in other cases the better-off benefit more. But in many (not all) cases, effects are much smaller than suggested by simple associations presented in much literature once there is control for unobserved endowments. By itself, this may suggest that social mobility is greater than might appear from simple associations of observed variables. However, this may not be the case because serially correlated unobserved endowments both across and within generations limit social mobility. Such effects should be considered in evaluating possible or actual policies that affect human capital. But policymakers should be careful not to be misled by simple associations or studies that focus on only one dimension of human capital or studies for a much different context than the one they are considering. It is important that they realize, for example, that human capital is not equivalent to schooling, but includes cognitive skills (so learning out of school and school quality are important in addition to schooling attainment), socioemotional skills, health, and nutritional status. Of course they have to make policy decisions on the basis of the best information that they have at a point in time, even if that information is imperfect. But it is also critical that policies be developed to obtain better information over time, including careful monitoring and evaluation in the particular context of interest—and that that information be used to adjust policies or design new policies as appropriate.

13.5.2 Gaps in the literature for social mobility in LMICs

Many gaps arise from *data limitations*. Data are quite limited with respect to mental health and socioemotional skills and parenting style (e.g. Glewwe et al.

2017), for which reason there has been no/little exploration of these factors as parental determinants of children's outcomes or as children's outcomes affected by parental human capital and endowments, with the result that interesting conjectures posed about mental health and socioemotional skills in HICs are mostly unexplored for LMICs. But data are also limited on cognitive skills, particularly for parents and somewhat for their children. There also are limitations with regard to indicators of physical health, with much focus on children's early-life anthropometric indicators but more limited indicators for the rest of the lifecycle. And data are further limited with regard to some of the primary determinants and indicators of mobility, such as income and occupation, in part because of the relatively large informal and agricultural sectors in LMICs as compared with HICs (Iversen et al. 2019).

Another major data limitation regards having longitudinal data that permit controlling for biases due to measurement errors, endogeneity, and unobserved factors. Experimental data are potentially powerful for these purposes, but there are very few relevant experimental datasets to permit control for parental human capital and endowments that also have data over substantial segments of their children's lifecycles into young and mature adulthood. Generally, the only options are quasi-experimental methods, but data for such methods are also relatively rare. For example, there are relatively few LMIC datasets on adult siblings in general and on adult twins in particular—I am only aware of one for the latter (for Chinese urban areas). And other plausible instruments for parental human capital and endowments in longitudinal data with sufficient information on children also are rare, though successful efforts to link historical administrative data to micro intergenerational data have increased recently. Another possibility that has been used increasingly in HICs is genetic data, but I am unaware of any such use yet for topics covered in this chapter.

Another limitation is that most longitudinal data with information on two generations have not yet followed the children long enough to permit intergenerational comparisons at comparable lifecycle stages/ages, so estimates of social mobility confound lifecycle changes with mobility. And considerable changes occur over the lifecycle, including early ageing in many LMICs compared to HICs.

Another significant limitation is that few datasets include information on what determines parental beliefs related to production technologies and expected returns for child investments. Since the few studies reviewed above on relevant beliefs in LMICs suggest that actual realities may differ significantly from those on which parents make investment decisions in their children, more investigation of what determines such parental beliefs and how they affect investments in children and thus social mobility would be useful. If parental beliefs about expected labour-market returns to their children's human capital, for example, depend on recent macro experience, then one of many different ways in which contexts may matter is with regard to expectations for such returns.

Likewise, relatively few studies directly address constraints that capital markets place on investments in children, with most of the relevant studies making indirect inferences based on significant associations of such investments with parental resources. Collection and analysis of more direct information on capital markets may be informative for developing better policies.

There also are important *methodological limitations*, one of which is controlling for context to be more confident about external validity across space and time (Heckman and Feng 2018). Many studies are interpreted to be generalizable without serious efforts to deal with varying contexts. There are exceptions: (1) studies that use comparable data from very different contexts and test for differences in estimated relations—e.g. some studies using the Young Lives data from Ethiopia, India, Peru, and Vietnam; (2) studies that use macro or administrative data (e.g. Behrman et al. 2000); and (3) structural models that can show how results are sensitive to different market and other contexts (e.g. Todd and Wolpin 2006; Attanasio et al. 2012).

Another limitation is that LMIC intergenerational studies tend to focus on parents and children, though there are studies that consider roles of grandparents at least in predicting child outcomes (1-15, 1-22) and others that use twins and other siblings fixed effects to control, inter alia, for all past generations and other kin and ethnic group membership (1-23. 4-5, 6-5). Given that extended families, other kin support, and ethnic group support for human capital investments in children appear common in LMICs, extending the literature on LMIC social mobility to multiple generations and other kin and ethnic group members seems a promising direction, and is likely to reduce estimates of social mobility. One of the relatively few LMIC studies to date, for low-income communities in India, suggests that new networks providing mutual support to their members and substituting for inherited parental human capital and wealth strengthen most rapidly in historically disadvantaged communities, generating high intergenerational mobility (Munshi 2011).

Still another limitation is that many studies focus on one outcome, e.g. schooling attainment, which may reflect only part of intergenerational interactions. If some parents not only invest in their children's schooling attainment but also in their schooling quality, and transfer other resources, patterns of intergenerational correlations in schooling probably are misleading regarding mobility. For example, intergenerational land transfers are important in many LMICs and if they are not taken into account in examining intergenerational schooling mobility the total mobility may be misunderstood (probably overestimated) including gender dimensions (Quisumbing 1994; Quisumbing and Otsuka 2001; Bevis and Barrett 2015). Also, social capital may be intergenerationally transferred and enhance returns to human capital (Rungo and Pena-Lopez 2019). Further, school quality, not only schooling attainment, may be important: in one study of Brazilian standard earnings functions, school quality crudely measured is

consistent with about as much of wage variations as is schooling attainment (Behrman and Birdsall 1983).

Another limitation of most studies on social mobility in LMICs is the dominance of partial-equilibrium approaches. For the questions of interest, which typically concern social mobility for many children not just one child, approaches that include market-wide and general-equilibrium considerations such as impacts on expected returns to schooling if there were a large expansion in schooling would seem to add new insights.

The literature on social mobility in LMICs also usefully could be extended to integrate better estimates on possible mechanisms with direct estimates of social mobility per se. Some possible mechanisms are reviewed in Sections 13.3 and 13.4. But there are others. For example, early-life nutrition affects ages of menarche and ages of first childbirth in India, and ages of partnering, quality of partners, and ages of first births in Guatemala—all of which probably affect individual and household adult income, well-being, and mobility (Hoddinott et al. 2013; Nandi et al. 2020).

The studies reviewed in this chapter address in limited ways multiple dimensions of impacts of parental human capital and endowments on children's human capital and impacts of children's human capital on outcomes later in their life-cycles in particular contexts. But there remain many possibilities for contributing to this literature by lessening data and methodological gaps.

Acknowledgements

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14

Informalities, Volatility, and Precarious Social Mobility in Urban Slums

Emily Rains and Anirudh Krishna

14.1 Introduction

Developing countries around the world are quickly urbanizing. Within the next three decades, the global urban population is expected to increase by 2.5 billion; 90 per cent of this increase is expected in low-income countries in Asia and Africa (Beard et al. 2016; United Nations 2014). In the world's 10 poorest countries alone, the urban population is expected to increase by 130 per cent in the next 15 years.[1]

This explosive growth of the urban population in developing countries has gone together with rising inequality. Some of the larger urban areas in developing countries are sites of both concentrated poverty and concentrated wealth, exhibiting the greatest levels of inequality in the world. The range of inequality in Rio de Janeiro, for example, is double that of London or Berlin.[2] Mumbai is home to both Asia's largest slum and the world's most expensive private home.[3] The richest person in Africa lives in Lagos, where an estimated 70 per cent live in slums (Federal Republic of Nigeria 2006). Construction workers and housekeepers reside in mud and tarp shelters, without water, sanitation, or electricity, juxtaposed with the luxury apartments they help build and maintain. These stark renditions of inequality span a vast range of living conditions.

UN-Habitat, the UN agency which has the mandate of supporting effective and equitable development in cities across the developing world, calculates that, on average, 63 per cent of the urban population in developing countries live in a neighbourhood that suffers one or more of the following deprivations—inadequate access to safe water, lack of sanitation, poor structural quality of housing, overcrowding, or insecure residential status—and is therefore counted

[1] Author calculation based on data from World Urbanization Prospects and the World Bank.
[2] OECD: https://www.oecd.org/social/inequality-urban-growth.htm
[3] 'Antilia' is the name of Indian billionaire Mukesh Ambani's private home in Mumbai. Dharavi, also in Mumbai, is Asia's largest slum.

among a category of neighbourhoods regarded as slums.[4] Because of the large-scale rural–urban migration that has occurred over generations and the huge internally generated population growth that decades of slum-living have spawned, the population of slums as well as of the city areas in which they are located have expanded exponentially.

When we speak of slum neighbourhoods (a term we use interchangeably with slum settlements) it is useful to recall that we are referring not to any uniform underlying reality or condition but rather to a variety of residences and neighbourhoods and a range of living conditions. Conditions in slums vary substantially along a continuum of wellbeing (Rains et al. 2019). At one end of this continuum, homes consisting of 7' x 7' tarpaulins stretched atop four poles remain entirely disconnected from all municipal services. At the other end, residents of long-established three-storey concrete structures are much better connected to basic services (Krishna et al. 2014). The similarity in their conditions is that residents largely lack property titles, work in informal jobs, or are not served nearly as well by many of the infrastructural and institutional connections that other urban residents are able to take for granted. These disconnections can serve as barriers to upward mobility for young people growing up in slum communities.

Scholars hold opposing views on the prognosis for social mobility in developing-country slums. The most optimistic views draw upon the belief that the urban history of the West will be repeated—that urbanization worked as a social elevator in yesterday's West, and it will serve the same function in developing countries today. According to this logic, slums are viewed as a necessary, but temporary, part of economic development. Slums provide affordable housing for recent rural–urban migrants, allowing them to establish a foothold in the urban economy. As urbanization fuels economic growth, either slums will develop or residents will move out to other middle-class neighbourhoods (Frankenhoff 1967; Glaeser 2011; Turner 1969; World Bank 2009). Citing Western history as an example, Glaeser (2011) argues that the presence of slums today bodes well for economic growth tomorrow and, analogously, that growth will lead to progressive improvements in slums.

Arguing against any easy historical analogy, other contemporary scholars have presented accounts of today's slums as poverty traps rather than social elevators, repositories for a vast reserve army of workers in low-quality jobs, mostly in the informal sector, who are pressed beneath a low glass ceiling with few prospects for intergenerational upward movement (Fox 2014; Marx et al. 2013; Moser 2009; Perlman 2006). Our review of the best available empirical evidence from around the world comports with these expectations: upward mobility appears to be limited in developing country slums.

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[4] Data are from UN-Habitat, as retrieved from the World Bank World Development Indicators database. 'Developing countries' are those classified by the UN as 'Least Developed Countries'.

The rest of this paper is organized as follows. We first review the empirical evidence from studies undertaken in different countries that have a bearing on the prognosis for social mobility in slums, finding limited and sporadic upward mobility but also consistent downward mobility, brought on by risk and vulnerability. In Section 14.3, we look at historical and emergent factors that contribute to the precariousness of life in slums. Institutional disconnections inherited from the time of colonial rule, supplemented by the more recent effects of demographic changes and technological advances, serve to constrain the potentially empowering influences that reach slum residents on account of increases in literacy and national economic growth. Because there are many downward-pulling and fewer upward-pushing factors, the descendants of poor migrants still live in slums generations after their forebears set up home in the city. In the fourth section, we re-examine, in the light of this consideration of push and pull factors, the extent to which parallels can be drawn with the Western experience. This history shows that slums and slum-like conditions persisted despite economic growth—until effective policy supports were introduced.

In the fifth and last section, we consider the kind of policy supports that will be required in order that greater overall opportunities reach people in slums, examining how downward-pulling influences can be countered and upward-pushing influences accelerated. Although a general set of supports can be broadly identified, specific measures will have to be contextually designed; conditions vary across countries and cities and differ even among slums within the same city.

14.2 Empirical evidence on social mobility in today's urban slums

To date, empirical evidence on social mobility is nascent outside the West in general (Iversen et al. 2018), and in slums in particular (Mitlin and Satterthwaite 2013). We review below the best available empirical evidence, including evidence we ourselves have collected over several years from nearly 10,000 households in hundreds of slums in three large Indian cities: Bangalore, Patna, and Jaipur. Studies of social mobility in urban slums can be categorized into two groups based on methodology. The first set of studies follows a small number of cases over a generation or more, while the second set samples a wider swath of slum residents over a shorter period. Both approaches reach similar conclusions: slum residents experience limited upward mobility and face high risks of downward mobility.

We first highlight two multi-decade longitudinal case studies that followed a small number of individuals over a generation or longer. One landmark ethnographic study follows residents from three Brazilian slums over a period of four decades (Perlman 2006). Not only does the author continue to revisit these three neighbourhoods over this period, but she also makes a substantial effort to locate

and re-interview residents who have moved to different neighbourhoods. Perlman (2006) finds that slum-dwellers experience some degree of upward mobility over generations but that this plateaus for those who remain in the slum areas. Furthermore, the author notes that, as the labour market is increasingly dualized, a rising educational premium has made it harder for slum residents to move from informal to formal occupations. Some families that have remained in the favelas have experienced *downward* mobility. Those few who have experienced higher levels of upward mobility had first moved out of the favelas.

Another multi-decade ethnographic study of families from an Ecuadoran slum finds similar patterns (Moser 2009). Over a 30-year period, the neighbourhood is transformed from informally occupied mangrove swampland to a neighbourhood with paved roads, running water, electricity, and land titles. Yet, while some households escape poverty, many remain poor, and others experience upward and downward fluctuations. Furthermore, in the households that experience intergenerational upward mobility, children remain excluded from the middle class, as rising educational gains do not translate into commensurate occupational gains. As Perlman (2006) finds in Brazil, Moser (2009: 6) finds in Ecuador:

> Turning to the next generation [. . .] adult sons and daughters were better educated but [. . .] they faced new and increasingly daunting challenges in a globalized context where few good employment opportunities would present themselves [. . .]. Despite their better education, they had been insufficiently economically mobile to make it to the gated communities (cuidadelos) where the new middle class lived.

Another group of studies examines social mobility across larger samples, albeit over shorter periods. Zulu et al. (2011) follow thousands of households from two slums in Kenya over a seven-year period. Many households fluctuate between being above and below official poverty lines during that time. A slight majority (51 per cent) have lived in their neighbourhood for over 10 years and, seemingly paradoxically, it is those who have been more successful economically who are more likely to remain in the slum. However, as long as households continue to live in a slum area, they face severe human capital constraints due to health risks and exclusion from educational and labour force opportunities.

A study based on cross-sectional data from 30,000 South African households compares employment rates and job characteristics across urban formal, urban slum, and rural areas to provide a snapshot of variation in labour market outcomes across neighbourhood types (Turok and Borel-Saladin 2018). The authors find that urban slum residents experience higher employment rates in higher-paying and more secure jobs than rural residents, but the outcomes are best for urban non-slum residents. However, the authors note that their findings are 'necessarily suggestive', given that they are unable to compare employment

outcomes for the same household over time. Another 'exploratory' paper that draws on South African panel data, over a four-year period, finds that residents of slums fall into poverty more frequently than other urban residents on account of downward-pulling influences similar to those identified by the study in Kenya (Turok and Budlender 2017). Mitra (2006, 2010) surveys thousands of slum residents across five Indian cities, asking about current and past employment, finding limited levels of upward mobility, as many continue to work in the same occupation over time, and some residents experience downward income mobility.

In our study of slums in Bangalore, later extended to Jaipur and Patna, we employed different methods to assess intragenerational changes within households, questioning respondents about current economic outcomes as well as asking them for self-reports of past outcomes—in relation to parents' and grandparents' occupations. To address the severe data limitations typically associated with studies of slums (Bhan and Jana 2013; Mitlin and Satterthwaite 2013) we alternate between satellite image analysis and field surveys to build an original sample of nearly 10,000 slum households across more than 200 slums in these three Indian cities. These settlements span the full slum continuum from tarpaulin tents to three-storey concrete buildings, and are spatially distributed throughout each city. We accumulated information using a variety of methods—comparing individual slums' satellite images over a 20-year period, compiling oral histories, interviewing community leaders and local property brokers, and surveying over 10,000 households. This is, to our minds, the most comprehensive examination yet of social mobility in developing country slum conditions (Rains and Krishna 2020).

Examining satellite images over a 20-year period, we find that neighbourhoods rarely develop from slum to non-slum areas—at least in terms of physical characteristics. In prior work, we inductively identified a list of visible criteria that can be used to identify slum areas: crowding, low building height and haphazard arrangement, low-quality roof material, and absence of cement roads (see Rains et al. 2019. The number of slum-like characteristics visible from the satellite images is strongly and inversely correlated with the neighbourhood's position along the slum continuum.

Satellite images reveal that most neighbourhoods (89 per cent) do experience positive physical changes over time, most commonly in roof material. However, very few neighbourhoods (1 per cent) exhibit positive changes in all visible characteristics. In this small number of cases, conditions improve because the government has selected the areas for redevelopment. We find no relationship between slum age or location and either government selection for redevelopment or physical changes over time. This suggests that slums do not necessarily develop along similar trajectories over time or across space.

While satellite data allow us to examine neighbourhood-level development over time, we turn to our other data sources to examine changes at the household level.

Though slums are sometimes regarded as settlements for transient, migrant groups, we find that 73 per cent of households are native to their city of residence. The majority (66 per cent) of families have lived in the same home for multiple generations, a finding consistent with those of examinations in other countries (Lilford et al. 2017; Perlman 2006; Zulu et al. 2011).

Community interviews also reveal limited movement out of slums. In 29 per cent of neighbourhood focus groups across the three cities, respondents report that neighbours have moved out of the settlement in the past two years. However, in only 3 per cent of these cases did the focus group respondents believe that neighbours had moved to nicer neighbourhoods. We also draw on in-depth one-on-one interviews with nearly 100 residents of Bangalore. Most people cannot think of anyone in their neighbourhood whom they would describe as having become particularly successful, and only 5 per cent of those interviewed give examples of people from their neighbourhood moving to a nicer area after obtaining influential jobs or selling property. Notably, all of these examples are from the most well-off neighbourhood where we conducted in-depth interviews. These neighbour reports suggest that, even if there is some within-city relocation to nicer neighbourhoods, it is certainly far from the norm.

Consistently, among those in our sample who have moved, we do not find evidence of movement from less to more well-off neighbourhoods. Most households that have moved within Bangalore (85 per cent) report moving from a better or similar neighbourhood, while only 15 per cent report moving to a nicer settlement. The most commonly reported reasons for moving from nicer and similar areas are that the former were too expensive or too far from work. The most common reason for moving to a nicer area was also to be closer to work, while the second most common reason was safety, consistent with case studies from slums in Durban, South Africa (Posel and Marx 2013).

It is important to note that this limited movement is not due to constraints on transacting properties in slum settlements, as posited by influential scholarship on property rights, such as de Soto (2000). Rather, we find robust housing markets across the slum continuum, where transactions are facilitated by well-established brokers and lawyers (Krishna et al. 2020. Our in-depth interviews provide insights into other barriers to outward movement. Several people remark that a comparable home in a non-slum area would be markedly more expensive, such that households would need to experience exceptionally high levels of economic progress to be able to move out to a non-slum neighbourhood:

> If I want to go outside [...] to the city, I can't. We have to control and manage with the budget we have. If I have to buy in the city, I will have to pay lakhs[5] of

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[5] Hundreds of thousands.

rupees […] See, now if we go to the same house […] same dimension house […] outside, we have to pay 20,000 rupees rent. Here, not even 1.5 kilometres from here. If we just go for a same house, same infrastructure and all, we have to pay [high] rent.

It is definitely not possible. It won't happen. It won't be sufficient. No matter how much happens, it won't be enough. Here, we have made everything the way we want it. [For] the same thing, if we go elsewhere, maybe this [rent] will be tripled or quadrupled.

In addition to examining neighbourhood-level changes and movement out of slum areas, we examine the extent to which households experience intra- and intergenerational mobility. The evidence again supports the conclusion that, while some households experience mobility, upward movement plateaus at a low level. We draw on household survey data to examine two measures of household mobility. First, we consider mobility over a 10-year period, using the 'Stages-of-Progress' approach. Second, we consider intergenerational mobility by comparing father and son occupational status.

The Stages-of-Progress approach, which has been used and adapted in diverse rural and urban contexts, is a useful tool to investigate poverty dynamics (Krishna 2010; Narayan et al. 2009). The respondent specifies how many assets or capabilities, ranked from 1 to 10 in Bangalore, they are able to possess or achieve, as well as how many they were able to possess or achieve 10 years ago. The list, which corresponds to increasing levels of wellbeing—or increasing stages of progress— was developed over time with extensive inputs from the communities under study. In prior community meetings held in different slums the same sequence of stages was narrated by the assembled community groups.

The average household reports being capable of achieving 4.65 of the 10 stages. Most households (78 per cent) experience some upward mobility, but overall, 81 per cent remain poor during the 10-year period considered.[6] Table 14.1 displays the percentages that remained poor, remained non-poor, became poor, and became non-poor over the 10-year period.

Table 14.1 Changes in stages-of-progress over a 10-year period

	Poor (at time of survey), %	Non-poor (at time of survey), %
Poor (10 years prior)	81	14
Non-poor (10 years prior)	2	2

Source: Authors' construction.

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[6] Following Krishna (2010), we classify scores under 7 as poor.

Of those who rose out of poverty, more than 80 per cent moved up by just one stage or two and lingered close to the poverty cut-off. We also find that many children continue to work in informal, insecure, and low-skilled jobs, as their parents did before them.

The men of the communities we studied work as plumbers, painters, coolies, auto-rickshaw operators, drivers, carpenters, tailors, vegetable sellers, 'daily wage' persons, security guards, cleaners, salesmen, welders, factory workers, petty contractors, mobile phone technicians, and call-centre operators. The higher the level of technology involved in their work, the more people earn, in general. Mobile phone technicians and call-centre operators tend to earn considerably more than security guards and coolies, but relatively few people are employed in such higher-paying jobs, and very few of these residents are studying to be a doctor, lawyer, or engineer. Most give up studies soon after—and many some years before—completing high school.

We apply an occupational classification scheme developed specifically for the Indian context by Iversen et al. (2016) to compare father and son occupational classes.[7] The classes range from 1 to 5, with higher values corresponding to higher-prestige jobs. We find more instances of upward mobility (41 per cent) than downward (12 per cent), but it is most common that individuals work in the same occupational class as their father. Table 14.2 displays the joint distribution of father and son occupations.

Both measures indicate that many slum residents experience some upward mobility, though this plateaus over time. The data also show instances of downward movements comparable to rates reported for remote rural India (Krishna 2010).

Table 14.2 Joint distribution of father/son occupations, %

	1	2	3	4	5
1	33.72	21.29	7.84	5.05	1.38
2	3.00	8.42	2.24	1.75	0.37
3	0.55	1.29	1.31	0.55	0.08
4	0.53	0.82	0.55	1.99	0.10
5	1.36	2.01	0.82	1.23	1.72

Note: Each cell represents the percentage of the male population employed in the occupational category indicated by the column whose fathers were employed in the occupational category indicated by the row. Cells shaded in light grey indicate upward movement, while cells shaded in darker grey represent downward movement.

Source: Authors' construction.

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[7] We do not consider mother and daughter differences in this chapter because we expect the schema may differ by gender. Developing an appropriate schema to measure female mobility is an important avenue for future research.

While we find that some neighbourhoods and some households are more likely than others to experience upward mobility, all slum-dwellers are susceptible to shocks. Volatility increases in proportion to upward mobility. There is larger downward movement in the neighbourhoods where there is greater upward mobility. We find that the standard deviation in changes of Stages-of-Progress increases significantly with 'slum score'—a score we calculate to measure a slum's relative position along the overall continuum[8] (Rains et al. 2019. We do not find a relationship between the average changes in Stages-of-Progress and slum score. This evidence suggests that in slums that experience greater overall infrastructural development, households experience greater volatility in material wellbeing. The largest gains and the largest losses are observed in the best-off slums.

14.3 Why volatility is high in slums—push and pull factors

Historical as well as emergent factors have contributed to the growth of developing cities in such a manner that large parts of the urban population have been under-invested in and are consequently under-prepared for seeking places in the better-paid parts of the economy.

Historically, colonial administrations, which operated 'on the cheap' across large parts of Asia and most of Africa, tended to concentrate government offices and officials in cities, limiting the penetration and the territorial reach of the colonial administration beyond urban centres (Boone 2003; Davidson 1992; Mamdani 1996). Within cities, too, colonial administrations established segregated and disparately planned areas. One part of the city, planned for habitation by the colonial 'elite' and its local loyalists, was built to resemble cities in the West—with street lighting, underground sewers, functioning educational institutions, courts and registry offices, hospitals and libraries. The other parts, meant for the colonized population, were poorly served by infrastructure and institutions. It was to these poorer parts that a migrant coming in from a village would gain access, sometimes setting up a shack wherever relatives and friends showed that space was available. The unplanned sprawl of the 'native city' contrasted sharply— and still does—with the orderliness of the civil and military lines (Bjorkman 2015; Fox 2014; Hansen and Verkaik 2009; Roy 2009).

Emergent factors, coming on top of these legacies, have further de-privileged poorer city areas. Slums keep coming up, and existing slums expand, but most slum residents live in conditions of informality. Many are 'triply informal' with

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[8] This is robust to including controls. We observe a similar pattern with intergenerational occupational mobility. Both fathers and sons work in higher occupational classes in more well-off neighbourhoods. However, the standard deviation in occupational classes is higher for sons than for fathers, suggesting that recent gains in employment status are volatile.

- informal jobs, not protected by a contract or labour laws and not assured of social protections like health care or old-age survival supports;
- informal properties, with no titles or partial titles; and
- a lack of city-based identity papers and an unacknowledged and informal existence in the city.

The institutional hiatuses that arise on account of informality prevent slum-dwellers from availing themselves of the opportunities available to others in the city. They work informally, so are not connected to the benefits of welfare legislation—pensions, health care, and sick leave. Even security of tenure is not available to them. Informal housing cuts them off from financial markets and creates the conditions for gross inequalities in social services and infrastructure provision. Schools and clinics cannot be legitimately located in places that do not exist according to official maps and papers. Those who lack identity papers are non-existent people.

Informality creates a vast barrier to social mobility. Yet informality is rife in slums. While a wide range of work can be considered informal, in general,

> ample empirical research has shown that workers in the informal economy face a higher risk of poverty than those in the formal economy, while informal economic units face lower productivity and income. Indeed, most people enter the informal economy not by choice but as a consequence of a lack of opportunities in the formal economy and in the absence of any other means of earning a living.
>
> (ILO 2018)

Informal employment is characterized by instability, making it difficult to amass savings that can allow workers to weather shocks or make investments in human capital (Harriss-White et al. 2013). In both the case of urbanization without economic growth and that of urbanization without industrialization, vast numbers of urban residents find employment in the informal economy.

Less than 6 per cent of the thousands of residents we surveyed in the slums of Bangalore, Jaipur, and Patna, including the nicest slums, have formal jobs—that is, jobs that provide social security or insurance benefits. Most slum residents in these cities are informally employed—the best-paid as auto-rickshaw drivers and mobile phone repairmen and call-centre operators and the worst-paid as maids and manual labourers. As in the cities of other developing countries, where large numbers live in slums, the greatest share of the urban population is informally employed. In Latin America and the Caribbean, 47.0 per cent of the entire urban population (and a far larger proportion in slums) are informally employed, the proportion reaching as high as 75.3 per cent (Bolivia).[9] In South Asia, this figure is

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[9] Statistics are drawn from ILO (2018).

75.1 per cent, which ranges from 58.6 per cent (Sri Lanka) to 85.1 per cent (Nepal). The percentage is highest in sub-Saharan Africa, where 80.8 per cent of urban residents work as informal labourers—as many as 97.2 per cent in Rwanda.

Volatility is high because of the precariousness associated with living in fear of being evicted from one's home or losing one's job at a moment's notice. Low, unstable wages make it difficult to accumulate savings, making slum residents particularly susceptible to financial shocks (Harriss-White et al. 2013).

Slum residents enter into 'marriages' of convenience with local political bosses who offer protection from eviction and access to some public services in exchange for votes. Because politicians wish to hold on to vote banks, service provision is dribbled out incrementally over decades. The improvements residents experience are usually due to political intervention, rather than any accrued rights or tenure status (Auerbach 2016; Krishna et al. 2020). As a retired municipal officer explained to us, 'There are no concrete rules. Decisions about who has to be relocated, who has to be given *hakku patra* [property documents] [. . .] depend on the mercies of officers and leaders [. . . and] cases are sped up during times of election.' Similarly, most (75 per cent) slum residents report that vote banks are important prerequisites for neighbourhoods to receive services. In reflecting on her neighbourhood's exclusion from service access, one resident told us, 'we don't serve as a strong vote bank—our slum is small, with negligible population; no one [politician] wanted their name involved'.

Informality prevents slum residents from making helpful connections with the sources of economic dynamism that are experienced by others living in a city. Accessing institutional sources of finance for homebuilding, for instance, or for business development, is something a slum dweller is rarely able to accomplish.[10] Hardly any slum resident is supported by institutions in acquiring job-related skills or in connecting with potential employers. In general, slum-dwellers are unable to make use of multiple public institutions, including

> the city's universities. Their encounters with bureaucrats almost always lead either to trouble or [to] official inaction [. . .]. Their experience with the courts is virtually non-existent [. . .]. The city's poorest residents have next to no contact with the press [. . .]. The government provides almost nothing by way of medical facilities.   (Manor 1993: 10)[11]

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[10] More than one-third of residents owned their homes and possessed private titles in Bangalore's notified slums, but less than 6 per cent were able to avail themselves of institutional sources of home financing (Krishna 2013).

[11] Similarly, Bhatia and Chatterjee (2010) document the financial exclusion of slum-dwellers in Mumbai, the financial capital of the nation. Other notable references on the same point include Benjamin (2000), who refers to slum-dwellers as people embedded in 'local economies', i.e. low-cost manufacturing and service operations catering to other low-income residents in a narrow adjoining area. Nationally, less than 5 per cent of slum-dwellers have availed themselves of institutional sources of home financing. In 2005, 5.1 per cent of non-slum urban households in India had health insurance

The architecture of the state in colonial and pre-colonial times gave rise to these situations. Fragmented institutional enclaves set up in the colonial era—one set of spaces and rules for the colonists and government officials, and another space, less well served and less well governed, for the native majority—have persisted into the current period.[12]

At least two other aspects of urbanization in today's developing countries interact with the high levels of informality to diminish the prospects for broad-based social mobility. The first pertains to demographics, while the second is concerned with the changing technology of production.

In the West, urbanization occurred towards the end of the demographic transition (Bloom et al. 2003).[13] Mortality and fertility rates had already begun to fall, and the dependency ratio—the size of the working age population relative to the non-working population—was also decreasing. The U.S. population became majority urban around the same time as its dependency ratio decreased to 50 per cent. In contrast, developing countries began urbanizing earlier along their demographic transitions, and dependency ratios are now higher and falling more slowly in developing countries than they were when Western countries urbanized. By the time Africa is expected to become majority urban (in 2035), the dependency ratio is still expected to be above 70 per cent.[14] This means that each worker's earnings are shared by a larger number of people, leading to a proportionately reduced capacity of families to invest in education, healthcare, etc. In the least developed countries, 73.1 per cent of children complete primary school, and only 37.5 per cent go on to enrol in secondary school. In contrast, in the U.S., the enrolment rate for 5- to 19-year-olds increased from 47.2 per cent in 1850 to 64.3 per cent by 1920, the same period over which the country became majority urban.

Alongside a rapidly growing urban population, higher dependency ratios, and lower education levels, technological advances add to the dampening influence on slum residents' upward mobility prospects. Not only are large numbers of the working-age urban poor employed in low-productivity informal

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compared with only 1.8 per cent of slum households, as found by a nationwide survey, the Human Development Profile of India—II, covering more than 50,000 households, administered by the Indian National Council for Applied Economic Research.

[12] Many Indian cities were designed to have these different parts—a smaller planned part consisting of the civil lines and cantonment areas, and a larger and messier part that grew willy-nilly and was meant to house lesser individuals. 'The cantonments and the British residential areas, with spacious roads and grounds [...] privileged with machinery to assure good sanitation conditions [...] were segregated from Indian areas' (Dasgupta 2005: 5160). For similar accounts of divided cities in post-colonial Africa, see Fox (2014) and Njoh (2004).

[13] It is well documented that countries experience a demographic transition over time (Teitelbaum 1975). At first, both death and birth rates are high. Death rates will fall as a country develops and then fertility declines as children become more likely to survive. At the end of this transition, both death and birth rates are low. A country's position along this trajectory has important implications for policy needs.

[14] Projections are from World Urbanization Prospects.

positions, but it is also becoming increasingly difficult for them to acquire a higher-productivity position.

Technological advances have fundamentally altered labour market structures. In countries that industrialized early, industrialization—of a Fordist kind, with extensive assembly lines staffed by a large number of formally employed and increasingly unionized workers—promoted movements into the middle class. In manufacturing today, many fewer people, albeit with higher levels of education (high school, if not college), are required (Carr 2014; Ford 2015). Recent technological developments

> have augmented the contributions made by more abstract and data-driven reasoning, and in turn have increased the value of people with the right engineering, creative or design skills. The net effect has been to decrease demand for less skilled labour while increasing the demand for highly skilled labour.
>
> (Brynjolfsson and McAfee 2014: 135)

The spread of technology globally 'has created a growing reservoir of less-skilled labour while simultaneously expanding the range of tasks that can be automated'.[15] These trends will deepen, another report predicts, and countries with a greater number of robotic programmers and more high-tech infrastructure will become more attractive to manufacturers than other countries with large reserves of cheaper but less-skilled and less-educated labour.[16] 'Most of the value added is in a few big sophisticated firms that prefer using machines to humans [. . .] What manufacturing FDI [foreign direct investment] India does attract tends to be high-end—for instance, Volkswagen has a smart €570 million plant full of robots.'[17]

The greater demand for jobs from a large and growing urban population coupled with the relatively small and diminishing supply of formal jobs augurs poorly for the upward mobility of today's slum residents. The informal sector has grown rapidly in response to the large unmet demand for employment and wages.

Left to itself, the market could make these trends worse. Even as slum residents invest in the education of their children, the threshold for getting a high-skilled job keeps getting higher. Where previously a high school diploma would get you a good job, a college degree is no longer enough. As a result, labour has shifted from higher to lower productivity work in several places (McMillan and Rodrik 2011), and this trend has resulted in labour force polarization (Autor and Dorn 2013). The widening skill gap between informal and formal work has made it more difficult

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[15] 'The privileged few: To those that have shall be given', *The Economist*, 4 October 2014.
[16] Boston Consulting Group: www.bcgperspectives.com/content/articles/business_unit_strategy_ innovation_rise_of_robotics/
[17] 'Wasting time', *The Economist*, 11 May 2013.

for slum residents to find formal employment even as educational attainment has increased (Perlman 2006). In fact, of the minority who have completed tertiary education, nearly one-third still work in the informal economy—in Africa (26.7 per cent), Asia (30.7 per cent), and Latin America (30.5 per cent) (ILO 2018).

The expectation that urbanization will, by itself, serve as a social elevator seems to run into a reality of a different kind; in developing country slums, the fastest-growing part of the urban population, directed policy supports will be required. The relevant lesson from economic history is not that the formation of a middle class is automatic and inevitable; a more careful reading of history shows that policy supports went together with economic growth in forging broad-based poverty reduction. Similar supports and others are more urgently required for present-day developing country slums.

14.4 The evidence from high-income countries

Historical accounts provide substantial evidence of slum-like conditions and large-scale urban poverty within cities in today's rich countries. In England, '[t]he unprecedented concentration of opportunities for employment in large cities oriented migration to those cities as never before' (Tilly 1976). In the United States, industrialization similarly accelerated urban growth rates, with the population of New York City, for example, doubling each decade between 1800 and 1880.[18] In both cases, urban population booms resulted in a vast number of poor migrants living in overcrowded, structurally unsound housing with inadequate sanitation and water. In 1911 London, nearly 800,000 people were estimated to live in slums (Yelling 1992). A scholar at the time described these neighbourhoods as follows (Dewsnup 1907: 14):

> Houses intended for one family each were made to accommodate several, and every available plot of land was built upon without regard to ventilation or any other sanitary condition; dwellings were almost literally piled one upon the top of the other, and many of the grim, narrow, and hardly-ventilated streets and dark, noisome alleys of the present day owe their origin to the unregulated building of this period. Thus the rapid development of the new industrial system, causing both a growth and redistribution of population, and producing new social conditions which an immature municipal government and an undeveloped public conscience failed to order and arrange with a view to the ultimate welfare of the people, accentuated to a marked degree the unsatisfactory housing conditions already existing in the towns.

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[18] Statistics are drawn from historical census data.

In New York City, an estimated two-thirds of the population lived in slum-like 'tenements' in 1900. Riis (1890: 10) highlighted problems with health risks, unaffordable rental prices, and ambiguous tenure status in these areas:

> [I]n one cholera epidemic that scarcely touched the clean wards, the tenants died at the rate of one hundred and ninety-five to the thousand of population; which forced the general mortality of the city up from 1 in 41.83 in 1815, to 1 in 27.33 in 1855, a year of unusual freedom from epidemic disease [...] Swine roamed the streets and gutters as their principal scavengers. The death of a child in a tenement was registered at the Bureau of Vital Statistics as 'plainly due to suffocation in the foul air of an unventilated apartment', and the Senators, who had come down from Albany to find out what was the matter with New York, reported that 'there are annually cut off from the population by disease and death enough human beings to people a city, and enough human labor to sustain it.' And yet experts had testified that, as compared with uptown, rents were from twenty-five to thirty per cent higher in the worst slums of the lower wards [...] Whether or not the title was clear to the land upon which they were built was of less account than that the rents were collected. If there were damages to pay, the tenant had to foot them. Cases were 'very frequent when property was in litigation, and two or three different parties were collecting rents.' Of course under such circumstances 'no repairs were ever made.'

During industrialization in the West, employment could be both insecure and dangerous. Slum-dwellers worked in trades in which employment was 'discontinuous' (Booth 1902). There were often no guarantees that a job would still exist for those who took leave after suffering an injury or illness, and it is estimated that one-quarter of the employees in Andrew Carnegie's Pittsburgh steel mills died or were severely maimed (White 2017). Low wages and long hours made it difficult to accumulate savings or invest in human capital even when training opportunities or public libraries were constructed for employees (White 2017). Particularly poor families in Britain, the U.S. and elsewhere sent their children to work rather than to school (George 1882; Nardinelli 1980). By 1900, 18 per cent of American workers were under 16 years of age. Scholars of that era expressed concerns that the urban poor would remain stuck in poverty without the help of substantial policy supports— e.g. George (1882: 5): 'It is true that disappointment has followed disappointment, and that discovery upon discovery, and invention after invention, have neither lessened the toil of those who most need respite, nor brought plenty to the poor.'

By the late 1920s, however, the situation in New York and other U.S. cities had changed drastically. Hazardous tenement buildings had been upgraded and investments in public housing were being made; child labour had become a thing of the past and school enrolment rates increased; overall, conditions of life had vastly improved for the urban poor.

What happened to enable broad upward mobility in this context? Conditions in slums did not improve only because of overall economic development. In addition, substantial public sector interventions were implemented, including labour protections, housing laws, and improvements in public health services. From the turn of the twentieth century to the 1920s, referred to as the 'Progressive Era', a sweeping set of progressive policies were introduced to improve public health, housing, and labour standards, reduce child labour, increase educational attainment, reduce municipal corruption, and facilitate progressive taxation (Buenker et al. 1977).[19] The number of such measures introduced in Congress increased by nearly four times between 1895 and 1911, while the number of measures passed peaked to 7,024 during the 59th Congress (in session 1905–1907). Between 1890 and 1930, spending on education increased by *17 times*, and school enrolment increased by 29 per cent. Ample legislation was introduced at state and local levels as well.[20] To protect workers who had experienced injuries, in 1908, the federal government established a limited workers' compensation system; by 1921, all but four states had enacted more comprehensive state-level legislation.[21] Reforms initiated during the Progressive Era eventually resulted in higher levels of formal employment, such that by 1934, 75 per cent of American employees had social insurance through work.[22] These regulatory changes were matched by a substantial increase in government spending on social welfare. Between 1890 and 1930, federal spending on social welfare increased by over seven times to 4.2 per cent of GDP. In contrast, the current estimate for developing countries is only 1.5 per cent (World Bank 2018: 105–22).

The United States is not an isolated example. Broad social policy reforms were introduced in other presently rich countries as well, albeit at different times. Examples from the United Kingdom include the 1833 Factory Act, which sought to reduce child labour, the 1875 Conspiracy and Protection of Property Act, which allowed worker protests, the Public Health Act of the same year, which established government health authorities, and the 1911 National Insurance Act, which provided health insurance for workers. Sweden and Denmark are other notable examples of countries where social policy, including pensions, health care, and

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[19] It is important to note that social policies were not administered equally in the US, and outcomes varied substantially by race. In another later wave of urbanization termed the 'Great Migration', millions of African Americans resettled from Southern rural areas to Northern cities. In contrast to the progressive policies implemented during the Progressive Era, the policies implemented as a result of the Great Migration may have *reduced* levels of intergenerational mobility for African Americans (Derenoncourt 2019). This further underscores the importance of public policies in facilitating (or hindering) opportunities for upward mobility during periods of urbanization.

[20] US Department of Labor: https://www.dol.gov/general/aboutdol/history/mono-regsafepart06

[21] Ibid.

[22] Data are taken from historical census records for the entire country. The statistic would likely be higher in urban areas.

public education, kept pace with urbanization and industrialization. 'Until the end of the nineteenth century, Sweden was a poor, backward agrarian country on the outskirts of Europe' (Salonen 2001: 144) but a public law to subsidize voluntary sickness funds was passed as early as 1891. In Denmark, similarly, 'the state began to subsidize health care funds in 1892. The number of fund members rapidly increased. At the beginning of the 1890s, the Danish funds covered less than one-tenth of the population, but by 1930 their coverage was two-thirds' (Kangas and Palme 2005: 27). Nor did Japanese government officials simply sit back and wait for growth to bring about poverty reduction and social mobility. Quite early on, they sponsored studies that directly investigated poverty, including in slums. In response, the Japanese government implemented a series of social policy measures (Kasza 2006; Milly 1999). In Hong Kong, 'government expenditures strongly favored low-income groups, principally through the provision of housing, health, and educational benefits'. Government and corporate policies aimed to facilitate 'rapid dissemination of information on employment and business opportunities' (Findlay and Wellisz 1993: 53, 77). In South Korea, even as government entered into long-term contractual arrangements with corporate conglomerates (Amsden 1991), it was engaging with NGOs to implement wide-ranging policies, leading to a rapid expansion of quality healthcare, education, and other welfare programmes (Kwon and Yi 2009).

All of these policy supports were provided even as rapid economic growth in these countries (then of a Fordist kind) was pushing up production and employment possibility frontiers. Conditions in today's developing countries are hardly as encouraging for social mobility. Policy reforms in support of social mobility are even more urgently necessary.

14.5 Policy lessons

We do not expect today's urbanization trends to facilitate broad-based upward mobility without a great deal of planned policy support. The Western story broadly was one of economic growth *plus* substantial policy intervention. Purposive policies aimed at improving housing and labour standards and investing in developing human capital were implemented even as the economy was transforming, becoming less rural and agricultural and more urban and industrial. Policy interventions of these kinds are necessary but still lacking in developing countries, where low levels of job productivity undercut abilities to take advantage of growing working age populations. Furthermore, technological changes have altered labour markets in ways that make it even more difficult for individuals to make the transition from informal to formal economy positions.

Ensuring that the urban poor have the opportunity to experience upward mobility will require substantial efforts. These are required, first, to reduce

volatility by containing downward mobility. Downward shocks are not uncommon in slums. With so many employed informally, financial shocks can be devastating. Reducing volatility requires social insurance. Retirement benefits and workers' compensation are important requirements: what are workers to do when they are elderly or disabled? Interventions are also required that focus on improving health outcomes. Second, as in the past, in the West, conditions in slums are dangerous. Residents face outsized fire and flooding risks, while overcrowding and inadequate sanitation accelerate the spread of communicable diseases. Slum-dwellers are also often employed in unsafe work environments. Factories offer relatively higher and more stable wages than agricultural work, but evidence from sub-Saharan Africa (Blattman and Dercon 2018) and South Asia, including the infamous Dhaka factory fire that killed more than 100 workers,[23] shows that these jobs still pose serious health risks. Labour standards are needed to protect workers against injury in the workplace.

More generally, progressive formalization of the various dimensions of informality is required, in terms of work contracts, tenancy agreements, identity papers, etc. Slum residents in the early industrialization period in the West were steadily given these protections. Further steps will also be needed to create more productive jobs in cities of the developing world. For this, investment in education and skill development is critical. Countries will not be able to leverage a 'demographic dividend' without educated citizens, and citizens will not be able to adapt to the higher skilled jobs that technology has created without substantial improvements in training. Investment in education and vocational or technical training is important.

While this broad set of goals, related to reducing volatility and downward mobility and improving the prospects for upward mobility, can be generally applied, slums differ. How particular interventions should be designed is a matter for localized investigations and careful ground-up policy experimentation.

The necessary investments required to expand opportunities in developing countries may seem daunting, but improving prospects for upward mobility is possible. Beard et al. (2016) highlight Medellin (Colombia) and Surat (India) as two examples of cities that have successfully implemented social policy interventions to improve outcomes for the urban poor.

Will slum residents ultimately share in the benefits of the cities they help build? Scholars and practitioners should not assume that urbanization will automatically improve prospects for mobility for the urban poor. Instead, it will be critical to implement appropriately nuanced interventions to improve opportunities for the billions of people residing in today's and tomorrow's slums.

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[23] https://www.nytimes.com/2012/11/26/world/asia/bangladesh-fire-kills-more-than-100-and-injures-many.html

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15

Gender and Social Mobility

Gender Attitudes and Women's Labour Force Participation

Nancy Luke

15.1 Introduction

The research on social mobility has historically focused on male intergenerational economic mobility and specifically father–son comparisons. Women have been overlooked, perhaps due to the invisibility of women's economic contributions to many scholars or difficulties assessing these contributions empirically, given that many women do not participate in the formal labour market. This oversight is disquieting and severely limits our understanding of the determinants, outcomes, and consequences of social mobility globally. As Hirvonen notes, 'It is reasonable to say that as much as half of the picture is missing through sole consideration of the intergenerational link between fathers and sons, since the socioeconomic characteristics of both parents affect the mobility pattern of their offspring' (2008: 778).

In contrast, there has been a recent wave of research on the role of 'culture' in economics in the last two decades, with particular attention to the cultural determinants of women's labour force participation. One strand of this work examines the intergenerational transmission of gender attitudes and norms[1] as a cause of the dramatic rise in and subsequent levelling off of women's labour market engagement during the twentieth century in industrialized countries (see Figure 15.1). Gender attitudes refer to individuals' beliefs about the appropriate roles and responsibilities of men and women in society and are generally conceptualized along a continuum ranging from traditional to egalitarian. A growing body of research supports the view that gender attitudes are passed down from parents to children and have significant effects on the economic decision-making of children. In particular, mothers' egalitarian views and less-restrictive gender

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[1] Gender attitudes are also referred to as 'gender role attitudes', 'gender ideology', and 'sex-role attitudes' in the literature. I use the terms 'gender attitudes' to refer to individuals' beliefs and 'gender norms' to refer to group-level beliefs.
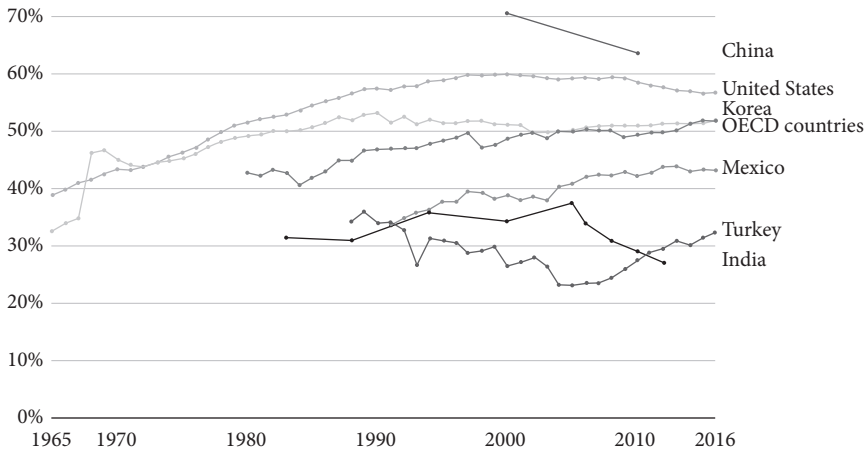
Figure 15.1 Long-run perspective on female labour force participation rates

Source: figure redrawn from Our World In Data (Ortiz-Ospina and Tzvetkova 2017), based on Heckman and Kilingsworth (1986) and OECD (2017).

norms in the community promote greater labour force participation for daughters and daughters-in-law.

There are far fewer investigations of gender norms and attitudes in the Global South, although trends in women's labour force participation are perhaps more puzzling (see Figure 15.1). In multiple countries, women's labour supply has not increased as expected as levels of education and income rise with economic development. Indeed, in some cases, such as China, India, and Turkey, women's employment has fallen in recent decades. Restrictive gender attitudes and norms are more pervasive, more diverse, and could potentially have greater impact in shaping labour force participation for women in transition economies.

The chapter begins with a brief review of the research on women's intergenerational economic mobility. The second section reviews recent research on how gender attitudes and norms affect women's labour force participation. Although the bulk of this work focuses on industrialized countries, it is nevertheless instructive to review this important work and draw lessons for future investigations in developing nations.

The third section discusses new work in sociology on measurement of gender attitudes, which calls into question the unidimensional traditional–egalitarian continuum and reveals a need to re-conceptualize gender attitudes theoretically and methodologically.

In the fourth section, I provide a brief case study of the decline in women's labour force participation in India, with a focus on the theory that culture—particularly families' desire for status—drives preferences for women to withdraw from the labour market. Several recent studies support the status hypothesis

empirically; I argue that an examination of the direct link between gender attitudes and women's labour market engagement can provide a further test of this cultural theory. The final section concludes.

15.2 Research findings

15.2.1 Intergenerational economic mobility of women

There are far fewer studies of intergenerational economic mobility of women than of men. A major constraint has been how to assess women's economic contributions, as their daily productive activities often differ substantially from men's. In many settings, non-trivial proportions of women do not participate in the paid labour force or their participation fluctuates across the life course due to child-rearing, caring for ageing parents, or poverty (for example Goldthorpe and Payne 1986; Torche 2015; Klasen 2019). In addition, most definitions of labour force participation are founded on male-stereotyped classifications of work (Finlay et al. 2019) and do not recognize non-wage labour, such as unpaid family work, or erroneously classify individuals undertaking such work as economically inactive (Deshpande and Kabeer 2019). Involvement in productive services, such as housework and care work, which are undertaken to a large extent by women, are generally not included in definitions of labour force participation at all (Deshpande and Kabeer 2019; Klasen 2019). Furthermore, many surveys do not collect information on women's economic contributions across generations.

These issues have hampered research in industrialized countries and are relevant for assessing economic mobility in many developing countries today. One early solution was to exclude women with no earnings in intergenerational mobility calculations, while more recent studies assess women's contributions with husbands' or family income, or compare daughters to fathers, given the difficulty in measuring incomes in mothers' generations. Some studies use available data for women in both generations, making mother–daughter comparisons possible.

Issues surrounding the measurement of women's economic contributions underscore an additional point: that women's status and economic positions are often related to or determined by their connection to men, first as daughters and then as wives and mothers. As such, assortative mating plays a significant role in women's social mobility (Chadwick and Solon 2002; Hirvonen 2008). Because people tend to marry those with similar socioeconomic backgrounds, men's status is transmitted to their wives upon marriage, which pools economic (dis)advantages and can make society less mobile (Hirvonen 2008: 779; Black and Devereux 2010).

Research in industrialized countries has not only tracked women's economic mobility but several studies also assess the role of assortative mating. Overall,

studies find that daughters' mobility is slightly greater than sons'. Examples include a study by Jantii et al. (2006), who compare father–daughter and father–son earnings in the Nordic countries (Denmark, Sweden, Finland, and Norway), the USA, and the UK. Using parent–child pairs (both parents' income related to each child), Hirvonen (2008) finds that intergenerational income mobility is somewhat greater for daughters than sons in the USA and Sweden. Chadwick and Solon (2002) compare sons' and daughters' family income (husband and wife combined) to their parents' income in the USA and find a similar pattern. Both of these latter studies conclude that assortative mating underlies the intergenerational transmission of economic status, and it plays more of a role for daughters than for sons.

Multiple recent research papers examine social mobility for women in developing countries. With respect to educational mobility, a study in 18 Latin American countries finds increasing educational mother–daughter mobility rates over a 50-year period (Neidhoefer et al. 2019). They observe the expected inverse relationship between assortative mating and intergenerational mobility, but note that levels of assortative mating have decreased in Latin American over time, contributing to the decline in educational persistence. In India, Emran and Shilpi (2015) calculate both intergenerational and sibling correlations to study the evolution of educational mobility. They find no change in educational persistence for men and a decline for women, particularly among urban women and women from lower castes. Women have lower mobility than men in rural areas, but the gender gap has closed in urban areas.

There are several studies of mobility in China, which is an interesting case given the transformation to a socialist regime in 1949 and the promotion of female labour force participation thereafter. Market reform, initiated in 1978, has liberalized the economy and led to sizeable occupational and educational expansion. Li (this volume) takes a long-term view of intergenerational occupational mobility by examining parent–son and parent–daughter pairs (the highest parental occupational position is used, whether father's or mother's) across this period. His analysis reveals substantial and continuing increases in occupational mobility rates for both men and women across cohorts, and slightly more for women, likely because of their lower starting points.

Two studies from urban China investigate intergenerational income mobility focusing on the decades after market reform. Gong et al. (2012) and Deng et al. (2013) examine father–son and mother–daughter pairs and find relatively high intergenerational income elasticities for both. Under the assumption that assortative mating would increase daughters' income elasticity compared to sons, they argue that the negative effect of assortative mating is offset by the positive effect of women's own labour supply. The authors underscore that Chinese women have been much more active in the labour market than their counterparts in most industrialized countries, which increases their mobility. Overall, these studies

paint a picture of rising social mobility for men and women over time in China, yet intergenerational income persistence since market reform.

In an interesting comparative study, Emran and Shilpi (2011) investigate occupational mobility in Vietnam and Nepal. Mobility is measured as the movement from a farm to a non-farm occupation for mother–daughter and father–son pairs. They find that daughters face more restricted occupational mobility than sons in both countries, and that Vietnam shows higher mobility than Nepal for both sons and daughters. In addition, in the case of Nepal, mothers' non-farm participation exerts a strong influence on daughters' occupational choice, while there is no such effect for men in Nepal or for men or women in Vietnam. The authors posit that women's more restricted mobility in Nepal could be due to 'cultural inheritance' arising from such factors as gender norms that restrict social and economic interactions. The significant influence of mothers' non-farm participation in particular suggests that gender attitudes and behaviours are transmitted intergenerationally from mothers to daughters.

Based on the studies briefly reviewed here, women's economic mobility appears to be slightly greater than men's in developed countries and higher, the same, or less than men's in developing countries depending on the context. These studies also suggest that social and cultural factors can restrict women's mobility, including assortative mating and gender norms and attitudes regarding women's work, both of which appear to be stronger determinants in developing countries.

15.2.2 Gender attitudes and women's labour force participation

There is a growing body of research in economics on 'culture', defined as customary beliefs and values that are transmitted by social groups across generations (Giavazzi et al. 2009). Beliefs, preferences, and attitudes can fundamentally change children's approach to decision-making and have implications for a range of economic outcomes. Multiple studies have shown that attitudes and preferences are important pathways for the intergenerational transmission of economic outcomes beyond wealth and other economic factors (Farré and Vella 2013).

Gender attitudes and norms are a specific type of cultural beliefs. Gender attitudes are individuals' views on the appropriate roles and responsibilities for men and women in society in the important domains of the community, work, and family life (Davis and Greenstein 2009). Gender attitudes are usually conceptualized along a continuum ranging from traditional to egalitarian. Individuals who hold traditional attitudes support the notion of 'separate spheres', in which men and women possess separate, innate responsibilities in the public sphere of the labour market and the private sphere of the family, respectively. Those who espouse egalitarian attitudes, in contrast, view men and women as essentially equal in their abilities at work and at home and believe that they should share

these responsibilities. Gender attitudes refer to beliefs at the level of the individual, whereas prevailing attitudes within a larger group or community are generally referred to as gender norms.

Within the research on culture in economics, a primary focus has been on women's labour force participation. Much of this work builds on Goldin's (1995) conceptualization of a U-shaped trend in women's labour supply during the course of economic development. Women's labour market participation is initially high in agrarian economies, where housework and fieldwork are handled together, and then falls as societies transition to industrial economies, where housework and market work are spatially separated. Stigma arises for married women working outside the home, and women thus withdraw from the labour market in those families that can afford it (Mukherjee 2015). In later stages of development, when families become more affluent, education levels increase and fertility falls, norms restricting women's outside work decrease and women's labour force participation rises.

Recent work in the USA focuses on the increase in women's labour force participation in the latter half of the U, which is followed by a flattening, particularly among married women. This so-called S-shaped pattern is found in multiple industrialized countries in the twentieth century in the post-Second World War II (WWII) period. Multiple explanations have been offered for the upward trend in particular, including less gender discrimination in the marketplace and new technologies, such as household appliances or the contraceptive pill.

Several studies hypothesize that cultural factors, including the intergenerational transmission of gender attitudes, are partially responsible for the S-shaped pattern. Attitudes and norms can affect both labour demand and labour supply, and I concentrate on the supply side. Scholars have used multiple approaches to identify the effect of gender attitudes and norms, including the use of proxies and attempts to measure gender attitudes and norms directly.

Proxies for gender attitudes

Three general approaches have been used to isolate the effects of gender attitudes on women's labour force participation by relying on proxies or inferences about the intergenerational transmission of such attitudes. First, the 'epidemiological approach' studies immigrants to isolate the effect of culture from other factors (Fernández 2007). Immigrant groups have the same institutional set-up in the destination country as natives but come from different cultures. Those from the same origin share the same culture and have inherited their parents' preferences and beliefs regarding the role of women in the family and workplace. These studies examine how gender attitudes and norms in the origin affect women's labour force attachment among immigrant groups in the same destination.

Several studies use the female labour force participation rate among the previous generation in the origin country as a proxy for parental gender

attitudes (Antecol 2000). They find that second-generation immigrant women in the USA from countries with high women's employment rates work more in the destination than those from countries with low participation rates (Fernández 2007; Fernández and Fogli 2009; Blau et al. 2011). Men's labour supply is unaffected by origin-country women's employment, further supporting the view that gender norms are operating (Blau et al. 2011). There are fewer studies of migrants in developing countries. Guner and Uysal (2014) examine the labour force participation of internal migrants in Turkey with similar results. They find that women's employment rates in one's origin province in 1970 (around the time migrants were born) affect their labour supply currently. The authors of these studies interpret these findings as evidence that gender attitudes are transmitted across generations and have an impact on women's economic mobility in subsequent generations.

A second empirical approach infers the role of gender attitudes on women's work over time with 'economic models of cultural change'. The S-shaped pattern of women's labour force participation suggests a process of social learning and information diffusion, here intergenerational learning about married women's long-run pay-off from working. These models begin with women's uncertainty about the negative consequences of working on children. Women inherit beliefs about working from their parents and subsequently update these beliefs after observing nearby women in the previous generation. Higher labour market participation among women in the previous generation reduces uncertainty and increases the participation of women in the current generation. This localized learning process then spreads.

These studies also use the women's labour force participation rate in the previous generation as a proxy for gender norms. Fernández (2013) uses historical US census data, and her calibrated model is fairly accurate in replicating the dynamic S-shaped path of married women's work patterns from 1880 to 2000. Fogli and Veldkamp (2011) include a geographic dimension and examine the diffusion process using county-level data in the USA for 1940–2000. Their model also predicts an S-shaped pattern and shows that the rise in women's labour force participation is also geographically concentrated.

The third approach uses 'maternal employment status' as a proxy for mothers' attitudes towards work. For example, Fernández et al. (2004) find that maternal employment has a causal influence on the gender attitudes of sons, which plays out in the marriage market. These attitudes are transmitted to their sons, who are then more amenable to marrying working women. The authors show that this intergenerational transmission of attitudes can help explain the rise in women's labour force participation in the USA after WWII. Using geographic variation in mobilization rates of men during WWII as an exogenous shock to women's labour force participation, they find that states with higher mobilization had a higher percentage of working women, and therefore a larger proportion of men brought

up by working women. For sons, having a working mother significantly increases the probability that his wife—the daughter-in-law—is employed.

A recent study by Olivetti et al. (2020) focuses on attitude transmission during adolescence, a stage when gender-specific identities are being formed. They argue that adolescent girls who are socialized in an environment where their mothers and their peers' mothers worked are more likely to work in the future. Using AddHealth data from the USA, their results reveal a positive association between maternal employment status and high school peers' mothers' employment status and daughters working for pay as adults. They also find that exposure to a large number of working mothers during adolescence reduces daughters' perceptions that work interferes with family responsibilities, suggesting a specific type of attitudinal change. The authors also find that maternal and peers' mothers' employment does not affect sons' labour market engagement.

Direct measures of gender attitudes

There is a long tradition in sociology of directly measuring individuals' gender attitudes through survey research. These surveys typically ask individuals to indicate their level of support for statements about the appropriate roles and responsibilities for men and women, particularly in the domains of work and family. These statements tap into beliefs such as male responsibility for breadwinning, the acceptability of women's employment, particularly as mothers, and the appropriate division of unpaid domestic work and paid labour between spouses (Davis and Greenstein 2009).

In these surveys, respondents are asked if they agree or disagree with each statement, and response categories are generally ranked on a Likert scale from strongly agree to strongly disagree. The most common practice is to sum individuals' egalitarian responses to create an index ranging from the most egalitarian beliefs for the highest score to the most traditional beliefs for the lowest score. It is important to note that this continuum designates individuals as more egalitarian (or traditional) based on the number of egalitarian (traditional) responses they provide; it does not consider the separate domains in which they espouse egalitarian beliefs. For example, this method cannot distinguish between individuals who believe that both spouses should work but that women are responsible for the family, from those who believe that only men should work but both spouses are responsible for the family. In this simple example, their index scores could be equal. I return to this limitation in Section 15.3 below.

It is also important to note that some studies utilize responses to single statements to measure egalitarian or traditional beliefs relating to a specific topic on theoretical grounds (see the discussion of Fortin 2005 below; see also Pessin and Arpino 2018). In addition, gender norms are often constructed using group-specific averages of individual index scores.

With respect to the intergenerational transmission of gender attitudes and female labour force participation, two types of studies are pertinent. First, social science research finds strong *correlations between parental and child gender attitudes* (Davis and Greenstein 2009). Mothers' attitudes appear to be particularly influential for their children (e.g. Thornton et al. 1983; Platt and Polavieja 2016). Some surmise this is due to mothers spending more time with children than fathers, and time with children is an important channel for socialization and the transmission of attitudes.

There are few surveys in developing countries that contain the data needed to construct gender attitudes indices. Two recent studies in India include such data and assess the attitudes of adolescents and their parents. Larsen and Luke (2017) use data from adolescents aged 12–17 in Tamil Nadu to create a gender attitudes index and find strong correlations between egalitarian mothers and egalitarian children, with no significant difference between sons and daughters. Dhar et al. (2018) create an index using data from adolescents in grades 6 and 7 (average age ~12) in Haryana. They also find that parent and child attitudes are strongly correlated; however, mothers have more influence on daughters relative to sons than fathers do.

The second category of studies include those that examine *mothers' and children's attitudes and their relationship to children's future labour force participation*. For example, two studies examine the link between mothers' gender attitudes and employment of daughters, sons, and daughters-in-law. Johnston et al. (2014) use panel data from the British Cohort Study and measure mothers' attitudes in 1975 when the focal child was five, and children's attitudes are assessed 25 years later. They find that mothers' and children's attitudes are strongly correlated, equally for sons and daughters. In addition, mothers' egalitarian attitudes are associated with higher labour force participation of daughters and daughters-in-law in adulthood. Interestingly, these effects outweigh the influence of mothers' full-time employment. Sons' employment is invariant to mothers' attitudes, which the authors argue suggests that the results are not driven by unobserved heterogeneity.

A study by Farré and Vella (2013) uses data on mothers from the NLSY79 and their children from the CYNLSY79 to measure mothers' and children's attitudes when they were each aged 15–22. They argue that gender attitudes measured in youth are likely to reflect those inherited from parents and are not yet affected by subsequent labour market and home-making experiences. They find that mothers' attitudes have a significant effect on the attitudes of their children, with a slightly stronger association for sons. They also examine the association between children's gender attitudes in youth (presumably transmitted from mothers) and their labour market participation 27 years later. Daughters' attitudes have a significant effect on their future employment, similar to that of having a working mother, although the primary effect operates through the acquisition of education. For

sons, there is a strong association between their attitudes in youth and their wives' labour force participation as adults. Indeed, sons' attitudes have a larger effect than the attitudes of daughters-in-law themselves. There is no effect of sons' attitudes on their own labour market participation.

In an effort to understand the stall in women's labour force participation rates since the mid-1990s, Fortin (2005) conducts a cross-country study using multiple rounds of the World Value Surveys in 25 OECD countries from 1990 to 2001. She relates women's current gender attitudes with their current employment status, arguing that gender attitudes are formed earlier in youth.

Fortin examines individuals' responses to three statements separately, each pertaining to a different aspect of gender relations. The statements tap into beliefs in the male breadwinner ideal, women's traditional role as housewives, and 'mothers' guilt' or the respondent's concern about working while childrearing. The author also calculates country-specific average attitudes of men to capture gender norms, arguing that these are more exogenous than average attitudes of women.

The results reveal that all three variables for women's gender attitudes show significant associations with their employment status. In particular, women who feel 'mothers' guilt' are less likely to work, which is based on disagreement with the single statement, 'A working mother can establish just as warm and secure a relationship with her children as a mother who does not work'. There are no significant relationships between men's attitudes and their employment status. In addition, country-level gender norms are the most powerful factor explaining cross-country differences in female employment rates. Taken together, these findings support Fortin's contention that gender attitudes could contribute to the slowdown in the economic progress of women, particularly 'mother's guilt' or inner conflict regarding combining work and childrearing.

There are few studies in developing countries; however, one recent paper considers women's labour force participation in Turkey, where 50 per cent of women were in the labour force in the 1960s and only 30 per cent in 2015 (Dildar 2015). Furthermore, since the 1990s, traditional attitudes have increased. While there are multiple explanations for these trends, the author investigates the role of gender attitudes.

Using data from the 2008 Demographic and Health Survey for ever-married women, the author constructs an index of internalization of patriarchal norms, including views about women's freedom of movement and household decision-making power. Given that gender attitudes are assessed in adulthood after women have potentially engaged in paid work, the author creates an index of family conservatism as an instrument for their gender attitudes. This index, which includes items relating to marriage and religion in women's natal homes, represents the environment in which they were socialized in their youth. The analysis reveals that women's traditional gender attitudes are associated with lower employment status, and these results are stronger after instrumenting. In addition,

these effects pertain to urban women only where 'conservative values become an obstacle' (Dildar 2015: 54). In rural areas, women have little choice in their employment, as most are engaged as unpaid family workers under the control of their husbands and families.

15.2.3 Interim conclusions

This review of research on the relationship between gender attitudes and women's labour force participation yields several important conclusions. First, gender attitudes are a key transmission mechanism for intergenerational economic mobility beyond wealth and other economic factors. Gender attitudes are transmitted (correlated) across generations and mothers' gender attitudes, women's own attitudes, husbands' attitudes, and group attitudes (gender norms at the level of the school, state, or country) can affect women's behaviour in the labour market. Furthermore, across contexts, more egalitarian beliefs promote women's work and more traditional beliefs constrain it. As such, gender attitudes have been linked to increases, stalls, and declines in women's labour force participation globally.

A particular finding is that mothers' gender attitudes affect their daughters' labour supply. In multiple studies, mothers' employment is used as a proxy for mothers' gender attitudes. Interestingly, when mothers' attitudes and employment are analysed together, mothers' attitudes appear to matter more for children's economic outcomes, suggesting that attitudes have a distinct and important role compared to maternal labour market behaviour.

In addition, mothers' gender attitudes affect their sons' marriage market decisions and ultimately the labour force participation of daughters-in-law. The focus on assortative mating as an underlying mechanism echoes the existing literature on social mobility reviewed earlier. With respect to attitudes, scholars presume that sons choose partners with similar gender attitudes towards work, and thus attitudes become another dimension for marital matching. Nevertheless, there are alternative explanations; gender attitudes could be passed between spouses, such that sons' beliefs acquired from their mothers are transmitted to their wives (Johnston et al. 2014), for example. In any case, we see again that women's social mobility is affected by the men they marry (see also Doepke and Tertilt 2009).

Scholars recognize that gender attitudes may not be exogenous and analyses involving attitudes are not always causal (Black and Devereux 2010). Various analytical strategies have been used to isolate the direct effects of gender attitudes. A common approach is to ensure temporal ordering by assessing attitudes formed in youth (or assumed to be formed in youth) and examining their effect on behaviour in adulthood. Others use instruments for gender attitudes. In most studies, researchers also control for family wealth or income and other potential confounders. Thus, the research suggests that gender attitudes are a cultural force

beyond family economic factors that operate independently to influence women's economic mobility.

A final conclusion speaks to measurement of gender attitudes. Most studies construct an index of gender attitudes based on responses to multiple survey statements, and this index is unidimensional, ranging for traditional to egalitarian views. Some authors utilize single statements that tap into beliefs about a particular gendered role (e.g. Fortin 2005). This suggests that consideration of how respondents answer individual questions about specific gendered domains could shed light on their motivations and potentially conflicting priorities regarding work and family beyond what we learn from the traditional–egalitarian continuum itself. The following section discusses new work in sociology that constructs multidimensional measures of gender attitudes with some of these thoughts in mind.

15.3 Multidimensional gender attitudes

Gender scholars have noted a slowdown in economic progress for women since the mid-1900s in industrialized countries. Increasing trends in women's labour force participation, particularly for mothers, have flattened (see Figure 15.1), and gender inequality in childcare and housework, although decreasing, nevertheless persists. These trends are often referred to as the 'stalled' or 'unfinished' gender revolution (England 2010; Goldscheider et al. 2015).

Sociologists have tracked attitudes for decades and noticed a simultaneous stall in the rise of egalitarian gender attitudes in the 1990s (Cotter et al. 2011). A parallel phenomenon has been the emergence of a hybrid category of gender attitudes referred to as 'egalitarian essentialism'. This viewpoint is a blend of feminist principles of gender equity with beliefs in innate gender differences (England 2010; Brinton and Lee 2016; Peppin and Cotter 2018). Individuals who espouse such beliefs endorse gender equality in the marketplace at the same time as women's responsibility for the home and family (Knight and Brinton 2017; Peppin and Cotter 2018). Scholars hypothesize that this 'separate-but-equal' viewpoint could partially explain the stalled gender revolution (Cotter et al. 2011; Peppin and Cotter 2018).

This hybrid category of beliefs poses several problems for existing theory and measurement of gender attitudes. The long-held traditional–egalitarian conceptualization assumes that individuals' attitudes fall along a linear continuum and fully egalitarian beliefs is the universal endpoint (Knight and Brinton 2017). A closer look reveals a more nuanced reality and the emergence of separate categories of beliefs—such as egalitarian essentialism—distinct from this simple continuum (Cotter et al. 2011; Knight and Brinton 2017). Our analytical models have also been based on unidimensional indices created from attitude questions,

which do not allow for multiple combinations of elements of egalitarianism and more traditional views (Knight and Brinton 2017). Indeed, new research often finds low reliability scores for composite indices of gender attitudes (Grunow et al. 2018), which supports the view that there is greater complexity than the unidimensional continuum permits.

Sociologists have advocated for a new analytical approach to encompass the multidimensionality of gender attitudes. Using the same survey data on gender attitudes, they use clustering techniques, such as latent class analysis, in which individuals are grouped into distinct classes based on their shared views (survey responses) on gender attitudes across domains. Measures of model fit and theoretical considerations are used to decide which models (with different numbers of classes) are most appropriate for the data and setting.

The findings from several papers provide a more nuanced view of individuals' gender attitudes. Three papers use data from World Values Surveys and/or European Values Surveys to obtain multidimensional classes of gender attitudes in numerous European countries (Brinton and Lee 2016; Knight and Brinton 2017; Grunow et al. 2018), and one study in the USA uses General Social Survey data (Scarborough et al. 2019). These studies continue to find traditional and egalitarian classes at the poles, or those who most clearly support the notion of separate spheres or reject it. Importantly, their analyses also reveal several additional hybrid categories that combine traditional and egalitarian beliefs across domains. For example, Grunow et al.'s (2018) 'egalitarian essentialism' class and Brinton and Lee's (2016) 'pro-work conservative' class are analogous to egalitarian essentialism; they consist of individuals who support women's participation in the labour market, but otherwise espouse traditional beliefs.

Several of these papers examine trends in gender attitudes over time (Brinton and Lee 2016; Knight and Brinton 2017; Scarborough et al. 2019). These studies all find large decreases in the percentage of the population continuing to hold traditional attitudes. Traditional beliefs appear to be replaced with the hybrid egalitarian classes such as egalitarian essentialism. Brinton and Lee (2016) argue that the decline in those holding purely traditional attitudes (which includes support for women's complete withdrawal from the labour market) reflects the current economic context; such rigid belief in the male breadwinner/female caregiver model is generally unrealistic, given the need for women's financial contributions to many families.

In sum, the research on multidimensional gender attitudes is a new development in the field and concentrated in industrialized countries. To date, none of these studies have examined these attitudes as determinants of the increases, stalls, or decreases in women's labour force participation, however. Multidimensional gender attitudes could also be important drivers of women's economic mobility in developing country contexts. In this vein, I now turn to a brief review of women's labour force participation in India and the potential role of gender attitudes.

15.4 Women's labour force participation in India

15.4.1 Withdrawal from the labour market

Women's labour force participation has been low in India historically and has been declining further since the mid-2000s (Figure 15.1). Most of the decline is attributable to married women's withdrawal from the labour market (Afridi et al. 2018). These trends have puzzled researchers and policymakers, as women's labour supply is expected to increase with expanding female education, fertility decline, and substantial economic growth, which India has experienced in the last three decades. Indeed, the disconnect between women's education and their expected labour market activity is especially remarkable (Mukherjee 2015).

Multiple explanations have been proposed regarding women's low labour force participation in India, including those related to labour demand and supply. With respect to labour demand, researchers argue that the expanding Indian economy has not been able to absorb lower-educated female workers leaving the agricultural sector for employment in manufacturing jobs, as in Bangladesh (Klasen and Pieters 2015; Alfridi et al. 2018). In addition, many women do not have the appropriate technical and professional education needed for the high-skilled service sector (Abraham 2013; Mukherjee 2015; Lahoti and Swaminathan 2016). Those with moderate levels of education that are usually needed for white-collar professional jobs in sales and clerical work face occupational sex segregation; they are not hired, as these jobs are generally reserved for men in India (Abraham 2013; Chatterjee et al. 2018). Indeed, more restrictive gender attitudes of employers and norms within specific sectors could impede the hiring of women despite their being as qualified as men (Goldin and Rouse 2000; Saha 2012).

With respect to labour supply, there are multiple factors that could inhibit women's participation in the paid labour market and certain sectors. For example, job quality matters; poorly paid and unskilled wage labour is often unappealing to Indian women with some education (Deshpande and Kabeer 2019), and job conditions are often viewed as inappropriate or unsafe for women (Desai and Joshi 2019).

15.4.2 The status hypothesis

In line with the research on culture and women's work in industrialized countries, multiple scholars have offered an additional explanation for women's retreat from the labour market in India: certain cultural beliefs, norms, and practices constrain women's activities outside the household. Cultural factors commonly mentioned include religion (particularly adherence to Islam) and practices such as veiling for women or purdah (female seclusion), which restrict their mobility in the public

sphere (Desai and Joshi 2019; Deshpande and Kabeer 2019). Deshpande and Kabeer (2019) find that religion and veiling are not significantly associated with women's labour force participation, however. Desai and Joshi (2019) consider the moderating effect of veiling and find that rising household income reduces women's participation in wage work to a greater degree among the subsample of women who practise veiling compared to the subsample that do not. One question is whether these effects can explain the decrease in women's labour force participation after marriage in the population over time.

A relatively new theory that accounts for decreases in women's work at marriage and over time is the 'status hypothesis', which posits that Indian women retreat from the labour market due to their marital families' desires to increase their status. This theory aligns with Goldin's (1995) model of the U-shaped trajectory of women's labour force participation; in the early stages of economic development as families become more affluent, stigma arises for married women working outside the home. It becomes normative for women to eschew the labour market or withdraw from it upon marriage. This process plays out strongly in the Indian context, where such cultural norms and attitudes regarding women's proper place in the home exist (Mukherjee 2015; Lahoti and Swaminathan 2016) and have perhaps intensified in recent decades. Economic development and Western influence have heightened concerns with maintaining the traditional Indian home and family, of which women are at the heart (Vijayakumar 2013). As such, a high value is placed on female domesticity, motherhood, and middle-class purity, which outweigh returns to women's outside economic activities. These developments result in a process of 'housewifesation', particularly for those who can afford to forgo women's labour market contributions to the household (Lahoti and Swaminathan 2016: 172).[2]

The status hypothesis turns the accepted definition of social mobility on its head: for Indian women, and for their daughters, social mobility is defined as 'not working' (Abraham 2013).[3] This theory also helps to explain the disconnect between women's education and women's labour force participation. As opposed to education as an investment that aims to increase girls' paid work and engagement in higher-status occupations, it serves as a means of increasing family status (Jeffery and Jeffery 1994; Desai and Andrist 2010). Education teaches girls manners, middle-class morality, and obedience (Jeffery and Jeffery 1994; Basu 2002). In

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[2] Caste is another dimension in which status concerns play out in India. Higher caste status has historically been reinforced through women's withdrawal from the labour market, and women as housewives rather than labourers has recently become an aspiration across all castes (see Eswaren et al.2013).

[3] It is also interesting to note a contrast with contemporary industrialized countries. In these nations, women often withdraw from the labour market at motherhood (particularly where gender norms stress separate spheres and women's responsibilities for home and family, as noted above). In the Indian case, marriage, not childbearing, is the primary event interrupting women's participation in the labour market (Deshpande and Kabeer 2019).

addition, education leads to increasingly better matches on the marriage market (Klasen and Pieters 2015; Mukhejee 2015), which further enhances family status.

The status hypothesis has been tested in two ways. First, several scholars have identified 'status demonstration', such that more affluent households can afford to forgo women's economic contributions and keep them out of the labour force (Papanek 1979). Consistent with this hypothesis, studies find that family income has a negative relationship with women's labour force participation in urban areas of India (Klasen and Pieters 2015), in rural areas (Abraham 2013), and overall (Chatterjee et al. 2018; Sakar et al. 2019). Sakar et al. (2019) also show that family income increases the probability that working women will exit the labour market. This suggests that the rising affluence that accompanied India's economic expansion was also connected to women's retreat from the labour market.

My own mixed methods research in a group of tea plantations in South India provides additional evidence of status demonstration. Many women workers aspire for their daughters to be housewives. Most of the workers are from lower castes and have low levels of education, and plantation work has been a source of stable, relatively remunerative employment for generations (Luke and Munshi 2011). With investments in girls' education—at similar levels to boys'—these mothers aim to protect their daughters from the backbreaking work of harvesting tea leaves either through better jobs or, preferably, through the marriage market. Their goals for their daughters are a good match and an increase in status as housewives (Luke and Thapa 2007). Once again, we find that assortative mating decreases women's economic mobility, and in this case, mothers' status concerns are a driving factor.

A second aspect of the status hypothesis is the identification of 'status production'. With rising affluence, women substitute paid labour with status-producing activities, which require time, energy, and organization. These activities include engaging in community and religious events and preparing for feasts and ceremonies, which help build networks to further social advancement (Papenak 1979; Abraham 2013; Eswaren et al. 2013; Mukherjee 2015). Status production is also centred on the next generation in terms of child education and training. 'Such work, usually performed by mothers, signals the family's present status as well as its future status aspirations perhaps more accurately than any other criterion' (Papenek 1979: 777). In India, managing children's educational trajectories has become even more time-consuming given the increasingly competitive educational system (Chatterjee et al. 2018).

The shift to status production has been identified in several studies through analysis of time diary data. Eswaren et al. (2013) find that household wealth increases the proportion of women's time spent on status activities, defined as religious, social, cultural, and community events and leisure activities. Afridi et al. (2018) find that more educated women spend a higher proportion of their time on household chores and childcare, nearing a full working week for those with higher secondary school education. While these findings support the status hypothesis

that families' preferences have shifted to home production for women, Afridi et al. (2018) offer an alternate explanation: that economic development fosters changes in the relative returns to home production compared with market production for educated women. For example, primary education could have relatively higher returns in domestic activities such as investments in children, and thus women's time is more productively spent at home than in the labour market.

Several researchers also note the potentially negative consequences of strong intergenerational transmission of traditional gender attitudes and decreases in women's labour market participation for women's autonomy in India. While women's withdrawal from the labour market could increase family status, it could come at the cost of lost earnings and bargaining power in the household for women (Eswaren et al. 2013), with attendant negative implications for women's and children's health and well-being (Luke and Munshi 2011).

15.4.3 Gender attitudes in India

The studies reviewed above offer support for the hypothesis that working outside the home is a low-status activity for Indian women, and higher-status activities include those more centred in the domestic sphere, including childrearing. Families' preferences for domestic roles for women—their gender attitudes—contribute to low and perhaps decreasing levels of women's labour force participation across generations. I argue that the status hypothesis could be further tested by examining gender attitudes directly. If a shift in preferences is a key mechanism accompanying increases in affluence, we should find that increasing family wealth is associated with more traditional gender attitudes, particularly those supporting women's place in the domestic sphere.

The status hypothesis considers women's *marital families'* desires for increased status as a key determinant of their labour supply rather than preferences of *specific individuals* within the family. However, studies from industrialized countries reviewed above find that mothers' gender attitudes, in particular, are transmitted intergenerationally to daughters and sons, thereby affecting the labour market participation of daughters and—through sons in the marriage market—daughters-in-law. The underlying theory of gender attitudes asserts that, through socialization and time spent with parents in childhood, children adopt the attitudes of their parents, particularly mothers. With respect to sons, they then match with women (daughters-in-law) holding similar attitudes in the marriage market. Thus, mothers' attitudes affect daughters'-in-law attitudes through the marriage market choices of their sons.

This process could operate somewhat differently in India and other developing countries. While mothers' gender attitudes could be similarly instilled in daughters and sons in childhood, the marriage market may not operate to match sons

with brides who share these attitudes. In India, most marriages are arranged by families, who privilege such characteristics as family wealth, caste, and beauty for daughters-in-law (Banerjee et al. 2013). It could be that sons are paired with spouses who have, on average, dissimilar gender attitudes to sons themselves, compared to married couples in industrialized countries. Furthermore, once married, mothers-in-law have a great deal of influence on the behaviours of their daughters-in-law in India. Thus, in this context, the labour force participation of daughters-in-law could be decided more *directly* by mothers' gender attitudes rather than through the marital matching process.

With respect to the measurement of gender attitudes, the multidimensional classes and their influence on women's labour force participation could operate differently in developing countries as well. I am working with several collaborators to use latent class analysis to construct classes from data on the gender attitudes of matched couples in South India.[4] We hypothesize, for example, that in addition to a class of individuals who hold purely traditional attitudes, a potential hybrid class would hold similar conservative views in all domains with the exception of education. This hybrid class strongly values education for girls (to similar levels as boys) as a means to improve their eligibility on the marriage market and/or the ability to perform domestic duties. This class would be most likely motivated by family status concerns in supporting women's withdrawal from the labour market. In short, a multidimensional framework for gender attitudes provides the opportunity to explore even greater nuances in gender attitudes and norms in their relationship to women's social and economic mobility across contexts.

The hypotheses outlined here regarding individuals' gender attitudes, their latent classes, and their relationship to women's labour force participation in India could have parallels in other developing countries, including China and Turkey. Indeed, my research in China finds that since the economic reform began in 1978, many couples began to de-emphasize women's work and careers and re-emphasize their domestic roles. In addition, men began to value women's education on the marriage market, not as a means to improve labour market outcomes but to create a 'cultured' home environment, especially for raising children (Song and Luke 2014).

15.5 Conclusion

This chapter began with a critique that research on economic mobility has tended to overlook women. Several recent studies in both developed and developing countries have countered this trend, although much more work is needed. An

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[4] Data are from the South India Community Health Study (SICHS). My collaborators on the analysis of gender attitudes include Keera Allendorf, Indiana University, Susan E. Short, Brown University, and Hongwei Xu, Queens College CUNY.

emerging insight is that cultural practices and preferences are key determinants of women's mobility, including assortative mating in the marriage market, and other factors, such as religion and restrictions on women's physical mobility. I have argued that research in developing countries would also benefit from consideration of gender attitudes and norms, echoing Deshpande and Kabeer, who assert that the 'conventional definition of cultural norms needs to be revised, and shifted to focus on the real culprit, viz, the cultural norm that places the burden of domestic chores almost exclusively on women' (2019: 4). This is a fruitful area for new research; however, data on gender attitudes, preferably across generations, are rare in developing country contexts. These data would allow us to test the cultural hypotheses outlined here and their relative importance with respect to other explanations for trends in women's labour force participation and other aspects of economic mobility internationally (Alfridi et al. 2018; Chatterjee et al. 2018; Iversen et al. 2019).

Many international and governmental organizations emphasize women's labour force participation as a means to reduce poverty and decrease gender inequalities in the benefits of economic growth. Research outlined in this chapter illustrates how gender norms and attitudes exert powerful influences on women's labour force participation, which supports the design and implementation of policies that attempt to foster more egalitarian attitudes among women, their families, and communities. However, some scholars argue that in many developing countries, attitudes are deeply held and slow to change, and therefore not particularly amenable to policy intervention, particularly in the short term (Lahoti and Swaminathan 2016; Dhar et al. 2018). There is some evidence of attitude change stemming from smaller-scale interventions (e.g. Flemming et al. 2018), however, which could be modified and improved for specific contexts.

The fallout of the global COVID-19 pandemic and accompanying economic collapse could also propel many women into formal or informal labour markets, as the need for new sources of family income outweigh preferences for women to avoid work outside the home. Although this uptick in women's labour force participation could be temporary, it could nevertheless have significant intergenerational consequences, similar to the effects of U.S. women's temporary entry into the labour market during WWII. The chief effects would likely be felt in the next generation, as mothers' positive attitudes towards women's work are passed to daughters and sons, affecting the labour force participation of daughters and daughters-in-law in adulthood.

Acknowledgement

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16

Social Mobility and Horizontal Inequality

Patricia Funjika and Rachel M. Gisselquist

16.1 Introduction

Research on social mobility has paid considerable attention to links with inequality (Corak 2013). The vast majority of this work, however, has focused on 'vertical' inequality between individuals or households, rather than 'horizontal' inequality between groups in society. This chapter speaks to the latter. It focuses on inequalities between 'ethnic' or 'culturally defined' groups, such as those linked with race in South Africa, indigeneity in Mexico, or caste in India (Stewart 2008: 3).[1] The existence and depth of such inequalities—which may reflect long histories of group-based discrimination—raises clear concerns of social justice, equity, and fairness. A growing research literature suggests they also may contribute to societal conflict and impede economic development (see e.g. Alesina, Michalopoulos, and Papaioannou 2016; Baldwin and Huber 2010; Brown and Langer 2010; Stewart 2008).

This chapter explores the interrelations between intergenerational mobility and horizontal inequality. It argues that mobility—both overall and for disadvantaged groups in particular—helps to explain the persistence in horizontal inequalities over generations observed in many countries. This discussion underscores, for one, the value of looking beyond country-level rates of mobility to consider within-country variation across groups. It is not unusual to find lower mobility for disadvantaged groups. Group-based discrimination (past and present) is a key factor, but other factors—including ethnic geography, social networks, culture, and representation—also play a role. These latter elements in particular can influence not only the 'quality' but also the 'fit' of educational and other public services—and thus the efficacy of parental investment in children. We explore how these factors may influence lower mobility through multiple channels, including human capital investment and parental endowments, credit constraints, peer influences and role model effects, and other Neighbourhood effects

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[1] For further discussion, see Section 2.

(see Iversen, Krishna, and Sen 2019). Moreover, we argue, the relationship between low mobility and persistent horizontal inequality may be a comparatively larger problem for Global South as compared to Global North countries. A variety of factors contribute here; available data suggest in particular—on average— comparatively lower intergenerational mobility, higher horizontal inequality, and weaker state capability and the rule of law, which can have implications for the practice of group-based discrimination and thus for comparative mobility among groups within a given country.

This chapter begins with brief consideration of key concepts and measures. Next it turns to the research literature explicitly linking the two, as well as consideration of available empirical data across countries, suggesting a 'Great Gatsby' curve for intergenerational mobility and horizontal inequality (similar to that shown in other work for mobility and vertical inequality). The chapter then presents more focused consideration of determinants of social mobility and why we may thus find different (lower) rates of mobility for minority and disadvantaged ethnic groups, and why this may be a comparatively larger challenge for low income as compared to high income countries. A final section concludes.

16.2 Concepts and measures

Several concepts are key for this chapter: in addition to social mobility and horizontal inequality, it is important also to consider, what is an 'ethnic' group? Defining the latter with some precision will be important when we turn to the channels through which social mobility and horizontal inequality between ethnic groups are related.

Social mobility is well covered elsewhere in this volume and we build upon that discussion here, in particular Iversen, Krishna, and Sen (this volume). Thus social mobility is understood broadly as 'the ability to move between different levels in society or employment usually from a lower to a higher social class'. We focus on intergenerational mobility, in particular in terms of income and educational attainment. Following much of the literature, we focus on intergenerational elasticity of income (IGE) and thus relative mobility or positional movement (Fields, this volume). Available data suggest that relative mobility is highest in Nordic countries (with IGEs in the range of 0.2) and lowest in high-inequality developing countries, with other wealthy countries like the US and Italy in between (with IGEs in the range of 0.4-0.5) (Piraino 2015: 397). We also touch on absolute mobility, or the outcomes of children from families at a given income level in absolute terms. Chetty, Hendren, Jones, and Porter (2018) for instance point to the relevance of absolute mobility in understanding persistent inequality across racial groups in the US

16.2.1 Horizontal inequality

In conceptualizing horizontal inequality, we also build upon an extensive litera-
ture (see Mancini, Stewart, and Brown 2008). As the focus of this chapter is on
linkages with social mobility, not on the concept and measurement of horizontal
inequality, we build for simplicity on previous work by Frances Stewart and
colleagues, which offers a definition and three key measures that are in common
use in the literature (see also e.g. Alesina et al. 2016; Brown and Langer 2010;
Canelas and Gisselquist 2018b; Cederman, Weidmann, and Gleditsch 2011;
Gubler and Selway 2012).

Horizontal inequality then refers to inequality 'in economic, social or
political dimensions or cultural status between culturally defined groups'
(Stewart 2008: 3).[2] We focus on socioeconomic dimensions, for which commonly
used indicators include income, consumption, and years of schooling. 'Culturally
defined' groups are commonly treated in the literature as synonymous with
'ethnic' groups broadly defined. Thus, previous studies consider horizontal
('ethnic') inequalities among racial groups in Brazil (Leivas and dos Santos
2018), indigenous and non-indigenous populations in Peru (Paredes and Thorp
2015), ethno-regions in Ghana (Langer 2009), and language and religious affili-
ations in Indonesia (Mancini 2008)—to give a handful of examples. (We return
with more precision in the next section to a definition of ethnic group.)

Various measures of horizontal inequality are in common use, ranging from
simple mean differences in indicators of well-being to more sophisticated con-
structs. Mancini et al. (2008) present a strong case for three measures: the group-
weighted Gini coefficient (GGini) which compares the mean in the outcome
variable of every group with that of every other group; the group-weighted Theil
Index (GTheil) which compares the mean in the outcome variable for each group
with the national mean; and the group-weighted coefficient of variation (GCOV)
which measures overall dispersion, capturing variation at all levels of the distri-
bution, not only near the mean. In this chapter, we employ the GGini, which is
arguably the most commonly used of these three measures. Studies of available
cross-national data moreover suggest high empirical correlation among these
three measures (Canelas and Gisselquist 2018b; Mancini et al. 2008). That said,
it is worth highlighting that all measures spotlight different aspects of horizontal
inequality and some are more appropriate than others in considering certain
arguments. For instance, Emran, Ferreira, Jiang, and Sun (2020) points addition-
ally to the relevance of variance in outcomes.

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[2] For more discussion, see Canelas and Gisselquist (2018b).

16.2.2 What is an 'ethnic' group?

Conceptualizing and measuring an 'ethnic' group is the subject of a significant research literature.[3] While popular discussion regularly treats ethnicity as an obvious and simple fact, always with deep roots and long-term fixity, research shows ethnic groups and identities that—however important in social life—are also to some degree fluid, socially constructed, situationally contingent, and sometimes instrumental (Bates 2006; Brubaker 2004; Chandra and Wilkinson 2008; Hale 2004; Varshney 2007). We draw here on Fearon (2003) in defining ethnic groups in terms of prototypical features. This approach both builds upon core findings in the research literature on ethnic groups and speaks to 'common sense' understandings of ethnicity. In this approach, prototypical features of ethnic groups include membership that is 'reckoned primarily by descent by both members and non-members'; that members derive normative and psychological value from membership; sharing of some cultural features, such as language, religion, and customs, by the majority of group members; having a homeland or memory of one; and a sense of shared collective history (p. 201). Such features are prototypical, but an actual ethnic group may lack some of them.

In brief then ethnic groups are social constructions defined by both members and non-members, which influence social interactions. In Section 16.4 of this chapter, both the external and internal elements here are important in understanding why and how mobility may vary within a society across ethnic groups. In other words, average group mobility may be influenced both by how non-members treat members (e.g. group-based discrimination) and by commonalities and social interactions among members (e.g. ethnic social networks).

16.3 Linking social mobility and horizontal inequality

Considerable research attention has focused on the relationship between social mobility and vertical inequality. Becker and Tomes (1979, 1986) is a classic starting point. At the core of the model are altruistic parents who must decide how much to invest in their children. How much human capital children have in the next period is determined by parental investment, children's endowments, and government spending on education. Inequality between groups also has a role here. For instance, children's endowments of capital are determined, it is assumed, by 'the reputation and "connections" of their families, the contribution to the ability, race, and other characteristics of children from the genetic constitutions of their families, and the learning, skills, goals, and other "family commodities"

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[3] We use 'group' loosely here to refer both to collectivities that are organized and mobilized, as well as those that are not and could be labeled categories (see Brubaker 2004).

acquired through belonging to a particular family culture' (Becker and Tomes 1979: 1158). Nevertheless, in comparison to work on the relationship between mobility and vertical inequality, the relationship between mobility and horizontal inequality is comparatively understudied and undertheorized.

One important exception that we return to below is Durlauf's memberships theory of inequality, which focuses on group-level influences on individuals (see e.g. Durlauf 2004). The literature on equality of opportunity also speaks to links (see Ferreira and Peragine 2015; Roemer and Trannoy 2015). Brunori, Ferreira, and Peragine (2013), for instance, argue that inequality of opportunity is 'the missing link between the concepts of income inequality and social mobility; if higher inequality makes intergenerational mobility more difficult, it is likely because opportunities for economic advancement are more unequally distributed among children'.

Especially relevant to our purposes in this chapter is Stewart (2009), which like our analysis speaks directly to the relationship between low mobility and long-term persistence in horizontal inequality.[4] Stewart (2009) argues that persistent horizontal inequality is the result of two 'traps': a 'capability inequality trap', which speaks to how different capabilities (education, health, nutrition) each promote other capabilities, and in turn influence productivity and income; and a 'capital poverty trap', which speaks to how access to each type of capital (human capital, social capital, cultural capital, and physical capital) affects returns to other types. In Stewart (2009), these traps are considered closely related and mutually reinforcing. Moreover, inequalities in capabilities and assets are evident across groups due to asymmetries in social capital and cultural capital, as well as to group-based discrimination. This suggests, she argues, that horizontal inequalities tend to be more persistent than individual inequalities and to require special interventions to address them.

Stewart (2009)'s analysis is a useful starting point for our analysis, which likewise predicts persistent horizontal inequality in many contexts. In this chapter, we aim to further unpack why, with particular attention in light of work on the determinants of mobility, to the reasons that disadvantaged groups may have lower mobility, including the role of group-based discrimination.

16.3.1 The Great Gatsby Curve revisited

Empirical studies have demonstrated a relationship between vertical inequality and intergenerational persistence across countries, which has motivated further study of underlying casual linkages. Krueger in 1992 coined this empirical

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[4] Stewart (2009) specifically considers 'group inequality', thus including other types of groups such as gender.

relationship the Great Gatsby Curve (Corak 2013). As discussed in Chapter 1, typically, the measure of inequality used is the Gini-income measure, and a positive relationship with IGE has been identified: countries with high levels of income inequality have high income persistence levels across generations. Strong correlation is likewise shown between intergenerational persistence and inequality of opportunity (Brunori et al. 2013).

An empirical question then is whether there is likewise a relationship between horizontal inequality and intergenerational persistence. We consider this point briefly before exploring some key underlying causal linkages in Section 16.4.

In terms of data on mobility, we use the Global Database on Intergenerational Mobility (GDIM 2018), a major effort to provide cross-country comparative information on intergenerational mobility. It includes estimates of intergenerational persistence covering individuals born between 1940 and 1989 across 148 economies. Simple averages of reported data here are 0.51 for developing countries and 0.36 for high-income countries (but such averages should be interpreted with caution given challenges of comparison across countries and measures) (see Piraino this volume). From GDIM (2018), we use two measures of intergenerational education persistence, absolute and relative mobility as defined in Chapter 1, and three measures of intergenerational income persistence: the intergenerational elasticity of income 'share 1' which measures the effect of parental education on the income of their children via the effect on child education; intergenerational elasticity of income 'share 2' which measures the effect of parental education on the income of their children via factors other than child education; and intergenerational elasticity of income 'share 3' which measures the effect of parental characteristics such as income or networks on children's income.[5]

Data on horizontal inequality across countries are notably more limited and problematic than on vertical inequality. There are larger gaps in cross-country and over-time coverage. Additional conceptual, methodological—and especially political—challenges in compiling data on ethnic groups means that it is not unusual to find significant gaps in nationally-representative data on major groups (e.g. caste in India) (Canelas and Gisselquist 2018a). Here we draw on two of the best cross-national sources of which we are aware: the first, the Education Inequality and Conflict (EIC) dataset (2015), offers estimates of horizontal inequality—measured using the GGini—in educational attainment (HI-E). The data used below covers a sample of up to 59 countries for the year 2000, of which 51 are currently categorized as developing countries (UNCTAD 2019), for groups classified in the EIC as either 'ethnic' or 'religious' groupings. The second is Østby

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[5]   There were insufficient country data observations on income IGM, which is the standard measure in the mobility literature, to produce the Great Gatsby Curve given the countries for which horizontal economic inequality data was available. The three income share measures are used as a proxy here for relative income IGM and are derived by decomposing IGE income. See Narayan et al. (2018) for a more detailed discussion.

(2008)'s 'horizontal economic inequality' measure, which compares ethnic groups in 36 countries, almost all of which are developing countries, using a composite wealth index based on individual assets sourced from the Demographic Health Surveys (DHS).

As the figures below suggest, this analysis is generally consistent with higher levels of horizontal inequality associated with lower mobility, similar to the original Great Gatsby Curve. Figure 16.1 shows the relationship between measures of education mobility and the EIC's HI-E estimates. The upper panel shows a strong negative correlation between HI-E and absolute mobility. Countries with high levels of horizontal inequality tend to have lower levels of absolute mobility.
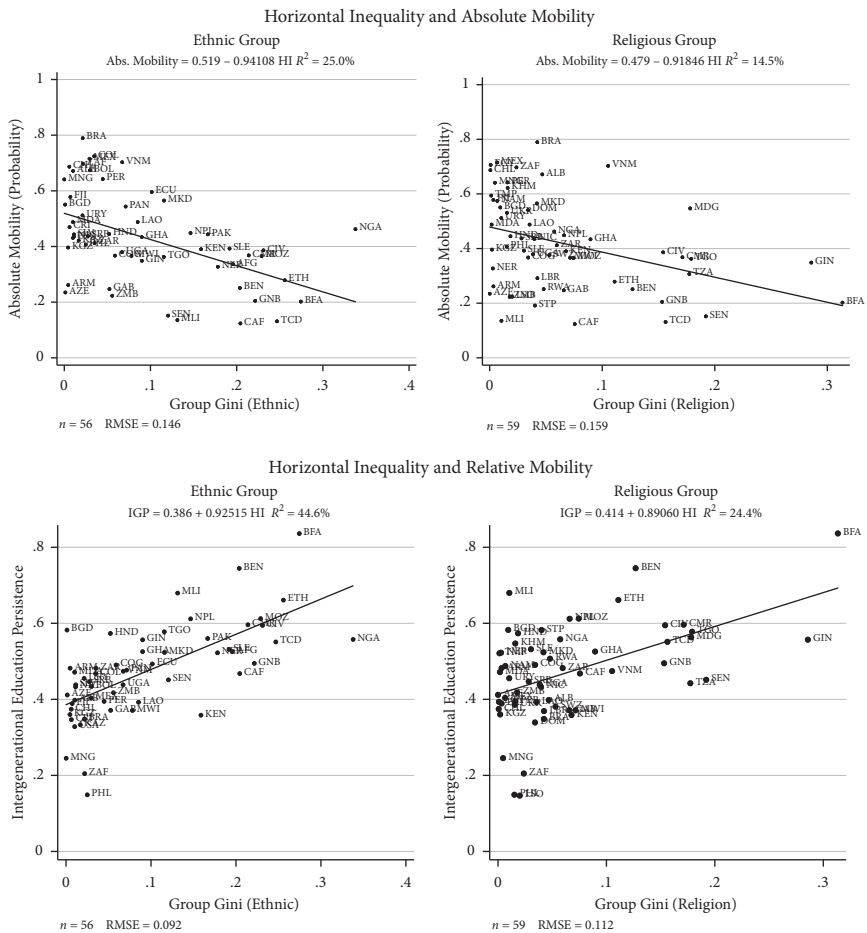
Figure 16.1 The Great Gatsby Curve for education

Notes: the figure displays inequality measured by the GGini education coefficient (x-axis) versus absolute intergenerational mobility and intergenerational education persistence, IGP (y-axis.)

Source: authors' compilation based on GGini from EIC dataset (2015); IGP from GDIM (2018).

A positive relationship obtains with regard to relative mobility, portrayed in the lower panel of Figure 16.1, whether we consider HI-E for ethnic or religious groups. This implies that increased levels in HI-E are associated with increased persistence in education across generations. 'Ethnic' HI-E has the highest level of correlation with intergenerational persistence in education in both cases possibly indicating the significance of this measure of horizontal inequality in developing countries. Which way the causal arrow runs however is open to debate, and our discussion in the next sections speaks to this open question.

Figure 16.2 shows the relationship between mobility and Østby (2008)'s horizontal economic inequality measure. For income share 1 and share 2, countries with high horizontal economic inequality tend to have higher levels of intergenerational income persistence suggesting that when horizontal economic inequality is highest, parental endowments are more important for intergenerational mobility. Interestingly, a positive relationship can be seen between horizontal economic inequality and income 'share 1' and 'share 2', but a negative relationship with 'share 3'. The former is consistent with our expectation that higher levels of horizontal inequality would be associated with lower mobility, while the latter is not. Closer study of the data, including specific countries, is needed to better understand the latter relationship. One possibility is that higher horizontal inequality is linked with one group being better (or worse off) economically
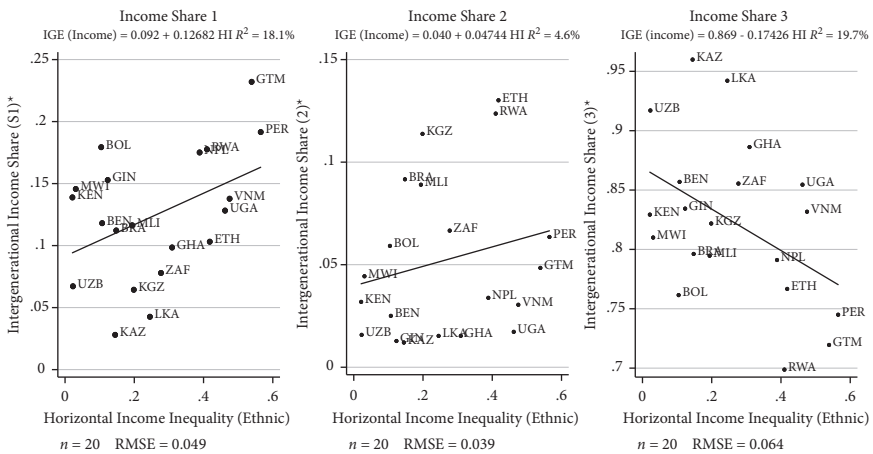
Figure 16.2 The Great Gatsby Curve for income

Notes: the figure displays inequality measured by the GGini income coefficient (x-axis) versus intergenerational income persistence share, IGPshare (y-axis).

Source: authors' compilation based on GGini from Østby (2008); IGPshare from GDIM (2018). *Share 1 measures effect of parental education on the income of their children via their effect on child education; Share 2 measures effect of parental education on income of the children via other factors except child education; Share 3 measures effect of parental characteristics such as income, or networks on the child income.

than others, leading to new circumstances which primarily affect their children's outcome and go along with lower income persistence. On aggregate then, it may not necessarily be that the negative relationship between horizontal inequality and intergenerational persistence is progressive, but that the eventual outcome is ambiguous and should be considered on a group by group basis.

16.4 Determinants of mobility and why it may vary across groups

A key point in the literature on mobility and (vertical) inequality is that, assuming some degree of positive intergenerational mobility, equality should eventually be achieved after some generations. The same expectation can apply also for horizontal inequality; if all groups have the same average and positive rates of intergenerational mobility, horizontal equality should eventually be achieved. That said, if overall mobility is low, it will take longer for equality—whether vertical or horizontal.

Consideration of horizontal inequality, however, suggests the importance of disaggregating mobility—looking beyond national averages to its variation across groups in society. If mobility is in fact lower for disadvantaged groups, and higher for advantaged groups, we can expect horizontal inequality to be extremely persistent over generations.[6] While data on mobility across groups is limited, the data that are available suggest that such variation exists and is not usual: for instance, in Brazil (Osorio 2008), India (Asher, Novosad, and Rafkin 2018; Hnatkovska, Lahiri, and Paul 2013), South Africa (Nimubona and Vencatachellum 2007; Piraino 2015), and the US (Chetty et al. 2018). This section considers the roots of such variation, including why it may be particularly apparent in the Global South.

A starting point for our analysis is Iversen et al. (2019)'s consideration of key determinants of mobility identified in the research literature. Pointing out that this literature has been based heavily on study of Western countries, they explore the applicability of core findings to developing country contexts. They begin with Becker and Tomes (1979) and the influence of *human capital investment and parental endowments*. In developing country contexts, they note, there is evidence of significant association between parental background (especially income and education) and investment in the human capital of children, which could be seen as broadly consistent with the Becker-Tomes model. However, there are also challenges in its applicability for several reasons.

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[6] For a more formal presentation of this argument, see Funjika and Gisselquist (2020).

For one, the model assumes perfect capital markets, while the research literature points to how capital market imperfections can constrain borrowing by poor households thus restricting the ability of individuals to move into occupations requiring high initial investment. Although research on Western countries does not show strong evidence for the impact of such *credit constraints* on mobility, they may be more pronounced in developing countries given lack of collateral among poor households and informational constraints.

The research literature also points to the influence of *Neighbourhood effects* on mobility (Chetty et al. 2018; Chetty, Hendren, Kline, and Saez 2014; Durlauf 2004). Neighbourhood effects may influence mobility through several key channels. *Peer influence and role model effects* in particular may be especially relevant for the poor in all countries and for developing countries in general. They may affect mobility via their influence on individual aspirations; the enforcement of social norms; and the availability of information, guidance, mentorship, and connections for individuals in the pursuit of diverse educational and occupational pathways (see Krishna 2014). Such influences can be reinforcing: for instance, for the poor, there can be a 'self-fulfilling equilibrium where low aspirations lead to low effort, which in turn reinforces low aspirations, generating persistent intergenerational inequality' (p. 245).

Neighbourhoods also can influence children and the efficacy of parental investment through Neighbourhood institutions, especially schools (Solon 2004). Iversen et al. (2019) predict Neighbourhood effects to be more salient in developing countries 'given within-country differences in the provision of public goods, in the quality of primary schooling, as well as the concentration of poverty among socially marginalized groups, who are often located in more remote areas' (p. 245).

As this latter point suggests, several of Iversen et al. (2019)'s arguments with respect to low-income countries (as compared to high-income countries) can be extended straightforwardly to low-income groups (as compared to high-income groups) within countries. Just as mobility in low income countries may be hindered by poorer average quality of schooling, so too may mobility among (regionally concentrated) low income groups within these countries be hindered by poorer average quality schooling as compared to that in wealthier communities. In addition to this, as we consider below, other factors related both to how members of advantaged groups interact with members of disadvantaged ethnic groups (e.g. group-based discrimination) and to commonalities and social interactions among ethnic group members themselves (e.g. ethnic social networks) also may contribute to variation in mobility across groups.

16.4.1 Group-based discrimination

Research on social mobility and ethnic groups has paid particular attention to group-based discrimination, i.e. 'unjust or prejudicial treatment of different

categories of people'.[7] Within the broad framework of the Becker-Tomes model, discrimination can be understood to influence the efficacy of human capital investment by disadvantaged group parents via multiple channels. We draw here heavily on studies of the US where the evidence base on discrimination across multiple sectors is especially developed, offering selected examples from studies in developing countries.

Discrimination in the labour market implies that the same level of investment by parents corresponds to lower labour market outcomes for children from disadvantaged, discriminated-against groups. In the US, research over several decades has found evidence of racial disparities and discrimination in the labour market (Bendick Jr 1998), including its role in the underrepresentation of African Americans in managerial, sales, and other occupations (Gill 1989). While some racial disparities in interviewing, hiring, and advancement can conceivably be attributed to other job-relevant candidate characteristics, experimental studies offer evidence for the isolated effects of ethnic bias and discrimination. For instance, in a field experiment in Boston and Chicago involving random assignment of White and African American names on resumes, Bertrand and Mullainathan (2004) show significant racial differences in callback rates for job applications and market rewards for having better resume. To get one callback, applicants with White names sent about 10 resumes, while those with African American names sent about 15 resumes. This gap between White and African American applicants widens with resume quality. Similarly, in a field experiment in New York City, Pager, Bonikowski, and Western (2009) find significant differences in callbacks and job offers for entry-level jobs for white, black, and Latino job applicants with equivalent resumes. Black applicants fared about half as well as equally qualified white applicants. White applicants just released from prison fared about as well as black and Latino applicants without prison records. Using similar resume audit experiments, Galarza and Yamada (2014) demonstrate ethnic discrimination against indigenous as compared to white job applicants in Lima, Peru, while, focusing on software jobs in Delhi, India, Banerjee, Bertrand, Datta, and Mullainathan (2009) find somewhat conflicting evidence on caste discrimination, concluding that, overall, 'caste identities do not significantly affect the callback decisions of firms'. However, other significant work on India documents widespread discrimination on the basis of caste (Deshpande 2011; Thorat and Newman 2012).

Discrimination in education likewise can imply that the same level of investment by disadvantaged-group parents corresponds to lower outcomes for their children. Research in the US finds disparities both in how teachers discipline children of different ethnicities for equivalent behaviour (Downey and Pribesh 2004; Okonofua, Walton, and Eberhardt 2016), as well as in their expectations for

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[7] https://www.lexico.com/en/definition/discrimination

children of different ethnicities (Harber et al. 2012; Tenenbaum and Ruck 2007), which may negatively influence educational outcomes for Latino and African American children in particular as compared to white children.[8] Evidence suggests that discrimination and implicit bias even influence children at the preschool level, especially for black boys, consistent with disproportionate rates of preschool expulsion (Gilliam, Maupin, Reyes, Accavitti, and Shic 2016).

Discrimination also may influence mobility via credit constraints for members of disadvantaged groups. As Weller (2009: 7) summarizes: 'Household debt can be, if used correctly, the grease for economic mobility. By borrowing, many more families can afford to buy a home, car, or a college education than would otherwise be the case. And debt allows families to smooth out income fluctuations due to short-term spells of unemployment, a medical emergency, among others.' Indeed, access to credit is 'vital' for members of disadvantaged groups 'if they are to overcome the low level of their initial endowments' (Munnell, Geoffrey, Browne, and McEneaney 1996: 25).

Research in the US shows minorities are more likely than whites to be credit constrained (Duca and Rosenthal 1993). With respect to mortgage loans, for instance, Avery, Beeson, and Sniderman (1993) find ethnic (racial) disparities in approval rates controlling for applicant income, region, and other factors, while Munnell et al. (1992) show minority applicants in Boston denied a mortgage almost twice as often as white applicants with similar observable default risk factors. Minorities also may receive less favourable loan terms and may be encouraged to apply for less desirable loans (see Ross and Yinger 2002). Likewise, controlling for differences in creditworthiness and other factors, Blanchflower, Levine, and Zimmerman (2003) show black-owned small businesses about twice as likely to be denied credit.

Discrimination by mortgage lending institutions is one component of discrimination in housing markets. In the US, some of the strongest evidence for discrimination is provided by a series of studies conducted since the late 1970s by the Urban Institute, sponsored by the US Department of Housing and Urban Development (HUD). These studies have employed a paired-testing or audit methodology in which two people, one white and one minority, pose as equally qualified home-seekers (Turner and James 2015). With some changes over years, these studies document that African American and Hispanic home-seekers receive less favourable treatment than white home-seekers, receiving less information and being shown fewer homes and apartments (Turner, Ross, Galster, and Yinger 2002; Turner et al. 2013).

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[8] Selected studies show variation across ethnic minority groups. Drawing on four quantitative meta-analyses, Tenenbaum and Ruck (2007) reports evidence that teachers actually hold highest expectations for Asian American children, followed by European descent children.

Finally, there is evidence of discrimination influencing the distribution of public resources and services, although it can be challenging to isolate in horizontally divided societies whether it is ethnic discrimination at work or lower public resources in poorer Neighbourhoods or discrimination on the basis of economic status or class. In Chicago, Mladenka (1989) finds that 'class has replaced race as the primary determinant of the service distribution pattern'. Using an email correspondence study posing simple queries to local public service providers, Giulietti, Tonin, and Vlassopoulos (2017) find better response rates for emailers with white-sounding names as comparing to those with black-sounding names. In an earlier national field experiment in China, Distelhorst and Hou (2014) found local officials 33 per cent less likely to provide assistance to electronic communication from citizens with Muslim names than to those with ethnically-unmarked names.

16.4.2 Parsing group-based discrimination

Building on the literature summarized above, we also can parse several different aspects of discrimination that operate across multiple sectors to dampen mobility for disadvantaged ethnic groups. Consideration of this variation in turn can shed light on what we expect to observe in low income as compared to high income countries:

One key distinction is between *on-going and historical* discrimination. This distinction is important in Durlauf (2006: 151), which argues that on-going discrimination is much less important than historical discrimination in explaining ethnic differences in socioeconomic attainment. The influence of historical discrimination, he argues, is primarily via ethnic geography and Neighbourhood effects. The studies referenced above document significant ongoing discrimination, suggesting by contrast that the role of ongoing discrimination remains substantial.

A second distinction that is important for our purposes is between discrimination linked with *formal or informal* institutions (or some combination of both). In some contexts, discrimination in formal institutions is clearly at work. Citizenship laws in some countries, for instance, effectively exclude particular groups from national public resources and services (see Manby 2018). One example is Myanmar's 2008 Constitution and 1982 Citizenship Law which define citizenship in terms of officially recognized 'national races', not including Rohingya and some other ethnic groups (Cheesman 2017).

In general, however, we expect discrimination to operate more through informal institutions today given contemporary international norms that place restrictions on explicitly discriminatory legislation (e.g. the International Covenant on

Civil and Political Rights or the International Convention on All Forms of Racial Discrimination). The US examples above are consistent with this: laws such as the *Fair Housing Act* explicitly aim to address discrimination, but discrimination persists in practice.

If discrimination can persist to such an extent in practice in high income, comparatively high rule of law countries like the US, we can expect it to persist as much if not more in low income countries with comparatively weaker state capability and rule of law. Put another way, in Pritchett, Sen, and Werker (2017)'s terms, the 'deals space'—or 'range of informal and personalized relationships that are observed between economic actors and political elites'—tends to be bigger in low income as compared to high income countries (p. 24). Whatever the formal laws against discrimination, therefore, a greater 'deals space' leaves more room for personalized informal institutions and practices, including discriminatory ones. The fact of weaker judicial systems on average also suggests more limited possibilities of legal recourse when anti-discrimination laws are violated (see Hyden, Court, and Mease 2004).

A third distinction relevant to our analysis is between *intentional and unintentional* discrimination (Gisselquist 2019). For instance, some public officials may purposively carry out their duties in a manner that disadvantages members of particular ethnic groups, while others may unintentionally interact with clients in a way that disadvantages members of particular groups. Implicit biases shown in the study of preschool educators cited above is one example of the latter (Gilliam et al. 2016).

Unintentional discrimination also can stem from institutional weaknesses and financial constraints that hinder the implementation of the law. For instance, all children may have a legal right to primary schooling within a reasonable commuting distance from their homes, but this may be comparatively expensive to implement in remote, sparsely populated rural areas where ethnic minorities are concentrated in some countries. Unintentional discrimination of this latter type might be more problematic in low-income countries with higher resource constraints and weaker state capability.

16.4.3 Other ethnic factors

Other ethnic factors also may contribute to differential rates of mobility across groups in horizontally unequal societies. We consider four such factors briefly here. In addition to group-based discrimination, geographic factors also have been highlighted in the extant literature on mobility and touched on above (see e.g. Chetty et al. 2014; Donnelly et al. 2017; Durlauf 2004). Building more explicitly on work in ethnic politics, we also consider ethnic networks, culture, and representation:

Residential patterns, geography, and remoteness

Many (although not all) ethnic groups are linked to particular regions. They may have a historic 'homeland' and be regionally concentrated in and near that area. Regional concentration also can be a result of state policies—for instance, the forced relocation of black South Africans to Bantustans as part of the policy of apartheid. Ethnically segregated residential patterns may likewise stem from informal ethnic discrimination in housing markets, as well as through migration patterns as families relocate to be closer to each other, or industries recruit via networks disproportionately from particular (ethnic) communities.

Neighbourhood effects are the clearest channel through which ethnic geography may affect differential rates of mobility. For one, they are seen to influence the quality (and quantity) of public services. This may be due to discrimination, as well as to the fact that poor communities have fewer resources to support quality public services (Durlauf 2006). State capacity also may be at play when disadvantaged minority groups live in remote areas, where the state's reach is weakest. Likewise, geography can link with peer influence and role models in the ways outlined above.

Social networks

As discussed in Iversen et al. (2019), peer influence and role model effects may influence mobility via individual aspirations, the enforcement of social norms, and the sharing of information, guidance, and mentorship. Ethnicity, which can be an important factor in social organization, thus also can influence mobility via such channels. Residential patterns and ethnic social networks may be closely related, but are also distinct; ethnic social networks unrelated to residence may have influence beyond that of residence patterns. For instance, analysis of cross-ethnic relations in the Philippines shows that residential segregation is only one of multiple factors in intermarriage (McDoom, 2019). In addition, ethnic social networks (regardless of their links with residence patterns), also may be based on deeper or stronger ties than non-ethnic networks, and may play a stronger role in enforcing social norms (see Fearon and Laitin 1996).

An empirical (and arguably open) question is whether ethnicity is more important in social networks in low income as compared to high income countries. The movement in social organization from *Gemeinschaft* to *Gesellschaft*—from group identity to the rational marketplace (Tönnies 1957 [1887]), from Weber's 'community' to 'society'—as countries develop is a core component in theories of modernization. Classic modernization theory would lead us to expect ethnicity to be more important in social networks in low income as compared to high income countries, however work in the modernization backlash shows show clearly that ethnic attachments remain salient in many industrialized societies. Indeed, an important line of work demonstrates linkages between processes of modernization and the salience of ethnic networks (Bates 1974; Hechter 1974).

Culture

Members of ethnic groups typically share some common cultural features, such as a language, religion, customs, or social norms.[9] Because such cultural factors may contribute to making communication easier within rather than across ethnic lines (Deutsch 1966; Hardin 1995), one channel through which they influence mobility is through their relationship with social networks along the lines discussed above.

A second channel is the influence of culture on the efficacy of human capital investment given diverse preferences across groups regarding public goods. For instance, members of different groups may have distinct preferences regarding the primary language of instruction in schools, or the primary language of government. This in turn may have implications for the 'fit' of public services designed for majority as compared to minority cultures. (One implication of this, for instance, is that maternal language education can help to lessen such inequalities.) In a still broader sense, public institutions can be seen to reflect the cultural dominance and preferences of the dominant or majority group, with implications in wide-ranging areas (see Gisselquist 2019). For instance, 'justice' as embodied in many legal systems in Latin America is rooted in Western law traditions that differ from indigenous traditions. The challenge then, Brinks (2019) argues, is not only to improve 'access' to the existing justice system, but to address 'inequality within the system itself' by 'equalis[ing] the conditions under which they can shape the landscape and contest the outcomes', and to pursue alternative notions of substantive justice 'that will more closely reflect their own normative framework' (pp. 348–9).

Likewise, notions of 'cultural capital' can be closely linked to the dominant group culture to the detriment of minority cultures. Farkas, Grobe, Sheehan, and Shuan (1990), for instance, find that 'cultural capital' can influence teachers' judgement of students' non-cognitive and cognitive performance, and also student performance

Representation and role models 'like me'

We have seen above the importance of peer influence and role model effects to mobility. The salience of ethnicity in many societies can add a further dimension: it may be that *in-group* peer and role model effects—from individuals of the same ethnic group—matter most for children (see Yancey, Siegel, and McDaniel 2002). Co-ethnicity also may influence figures in authority in their evaluations of children's performance and behaviour (see Dee 2005).

In horizontally unequal societies, adults from disadvantaged ethnic groups are less likely to have high socioeconomic status as compared to those from dominant

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[9] This is not to say that cultural boundaries are static; indeed, in Hechter (1974)'s argument, cultural difference itself emerges from unequal relations between the core and periphery, while cultural difference and geographic segregation likewise may be mutually reinforcing (see Barth 1969).

ethnic groups, implying fewer high status in-group role models for children from disadvantaged groups. In short, for disadvantaged groups, *underrepresentation*—in high status occupations and positions of influence—may constrain mobility. For members of small minorities as well, the numbers of role models 'like them' can be small, even proportional to the group's population share.

16.5 An example of horizontal inequality and social mobility

In what follows, we use empirical data on social mobility levels for different racial groups in the US from Chetty et al. (2018) and caste groups in India from Asher et al. (2018) and Hnatkovska et al. (2013) to offer a stylized example of how horizontal inequalities can persist over time given initial levels of mobility.[10] We use what is referred to by Stuhler (2012) as 'extrapolation by exponentiation', which is basically extrapolations of the parent–child correlations to the grandparent and great-grandparent, to estimate the number of generations for which initial benefits can last. We adopt a rank-rank specification of intergenerational persistence in income and discuss implications for absolute and relative mobility.

The countries in the example have different levels of horizontal inequalities manifested in different levels of social mobility between groups. The IGE (a relative measure of mobility) varies across groups and is much higher in India than the United States, while absolute mobility levels are similar (with the exception of the US Asian group which attains much higher ranks).

In this stylized example, we hold absolute mobility levels constant and allow relative mobility to vary across generations. As Table 16.1 suggests, initial differences in relative mobility between the groups then should be eliminated by the third to fourth generation, in line with Becker and Tomes (1986)'s expectations. Nevertheless, in both countries what remains by the fourth generation is the intergenerational gap or the absolute inequality measure. In the Indian example then, relative mobility rates are equal across groups in the fourth generation, but Muslim children only attain the 29th percentile given that their parents are of low rank, while 'forward tribes' are in the 41st percentile. Similarly, in the US example, after four generations, absolute inequality levels remain as the driving force for horizontal inequalities and targeted interventions would then be required to reduce the intergenerational gap particularly for 'Blacks' and 'American Indians'. In other words, if mobility levels are different between groups, then there is an implicit delay in the period in which individual endowments are equalized and horizontal inequality can be effectively reduced.

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[10] For fuller discussion of this example, and additional examples, see Funjika and Gisselquist (2020).

Table 16.1 Example on mobility and horizontal inequality over generations

Country	Generation	Group 1	Group 2	Group 3	Group 4	Group 5
UNITED STATES*		Whites	Blacks	Hispanics	Asian	American Indians
Absolute Mobility	Percentile attained	36.82	25.43	36.14	51.44	25.16
Relative Mobility	Generation 1	0.32	0.28	0.18	0.26	0.31
	Generation 2	0.102	0.078	0.032	0.068	0.096
	Generation 3	0.033	0.022	0.006	0.018	0.030
	Generation 4	0.001	0.000	0.000	0.000	0.001
INDIA**		Scheduled caste	Scheduled tribes	Muslims	Forward tribes/others	
Absolute Mobility	PercentileAttained	38	32	29	41	
Relative Mobility	Generation 1	0.4682	0.4682	0.4423	0.4423	
	Generation 2	0.219	0.219	0.196	0.196	
	Generation 3	0.103	0.103	0.087	0.087	
	Generation 4	0.011	0.011	0.007	0.007	

Source: authors' compilation based on *Chetty et al. (2018); **Absolute mobility: Asher, Novosad, and Rafkin (2018); relative mobility: Hnatkovska, Lahiri, and Paul (2013) who take scheduled tribes and scheduled castes to be in the same group as they are both protected entities in the Indian constitution. Assume that zero persistence in income attainment is achieved when relative mobility equals approximately less than one percent (< 0.001).

16.6 Conclusion

Although a growing literature speaks to horizontal inequality, much more attention has been paid to its implications than to its determinants. To the extent that scholarly research has considered horizontal inequality as an outcome, it has focused on long-ago origins due in particular to colonial histories and geographic factors (Alesina et al. 2016; Horowitz 2000; Michalopoulos and Papaioannou 2013) with less attention to contemporary persistence and change (Canelas and Gisselquist 2018b). Addressing this gap in the research literature has direct implications for both theory and policy. This chapter points to some new ways in which social mobility and its interactions with horizontal inequality may contribute to notable persistence in horizontal inequalities.

In terms of policy, for those interested in influencing positive change in horizontal inequality, this chapter suggests several key points: First, horizontal inequality can be expected to be very persistent in many contexts absent policy intervention. Second, universalist approaches can be effective in some situations, but deep horizontal inequality may require group-targeted approaches to address the lower mobility of disadvantaged groups—in addition to broader, more universalist efforts to improve intergenerational mobility overall. Third, time scale matters and has implications for politics. On the one hand, given that horizontal inequality can go along with a risk of conflict and instability (United Nations and World Bank 2018), persistent horizontal inequality and slow moving approaches can pose political risk. On the other hand, targeted interventions that may be necessary to speed up—or make possible—positive change, are also risky and may contribute to increased tensions between groups (see Brown, Langer, and Stewart 2012).

Finally, the above discussion points toward some particular levers of change depending on the factors influencing group mobility levels. For instance, access to justice and legal empowerment initiatives may have some success in addressing discrimination linked to informal institutions and practice by informing individuals from disadvantaged groups of their legal rights and providing assistance in the exercise of those rights (Gisselquist 2019; Goodwin and Maru 2017). Overall, this chapter suggests, the role of the state is important in addressing horizontal inequality through mobility. In particular, attention needs to be paid both to the 'quality' and the 'fit' of public services for disadvantaged groups. For instance, not only should attention be paid to ensuring that schools serving disadvantaged populations have sufficient teaching materials and well-trained teachers comparable to those serving advantaged group populations; attention also should be given to issues of 'fit' such as the language of instruction and the cultural biases that may be implicit in textbooks and other teaching materials.

On the research side, this chapter also points to some core areas for future work. The first relates to extensions of the analysis here, formalization of the framework, and testing of its predictions against empirical data. Another core area

for future research concerns inequalities between different 'types' of groups and why some horizontal inequalities have remained locked in over generations, while others have been more fluid. For instance, how may inequalities between migrants and 'native' populations evolve differently to those between ethno-regional or linguistic groups (see Gisselquist, 2020). A final core area for future work relates to levers of change and paths to reform—including tensions and policy tradeoffs—as suggested in the discussion above. There are number of useful studies upon which to build, many (but not all) focused on the experiences of particular countries (e.g. Adam 1997; Deshpande 2013; Weisskopf 2004). Further building of knowledge in this area is important in informing policymaking to support more equal and inclusive societies.

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17

Social Networks as Levers of Mobility

Anandi Mani and Emma Riley

17.1 Introduction

There are multiple factors that underlie differences in intergenerational mobility across developed and developing economies. This chapter explores the role of one particular set of factors in contributing to these differences: social networks. Examining the role of social networks feels like a natural place to explore intergenerational mobility differences across developed and developing countries, for at least two reasons. First, as Henrich (2017) has argued persuasively, the secret of human success through the ages lies not so much in our innate intelligence, as much as in our ability to *socially interconnect* and to learn from one another over generations; in other words, in our ability to form and leverage social networks. To the extent that economies differ in their degrees of social mobility, it is worth examining this central role of social networks in contributing to such differences. Second, developing economies are characterized by less-efficient markets, weak institutions, and low state capacity. Given asymmetric information and poor enforcement under these conditions, social networks are likely to be especially vital to foster the mutual trust and cooperation that is essential for all manner of socioeconomic activity, growth, and mobility.

However, it is equally true that in counting some members of society as belonging to their 'in-group', social networks, by their very nature, create 'out-groups' of those who do not belong.[1] This may foster growth and mobility for group members, while leaving others behind. On balance, then, questions to answer are: Do social networks enhance social mobility? Or are they a double-edged sword, creating mobility opportunities only for a select few while leaving many or most others behind?

This chapter reviews the recent literature that sheds light on these questions. It examines two distinct types of channels through which social networks can affect mobility in developing countries: the first, more tangible channel is through access

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[1] Such a classification of people as members and outsiders may simply arise because humans have a natural limit to how many relationships they can keep track of, given finite cognitive capacity; this limit is referred to as Dunbar's number, based on the work by Richard Dunbar (1998).

to *material* resources such as credit and insurance, opportunities for migration and trade, or information about jobs. The second, less tangible channel, is through provision of *psychosocial and emotional* resources—personified in role models and peers—that shape our beliefs, hopes, and aspirations, and hence our choices and efforts. In the sections below, we examine the available evidence for specific pathways under both of these types of channels.[2] We also examine policy options to improve outcomes for people who lack access to social networks. The chapter concludes by identifying open questions, opportunities for further research, and policy innovation.

17.2 How social networks affect opportunity

17.2.1 Weak versus strong ties

A person's social network is composed of those he or she has strong ties with (such as kith and kin or close caste members) and those he or she has weaker ties with, such as friends of friends or acquaintances. Those whom we share strong ties with are typically more willing to support us with both material and emotional support—because bonds created by common ancestry, intermarriage, and physical proximity make it easier to enforce norms of mutual reciprocity over time. Strong ties are hence likely to be particularly important for migration decisions, where new arrivals require monetary support and a roof over their head, as well as detailed local information and emotional support (Massey et al. 1993; Palloni et al. 2001). Deep social ties can also facilitate trading activities requiring long-term cooperation (Curtin 1984) and provide access to mutual insurance and credit because such networks make it easier to enforce norms of reciprocity (Udry 1994).

However, strong social networks, especially in developing countries, tend to be populated by individuals who are very similar to each other. This may make it harder to gain access to new information and ideas from outside the network. In contrast, the 'strength of weak ties' consisting of more disperse friends of friends lies in being able to have access to *new* information that may be helpful for finding out, for instance, about job opportunities (Granovetter 1974, 1977; Leinhardt 1977), potentially beneficial new technologies (Griliches 1957; Rogers 1962), and other opportunities.

In the next subsection, we examine the effects of both types of social ties on tangible pathways and opportunities for mobility—first strong ties and then

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[2] Notwithstanding the many plausible theoretical pathways through which networks can affect social mobility, we acknowledge that there are many empirical challenges involved in actually establishing evidence in favour of specific pathways. See Munshi (2014) for a discussion of these empirical identification challenges. Also see Chandrasekhar et al. (2018) for network formation.

weaker ties. Accordingly, we examine the effects of networks on migration, trade, credit and insurance, and jobs.[3]

17.2.2 Migration

Migration is a key route out of poverty (Beegle et al. 2011). The average male migrant is able to earn 5.6 times as much in the USA as in their home country if they are able to migrate (Clemens et al. 2019). The literature shows that having a wide social network at the site of migration can facilitate migration in two ways: (1) providing material and social support, and (2) providing information about earnings opportunities.

First, looking at internal rural-to-urban migration, Chen et al. (2010) show that in China internal migration rises steeply in terms of migration of co-villagers, and that this is due to villagers helping each other with both migration costs and job search. Similarly in China, Foltz et al. (2018) find lineage networks increase migration through credit access and that this effect is strongest for the poor. Such lineage, or family-based, migration therefore reduces village inequality, as the poor benefit more. Migration can also have large benefits for those who remain at the origin village, through increased risk sharing (Meghir et al. 2019). However, despite great benefits for the poor, the income risk they face discourages their migration—unlike richer individuals who can choose to migrate even without relying on social networks. This gives rise to large and persistent urban–rural wage gaps (Munshi and Rosenzweig 2016).

Social networks are likely to play an even more vital role in facilitating movement towards jobs across borders than they do within borders (Massey et al. 1993; Palloni et al. 2001). Migrants, new to an area, will experience larger information frictions in international migration. Munshi (2003) finds that Mexican migrants to the USA are more likely to be employed and to hold a higher-paying non-agricultural job when their network is exogenously larger due to past (negative) rainfall shocks in the origin community. The network therefore plays a key role in ensuring good labour market outcomes for its members.

The benefits of the social network to new migrants need not be linear with respect to its size, however; rather, the benefits of migration may depend on the stock of existing migrants (Carrington et al. 1996). For instance, Beaman (2012) finds an inverse U-shaped relationship between migration and the existing stock of migrants between Mexico and the USA. Migrants benefit from having established members in their networks but, due to direct competition, experience a deterioration in labour market outcomes from members of their social network

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[3] In Mani and Riley (2019) we also examine their impact on technology adoption.

recently migrating. Likewise, McKenzie and Rapoport (2007) also find evidence for an inverse U-shaped relationship but show that a large migration network is able to overcome the need for wealth to migrate, and so the poor are more likely to migrate when there is a larger network of existing migrants. However, Blumenstock et al. (2019) find, using detailed individual-level mobile phone usage data from Rwanda over a five-year period, that the relationship between the size of the network and migration rates is roughly linear. They also find that migrants prefer *interconnected* networks (i.e. where multiple people know and interact with each other) within which they can have strong ties and rely on others for social support.

17.2.3 Trade

Migrant networks facilitate trade between the origin and source countries. Immigrants have knowledge of local markets and tastes, language skills, and business contacts that have the potential to reduce transaction costs in trade and allow members to better take advantage of opportunities (Gould 1994).

Historically, the main way trade took place was within trade diasporas, where close network links allowed cooperation (and moral hazard) problems to be overcome (Curtin 1984). Greif (1989, 1992, 1993) describes the case of Maghribi Jewish traders of the medieval era, hypothesizing that they were able to overcome contractual problems associated with agency trade due to their close social network. The Maghribi Jews' strong reputational mechanisms within their network enabled them to overcome commitment problems and established their dominance in trade. However, the size of the Maghribi network was not determined by the available trading opportunities, and so was likely inefficiently small. This was compounded by efficiency losses resulting from reluctance to trade with non-Maghribis, particularly as opportunities expanded with new trade routes, better legal protection, and institutions.

Rauch (1996) argues for a second reason why social networks may be beneficial for trade: differentiated products with high information costs on both sides, wherein networks can more effectively match buyers and sellers. Rauch and Trindade (1999) show that even relatively small ethnic communities can increase trade, mainly by enforcing community sanctions and thereby deterring opportunistic behaviour. Empirically, Parsons and Vezina (2018) take advantage of a natural experiment to show that places where Vietnamese refugees were exogenously located during the embargo period saw the fastest growth in trade after the embargo was lifted, providing support to the above theoretical predictions.

Casella and Rauch (1997) look at the wider benefits of trade networks, showing that group ties increase trade and are beneficial to the economy as a whole, as well as group members. They do, however, disadvantage non-members, with the

largest losses for those with the poorest domestic market niches. They find that trade networks may have larger negative effects in multi-country settings by diverting trade from the most efficient patterns.

17.2.4 Credit and insurance

Social networks provide informal insurance and credit to their members (Townsend 1994; Udry 1994); the extent to which individuals are able to insure themselves through others depends on how close they are to them socially (Chandrasekhar et al. 2018). Both Fafchamps and Lund (2003) and Dercon et al. (2006) show that reciprocal insurance against shocks takes place primarily through networks of family and friends rather than through geographical relationships, such as within a village. Again, these networks are primarily deep networks allowing for reputation building. Shocks seem to be at least partially insured through these networks. New technologies are increasing the ease of risk sharing with a wider network over larger geographical areas through reductions in transaction costs (Blumenstock 2014; Jack and Suri 2014) while potentially penalizing those without access to, or ability to use, new technology (Riley 2018a).

Munshi (2011) showed, using data from the diamond industry in India, that, by providing mutual support for their members, social networks substitute for inherited wealth and parental human capital. They can therefore overcome the dominance of industries by privileged income groups and allow their members to move into new occupations through bootstrapping their way out of poverty.

Social networks can also be an important source of credit enabling a household to make lumpy investments in assets and enterprises. Kinnan and Townsend (2012) show that kinship networks are also important sources of funds for investments, particularly large investments that would be too large to collateralize out of assets. Johny et al. (2017) find that strong social network links allow households to take risks with income diversification. Likewise, Angelucci et al. (2017) find that households share cash transfers given through Progresa with their kin and that this allows both consumption smoothing and higher-return investments to be made.[4]

However, there is evidence that traditional kinship sharing networks can reduce investment, particularly in assets that can be easily shared, distorting investment decisions (Di Falco and Bulte 2011). Likewise, Jakiela and Ozler (2016) find experimental evidence that households are willing to forgo higher returns to keep income hidden from kin. Such a social tax has been demonstrated both within lab experiments and outside of them (Baland et al. 2011; Boltz et al. 2019).

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[4] Progresa, later known as Oportunidades and now Prospera, is Mexico's national conditional cash transfer programme.

Kinship taxes may also reduce business productivity (Squires 2018). Kinship networks also reduce investment in alternative risk mitigation methods (Di Falco and Bulte 2013) and migration (Morten 2016). Empirical evidence has shown that the rich may form social groups that exclude poorer members (Arcand and Fafchamps 2011; Hoang et al. 2018). Those excluded from them are more likely to be poorer to begin with, and hence find it harder to save their way out of poverty in the absence of a supportive social network (Chantarat andBarrett 2012).

17.2.5 Jobs

Social networks are also an important determinant of access to jobs, but here the breadth of network matters for effectively transmitting information about opportunities (Granovetter 1974). In developing countries 40–85 per cent of job searchers find their job through family and friends (for Ethiopia, see Caria et al. (2018); Serneels (2007); for India, see Beaman and Magruder (2012); for Colombia, see Nicodemo and García (2015); and for the Middle East, see Gatti et al. (2014)).

Economists have long modelled social networks as facilitating job opportunities through a reduction in search costs (Calvo-Armengol and Jackson 2004; Topa 2001). This channel is likely to be even more important in developing countries, where information frictions are larger (Wahba and Zenou 2005). Many employers actively encourage referrals from employees' social networks because of the benefit this brings in terms of adverse selection problems and screening (Montgomery 1991). Referred employees may also work harder so as to not make the person who referred them look bad, thus overcoming moral hazard problems (Dhillon et al. 2013). However, a key motive for workers to refer others in their network is reciprocity and risk sharing (Beaman and Magruder 2012; Witte 2018), with employees referring those closest to them in their social network, such as family. As a result, such referrals based on lineage and social network reciprocity may not provide the person who has the best skill-set for the job, who would be the most effective hire for the firm.

Network-based referrals also have negative effects for those not in the network. Witte (2018) finds that the reciprocity motivation of referrals leads to the exclusion of individuals on the periphery of social networks, increasing inequality. Beaman et al. (2018) finds that job-referral networks result in few women being referred by men, despite men being capable of referring equally qualified women when required to. Caria et al. (2018) find that providing job-seeker support to just some people in a social network reduces information and resource sharing across the network and worsens the search efforts of those not given assistance.

Social networks that may have worked well historically can also hinder mobility when new opportunities emerge. Munshi and Rosenzweig (2006) find that traditional caste-based social networks continue to channel lower-caste males into schools that lead to traditional occupations, despite the rapid rise in returns to white-collar occupations during the 1990s. Lower-caste girls, who historically did not have networks based on occupation, are able to switch to English schools that better allow them to take advantage of new occupations.

17.3 Social networks as aspiration windows

17.3.1 Beliefs about the self

So far we have discussed opportunities, but for people to actually take advantage of an opportunity they must believe they are capable and that the desired outcome will follow from their efforts (Bandura 1977, 1997; Rotter 1966). Indeed, the outcomes realized from our current efforts shape our future aspirations too; failing to recognize this two-way feedback between aspirations and outcomes could contribute to low social mobility from an aspiration failure, especially among the poor (Dalton et al. 2016). Thus, people need a sufficient sense of self-efficacy and a strong internal locus of control to achieve social mobility. Both of these concepts have been strongly linked to whether an individual exerts effort or not (Maddux 2000) and are key determinants of economic outcomes (Almlund et al. 2011; Heckman and Kautz 2012; Heckman et al. 2006). While self-efficacy is primarily affected by your own mastery of tasks, secondary vicarious experiences of observing others similar to yourself succeed at tasks also provide evidence as to whether you yourself would succeed (Lybbert and Wydick 2018).

Interventions have targeted self-efficacy by trying to change people's beliefs about their capacity to achieve desired outcomes. In India, McKelway (2018) shows that an intensive intervention aimed at generalized self-efficacy increases women's employment in the labour market. Another intervention in India targeting a range of non-cognitive skills including agency and aspirations also raised self-efficacy in adolescents, as well as self-esteem (Krishnan and Krutikova 2013). Krishman and Krutikova also find descriptively that both self-esteem and self-efficacy are positively linked to later educational and labour market outcomes. Self-esteem has also been shown to be an important determinant of economic decisions, with sex workers in India making more future-oriented savings and preventive health choices in response to an intervention that bolstered their self-image (Ghosal et al. 2015). Looking at the broader concepts of hope and aspirations, Valdes et al. (2018) find that an intervention designed to raise hope among microfinance clients raised their aspirations, future-orientation and hope, and improved business performance.

17.3.2 Aspiration windows

The social network is an important determinant of people's beliefs and aspirations about the future, which further drives behaviour. Ray (2006) argues that individuals' goals, aspirations, and beliefs are socially determined by those around them: they have an aspirations window. This window is formed through their social network in the form of peers and role models who are similar spatially—economically and socially—and whose outcomes are attainable.

Genicot and Ray (2017) build on Ray's work to develop a model of socially determined aspirations with bi-directional feedback between individuals and society. A crucial feature of this model is that how far an individual's current standard of living is from their aspirations gives an *aspirations gap*, which drives behaviours. If there is no difference between an individual's current standard of living and their aspirations, they have no reason to change their behaviour. Likewise, if an individual's aspirations are too far from their current experience, they will have little incentive to try to close the gap as they will remain far from their goal. Evidence in support of the U-shaped relationship between aspirations and effort, as well as the social dimensions of aspirations, has been found in Nepal, India, and Ethiopia (Janzen et al. 2017; Mekonnen 2016; Ross 2019).

An important question is who enters into an individual's aspiration window. A person's peers and neighbours[5] certainly go into the window, with 'keeping up with the Joneses' effects widely documented (Bursztyn et al. 2014; Galiani et al. 2018). More broadly, social mobility itself influences the width of the aspiration window: higher mobility allows a larger window of others whose outcomes feel within reach (Ray 2006).

However, the poor may have aspiration windows that lack positive role models. This may be due to restrictions on who can be within their aspiration window based on economic and social dimensions, such that the rich are excluded, or due to limited flows of information preventing stories of success from filtering back. This smaller aspirations window constrains their 'capacity to aspire' (Appadurai 2004). The 'capacity to aspire' is where a social group can both envision the future and their capacity to shape this future. As Appadurai (2004: 69) argues: 'The more privileged in society simply have used the map of its norms to explore the future more frequently and more realistically, and to share this knowledge with one another more routinely than their poorer and weaker neighbours. The poorer members because of their lack of opportunities to practise the use of this navigational capacity...have a more brittle horizon of aspirations.' The poor may therefore not only lack the resources to take risk and learn about their potential, but also have less opportunity to learn about their potential from each other. The

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[5] The degree to which neighbourhoods shape opportunities is examined in detail in Mani and Riley (2019).

lack of examples of members of their social group making a success may further reinforce beliefs that they cannot succeed.

17.3.3 Real-life role models and peers

Ray (2006) argues that your aspiration window is defined by not only peers and those you interact with around you, but also role models you observe and relate to. Who you can relate to, and aspire to be like, may itself depend upon the extent of mobility in the society you live in: the greater the perceived mobility, the larger the set of potential role models. As Ray (2006: 3) argues: 'A bonded labourer may believe that there is an unbridgeable wall between him and the local shopkeeper in the village; if labour is free to move and possibly change occupations, such comparisons may well be made.'

Exposure to leaders has been shown to impact aspirations and behaviours, with the channel argued to be aspirations. In India, Beaman et al. (2012) use natural random allocation of female leaders to study the impact on girls' aspirations and educational attainment. They find that in villages with councils which were randomly assigned to have a female leader in two electoral cycles, adolescents and their parents have a lower gender gap in aspirations. They argue this impact operates through a role model by ruling out other potential channels. Kalsi (2017) uses the same natural experiment to look at the impact of female leaders on sex selection, finding higher chances of survival for girls if local political seats are reserved for women, due to changes in beliefs.

Capturing a role model in a mentorship role, Macours and Vakis (2014) use random variation in whether local leaders received an intervention designed to raise agricultural production to see if their example influenced productive invest-ments and attitudes of other female beneficiaries. Female leaders who were assigned to the production intervention successfully started new activities, and female beneficiaries who interacted socially with them also increased their pro-ductive investments, as well as other future-oriented activities such as human capital investment. The authors interpret this as a shift in attitudes towards the future through increased capacity to aspire. Mentorship role models have also been shown to improve female businesses by providing localized, context-specific knowledge and access to opportunities (Brooks et al. 2018).

Role models might be particularly important to navigate through the education system by providing not only information about the value of education but also relevant information about job opportunities that education will open up. They may also be able to combine this information with a degree of mentorship and knowledge of the detailed steps it takes to actually gain a professional job. Teachers may be in an important position to act as role models by providing information and aspirations for better-quality jobs, as well as provide mentorship,

particularly for those from poorer backgrounds who lack access to family networks or contacts in professions (Krishna 2013, 2014). As Krishna argues, those from poor rural backgrounds often have no idea how to even start applying for some professional jobs—that is if they even know the job exists. Teachers can be in a position to provide this knowledge and mentorship. Eble and Hu (2018) find that female maths teachers increase self-belief, aspirations, investment in education, and test scores for girls with low perceived ability in China. They carefully rule out that female teachers teach differently, arguing that the only difference is an ability to act as a role model. Likewise, Paredes (2014) looks at the wider impact of female teachers, finding that girls benefit, in terms of test scores, from being assigned female teachers, while there is no impact (positive or negative) for boys.

Overall, research into role models suggests this is an exciting area where behavioural change can be made through low-cost, scalable interventions. However, there are still many open questions around who makes the best aspirational role model, how important the provision of information is, and whether that information needs to be tailored in a form very specific to the individual, such as through a mentoring relationship. Questions also remain about the extent to which media-based role models that are easily scalable can induce behavioural and attitudinal change through one-off versus prolonged exposure. We revisit these issues in Section 17.4.

A person's peers may also have similar effects to a role model in determining and calibrating their aspirations and beliefs. They also matter for behaviour, particularly education choices. Bobonis and Finan (2009) examine peer effects between eligible and ineligible children of the social protection programme Progresa who are living in the same communities, finding that peers have a large influence on school enrolment decisions of ineligible peers, particularly those from poor backgrounds. However, there is mixed evidence on the academic benefits of being around high-achieving peers, with papers finding both positive and negative effects (Duflo et al. 2011; Hahn et al. 2017; Kremer et al. 2009; Lavy 2018; Lavy and Sand 2018; Lavy and Schlosser 2011; Lavy et al. 2009).

Having high-achieving peers may help the most disadvantaged students by reducing discrimination. Bagde et al. (2016) find that an affirmative action programme in India benefited lower-caste and female students, with no negative effects on students from placing them in demanding programmes with more advanced peers. Being exposed to poor classmates also has a positive effect on richer students, making them more generous and egalitarian and less likely to discriminate, with no negative impact on their academic performance (Rao 2019). As a result, poor students receive more in an experimental game. Exposure to peers from different backgrounds may therefore help reduce discrimination and increase social mobility while also benefiting these students.

Having peers around may also increase the benefit that people get from other social programmes. Fieldet al. (2016) find that when women were randomized to a

business counselling programme, an increase in business activity was only seen if the woman brought a friend. In fact, part of the benefit of many social programmes such as microfinance and self-help groups might be from providing women with a group of economic peers, thus raising their confidence and changing social norms (Prillaman 2017; Swain and Wallentin 2009). Additionally, peers may increase people's efforts through reputational and status effects (Bursztyn and Jensen 2017). Breza and Chandrasekhar (2019) find that monitors are effective at increasing savings because people want to impress others and signal their reputation.

Overall, both role models and peers have an important influence on beliefs, aspirations, and setting norms for choices. However, the role models and peers that a person is exposed to may be limited to those similar to themselves, particularly for the poorest members of society, thus limiting their ability to provide new norms of behaviour or to raise their aspirations. How to expose people to successful role models and peers is thus a key challenge that must be addressed to improve social mobility.

17.3.4 Social identity and belonging

The fact that aspirations are shaped by social norms within a network is a potential obstacle to reshaping them. An individual who tries to raise their aspirations and sets goals outside the norm for the social group may be perceived as rejecting their friends within the group (Akerlof 1997). As a result, they might be excluded from the group themselves for seemingly rejecting its values. This presents a problem for individuals trying to better their economic situation on their own, as they risk falling further if something goes wrong and they no longer have the support of the social group. As a result, people may fail to take steps to better their situation, in order to maintain their place in their social network. Sociologists have documented in detail this sort of behaviour playing out. A classic study here is Whyte's (1955) depiction of education choices among adolescents in a poor Boston neighbourhood, where boys shunned education because it was perceived as an act of disloyalty to the group. This effect has also been documented among racial minority groups in the USA, with students shunning educational achievement for fear of being seen as 'acting white' and rejecting their peer group (Fryer and Torelli 2010). In Pakistan, Jacoby and Mansuri (2015) show that social stigma discourages educational investment among low-caste children. Experimental evidence too shows that priming a social identity, such as caste or gender, can have a negative effect on both aspirations and educational outcomes for that group (Hoff and Pandey 2006, 2014; Mukherjee 2015).

For poor communities, their social group may be deep and tightly knit within their community, but lack as many links outside the community as the social

networks of those of higher economic status—they may have deep bonding but low bridging social ties (Woolcock and Narayan 2000). In the absence of radial links that shape access to new ideas and information, poorer and more isolated communities may be even more dependent on each other. This intensifies the risk of not conforming to the group identity while also making it harder to find opportunities outside it. Empirically, this link between the need for bridging social ties and escape from poverty was found to be a key part in social mobility from the Brazilian Favelas by Perlman (2010). Equally, though, those with the strongest links to the outside who were actively trying to escape the Favela also had the lowest social status within the community, while those with the highest social ties had the strongest sense of roots.

This suggests that when raising aspirations the entire social group should be targeted, so as to raise the social network as a whole rather than individuals from it. This argument also provides support for group-based social interventions such as basic income or cash transfers, where large numbers of individuals within a community are targeted at once, so that social change is consistent with group membership. We discuss these approaches in the next section.

17.4 Policy challenges: broken ladders and social mobility

Overall, the discussion so far has largely provided evidence of various channels through which social networks work as positive levers for upward mobility for people who belong to these networks. Nevertheless, we have also acknowledged that these very social networks that benefit members could hurt those who are not members, either actively or otherwise. While there may be some room for choosing membership into certain groups, social networks may be hard to gain entry into—especially in developing countries, where they tend to be based on characteristics such as family background, caste, ethnicity, race or gender, all attributes that are beyond an individual's power to control.

In this section, we address the challenges faced by those who do not belong to upwardly mobile social networks, who are hence (actively or inadvertently) disadvantaged. How can policy be designed to create opportunities for social mobility among such disadvantaged groups with 'broken ladders'? We discuss a few different options and the evidence for these below.

17.4.1 Migration, technology adoption, and experimentation

Available evidence shows that notwithstanding the huge gains from migration (Clemens et al. 2019), the poorest groups historically choose not to migrate (Ardington et al. 2009; Hatton and Williamson 1998). While international

migration may be beyond the scope of national government policy, a recent study by Bryan et al. (2014) shows that even a policy offering one-time support for temporary, seasonal migration can yield huge gains: landless households in rural Bangladesh offered a US$8.50 incentive to migrate to find work in the urban area resulted in a 10 percentage-point increase in migration rates, a 30–35 per cent increase in consumption, and higher caloric intake.

Two further lessons from this intervention deserve to be noted. First, offering the intervention more intensively to a larger fraction within a given community is more effective: it induces higher rates of migration both among those offered the incentives as well as those who are not. This points to the fact that experimentation feels less risky when many others like ourselves are engaging in it alongside us, especially among vulnerable groups—consistent with our discussion on the need for social identity and belonging in Section 17.3. Second, this intervention highlights the importance of first-hand experience in encouraging experimentation and the value of one-time incentive nudges to try them out: it led to a sustained 8 per cent increase in migration rates three years later, *without* any further incentive. This insight could be applied to domains other than migration that vulnerable groups may hesitate to venture into as well: for instance, free trial periods, insurance schemes, or guarantees for programmes that offer training-plus-employment opportunities in new trades or for new technologies such as health products (Dupas and Robinson 2013).

Given that cash interventions that intensively target communities are costly, Beaman and Dillon (2018) suggest an alternative policy approach too, from an agricultural context: performance-based incentives for community-based extension partners—rather than the farmers they were encouraging to experiment with new technologies. In fact, Berg et al. (2019) find (in the context of a health insurance scheme) that such performance-based incentives for such partners can overcome communication barriers that may arise from social distance from the intended beneficiaries due to education, caste, or poverty status.

17.4.2 Role models revisited: edutainment and other interventions

However, cash incentives and/or information may not always be enough. As the pre-eminent psychologist Albert Bandura has observed, 'Failure to address the psychosocial determinants of human behavior is often the weakest link in social policy initiatives. Simply providing ready access to resources does not mean that people will take advantage of them' (Bandura 2009). What are alternative policies that may help address such psychosocial challenges for communities or individuals who lack the support of a social network? Recent evidence suggests another

class of policies could help, even if imperfectly so: exposure to role models—virtual or real—who are similar enough to ourselves.

Virtual role models have been shown to be effective at changing norms around women's status, fertility, and the acceptability of divorce. In Brazil, La Ferrara et al. (2012) find that exposure to role models and modern family norms through television in the form of novellas reduced fertility, while Chong and Ferrara (2009) show that the same novellas increased divorce rates. To take an example from another setting, Jensen and Oster (2009) find that exposure to cable TV results in a decrease in reported acceptability of domestic violence and in son preference and fertility, as well as an increase in women's autonomy. TV-based role models therefore seem an effective way to change norms and beliefs, particularly from prolonged exposure, but open questions remain about their adequacy for more marginalized communities, such as uneducated women (Iversen and Palmer-Jones 2018). The promise of using virtual role models to induce behaviour change has led to the development of specific video-based media with this goal in mind. Bernard et al. (2014) find that a video-based role model raises aspirations and impacts forward-looking behaviours, including saving and investment in children's education. They are able to isolate the role model effect from information provision by carefully controlling the content of their video.

A number of studies have looked at the impact of virtual role models on small businesses. Bjorvatn et al. (2015) find that incentivizing secondary school students in Tanzania to watch an edutainment show on entrepreneurship resulted in an increase in business start-ups, with stronger effects for women. Batista and Seither (2019) find that a video-based role model intervention plus goal setting and business training had positive impacts on small businesses in Mozambique, increasing their aspirations, hours worked, and savings. In contrast, Barsoum et al. (2016) find that an edutainment intervention targeted at entrepreneurs in Egypt induced changes in attitudes towards entrepreneurship, particularly with respect to women, but little change in entrepreneurship-related outcomes.

Lafortune et al. (2018) find increased business participation and income of an enterprise from the owner's exposure to a successful entrepreneur role model, driven by confidence rather than increased business knowledge. This leads to an interesting question of whether role models are providing information only, and whether they add any value above information provision alone. Jensen (2010, 2012) finds that providing information on the returns to schooling and opportunities alone increases school attendance. In contrast, Nguyen (2008) finds that while statistics on education returns do improve test scores for both rich and poor students in Madagascar, the role model intervention only improves test scores if the former student presented as a role model is from a poor background, the same as the target students. In fact, the role model intervention undoes any beneficial impact of providing average statistics for the poorest, because it suggests the presence of high heterogeneity in returns. Likewise Riley (2018b) finds that

randomized exposure to a role model in the form of a movie character before students' national exams has large effects for those most similar to the role model—that is, female and lowest-ability students.

These findings suggest that role models shed light not only on average returns but also about heterogeneity in returns; hence, depending on people's initial assumptions about heterogeneity and returns for their type, this can have ambiguous effects on behaviour. The above evidence suggests that real-life role models may have more of an impact on behaviour going beyond attitudes alone, through their ability to better provide relevant information and mentorship, as well as to inspire and increase confidence. However, media-based role models can be more easily scaled up and rolled out at low cost compared to physically exposing a group to a role model, and so might provide a more realistic policy measure to increase exposure of disadvantaged groups to positive role models and opportunities for mobility that they may not otherwise explore.

17.5 Conclusions and future directions

To summarize, a large body of evidence shows that social networks play a crucial role in offering support for upward mobility for its members—be it support for migration, credit access, trading relationships, jobs, or technology adoption. However, such networks could disadvantage those who do not belong to such networks, such as minorities and marginalized groups, as discussed in Chapter 16 of this volume. A combination of policy tools could help mitigate disadvantages that such groups face—be it one-time cash incentives that encourage poor and marginalized groups to venture into new regions, occupations, or other choices that may feel risky to vulnerable groups. Targeting large fractions of such groups simultaneously could increase the effectiveness of such policies. Interventions in the form of virtual and real-life role models can also help to mitigate psychosocial challenges faced by marginalized groups, especially if they address heterogeneity within their target populations.

Looking ahead, the spread of digital and mobile technology including social media to developing countries is causing considerable churn in these societies—in markets for labour and credit, and hence in migration, trade, and technology adoption. Governments could play a positive role in leveraging digital technologies to facilitate social mobility among the disadvantaged—for instance, through the creation of purpose-built platforms to improve outcomes related to jobs, education, and access to credit. Three concrete examples of such policy levers come to mind, one in each of these three domains. First, the use of biometric smartcard (ID) technology to facilitate direct bank payments under the National Rural Employment Guarantee Scheme (NREGS)) in India (Muralidharan et al. 2016) has resulted in less corruption and increased the incomes and bargaining

power of disadvantaged workers in rural areas. A second example is online learning platforms tailored to individual learning speeds and styles (Muralidharan et al. 2019) that could be harnessed for more effective learning and even aspirational change among children from deprived backgrounds. Finally, mobile banking platforms offer the promise of social mobility through financial access for disadvantaged groups, including women and the poor (Suri and Jack 2016). How to effectively harness these new technologies to democratize access to resources, especially among those outside successful social networks, to improve their social mobility, remains an area for further research and policy experimentation.

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PART VI

CONCLUSIONS

18

Social Mobility in Developing Countries

Directions for Research Practice, Knowledge Gaps, and Policy Support

Vegard Iversen, Anirudh Krishna, and Kunal Sen

18.1 Introduction

This volume has brought together leading scholars from a range of social science disciplines working on a variety of issues related to social mobility. Three sets of motivations have guided this joint effort: identifying important knowledge gaps and examining the extent to which these have been (or can be) addressed; bringing together innovations and improvements in research practice; and offering policy advice aimed at enhancing social mobility in developing country settings. This concluding chapter synthesizes some of the key learnings in relation to these three guiding motivations. Instead of listing everything that is possibly relevant, we conclude by identifying three key knowledge gaps, three lessons for research practice, and six recommendations about policy initiatives that can help spread opportunity more equitably.

18.2 Knowledge gaps

The contributions to this volume point to three knowledge gaps in the study of social mobility in developing countries. First, we lack data and comparable measures of social mobility that provide us with a clear understanding of which countries in the developing world are doing well (and which others are not) by way of achieving intergenerational mobility.[1] The lacunae in the measurement of social mobility are most evident for low-income countries, and especially for sub-Saharan Africa (see Torche for educational mobility, Heath and Zhao for occupational mobility and Himanshu and Lanjouw for income mobility, in this

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[1] An exception is the World Bank's comprehensive study of educational mobility in 111 developing countries (World Bank 2018).

volume).[2] It may take a considerable amount of time before researchers working on social mobility in low- and middle-income countries get access to the type of administrative tax and other data that form the bedrock of social mobility analysis in high-income countries; e.g. the pioneering work by Chetty et al. (2014) on intergenerational mobility in the United States.

Some recent gains in data availability are noteworthy in this regard. The example of the nationally representative Indian Human Development Surveys (IHDS) of 2004–05 and 2011–12, as well as the Human Development Profile of India survey of 1993–94,—and the panel study these databases support—has allowed economists to study intergenerational income mobility in India (see Mohammed 2019). This effort is additionally useful for measuring other kinds of mobility, since the survey instrument includes retrospective questions about the educational level and occupation of the father of the household head, allowing for the measurement of educational and occupational mobility (see Azam and Bhatt 2015; and Iversen et al. 2017). Such questions on parental educational level and occupational status should be routinely asked in household and labour force surveys in developing countries.

In addition to efforts to compile data required for making the conventional measurements, newer and innovative ways of exploiting the potential of existing, nationally-representative datasets need to be undertaken. For instance, a study of educational mobility in sub-Saharan Africa by Alesina et al. (2021) using micro-data extracted from 68 national censuses from 26 countries demonstrates some possibilities of innovative research. Further, alternate methods of data collection that looks at the representation of individuals from lower-income groups in prestigious occupations—such as engineering, law, medicine—over time may provide key insights about the characteristics of individuals from less privileged economic and social backgrounds who are able to reach these desirable destinations, as well as about the hurdles they face. Krishna and Rains (this volume) present some other examples of innovative methods that have been gainfully used to understand patterns of social mobility.

A second important knowledge gap that needs to be addressed more effectively relates to gender differences in social mobility in developing countries. As is pointed out by Luke, and reiterated by Torche and by Vaid in this volume, we know very little about mother–daughter mobility as compared to father–son mobility in low- and middle-income countries (but, see Li in this volume for a rich empirical analysis of social mobility among women in China). The IHDS data for India, for example, for all its other strengths, does not inquire into the

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[2] The construction of comparable measures of social mobility for developing countries need to take into account the challenges of measuring permanent income in low-income agrarian societies highlighted by Emran and Shilpi in this volume, as well as the use of occupational classifications that are more suited for developing countries, as noted by Heath and Zhao in this volume.

educational levels and occupational status of respondents' mothers, asking only about their fathers' educational level and occupational status.

This is a deeply unsatisfactory state of affairs, both because it is one-sided and incomplete, and especially at this time, when an increasing number of women are progressing through secondary schooling and on to university, and female labour force participation has increased sharply in many developing countries. We need to know: are the opportunities of economic and social progress available to daughters substantially different from those of their mothers (or brothers)? How does social mobility among women differ across regions, social class, race and ethnicity within countries? What theoretical perspectives can explain these differences? New data are required for suitably addressing these questions. Household and labour force surveys need to be modified to gain information about daughters' and mothers' educational and occupational achievements. Further, ethnographic methods, such as genealogies and life histories, need to be employed for generating deeper insights about the constraints that daughters face in upward mobility as compared to their male siblings (see Vaid, this volume).[3]

A third critical knowledge gap is related to our limited understanding of the drivers of social mobility in developing countries. As the chapters by Piraino, Berhman, Krishna and Rains, Mani and Riley, and Funjika and Gisselquist show, there is a multiplicity of environmental factors that help explain why advancing intergenerational mobility is more challenging in developing than in industrial countries. For a poor child born in a slum in Mumbai, Nairobi, or Rio de Janeiro, there can be multiple and simultaneously operating determinants of weak intergenerational mobility, including poor schooling, lack of well-paid jobs, a scarcity of role models in the neighbourhood, and various forms of group-based discrimination. Methods commonly used in economists' approach to studying the determinants of intergenerational mobility (such as experimental or quasi-experimental methods) attempt to identify the causal effect of *one* factor relative to others, and these methods are less useful in situations where complex and interactive causes inhibit social mobility.[4] Historical methods can be more revealing in some situations (see Clark this volume) in addition to case-studies of individual countries or regions that have witnessed recent spurts in social mobility (see Li on China this volume).

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[3] An example of a labour force survey in a low-income country context, which has questions on both parents' educational level and occupational status is the 2010 Labour Force Survey for Cameroon; see Fontep and Sen (2020).

[4] Causal identification remains a challenge even for studies on the drivers of intergenerational mobility in industrial countries. Notwithstanding the ambitious scope of Chetty et al.'s (2014) examination of the geographical variations in intergenerational mobility in the US, the analysis of differences in mobility across the country discerns mobility correlations, not mobility causes. Two noteworthy papers that use experimental and quasi-experimental methods to study the causes of social mobility in developing countries are Jensen (2012) and Wantchekon et al. (2015).

18.3 Research practice

With regard to research practice, three key lessons will be highlighted. To start with, the chapter by Fields speaks to the broader body of social mobility research and pleads for greater precision in scholarly work. Grounded in the many possible combinations of concepts and measures that are available and may be used for intergenerational mobility comparisons, answers to whether one country has more social mobility than another, whether social mobility is increasing or falling over time and whether mobility is higher in rural than in urban areas, are often shrouded in ambiguity. Apart from an illuminating discussion, Fields proposes a checklist for how social mobility research should be conducted and presented. Starting by being explicit about several preliminaries—the outcome of interest, context, and the level of analysis—four steps are proposed: question, mobility concept(s), mobility measure(s), and empirical findings.

Second and echoing Torche's (2014) observation in her review of research on Latin America, measures and methods that have been developed and used to study intergenerational mobility in industrial countries have been applied for the study of often very different low-income countries and contexts without scrutiny of how well these measures could handle these contrasts. Apart from being contextually informed, this also points to the need for a deep understanding of the properties and of the strengths and limitations of different social mobility concepts and measures. As Emran, Greene, and Shilpi (2018) demonstrate, contextual pitfalls may be subtle, in their case arising from ignoring how social norms affect parent–offspring co-residence patterns and the sizeable selection bias this introduces in large-scale household survey data. For the most widely-used measures of inter-generational mobility in developing countries, they find the intergenerational correlation (IGC) to be less vulnerable to these biases than the intergenerational regression coefficient (IGRC), but also that biases are less pronounced in Bangladesh than in India. Emran and Shilpi's chapter takes this discussion forward by highlighting the more robust properties of the intergenerational rank correlation (IRC; see Chetty et al. 2014) and by illustrating the value added of the intercept term for cross-country comparisons. Linking properties and context, Iversen brings in and illustrates a neglected weakness in the same measures—since less origin-independence and greater mobility implies a weakening of the impact of parental characteristics on offspring outcomes, both upward and downward mobility can account for such weakening—he demonstrates that a modest preva-lence of moderate or long-distance offspring descents into poverty may register and be interpreted as less origin-independence and increased social mobility.

Another illustration of how context matters, in Heath and Zhao's chapter, relates to the occupational classifications standardized for use in industrial coun-tries. In their view, anthropological insights about the institutions of the country under study can significantly improve efforts to align occupational rankings and

classifications with realities on the ground. While farmers remain a dominant occupational group in low-income settings and the case for disaggregation and more granular classification of farmers is a recurring theme (see e.g. Armstrong 1972), Heath and Zhao's discussion of the limitations of the ILO's ISCO occupational classifications of farmers provides a compelling reminder of the importance of careful accounting for context.[5]

The third practice dividends are the gains from interdisciplinary conversations. While claims of such gains are regularly encountered and at risk of becoming a trope, the chapters in this volume provide important examples of such value added. While Vaid's chapter underscores the often highly-localized variation in the interpretations of the outcomes that matter, Torche brings to the fore explanations for educational inequality persistence provided by sociological theories, including the distinction between so-called primary and secondary effects. While the former captures the association between an individual's socioeconomic background and educational attainment, the latter captures class-based choices net of educational attainment. In a developing country context, high-performing children from poor or otherwise disadvantaged backgrounds would thus be expected to discontinue their education earlier. While developing country evidence is sparse, research points to educational aspirations, access to information and guidance, self-esteem, and self-efficacy as critical obstacles to attaining higher levels of schooling among disadvantaged children, including high performers in school. Marotta (2017), using data from Brazil, finds that secondary effects account for about half of the inequality in secondary-school completion. Further and as Torche makes clear, the relevance of secondary effects is also, and often even more so for the contexts of interest, likely to vary by gender. Another practice dividend from interdisciplinary conversations is the exposure to new ideas and lines of inquiry. Li's quantitative analysis of intergenerational mobility introduces the reader to sociological measures of mobility, but also to unusually rich, new evidence on intergenerational mobility in China, including granular findings on mobility variation across different generations of women and men. Adding to this, the chapter by Himanshu and Lanjouw, using the multiple-decade Palanpur village panel dataset shows how high-quality, granular longitudinal data can answer and inspire new questions and theoretical ideas among economists using a macro-lens and among scholars working on social mobility from other disciplinary backgrounds. Other and similarly valuable insights are provided e.g. in the chapters by Luke, by Rains and Krishna and others.

If taken onboard, these new insights will, in addition to reducing the risk of fragile or erroneous claims, also, and over time, translate into higher-quality and

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[5] It is not uncommon for countries to make their own adjustments to improve the ISCO-fit to local conditions. An example here is India's national classification of occupations. See Government of India (2015).

more reliable policy advice. Heeding Fields's recommendations will also increase access, by making research findings easier to navigate and interpret.

18.4 Policy supports

While remaining mindful of the knowledge gaps that still remain, six sets of policy supports are recommended that should help make individuals' journeys of social mobility more fulfilling. The first three sets of policies will help raise absolute mobility; the next three sets are more directly related to relative mobility.

A first set of policies is needed for bringing about broad-based human capital investments—in education, health care, sanitation, etc. Behrman (this volume) reviews the evidence. With the help of these supports, individuals become more capable of advancing further; without such supports, they are incapacitated. Investments in human capital development will help raise the supply of upward movers. Simultaneously, more good positions need to be created that will serve as landing spots for upwardly mobile individuals.

Second, therefore, policies are required that result in an increase in good jobs and business opportunities. Li's examination of the Chinese experience (in this volume) indicates that the greater part of the rapid mobility the country has seen recently can be attributed to a vast growth of good positions. Since elites have advanced faster than others, however, relative mobility was sluggish even as absolute mobility advanced, indicating the need for additional policies.

Third, since precarious and volatile livelihoods are characteristic of many developing country contexts, downward mobility needs to be contained before sustained upward mobility becomes a realistic possibility. Rains and Krishna (this volume) find that slum residents in Indian cities have remained mostly static economically, not because they are not putting in efforts, but because one step forward is almost inevitably followed by two steps back; their situations are precarious. Slum residents' lives are filled with risk and uncertainty on account of widespread informality—jobs that can be lost in an instant and carry no protections or benefits; homes that lack titles and exist under the threat of demolition; people who lack the identity papers they need to establish residence and access entitlements. Reducing risk and uncertainty is necessary for containing downward mobility, especially in developing country contexts. The policy need is for progressive formalization of various dimensions of informality: labour standards, work contracts, tenancy agreements, identity papers, etc. In addition, one other element of risk needs to be dealt with on priority. Affordable and effective health care is essential, lack of which has been found to be a principal reason for downward mobility (Krishna 2011).

Together, these three policy sets—in support, respectively, of increasing good jobs, gains in human capital development, and a check upon downward

mobility—should help raise the tide overall, enabling upward mobility more generally. Except history shows that not all boats are raised by the tide; specific population groups do not experience as buoyantly the effects of the same overall policies. As Torche (this volume) points out, factors such as aspiration, access to information, self-esteem and self-efficacy are critical for upward mobility, but these factors can be at very low levels within low-achieving neighbourhoods, robbing them of vitality. Separately, and in addition, attitudinal biases and discrimination against particular groups—women in most countries, non-white people in the US and South Africa, former untouchables in India, LGBTQ people, and others—can result in reinforcing what Funjika and Gisselquist refer to (this volume) as 'horizontal inequalities', cutting these individuals off from prospects for upward mobility. Additional policies are necessary for dealing with the adverse effects of these malign influences.

In addition to the first three sets, a fourth set of policies is required that responds to the concerns arising from Mani and Riley's examination (this volume) of social networks and role model effects. Social networks importantly influence mobility prospects, both in tangible ways—via access to opportunities, information about jobs, referrals, etc.—and in intangible ways, by influencing aspirations and cultural capital and by providing role models. Individuals whose social networks are weak in these regards, which includes most poorer individuals, experience severe liabilities on account of these intangible factors. Special efforts are required to provide these individuals with information about better jobs, career guidance, motivation, etc. Recognizing these needs of poorer and lower-achieving groups, a specialized set of NGOs has emerged relatively recently in India and elsewhere which, acting differently from the older education NGOs, is engaged in providing these missing intangible inputs to weaker segments of the population, in city slums and poorer rural areas (Krishna and Agarwal 2017). Mani and Riley (this volume) present an intriguing proposal of 'virtual role models' for serving the same needs in a different way.

Fifth, discrimination will need to be countered directly. Policies aimed at longer-term attitudinal changes are helpful in this regard. As Luke says (in this volume) policies that promote egalitarian views and less-restrictive gender norms among mothers can help bring about greater labour force participation by daughters and daughters-in-law. In addition, affirmative action policies are advocated to deal with severe and longstanding cases of social and economic marginalization as, for example, for scheduled castes and tribes in India, African Americans in the US, and Black people in South Africa.

Sixth, and finally, it needs to be remembered that policies to promote social mobility have to be seen as part of a broader suite of policies for social justice and social cohesion. As Kanbur remarks (in this volume), the concern with social mobility should not result in a reduction of focus on income redistribution, partly because redistribution may be necessary for achieving social mobility objectives like equality of educational outcomes.

Investing in social mobility through policy investments of these six kinds should be a very important part of the future development agenda. For too long, a belief has prevailed that a country's GNP must grow first, and poorer people's problems can be resolved later. An alternative model of action needs to be considered that turns the old logic around on its head: promote social mobility by addressing the factors the limit poorer people's ability to pull themselves upward. As more and more individuals start to rise higher than earlier, the country's GNP will advance automatically. Growth *and* social justice will be promoted by investing in social mobility.

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