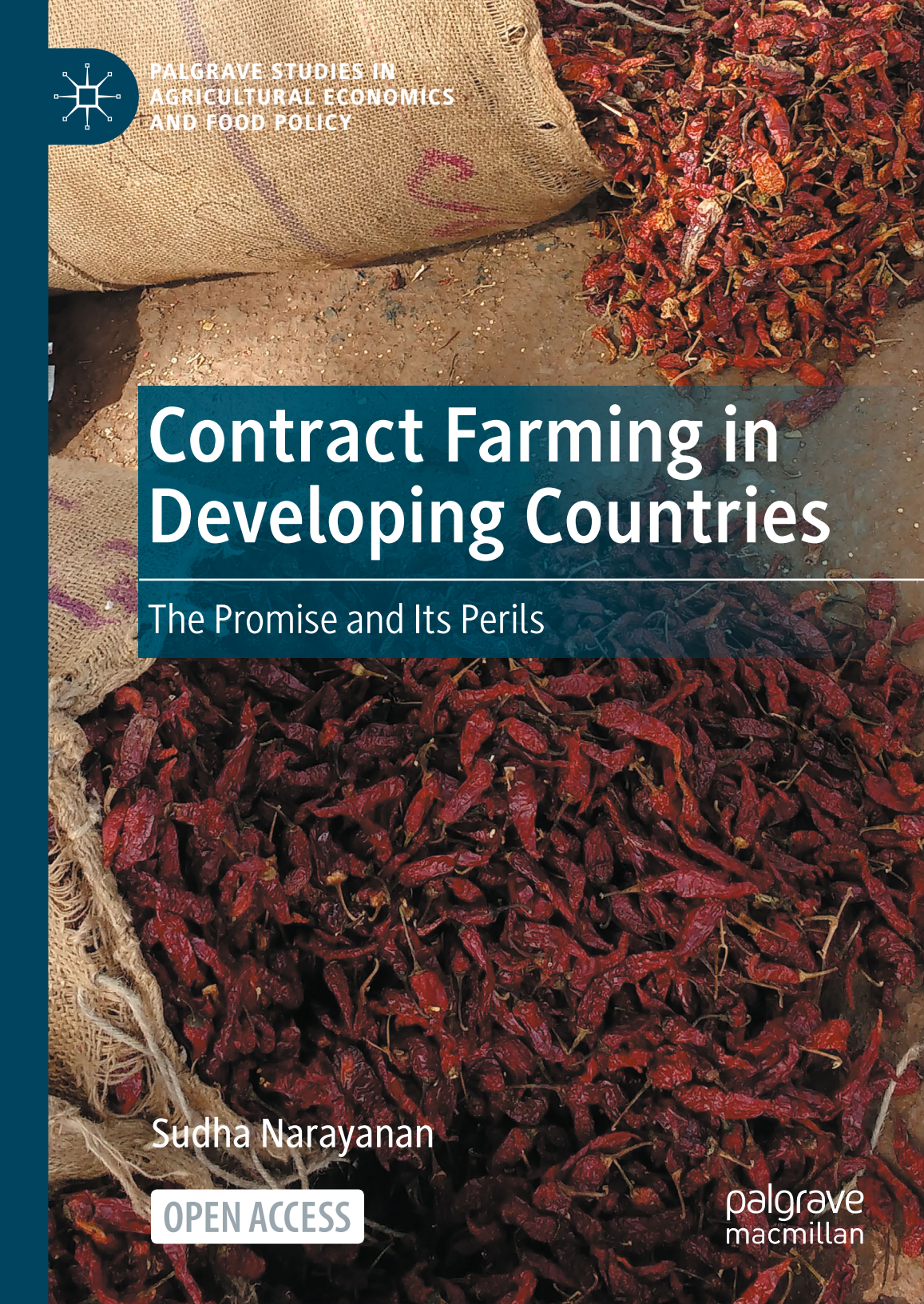
PALGRAVE STUDIES IN
AGRICULTURAL ECONOMICS
AND FOOD POLICY
Contract Farming in Developing Countries
The Promise and Its Perils
Sudha Narayanan
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Palgrave Studies in Agricultural Economics and Food Policy

Series Editor
Christopher B. Barrett, Cornell University, Ithaca, USA

Agricultural and food policy lies at the heart of many pressing societal issues today and economic analysis occupies a privileged place in contemporary policy debates. The global food price crises of 2008 and 2010 underscored the mounting challenge of meeting rapidly increasing food demand in the face of increasingly scarce land and water resources. The twin scourges of poverty and hunger quickly resurfaced as high-level policy concerns, partly because of food price riots and mounting insurgencies fomented by contestation over rural resources. Meanwhile, agriculture's heavy footprint on natural resources motivates heated environmental debates about climate change, water and land use, biodiversity conservation and chemical pollution. Agricultural technological change, especially associated with the introduction of genetically modified organisms, also introduces unprecedented questions surrounding intellectual property rights and consumer preferences regarding credence (i.e., unobservable by consumers) characteristics. Similar new agricultural commodity consumer behavior issues have emerged around issues such as local foods, organic agriculture and fair trade, even motivating broader social movements. Public health issues related to obesity, food safety, and zoonotic diseases such as avian or swine flu also have roots deep in agricultural and food policy. And agriculture has become inextricably linked to energy policy through biofuels production. Meanwhile, the agricultural and food economy is changing rapidly throughout the world, marked by continued consolidation at both farm production and retail distribution levels, elongating value chains, expanding international trade, and growing reliance on immigrant labor and information and communications technologies. In summary, a vast range of topics of widespread popular and scholarly interest revolve around agricultural and food policy and economics. The extensive list of prospective authors, titles and topics offers a partial, illustrative listing. Thus a series of topical volumes, featuring cutting-edge economic analysis by leading scholars has considerable prospect for both attracting attention and garnering sales. This series will feature leading global experts writing accessible summaries of the best current economics and related research on topics of widespread interest to both scholarly and lay audiences.

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Sudha Narayanan
International Food Policy Research
Institute
New Delhi, Delhi, India

ISSN 2662-3889 ISSN 2662-3897 (electronic)
Palgrave Studies in Agricultural Economics and Food Policy
ISBN 978-3-031-76486-8 ISBN 978-3-031-76487-5 (eBook)
https://doi.org/10.1007/978-3-031-76487-5

Cover credit: Red chilies. Byadgi, Karnataka, India, February 2016. © Sudha Narayanan

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The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

To Old Madras
and to those who left too soon

Series Editor's Foreword

The steady incorporation of smallholder farmers into modern agrifood value chains has long been central to the agricultural development narrative. The relations of exchange necessarily evolve as low productivity agriculture—much of it subsistence production, with small surpluses sold locally—begins to generate meaningful marketable surpluses, often due to agricultural technological change. Periodic spot market sales of small volumes continue. But increasingly they become dwarfed by larger volume, higher value transactions, many of them contracted in advance, often with distant, urban buyers. These changes require adaptation of the institutions of exchange, whether through markets or contracts. Those adaptations must also accommodate the varied and changing tastes of distant, typically better-off consumers, the rise of processing and other forms of post-harvest value addition, of product standards, and other changes that accompany the steady transformation of agrifood value chains amid economic growth and urbanization.

These dramatic, but often-overlooked, transformations in the relations of exchange create opportunities both for mutual gains and for exploitation. The past three or so decades' scholarship on the rise of contract farming in smallholder agriculture has colorfully documented both sorts of outcomes. The more optimistic perspective has typically prevailed among economists habituated to think of gains from trade. Meanwhile, narratives of exploitation have more commonly arisen from scholars in the other social sciences, who are typically quicker to notice power imbalances

absent from canonical microeconomic models of competitive markets and the dark side of commercial relations that can arise as a result. The literature on contract farming has thus been deeply unsettled for some time.

That is why I asked Dr. Sudha Narayanan to consider writing a book for this series. She is the rare scholar who reads broadly across the disciplines, who recognizes the strengths and weaknesses of different theoretical traditions and empirical methods, and who has the creativity and technical skills to integrate the different narratives. I have learned a great deal from reading her meticulous work detailing fascinating features of contract farming arrangements in south Asia. Thankfully, Sudha was willing to take on the challenge of synthesizing her deep and broad thinking on the topic into a single, cohort, compact volume. We readers are very lucky that she did!

In the 15 chapters that follow, Sudha guides us through the complexities of contract farming arrangements. Adopting a comparative institutional framework, she helps us understand how a varied range of agents—farmers, processors, wholesalers, and many intermediaries among them—form and regularly update their beliefs about when and in what contexts they are likely to benefit from entering into—or reneging on!—contracts, with whom, and under what terms. This yields a dizzying array of contract forms and terms, as well as quite a range of outcomes. This framework and Sudha's clear, patient explanations permit the reader to understand the adaptation of contracting institutions over space and products and their evolution over time, even for a given commodity and place.

The comparative institutional framework Sudha develops permits an uncommon degree of reconciliation of the competiting narratives on contract farming that one finds in the broader literature. Emphasizing that the existence, terms and outcomes of contracts ultimately depend on interpersonal relationships, Sudha flags the salience of extracontractual dimensions to these relationships, both among the contracting parties and with the communities, government authorities, and others with whom both interact. One key implication is the need to examine contract farming arrangements not only at the scale of individual (farmer or firm) behaviors, but also at more aggregate scales that reflect the broader sociocultural context within which these arrangements take shape and reshape regularly. I confess I had not really appreciated this point until Sudha pulled it all together so nicely.

Sudha skillfully walks us through the framework inductively, drawing especially on her own fascinating empirical research in India, supplemented judiciously by findings from others' studies of contract farming schemes from elsewhere around the world. The enormous diversity of Indian agriculture and the sheer volume of experiments with contract farming across a nation of roughly 100 million farmers and 1.4 million food consumers makes the empirical evidence reasonably general, even if largely drawn from one (huge) country. I am thrilled to include this important volume in the Palgrave Studies in Agricultural Economics and Food Policy series. This outstanding book should interest all scholars and students of the evolving relations of exchange that accompany the structural transformation of agrifood value chains around the world, and especially those interested in the development of rural India.

Christopher B. Barrett
Cornell University
Ithaca, USA

Preface

In the summer of 2007, as a doctoral candidate researching contract farming, I made my way across India to look up some of the agribusinesses that were contracting for farm produce. Over the two years preceding that exploratory visit, I had painstakingly constructed a list of the names of various firms undertaking contract farming from newspaper articles and the trove that is the world wide web. These sources seemed to suggest that there was a revolution underway in farming in India. The list I drafted contained the names of about eighty firms. Yet to my surprise, I could trace only a fraction of them. Only a handful of these had persisted with contract farming. Among these, even fewer were optimistic about the prospects of continuing to contract with farmers. In one of my first interviews with an apparently successful example of contract farming, the manager noted grimly: "contract farming is a complete flop in the country."

In the fifteen years since then, I have heard this sentiment echoed frequently in India, where some enduring contract farming schemes remain exceptions rather than the rule. Indeed, many agribusinesses whose contracting operations were studied as successful examples by academics have since suspended contract farming opting for other modes of sourcing supplies. This is despite growing private sector investment and corporate participation in the sector and rapid transformation of agrifood systems in India.

This discovery flew in the face of two views I held, based on what I had read and heard: first, contract farming was rapidly growing in prevalence in India and second, contract farming is an attractive win-win arrangement that enabled smallholders participate in global agrifood value chains. My interest in researching contract farming consequently shifted away from the notion that contract farming solved multiple market failures. I turned instead to examine the ingredients of (un)successful contracting schemes and the many frictions that waylay its operation. This line of inquiry led me not only to reflect critically on the workhorse models in economics but to go beyond my own disciplinary training and comfort zone to engage with contract farming scholarship in other disciplines. In that journey of discovery, I have learnt to embrace, rather than abstract from, complexity and have sought to learn from other disciplinary perspectives without entirely abandoning my predilections or training as an economist. I have come to recognize as several other scholars do, the variegated nature of contract farming experience and to acknowledge both the promise and the perils of contract farming.

The research I undertook in southern India for my doctoral work and beyond, as faculty member at the Indira Gandhi Institute of Development Research in Mumbai, formed the basis of papers I published. However, I felt a persistent need to thread these different elements into a single narrative that does justice to the complexity of contract farming. This book is an effort to do that.

My main intended contribution is to make a case for "crossover" perspectives—a way of theoretically framing contract farming within economics that can accommodate perspectives from other disciplines. This effort is not to suggest that economists can study everything nor am I proposing a way to fuse disciplines. One is reminded of the 1980s and 1990s when Indian classical musicians often performed alongside Western classical and jazz musicians in what was popularly called "fusion" concerts. Purists were quick to remind everyone that fusion was only one syllable away from "confusion". Rather, my effort is an attempt at "infusion" i.e. to infuse ideas from other disciplines into the way economists approach the study of contract farming so that as scholars we are more sensitive to concerns that may largely be in our blind spot. Perhaps then we can better understand the promise and the perils of contract farming.

In this book, I propose an additive analytical framework, drawing on empirical evidence to justify and validate the need for and usefulness of such a framework. This book draws heavily on examples from India. Even

with the largest farming community in the world, this may seem unsatisfactory since India is still just one country. As has been observed for China, it seems that institutions operating in India take on very "Indian" characteristics. This is not to make a case for Indian exceptionalism in contract farming. Rather, India offers a rich empirical lens to understand the range of contract farming experiences. As Joan Robinson purportedly once said "Whatever you can rightly say about India, the opposite is also true."[1] The diversity of agrarian contexts in India offers examples of highly formalized contracting schemes while at the same time also offering example where contracts are merely notional; others that involve several thousands of farmers and those that involve less than a hundred. In terms of longevity too, there are contracting schemes that have been in place for over twenty years and others that implode within a year or two; there are those where contracting has enabled farm households and regions to become more prosperous in terms of incomes and others where farmers remain unpaid for several years after delivering produce under contract. Further, in India, since agriculture is a State subject, the federal government has only limited influence over state policy and there exist wide variations in the policy framework governing contract farming in India.

While focusing on the Indian contracting experience, the book draws on the expansive literature on contract farming globally to make a case for a unifying analytical framework for economists to be able to clarify the normative implications of contract farming practice. In general, while presenting the material, I focus more on insights than on the technical analysis that yields these insights, referring readers to published papers or ongoing work for details. This is to ensure that the book does not demand prior training in economics. At the same time, it is inevitable that some of the discussion may seem inaccessible to the uninitiated. I hope nevertheless that the essential arguments come through clearly. I have also sacrificed detail to be able to cover a larger canvas.

New Delhi, India — Sudha Narayanan

[1] Amartya Sen's article titled Contrary India in 'The Economist' dated November 18th, 2005. Available here https://www.economist.com/news/2005/11/18/contrary-india.

Acknowledgements

This project represents a long and winding journey, accomplished with the help of so many that it is hard to know where to begin to acknowledge their contributions.

My initial interest in the subject emerged when I was working at the International Food Policy Research Institute in Washington, D.C., in 2001. My unwavering interest in the subject has much to do with the stimulating conversations I have had continuously with academics, agribusinesses, farmers and traders in the past two decades. I have benefitted from the extraordinary intellectual generosity of so many. I thank, in particular, Chris Barrett, Kaushik Basu, William Lesser, Stefan Klonner, Nicholas Minot, Ashok Gulati, Barbara Harriss-White, S.Mahendra Dev, P. Balasubramanian, Mahendran Kandasamy, C.Karthikeyan, M. Chandrasekaran, Tom Reardon, Sukhpal Singh, Helena Perez-Niño, Niels Fold, Caroline Hambloch, Mark Vicol, Javier Escobal, Bart Minten, Jo Swinnen and Shahidur Rashid. I have also benefitted a great deal from my interactions with practitioners in the field. While it would be impossible for me to name all those I have interacted with in the past two decades, I would like to thank Vijayaraghavan of Sathguru, P.Karnan, R.Subramanian and Jothibasu who shared their accumulated insights from years of experience in agribusiness, shaping my thinking in the early years of my research on contract farming.

Thanks are due to the diligent student-enumerators from Bishop Heber's, St.Joseph's and Urmu Dhanalakshmi colleges in Tiruchirapalli and the Tamil Nadu Agricultural University in Coimbatore. The farmers who spent their valuable time as respondents challenged me constantly with their incisive critiques of my research. Owing to confidentiality issues, I am unable to name any of them, but they are central to the research that forms the basis for this book. I received much encouragement and logistical support from Vivek Srinivasan, S.M.Suriya kumar, V.K.Bhoominathan and Arun Kumar in conducting surveys in Tamil Nadu and from Elumalai Kannan and Guru Balamurugan, my collaborators on the survey in Karnataka.

The empirical work that this book relies on was enabled by financial support from multiple sources spread over more than a decade. These include a Junior Research Fellowship from the American Institute of Indian Studies, the AAEA Foundation's Chester McCorkle Jr. Scholarship, Ithaca First Presbyterian Church's International Hunger Project Student Research Award, the Norman E.Borlaug Leadership Enhancement in Agriculture Program (LEAP) Fellowship, a grant from the International Food Policy Research Institute-New Delhi Office and the Indian Council for Social Science Research (ICSSR). Needless to say, the views expressed in this work are mine and do not reflect those of either the grant making bodies or the institutions to which I was affiliated.

This book would not have been possible without the constant encouragement and inputs from Chris Barrett over all these years. I am also grateful to my colleagues at the International Food Policy Research Institute (IFPRI) for allowing me to retreat from my responsibilities at work to finish the manuscript and for funding. I am indebted to Bronwyn Geyer (Palgrave Macmillan) and Uma Vinesh (Springer Nature) for shepherding the production so expertly. I owe much to my supportive family and friends who have tolerated my long absences. I thank each of them by naming none.

On the many occasions I froze into inaction during the course of this project, wondering how to get going, I turned to Lewis Carroll for advice: "Begin at the beginning and go on till you come to the end: then stop." It has worked unfailingly.

Contents

Acronyms

APMC	Agricultural Produce Marketing Committee
CEO	Chief Executive Officer
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CGAP	Consultative Group to Assist the Poor
CIA	Comparative Institutional Analysis
CSO	Civil Society Organization
CSR	Corporate Social Responsibility
ECA	Essential Commodities Act
EU	European Union
FAO	Food and Agricultural Organization
FCR	Feed Conversion Ratio
FPO	Farmer Producers Organization
GIZ	Deutsche Gesellschaft fur Internationalle Zusammenarbeit, GmBH
IFPRI	International Food Policy Research Institue
NGO	Non-Governmental Organization
NIE	New Institutional Economics
PPP	Public Private Partnerships
PPVFR	Protection of Plant Varieties and Farmers Right Act
RCT	Randomized Control Trial
SSA	Sub-Saharan Africa
TCE	Transactions Costs Economics
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
US	United States

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CHAPTER 1

Introduction

1.1 Two Views of Contract Farming

Contract farming—described broadly as an institutional arrangement between farmers and businesses to produce and transact agricultural commodities against predetermined conditions—is not a recent phenomenon. Yet, a recent wave of agricultural industrialization and the emergence of large-scale food retailing in developing countries may have precipitated a renewed shift in favor of contract farming on a scale that is probably unprecedented. Changing tastes of consumers, higher demand for processed foods, and the globalization of agroindustry, each in their own way, have contributed to this redefining of producer-processor relationship in these countries (Barrett et al. 2020; Bellemare et al. 2022; Birthal et al. 2005; de Brauw and Bulte 2021; Reardon et al. 2003; Ruben et al. 2006; Swinnen 2007; Timmer 2009).

There is relatively less disagreement today about what contract farming means or indeed why it emerges in the first place. In stark contrast, there is deep disagreement on whether contract farming is a "good thing". At one end of the spectrum, contract farming is seen as a vehicle for smallholders[1]

[1] The term smallholder, like peasant, has no universally accepted definition. It is usually taken to mean farmers who own less than one hectare of cultivable land, who have limited resources and tend to depend on family labor (Narayanan and Gulati 2002).

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_1

in developing countries to take advantage of opportunities that a globalizing trade system has to offer, notably, in non-traditional high-value crops. Against a background of persistent agrarian distress in resource-poor regions, advocates enthuse, perhaps rightly, over the changes such firm-farm linkages could bring. In particular, contract farming could solve a number of pressing problems at once—providing market access, inputs, technology, insurance and even specific entrepreneurial skills (Glover 1984; Goldsmith 1985; Morrissy 1974; Williams and Karen 1985). It is thus presented as a win-win situation, with both farmer and agribusiness standing to prosper (Eaton and Shepherd 2001). At the opposite end, many claim that it supplants traditional structures of production and exchange in a way that produces more iniquitous power relations, exacerbating social differentiation and even proletarianizing the independent farmer (Niño and Oya 2021; Glover 1990; Little 1994; Singh 2002a). There are also relevant questions about corporate commitment, or rather the lack of it, to the long-term ecological and social consequences of these arrangements.

While the debate is far more varied and textured than is conveyed here, it illustrates a schism that prevails with respect to normative aspects of contract farming. Contract farming research has been a site of much ideological and methodological contestation (Niño and Oya 2021; Vicol et al. 2022; Oya 2012). It is not entirely coincidental that this divide reflects the preferred points of departures of economists on the one hand, and anthropologists, sociologists, geographers and political scientists on the other. The latter, diverse themselves, have looked at contract farming systems in the context of larger social, political and economic forces in a post-Fordist global economy and consequently invest the discussion with the idea of a systemic agrarian transformation that "flexible specialization" engineers (McMichael 1994, for example). In particular, contract farming in most developing countries represents control over local resources, including over labor and land, often exerted by global capital (Jha et al. 2022; Shrimali 2021). Economists' discussion of contract farming, on the other hand, has tended to abstract from the context of a system, let alone the larger socio-political landscape, to a more atomistic and often static approach where the farmer and firm are the relevant units of analysis. This enables the view that contract farming functions as an effective and efficient risk-sharing mechanism between two agents while solving missing market problems.

Indeed, this divide might be the single most important reason that despite the extraordinarily rich empirical evidence we have inherited on contract farming across disciplines, a coherent canvas has failed to emerge. Until recently, it was rare to see researchers cite works from other disciplines, except perhaps to criticize one another. Indeed, even within economics, across different strands of research, it appears that methodological divides are deep. Most social scientists other than economists have viewed the economists' theoretical perspective as "inimical" to their own. These stark boundaries have softened a bit in recent times with acknowledgment of, if not sincere appreciation for, work in other disciplines. A few efforts to bring together different perspectives on contract farming and conduct cross-disciplinary research are emerging as well. At the same time, at the time of writing this book, there continues to be little by way of cross-pollination of perspectives.

Empirically too, across disciplines, there are systematic differences in what we choose to study, driven largely by predefined goals of researchers. Economists are often lauded for their careful documentation of contract farming schemes via household surveys. Yet, there is a strong bias in publication in favor of research that suggests positive welfare outcomes (Ton et al. 2018; Bellemare 2018). Further, economists wishing to measure impacts of contract farming schemes gravitate to schemes that have existed and survived, leading to a survival bias (Ton et al. 2018; Bellemare 2018). Few economists study "failed" schemes systematically, typically rendering such cases to an epilogue (Ashraf 2008). Indeed, there are questions around why, if contract farming were a win-win option for farmers and agribusinesses, it is not more widely prevalent and why so few contract farming schemes survive (Glover 1984; Minot 1986; Narayanan 2013). Stated another way, the perception that contract farming is a win-win solution may stem in part from the fact that schemes that were not beneficial to both farmer and contractor were less likely to have survived or studied. Ethnographic accounts of contract farming schemes too focus on contracting schemes that exemplify or illustrate a researcher's focus, say implications for workers or intrahousehold dynamics. Thus, the rich body of empirical evidence offers but a patchwork of perspectives.

There exists another divide within each discipline—between those who prefer theorizing and those who conduct empirical research. As one researcher put it, this divide between "theory-free empirics" and "empirics-free" theory too stands in the way of productive dialogue.

The debates around contract farming, if anything, have only gained momentum in the past decades, in a continuing "battle of interpretations" (Vicol et al. 2022; Oya 2012) as empirical accounts of both "successes" and "failures," across a range of welfare metrics and outcomes, are put forth with equal and impressive regularity.

This disciplinary rift has important repercussions for policy making, often translating into opposing conceptions of the role of the state. If, on the one hand, contract farming is indeed a good thing, advocates are concerned about how this can be scaled up and replicated to have the broadest reach possible. Some argue that governments ought to be proactive in providing a legal and institutional framework that supports businesses taking up contract farming. A host of multinational agencies, including FAO, GIZ, the World Bank and governments have invested efforts in promoting, supporting and advocating contract farming (Dixie et al. 2014; Will 2013; da Silva and Rankin 2013, for example). On the other hand, some believe that the state should disallow it altogether, terming it a kind of "forced agrarian change." Indeed, many contract farming schemes hark back to their colonial roots, of extractive protagonists exploiting small farmers. Recognizing this polarity in prescriptions, still others assign to the state the enigmatic role of having to neither support nor oppose contract farming (Asokan and Singh 2003). A middle road suggests that if contract farming entails its own set of problems, policy interventions could be put in place to calibrate its functioning. At the very least, the government ought to act to protect the interests of the farmer by fixing terms of the contract, preventing monopsony and instituting formal dispute resolution mechanisms (Minot 2008; Singh 2002a).

The issue of policy is critical, since the state can and does exert a strong influence on the instrumentality of contract farming in poverty alleviation (Grosh 1994; Raynolds et al. 1993; Vicol et al. 2022). The role of capital and the new international division of labor are contingent processes (Raynolds et al. 1993). States can fashion the particular exogenous institutional context so as to influence (or not) the outcomes of contract farming schemes even if they don't themselves sponsor, intervene in or regulate these schemes. Also, given that most developing country governments are resource-constrained, the optimal way of distributing scarce state resources and capacity over a potentially large number of agricultural interventions demands serious attention. It is hence important

to determine clearly whether contract farming should garner the scarce resources of the state and how these resources are directed.

1.2 Bridging the Divide

This book thus foregrounds this deep disagreement regarding the transformative promise of contract farming and its presumed inevitability as agriculture in low income countries transform. The central premise of this work is that methodological differences, especially across disciplines, have generated a false binary in discussions of contract farming, whereas a more integrated theoretical perspective can reconcile these apparently conflicting positions.

It is well known that contract farming manifests a wide variety of forms. This diversity of contract farming arrangements has sometimes led to a general skepticism of universalistic models. It is believed, for instance, that the "heterogeneity of contract production—a diversity embracing crops, actors, production relations and institutional links—strongly suggests that any effort to outline a general "theory" of contracting would be foolhardy and ultimately unproductive" (Watts 1994b, page 5). Yet, at the same time, in a conversation, an economist asked: Have we not modeled this (contract farming) already?[2] In 2023, another economist asked "Is there anything left to be said about contract farming?"[3] These two responses, more than a decade apart, suggest, in contrast, that there is an essential unchanging "sameness" that can be and in fact has been explained within existing paradigms in economic thinking. This divergent perspective itself makes it important to ask how far existing methodological frameworks in economics to research contract farming have succeeded in addressing its various aspects, and whether they have sought to do this at all.

This work is motivated by a recognition that the analytical apparatus used to analyze contract farming within the discipline of economics thus far, despite its usefulness, has serious limitations. The story of contract farming in developing countries is one with many intricate sub-plots. Economists have developed some of them with much enthusiasm and some others less so. Consequently, there are significant lacunae which

[2] July 10, 2006. Personal communication.

[3] December 1, 2023. Personal communication.

curb conversations with scholars using other disciplinary perspectives. I focus on four of them.

First, most theoretical work has seemed content using a farmer as the unit of analysis. This enables detailed theoretical development of farmer-level aspects such as welfare outcomes, distribution of risk across parties, interlinkage of transactions and so forth. Interpreters of this stream of theory, focusing as they do on contractee benefits, tend to unwittingly extrapolate this to the farm population as a whole. Yet, it is evident that there is an important domain-level dimension. Theoretical work that uses the notion of a representative farmer neglects the fact that heterogeneity among farmers partitions them into those who participate and those who do not or might be systematically excluded, leading to important distributional consequences across actors in the larger domain. That firms use various selection criteria and screening mechanisms is well known and these exclusionary devices can engender different kinds of distributional impacts in different systems. Further, a firm's contractual relationship with one farmer could have spillover effects for others in a given region. Contract farming may be studied in a partial equilibrium setting but also entails a general equilibrium dimension across multiple markets including inputs, land, credit and labor. Thus, like the "technology treadmill" Cochrane (1958), contract farming might well have partial equilibrium effects that may be "desirable," while generating system-level or domain equilibrium effects that are not, or vice versa.

Second, the social aspects of contracting arrangements pose a serious challenge to theoretical analysis. In the absence of effective formal enforcement mechanisms, especially in the context of transition and developing economies, firms have had to be inventive in putting these arrangements in place. These involve the use of incomplete, implicit and relational contracts that leverage structures of social relations and interlinkages with social institutions to support economic exchange (Aoki and Hayami 2001; Fafchamps 2004; Kirsten et al. 2009). Whereas in developed countries, issues such as trust might influence outcomes, and coexist with or complement formal mechanisms of enforcement, in developing countries these are often preconditions (Fafchamps and Minten 2001). Because they are preconditions, relationship-building becomes an instrument, so that firms might first cultivate a relationship before establishing contracts. This puts the issue of contract farming firmly within the realm of relational contracts. In fact, a business consultant in India exclaimed "We don't do contract farming, we do relationship

farming!" (Agribusiness Survey, Hyderabad, Andhra Pradesh, 2007). So, rather than contract farming being a technical transactional arrangement as development economists recognize, it is the representation of a complex, socio-techno-economic relationship. While there is now a growing literature documenting the relational nature of contract farming, it is not apparent that this has informed the theoretical foundations of empirical analysis to the extent it should (Macchiavello and Morjaria 2015; Macchiavello 2022; Michler and Wu 2020; Wu 2006, 2014).

Third, even with the recognition of relational contracts and social aspects of the relationship, questions around power within relationships remain underexplored. Economic models have for long acknowledged that vertical coordination represents simultaneously vertical restraints on growers, and that firms typically contract for control over decisions that lie outside the boundaries of the firm (Azzam and Pagoulatos 1999; Baker et al. 2006). So too is the recognition that market failures may lead to contractual relationships but that contracting itself is a non-market relationship that may result in inefficiencies (Wu 2006; Swinnen and Vandeplas 2007a, 2010). Yet, empirical work in economics has been dominated by those that study either patterns of farmer participation or impacts on welfare outcomes such as income and wealth. Indeed the many recent reviews of contract farming literature too give short shrift to the issues of power and inefficiencies associated with contracting.

Last but not least, existing theoretical analysis of contract farming have not ventured to explain historical changes and institutional evolution in contract farming schemes that we see so often at a systemic level. Notably, the question of sustainability of these systems is only marginally addressed, and the evolution of contract terms or the farm-firm relationship, rarely. This is important since, given the same starting point, even in the presence of gains to contracting, the selection process deployed by agribusinesses can engineer very different pathways at a systemic level, leading to very different kinds of agrarian transformation that we see empirically.

These aspects are sometimes acknowledged and recognized. Yet, the absence of an accommodating theoretical perspective and the somewhat uneven coverage of empirical evidence within economics has led to difficulties in reconciling the apparent contradictions in disciplinary perspectives.

A goal of this book is to propose an overarching analytical framework for economic analysis that can arbitrate and mediate these positions. Such an analytical framework needs to permit (1) shifts across geographical

scales to capture phenomena both at the farmer level and at the level of a contract farming "domain", (2) incorporates substantively the heterogeneity of contractor and farmer types and their experiences with contract farming, (3) incorporates dynamic elements of contract farming relationships, acknowledging the impact that continuity of these relationships into the future can have on economic decisions in the present and (4) give due importance to contextual considerations that generate uneven sources of power between grower and contractor.

I propose framing contract farming within a Comparative Institutional Analysis (CIA) framework proposed by Aoki (2001). Accordingly, contract farming arrangements are institutions defined by a collection of robust subjective assessments or beliefs agents, i.e., farmers, firms and other actors, hold about one another, that have evolved over time through learning, are stable or stationary and are used as a basis for procedurally rational decisions. This book thus takes a systemic, dynamic approach suggesting that the substantive characteristics of a contract farming scheme represent frictional equilibria over a "domain". An Aokian view of institutions and their adaptations and evolution over time thus relate not just to individual farmers or firms but to a larger contracting domain.

I do not seek to explicitly "apply" this framework in a literal sense. Rather, I seek to justify the need for and usefulness of such a framework by drawing on empirical evidence to validate the framework. I propose to illustrate the multiple sources of friction that permeate contracting relationships and suggest it is best studied by dismantling the "event" of contract farming into its component stages, starting from the search and matching up of partners to contracting, to honoring the contract, enforcing and then onward to the next contracting period. In doing so, I highlight areas where economists have succeeded, via modeling efforts and empirical research, in developing fresh insights on the design and operation of contracts and areas of relative neglect. I hope to demonstrate that this lens for viewing contract farming offers the possibility of generating several well-known features of contract farming practice in developing countries. Such an approach helps us recognize that the apparently conflicting views on normative aspects are not necessarily mutually inconsistent.

To be sure, this book seeks to build on and not replace existing approaches. Nor does it claim to integrate disciplines. On the contrary, this effort stems from an appreciation that each disciplinary lens offers a unique perspective that others do not and each empirical approach

has its strength. Rather, it is an invitation to economists to redress at least some of the legitimate concerns and critiques of economics research, both in terms of theoretical modeling and empirical approaches, while shining the light on promising approaches within economics that remain unrecognized. This is best achieved by generic, additive framework for context-specific modeling of contract farming arrangements.

In writing this book, I have made a conscious effort to highlight perspectives of both farmers and firms, in order to validate the theoretical framework. This redresses an important limitation of many empirical works, where the focus is often on one set of actors or stakeholders. Further, throughout the book, I attempt to draw on the rich literature available across disciplines to motivate, illustrate and support the discussion. Given the expansive literature on contract farming across disciplines, it is inevitable that the coverage of works is not comprehensive. In general, I have picked a few as illustrative examples, without using a specific rule. In addition to relying on existing literature, each chapter draws on original research I have undertaken between 2007 and 2018. These include systematic surveys of farmers in Tamil Nadu and Karnataka, detailed interviews with agribusinesses on their contracting operations and an analysis of contracts. Lastly, in proposing and justifying this framework, I focus disproportionately on developing countries, particularly on India. There is a rich and active literature on contract farming in developed countries, for example, hog and poultry in the United States (US) and dairy and horticulture in Europe. Although I allude to examples from developed countries, these are not the primary focus of the book, not because they are any less complex or interesting but because contract farming in these contexts is not foisted with the role of furthering rural development and poverty alleviation.

The book is best read in the order presented. In Part I, I present a definition of contract farming along with a short history and estimated global prevalence (Chapter 2). I then motivate the need for a new analytical framework for contract farming (Chapter 3). In Chapter 4, I draw on the Aokian CIA approach propose a framework of contract farming as frictional equilibria and describe how to operationalize such a framework (Chapter 5). Following the proposed operationalization, by dismantling contract farming into its various stages, Parts II and III focus on each stage. In Part II, we turn our focus to why and when contract farming schemes emerge, survive or die, starting with the firms' approach to contracting (Chapter 6), then focusing on why farmers

contract (Chapter 7) and finally turning to the role of commodity and context and market structure in shaping contract farming arrangements (Chapter 8). In Part III, we focus on the contract itself (Chapter 9), its enforceability and dispute resolution (Chapter 10). Chapter 11 traces the dynamics of contract farming over time. In Part IV, we focus on the impacts of contract farming on various welfare metrics, including income and wealth (Chapter 12), offering an assessment of dominant empirical approaches. In Chapter 13, we focus on themes such labor, gender, children, health and environment that have been better researched in disciplines other than economics. In the concluding Part V, we turn to the role of the government and state involvement in policy making and legal issues around contract farming (Chapter 14). The last chapter concludes the book (Chapter 15).

Part I

CHAPTER 2

Contract Farming in Perspective

Few works on contract farming neglect to mention that contract farming arrangements are extraordinarily diverse. At the outset, therefore, it is useful to clarify the definition of contract farming used in this book. Subsequently, I provide a concise account of the past decades of contract farming and of its protagonists; thereafter I gather existing information on the prevalence of contract farming, especially in developing countries. Since this book relies substantially on evidence from India, a separate section is dedicated to the emergence and prevalence of contract farming in India. Together, these form the backdrop for the rest of the book.

2.1 What is Contract Farming?

Following definitions put forth by earlier writers, contract farming can be defined as an agreement, oral or written, between farmer or farmer groups and processing and/or marketing firms, commercial or otherwise, for the production and supply of agricultural products under pre-specified conditions, frequently at predetermined prices (Minot 1986; Dorward 2001; Eaton and Shepherd 2001; Glover 1990; Mighell and Jones 1963; Paul 1972; Simmons 2005; Ayako 1989). The arrangement could also involve the purchaser providing a degree of production support through, for example, the supply of inputs and the provision of technical advice. The basis of such arrangements is thus a commitment on the part of

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_2

the farmer to provide a specific commodity in quantities and at quality standards determined by the purchaser and a commitment on the part of the company to support the farmer's production and to purchase the commodity.

This definition is broad and admits a wide range of contracts, contracting arrangements and players with varying motivations. However, for the purpose of this book, I exclude certain kinds of arrangements, mainly to keep the discussions tractable.

Too often contract farming is conflated with share cropping. I distinguish contract farming from sharecropping based on the identity of contracting parties and the status of the contractee. As typical of the early literature on contract farming (Ayako 1989, for example), I focus on agreements that cultivators (who own or have rights over land) enter into with agroindustrial corporations and not-for-profit actors, including state and civil society actors, rather than with owners of the land they cultivate. Second, for the purpose of this work, the contractor may be wholly public, wholly private commercial entities or joint public and private, or not-for-profit agencies; they may be supported financially by international development agencies. The discussions in the book, therefore, admit a wide range of protagonists whose motivations can be diverse. These differences are highlighted explicitly whenever the discussion demands. Third, there is a question of whether traders are contractors. As Vicol et al. (2022) note, whereas in the 1960s contract farming was dominated state-led schemes and multinational agribusinesses, traders too undertake contract farming. Indeed, in India, traders routinely have implicit oral contracts, often providing input credit against the promise of a buyback arrangement for output. Many traders are formally licensed and may even have registered enterprises. Yet, in this book we do not focus on traders as contractors. Fourth, we overlook farmer cooperatives and collectives that may enter into contract farming arrangements with their own members. We do, however, include farmer collectives that may contract with a contractor.

The definition of what constitutes contract farming is thus not a trivial question, nor is it governed by a set of objective criteria. Restrictions on what we deem to be contract farming, however, helps keep the discussions tractable.

2.2 A Short History

Although there is no systematic written account of the history contract farming, we know that as a form of sourcing agricultural produce, it has existed at least since the emergence of colonialism.

Contracting arrangements, then as now, were common in manufacturing, as with the putting-out system of the Industrial Revolution. Parthasarathi (2001), for example, writes about contracting arrangements between weavers in colonial India and mills in imperial Britain in the nineteenth century. Otsuka et al. (2016) cite research that document the presence of the putting out system in imperial Japan. The Japanese colonial state is known to have contracted sugar production in Taiwan. In India, the British East India Company and the colonial state too engaged in contracting with cultivators on contracts for indigo and opium with contrasting experiences (See Swamy 2015 for an insightful analysis of these). Indeed, many crops that have been the focus of contract farming schemes in the twentieth century are those that one would regard as colonial plantation crops—sugarcane, tea, tobacco, jute and cotton, for example. In the US, the story of Lehmann Brothers accepting cotton in lieu of repayment of loans to cotton farmers is a well-documented instance of interlinked buyback arrangements that linked circuits of finance and capital with land, labor and commodities. Rehber (2018) notes that the earliest record of a forward purchase agreement dates back to 1878. By the 1930s and 1940s, the vegetable canning industry in North America and the seed industry in Western Europe had adopted contract farming widely (Rehber 2018).

Despite apparent evidence of its existence for centuries, globally, contract farming is regarded very much a post-Second World War phenomenon, when a constellation of factors led to the growing footprint of contract farming across the developed and developing world.

In the decades after the Second World War, several new nations emerged as sovereign countries. These states especially in Sub-Saharan Africa (SSA), took on the role of nation-building and turned to agriculture to ensure both food security and alleviate rural poverty as fundamental to their sovereignty. Some of them sought self-sufficiency in critical foodgrain sectors but also aimed to conserve or earn foreign exchange . These nationalistic goals of ensuring self-sufficiency in food and of earning export revenues led countries, notably in SSA, to found

state marketing boards that operated contract farming schemes, sometimes with rural farmer collectives or cooperatives. These marketing boards, founded in the 1960s and 1970s, were often monopsonies, such as for tea in Kenya and Malawi, cotton in West Africa, that organized smallholder production systems via contract farming. In some cases, land was taken over from small farmers, and in others, land was settled. These public schemes typically comprise a smallholder service, small-scale farmer settlement and nucleus estate/smallholder outgrower schemes . In much of the developing world, parastatal marketing boards undertaking contract farming represented a transition out of colonial plantations.

Development organizations too have played a key role in propagating the presumed virtues of contract farming. International donors facilitated "service schemes" typically involving an authority to provide support services and inputs to encourage smallholders to produce a specific crop. In settlement schemes, small-scale farmers move or are moved to holdings allocated for them in a discrete settlement area, which may be newly developed or may be an acquired plantation (Ayako 1989). Many of these aid-driven schemes took complex multipartite forms involving transnational corporations or local business, national or provincial governments and the donor (Glover 1990).

In much of Latin America, multinational agribusinesses spearheaded contract farming signifying the increasing reach of global capital. Many of these sidestepped complex donor-driven partnerships with governments to source from new geographies (McMichael 1994). However, many transnational agribusinesses involved local partners, who served to bolster business influence over policies within the countries (Glover 1990). These efforts even predated World War II, as with banana companies in central America (Grossman 1998), but acquired significant momentum after the War. The spread of transnational business acquired momentum in the 1990s with increasing examples from Southeast Asia, including in aquaculture and livestock (Goss et al. 2000, for example).

Not all contract farming schemes, however, involved global agribusiness. Many private sector firms operated within countries. Many were input businesses. For example, the rapid emergence of contract farming in broiler industry in the southern US began about 15 years after the Second World War, when the feed industry chose to enter into buyback arrangements with farmers who were unable to pay upfront for feed (Goodhue et al. 2000). This led to the establishment of what is known as "the Southern Model" of broiler production (Boyd and Watts 2013;

Constance 2008; Goodman and Watts 1994). A key feature of the Southern Model was the use of tournaments, i.e., payments linked to relative performance of the farmers, so that the payment a farmer got depended not just on their own performance but on those of other contractees as well. The earliest broiler contractors were, therefore, feed manufacturers rather than meat packers. In large developing countries such as India and China, that had sheltered agriculture from foreign capital for decades and continue to do so to some measure, contract farming was primarily driven by domestic agribusinesses.

The recent wave of contract farming is marked by two other features: First, contract farming has been enabled by the retreat of the state from providing agricultural support through marketing arrangements and input supply. The era of liberalization and privatization pushed several African countries to privatize their parastatals. For example, the Kenya Tea Development Authority (KTDA) originally a parastatal monopsony established in 1964 was privatized in the 2000s. In many West African countries, the cotton sector was reformed to varying degrees to allow private players to benefit from zoning policies to continue contract farming (Minot 2011). These diverse pathways for reform provide for a fascinating account of the transformation of buyer-seller relationships in these countries (Tschirley et al. 2006). Second, the emergence of organized retail in the form of supermarkets too has necessitated greater control by buyers over the production process for discerning consumers. Supermarket retailers too have experimented with strengthening backward linkages with farmers upstream to source produce, though many in developing countries appear to rely on a network of collection centers receive produce from growers, sometimes without relying on contracts (Tschirley et al. 2009; Reardon and Timmer 2005). These varying factors driving contract farming differ in strength across countries.

As is evident, although it is common to think of contract farming as having emerged somewhat spontaneously as an institutional solution to the problem of missing markets, there are several cases where contract farming was a considered policy response by governments to promote agricultural development. The varying origins of contract farming schemes is one reason for their diversity, in form and consequence.

2.3 Global Prevalence: Some Estimates

What is the extent of contract farming in developing countries? There is a perception contract farming represents a transition to advanced agriculture and is widespread in developed and emerging economies. There is, however, little systematic data available to map its extent and growth, and hence hard to establish (Minot 2011; Oya 2012). The data that exist tend to be outdated and are often gleaned from surveys meant for other purposes.

Rehber (2000) noted that contract farming may account for 15% of agricultural output in developed countries. In 2008, in the US, production and marketing contracts governed 39 percent of the value of US agricultural production, up from 28% in 2001 and 12 percent in 1969 (Macdonald and Burns 2019; MacDonald et al. 2004; MacDonald and Korb 2006). That said, as per a farm survey, only about 10 percent of US farms hold contracts, with no apparent change since the early 1990s (Macdonald and Burns 2019). Contracting is closely tied to farm size, and the expansion of contracting is closely tied to the growth of larger farm operations. In Europe, the organization of production aid system as part of the European Union (EU) spurred contractual arrangements across sectors, especially in dairy, poultry and sugar (Rehber 2007).

In China and India, two of the most populous countries in the world, that have also been sites for a great deal of research on contract farming, contracting has been highly "unstable" (Zhang 2012; Narayanan 2013). However, they seem to present a contrast. According to the Chinese Ministry of Agriculture, there were 4.6 times the number of organizations involved in agricultural industrialization across 31 provinces in 2000 than in 1996. The number of farmers who signed contracts with firms increased twofold over the same period. The proportion of farmers involved in contract farming went up correspondingly, from 10% to 25% (Guo et al. 2007). In India, by contrast, Narayanan (2010) notes contracting schemes have survived only in a few niche markets, despite news of their growth. A nationally representative survey in India finds that in 2018–19, less than 1.5% of agricultural households explicitly mentioned growing any crop under contracts. Using the same survey data, Cariappa et al. (2023) estimate that about half a million agricultural households farm under contract, with the proportion ranging from 0.1% in some states to over 10% in the Indian state of Punjab.

In Africa, Minot (2011) estimates that in many countries, the proportion of farm households involved in contract farming is probably less than 5% (Table 2.1). Oya (2012) too notes in this context that the prevalence of contract farming seems to be lower than popular imagination suggests. Writing in 1989, Ayako and Glover (1989) noted that in Kenya approximately 16% of 1.5 million smallholders produced under contract, with 40, 50 and 80% of production of tea, sugarcane and tobacco, respectively under contract farming. Minot (2011) too notes in 2011 that in Kenya, probably a quarter of farmers produce under contract, on account of the dominance of tea and vegetables.[1]

More recently, Meemken and Bellemare (2020) note that the prevalence of contract farming varies widely across countries. Using the Consultative Group to Assist the Poor (CGAP) Smallholder Survey, they find that just 4.3% contracted in Bangladesh, 5.7% in Mozambique, 10% in Uganda, 15% in Cote d'Ivoire and 15.9% in Nigeria. Only Tanzania reported a significant proportion of households, 80.8%, involved in contract farming. In a non-random sample of 7200 rural households in Kenya, Madagascar, Mali, Mexico, Morocco, Nicaragua and Senegal, Losch et al. (2012) found that 7.4% operated under contracts, including oral agreements post-harvest.

Globally, there is a clear correlation between commodity type and the extent of contract farming to the point where some argue that it might be more useful to use commodities as categories rather than countries. Oya (2012) notes, using figures published by United Nations Conference on Trade and Development(UNCTAD), that virtually all of Mozambique's cotton is procured via contract farming, as are three quarters of Brazil's sugar, 35% of its soyabean, 60% of tea and sugar in Kenya, and nearly all of its cut flower exports, 90% of cotton and fresh milk in Vietnam, 50% of its tea and 40% of its rice, all of Zambia's cotton and paprika; and most of Mozambique cotton and tobacco production. Minot (2011) organized contract farming in SSA by commodity rather than country. Tea, sugar and sugarbeet, tobacco, livestock (poultry for egg, broiler, hog and cattle) tend to have a preponderance of contracting arrangements relative to field crops. This is true in developed countries as well. In the US, processing tomatoes and fruit too tend to be dominated

[1] Brüntrup and Peltzer (2007) estimate that contract farmers represent 30–40% of the farmers in Burkina Faso, Zambia, and Kenya and 33–43% of farmers in Cameroon, but Minot (2011) notes that this is probably an overestimate.

Table 2.1 Prevalence of contract farming

Country	*Source*	*Estimated prevalence*
Benin	Jaffee (1994), based on inventory of contract farming schemes	About 25 percent
	Minot and Daniels (2005), based on a stratified random sample of 899 farm households	34 percent (Only contract cotton growers)
Uganda	Stratified random sample survey of 1,440 rural households in 2012–2013	5 percent had either pre-planting or pre-harvest contracts
Ethiopia	Stratified random sample survey of 3,000 rural households in 2012	0.2 percent had pre-planting contracts, 2.0 percent had pre-harvest contracts, and 2.2 percent had any contract
Ghana (northern)	Stratified random sample survey of 1,290 rural households in northern Ghana in 2010	3 percent had either pre-planting or pre-harvest contract
Vietnam (four provinces)	Stratified random sample survey in four provinces of Vietnam in 2011	5 percent had pre-planting contracts with buyer of main crop, 13 percent received an advance payment from buyer
Kenya, Madagascar, Mali, Mexico, Morocco, Nicaragua, and Senegal	Losch, Fréguin-Gresh, and White (2011), based on non-random surveys in seven countries with a total sample of 7,200 households	7.4 percent of households had any type of contract, including post-planting informal agreement with buyer
India	Cariappa (2023) nationally representative sample of agricultural households in 2018–19	1.5% grew any crop under contract
Bangladesh, Mozambique, Uganda, Cote d'Ivoire, Nigeria	CGAP survey of 16140 households in 2015–16 reported by Meemken and Bellemare (2020)	4.3% contracted in Bangladesh, 5.7% in Mozambique, 10% in Uganda, 15% in Cote d'Ivoire and 15.9% in Nigeria Tanzania 80.8%

Source Updated based on Minot and Sawyer (2016)

by contracting arrangements. Major field crops, such as corn, soybeans and wheat, are still largely sold through spot markets and agricultural contracts cover only 5–10% of production. In these instances, contracts are usually used for distinct varieties, such as high-oil corn or organic soybeans. At the other extreme, for crops, nearly all sugarbeet production is governed by marketing contracts. Among livestock and poultry operations, about 90% of poultry and egg production is governed by contracts (and most of the rest is governed through vertical integration).

Many reasons have been proffered for the preponderance of contract farming in some sectors rather than others, including policy, structure of markets and type of processing. Minot (2011) notes for example that scale complementarities are important. Where scale economies in processing exist but not in production, then contract farming makes sense. The type of markets matter as well. Where consumers are discerning and quality or traceability matters, contracting is more likely to be a preferred mode of procurement. Else, when trade barriers that mandate specific production practices, the commodities are far more likely to be grown under contracting arrangements with strict oversight. Policies in countries that limit corporate ownership of land or impose ceilings on land owned also may provide preconditions for contracting, where the latter allows firms to access supplies without owning agricultural land.

As evident from this discussion, contract farming research faces some serious data challenges and even the estimation of its prevalence is not straightforward in most developing countries. Several of these challenges are worth highlighting. First, given the high mortality of schemes, repeated nationally representative surveys are required to ascertain the scale and expansion of contract farming. Second, because of the varying forms of contracts, oral and written, and the wide variety of terms associated with contracts, it is unclear if surveys identify the number of contract farmers and the extent of sales under contract accurately. In several contracting schemes in India, for example, contract farmers tend to be unsure of whether or not they have a contract; in some cases, contract farmers are able to identify the field official but not the contractor he or she may represent (See Chapter 9, for a discussion). Under these circumstances, a simple question to identify contract growing may lead to an overestimation if respondents deem traders too as contractors or an underestimation if respondent's understanding of the contract is focused purely on written contracts. Here, the definition of what constitutes contract farming across surveys matters a great deal. For instance,

depending on whether contract farming includes implicit arrangements for sale with tranders, as part of interlinked transactions or excludes these, India either has a large share of farmers who contract or barely any. Third, globally, contract farming is known by many names—as partnerships, strategic alliances and so on. If farmers believe they participate in a project or in a partnership, viewing this as different from contracting, this too might underestimate the prevalence of contract farming. Further, even if the extent of contract farming appears to be large in scale, firms may nevertheless view it as being of limited importance as a procurement strategy. Often, contracting schemes are put in place by companies as Corporate Social Responsibility (CSR) initiatives and/or to leverage government subsidies or earn goodwill. Thus, even if these are large in an absolute sense, they may not be a critical way of sourcing produce for firms.

Notwithstanding these challenges of data availability and measurement, the emergence of contract farming as an alternative to spot markets and to factory-owned farms merits attention, for its dominance in certain crop sectors and regions and for the large numbers of farmers it potentially impacts.

2.4 Contract Farming in India

As discussed earlier, the true extent of contract farming in India is largely unknown since there is no formal recording system of the universe of contracting arrangements. Estimates from the most recent nationally representative survey of agricultural households suggest that though the proportion of farmers contracting for produce is small, based on the definition of contract farming adopted for this book, they are large in absolute terms (Cariappa et al. 2023), and larger still if the notion of contract farming is expanded to include traders, for example. A rich mosaic of corporate, civil society and state actors across the country (though less in the east and north-east) have entered the fray seeking to source produce for processing and retail (Cariappa et al. 2023; Shrimali 2021; Ghosh 2013; Singh 2022a). We discuss the trajectory of state policy regarding contract farming later in this book but confine the discussion here to the diverse protagonists, drawing on Narayanan (2010).

In India, contract farming goes back to the colonial era when indigo, opium, tobacco, and cotton were sourced from cultivators using

forms of marketing contracts (Banaji 2016; Swamy 2015). In the post-Independence era, commercial seed production by seed companies that emerged in the 1960s, private and public, has invariably been organized around some kind of contract production. Seed potato and cotton stand out as examples where seed multiplication for firms is undertaken on a large scale by contract farmers. Milk production in the cooperative sector, too, has been along these lines, following Operation Flood in the 1970s. Private sector milk processors have followed this model. Sugarcane is often cited as a prominent example of contract farming, where the state mandates a command area around sugar mills for procurement on pre-specified terms. Since 1991, with economy-wide reforms, the state began to disengage from traditional forms of policy intervention seeking to create spaces for the private sector within agriculture. Contract farming began to feature prominently in this effort.

In 2000, as part of what was termed a "Rainbow Revolution," the National Agricultural Policy stated: "Private sector participation will be promoted through contract farming and land leasing arrangements to allow accelerated technology transfer, capital inflow, and assured market for crop production...." With state effort to promote private sector participation in agriculture and an eager private sector eyeing the "fortune at the bottom of the pyramid" (Prahalad 2009), contract farming schemes mushroomed in the mid-1990s. These arrangements, like elsewhere in the world, differ greatly in the nature of actors, relationship intensity and degree of formality, specific terms and scale of operation.

Yet, as noted in the preface to this book, it is apparent that not all of the schemes survive. Contract farming has endured best in high-value, niche commodities, especially for the export market, and where a well-functioning, competing, domestic market does not exist. Gherkins offer the best example. Introduced into peninsular India in the early 1990s by pickling plants in the region, gherkins are almost entirely sourced through contracts. By the triennium ending 2008, India accounted for as much as 15% of the world's exports of pickled gherkins. Similarly, large swathes of land, especially in Karnataka, are now under high-value medicinal plants and herbs, ashwagandha, aloe vera, coleus, stevia and so on, for nutraceutical firms. Certified organic supply chains have emerged too for which a whole range of spices and horticultural produce are now contracted (e.g., in Uttaranchal).

Contract farming has found least traction when it emerges against a strong alternate domestic market or when too many partners hold the

arrangement together. Many rice and wheat contract farming efforts by private sector banks and firms folded up after initial experiments. Cotton contract farming, in states such as Tamil Nadu, fast faded into CSR initiatives. In other instances, state-supported schemes for jatropha and oil palm did not take off. In many of these cases, production risks were high and disagreements over pricing led to disgruntled farmers shifting out of the crop. There are numerous examples of successful schemes that have stabilized despite having competing markets and competitors, wheat and soy contracts for flour making in Madhya Pradesh and Uttar Pradesh, sunflower and safflower for oil in western and central India, marigold and papaya for extracts in Karnataka and Tamil Nadu. The broiler industry in the states of Andhra Pradesh, Maharashtra and Tamil Nadu is today almost entirely integrated through contract farming, led by Godrej Agrovet, Suguna and Ventakeshwara Hatcheries. In fact, the industry's embrace of contract farming virtually rescued the poultry sector in Tamil Nadu, at a time when price volatility and poultry disease had dismantled the livelihoods of small poultry farmers. More recently, a few firms have successfully acted as back-end integrators for retailers based in Europe and the US, contracting for fresh produce in north-western India.

Apart from retailers and processors, many contract farming schemes have been initiated by input manufacturers, especially of fertilizers and pesticides, along with partners who take responsibility for buyback. Banks too have partnered contracting firms in multipartite arrangements to provide crop loans and working capital, with the contract itself as collateral.

Some state governments have been proactive, engaging hands-on in tripartite contract farming ventures with agribusinesses and banks, acting sometimes as guarantors, sometimes as relationship-managers. For example, the Punjab Agro-Industries Corporation founded in 1996 has partnered with a number of agribusinesses in implementing projects. Tamil Nadu adopted a public-private tripartite model for cotton contract farming in 2004-05. Karnataka actively promoted gherkins and grape clusters in the state with great success. States such as Andhra Pradesh and Mizoram have attempted to replicate the sugarcane model for oil palm contract farming, mandating farmers to supply fresh fruit bunches to privately owned mills at administered prices. Non-governmental organizations have been involved as well, mediating contractual relationships between groups of small farmers and agribusinesses as with BASIX (for

chipping potato contracts with Frito Lays India Ltd. in Jharkhand) and PRADAN (also in Jharkhand).

Sometimes contracting is just one element of a broader and deeper relationship with the farmer. This model, now called "open-source intermediation" involves establishing rural business hubs, where a multiplicity of farmers' needs is addressed under a single roof. ITC's Choupal Fresh and DCM Shriram's Hariyali Kisan Bazaar began as two such ventures, which offered to buy back produce from farmers without obligations to do so.

This book justified the focus on India by noting that it offers a diversity of experiences. Despite the somewhat low prevalence of contract farming in India, a large number of scattered and varied initiatives suggest much experimentation, offering rich material for learning.

This chapter attempted to provide a crisp contemporary history of contract farming and its global prevalence. In the next chapter we turn our attention to researching and theorizing contract farming.

CHAPTER 3

Researching and Theorizing Contract Farming

3.1 Contract Farming as Theoretical Subject

Empirical literature emphasizes time and again that contract farming schemes are incredibly diverse, embracing "a great variety of experiences, organizational arrangements, ownership structures, and agricultural practices" (Isager et al. 2022, page 36). The diversity of contract farming arrangements has sometimes led to a general skepticism of universalist models, as described in the introductory chapter. This chapter reviews the theoretical literature on contract farming within the field of economics, assessing and contrasting economic approaches with alternative frameworks. I start by summarizing some elements common to approaches followed by political scientists, anthropologists, sociologists and geographers (expediently referred to as "social science" approaches) before moving on to an elaborate discussion of economics frameworks.

3.1.1 Social Science Approaches

The approach of non-economists to contract farming comprises diverse strands. This is by no means a comprehensive account of these approaches. The purpose of this short, if inadequate summary, is to highlight issues that current mainstream economic approaches tend to overlook.

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https://doi.org/10.1007/978-3-031-76487-5_3

A common thread among various strands of research in other social science is that most situate contract farming within debates on the "agrarian question" that inquires into the effect of capital penetration into agriculture, including within the context of the global restructuring of the agrifood system. This relates to both capitalism's uneven development in agriculture as well as the future of peasants. Whereas, a tradition of Marx and Lenin theorizes that the peasant will eventually cede space to capitalist farmers, heralding the rise of wage labor in agriculture, an alternate tradition due to Chayanov notes that small farmers will remain competitive due to their capacity for self-exploitation. Kautsky predicts the persistence of peasants in capitalized agriculture and emphasizes that this would happen not only on account of their willingness to auto-exploit and retain links to land, but also because larger capitalist farmers and agribusinesses value a cheap labor force that peasants can provide.

Within this broad concern, different strands focus on class-based, place-based analysis, value chain analysis, political economy approaches, including those informed by world systems perspectives and critical agrarian studies (McMichael 2018; Jha et al. 2022; Shrimali 2021; Vicol et al. 2022).

Contracting is thus seen as being subsumed within a broader phenomenon of global restructuring of agrarian production relations and the development of classical agrarian capitalism might thrive and feed off a non-capitalist agriculture. It is further modulated by crop characteristics and the peculiarities of agriculture and its biological character. Contract farming thus exemplifies a specific agrarian form (Guthman 2017; Goodman and Watts 1994). To Watts (1994b, page 24), "contracting signifies both the advance of the industrial appropriation of rural production processes in the shift from agricultural production to agroindustrial production and of the social integration of agriculture associated with transnationalization" and again as "a form of industrial appropriation of discrete activities within the agrarian production process". Niño and Oya (2021) summarize the core concerns of critical agrarian studies approaches as "revealing and problematizing the uneven power relations" among different groups of participants in contract farming, with special attention to how social, economic and political contexts generate specific types of interaction with production and property and, therefore, of how contract farming shapes agrarian change. Shrimali (2021) conceptualizes contract farming as a structure of social relations, together with their associated resources, constraints or rules, that may

determine what happens. She advocates a class-based analysis of this structure that brings together corporate interests, leverages technology, the state and labor to reproduce production relations. Jha et al. (2022) propose that contract farming must be seen in the context of the historical and immanent tendencies of global capitalism where the concentration of wealth in the Global North is enabled by multiple forms of dispossession and social differentiation in the Global South. These are examples of the diverse lenses to view contract farming.

Common to these strands is a concern about the larger political dynamics that shape capital penetration into developing country agricultures, the idea of peasant household who are incorporated, often on unequal terms, into a transitioning agriculture and the social differentiation that accompanies these transitions.

These perspectives place farmers in a systemic context and privilege a relational approach over an individualistic approach. I now contrast this with the history of economics research. I dwell on the economics approaches at some length to better convey the problems and prospects of different approaches and identify points where the perspectives of other social sciences can infuse economics approaches.

3.1.2 Early Theories: Transactions Costs and Taxonomies

The first generation of theoretical efforts within agricultural economics aimed at explaining contract farming as a governance structure and was dominated overwhelmingly, by neoinstitutionalism or New Institutional Economics (NIE), especially the transactions cost approach, or Transactions costs Economics (TCE), elaborated by Williamson (1975). Briefly, NIE extends focuses on the institutions, the social and legal norms and rules, that underlie economic activity and how these are shaped.

Within this framework, contract farming is seen to emerge as the optimal choice from options ranging from spot market transactions to complete vertical integration, where firms subsume all activities ranging from upstream production to processing.

According to this view, the economic world is characterized by transactions costs that emanate from three features of economic activity—*frequency of transactions, bounded rationality of actors and asset specificity associated with the activity*. These operate in a context of uncertainty and potential opportunistic behavior by actors. Bounded rationality denotes the idea that agents cannot be perfectly rational, limited

as they are by their knowledge, cognitive ability and time, and, therefore, make decisions that are satisfactory rather than optimal. Asset specificity refers to the degree to which an asset can be economically transferred to alternative uses. The source of asset specificity could include site specificity, time specificity, human capital specificity and so on. As for the context, uncertainty in transactions arises from two main sources—circumstantial uncertainty such as technological changes, acts of nature, consumer preferences or an inability to control decisions and plans made by others, which may affect attributes such as product quality and timing of delivery. Opportunistic behavior of parties, often defined as self-interested behavior with guile, is typically treated as distinct, but can also be regarded as another source of uncertainty.

In the most common interpretation of TCE, organizational structures of firms are chosen, in part, to minimize these costs associated with business transactions (Williamson 1975). The three key aspects that Williamson outlines namely, asset specificity, uncertainty and frequency of transactions drive a firm's proclivity toward one vertical coordination arrangement over others. The greater the intensity of each of these, the more likely a firm is to vertically integrate (Table 3.1).

The choice of governance structure is thus primarily a function of the frequency and uncertainty of the transactions, and the extent to which a party to the contract has invested in idiosyncratic assets that are of little value outside the exchange relationship. The higher the asset specificity, the higher will be the exposure of the asset-holder to opportunistic behavior from other agents. Hence, a high degree of asset specificity drives transactions away from spot markets toward tighter alignments in the supply chains. Similarly, as uncertainty increases, firms have more incentive to seek control over the transactions, thus moving from spot markets to more vertically coordinated governance modes. The frequency of transactions is directly correlated with the incentive to opt for spot markets, thus reducing the scope for opportunistic behavior. This is especially true in longer term—but not necessarily exclusive—relationships, when information about buyers and sellers tends to be disseminated by the repeat transactions, reinforcing the motivation for the continuance of the open market transactions (da Silva 2005).

The appropriateness of TCE to explain agricultural transactions has been discussed widely (Grosh 1994; Jaffee 1987; Key and Runsten 1999; Masten 2000; Minot 1986; Warning and Key 2002; Allen and Lueck 2003, for example). The TCE application to the agro-food sector has

Table 3.1 Williamsonian choice of governance

Characteristic	*Open markets*	*Tightly aligned chains*
Asset specificity	–	+
Uncertainty	–	+
Frequency of Transactions	+	–

Source Based on Williamson (1975), Sartorius and Kirsten (2005)

been achieved mainly by "expanding the operationalization conclusions" of Williamson (1975). This has involved rich detailing of what constitutes asset specificity in agriculture, what are the sources of uncertainty, and the nature of frequency of transactions in particular crop sectors, while maintaining that these work to influence organizational structure along a 0–1 continuum, from spot markets to complete vertical integration.[1]

Such operationalization has led to the development of complex taxonomies, documenting and identifying a "full set of reasons" for market failure, along with a suggested optimal coordination form for each case (Minot 1986; Grosh 1994; Key and Runsten 1999). These were intended to explain and map the causal factors that predict the emergence of different forms of vertical coordination, drawing on a wealth of case studies to do so. The thrust of taxonomic approaches was, therefore, to "try to identify the features of the successful schemes that led to positive social performance with an eye towards informing policy development" (Warning and Key 2002). Others simply ask: When does contract farming make sense? (Minot 2008; Minot and Sawyer 2016; Simmons 2005; Eaton and Shepherd 2001; da Silva 2005; Boehlje et al. 1998; Sauvee et al. 1998). Most of these attempts to adapt and apply the Williamsonian framework to agriculture, accord an important place to market failure and missing markets (typically caused by asymmetric information) as drivers of transaction costs, and also include crop characteristics and market structure as other important factors. Most of these studies also acknowledge that contractual incompleteness exposes practices to risks and in an environment of non-enforceability of contracts, and that this could be immensely costly, something Williamson (1991) refers to as "maladaptation" costs". Attempts to go beyond taxonomies with some formalization

[1] For examples of taxonomies, where the organizing principles populating the rows influence outcomes on the continuum across the columns.

are evident in Dorward (2001) and Sáenz Segura (2006). Taxonomic approaches continue to be popular, with recent authors developing new adaptations (Mugwagwa et al. 2020; Jha et al. 2022).

The first generation of efforts apparently had a policy orientation with an explicit focus on ascertaining the appropriateness of contract farming as an option across contexts and settings. This may have been a response to the demands of international organizations, donors and newly independent countries that had recently emerged from colonial rule as they sought to leverage contract farming as a vehicle for alleviating poverty among small farmers.

3.1.3 Other Early Approaches

Among other early approaches to understand vertical coordination mechanisms are the Structure Conduct Performance (SCP) approach, the French Institutional school, the *filière approach*, to name a few. A stream of literature on *strategic management* derived from Porter's value chain strategies too has been used to explain contract farming, with a focus internal considerations of costs, technology, financial and managerial resources and external competitive considerations of synergies differentiation, market power and positions (Royer and Rogers 1998; Boehlje et al. 1998). Another set of arguments that explain choice and implications of various coordination mechanisms relates to theories of negotiation and performance incentives. These approaches assist in understanding both the form of negotiated coordination but also how risks and rewards will be shared. With personal negotiated coordination, the invisible hand of the market is replaced by visible hands of buyers and sellers, and negotiation strategy, and skill, power conflict resolution, trust and performance monitoring and assessment become central to effective and efficient functioning of the economic system and the sharing of risks and rewards. These approaches note that firms use both manipulation and monitoring strategies, depending on cost and effectiveness, so that when monitoring costs are high, manipulation is used. These approaches have been somewhat peripheral in framing empirical work on contract farming, particularly in developing countries. Many of these approaches rose in response to what was seen as an overemphasis of TCE approaches on transactions costs at the expense of alternate drivers of vertical coordination.

Another active stream, *New Development Economics*, comprises economics of information, agency theory and the traditional tools of

neo-classical analysis. Contract farming in this perspective emerges as an institution to address issues of missing markets in an environment of pervasive risks, incomplete markets and information asymmetry. Because it serves to redress the problem of missing markets, it leads to a Pareto improvement, and is hence efficient. Many authors thus see contract farming as an extension of the share contracting problem, with slight modifications so that here the "agent" owns land and labor and the "principal" owns perhaps some asset specific investment (like a plant) and capital, inputs and access to markets. Contracting is then, among other things, a way of solving missing market problems and allocating risk between producer and contractor; the former takes the risk of production and the latter the risk of marketing (Baumann 2000). A rich stream of literature in international trade examines the phenomenon of global sourcing that develops insights into when and how firms source and procure from other firms located in different geographies (Antràs and Helpman 2004; Antràs and Chor 2022).

Apart from this, there is a distinct body of works that has sought to retrieve the notion that contractual relationships leverage social relations as the fulcrum. Aoki and Hayami (2001), for instance, argue for according a preeminent place to community and social relations in economic analysis, just as Fafchamps (2004) proposes analytical frameworks to analyze rural economic relations as social relations.

3.1.4 Recent Approaches: Contract Theory

Since the 1980s, rapid developments in the theory of the firm have led to a rich sub-field within mainstream economics now known as contract theory. Within contract theory, there exist two streams, or as some would argue, there exists a methodological divide that separates those who advocate for a theory of complete contracts and the other for incomplete contracts.

The former modeling approach assumes that a contract between two parties governs all aspects of performance under all contingencies so that the goal is to design a contract that accommodates a state contingent plan; parties can foresee all relevant contingencies, set performance obligations for each, further, these obligations are assumed to be verifiable and enforceable by a third party, with penalties that successfully discourage breach of contractual obligations. Under complete contract, there exists

no incentive to deviate from contractual commitments and neither party has discretionary freedom to deviate from the contract.

Anyone familiar with even a few examples of contract farming practice would question the usefulness of this modeling approach. Indeed, both the earlier taxonomic approach and the extensive empirical literature on agricultural contracts suggests that incomplete contracts are the norm; where it is virtually impossible to write contracts that cover all contingencies (We discuss these issues in Chapter 9.2 on the content of contracts). Yet, appealing as it is, the application of incomplete contract theory is not trivial. A consistent and pioneering effort to adapt contract theory to agricultural contracts has been the body of works by Wu (2006) including Michler and Wu (2020). Without going into the details of the strengths and weaknesses of both modeling approaches which are discussed in detail in Wu (2014), I summarize his discussion on recent developments in the field that can be applied to contract farming.

In the world of incomplete contracts, there are three discernible strands, all of which we have encountered earlier—a transactions cost, property rights theory and incentive systems theory. Briefly, the TCE strand notes contracts cannot specify all contingencies, and parties negotiate over some actions or require decisions ex post after the uncertainty is resolved. Some decisions that are not contractible even ex post and these offer opportunities for rent seeking. The property rights theory strand of incomplete contracts focuses on relationship specific investments. The *property rights approach* suggests that the owner of a nonhuman asset possesses residual control rights over that asset and that there is an optimal allocation of these rights (Grossman and Hart 1983; Hart and Moore 1990). Here, the firm is seen to emerge to allocate residual rights of control over property, and it could well be the case that this optimal allocation is such that not all activities take place within the firm. Agents can make observable investments ex ante that increase the value of trade; only simple allocation of ownership is possible ex ante. Parties then bargain and renegotiate terms of trade ex post. Another important component of the property rights theory is that once the state of nature is realized (i.e., ex post), then important variables (e.g., quality of the good, value of trade to the buyer, cost of production to the seller) become observable and common knowledge to both parties. The incentive systems (Holmstrom and Milgrom 1994, 1991) strand of contract theory is similar to the property rights theory in that it focuses on ex ante investments/effort incentives, but it considers a greater range of feasible incentive

instruments for motivating investment or effort. These are additional "signals" (performance measures or other relevant information about effort/investments) that are verifiable by a third party and are available ex ante for writing incentive contracts.

Gibbons (2005) proposed a framework that incorporates all three approaches in a stage-wise buyer-seller interaction: (i) the governance structure and contracts are negotiated; (ii) ex ante actions (investments/effort) are chosen; (iii) interim signals (performance measures) and contingencies are revealed; (iv) ex post decisions are taken; and (v) payoffs are realized. Gibbons (2005)'s framework enables a more fluent application of contract theory to the study of contract farming. Whereas the taxonomic approach offered a descriptive account to aid explanations of contract farming, the new generation of models integrate different strands to enable the study of a richer set of relationships that can yield testable predictions.

While these approaches have been evolving, a rich empirical work informed by these models have sought to research contractual relationships, mainly in the context of the US. Reimer (2006) develops a model to explain vertical integration of the pork industry in the US, allowing for bargaining power. Whinston (2003) offers a more general framework for explaining the role of transactions costs in vertical integration within the property rights framework. Royer and Rogers (1998), Holloway (1998) and Sáenz Segura (2006) analyze contract terms and vertical integration in the context of different market structures. Knoeber and Thurman (1994), Knoeber and Thurman (1995) and Goodhue et al. (2000) suggest a core motivation for broiler industry integration is sharing of input and output price risk and production risk. Hennessy (1996) attributes vertical integration in the food industry generally to information asymmetry regarding product quality. Hueth et al. (1999), Levy and Vukina (2004) and others suggest similar motivations for integration of the pork industry. Some focus on the terms of the contract itself. Knoeber and Thurman (1994), for instance, study broiler contracts that use tournaments and Bogetoft and Olesen (2003) and Olesen (2001) are able to explain the existence and welfare consequences of two-part pricing and differentiated contracts in the Danish pea industry, as an outcome of the need to balance risks and incentives. Some others, while ascribing to the transactions costs explanation for the emergence of contract farming, have focused on the distribution of efficiency gains across actors using a bargaining theoretical framework as in Bell and Zussman (1980). Swinnen

(2007) uses this as a lens to assess the effect of competition on rent distribution, efficiency and equity in firm-farm relations. The theoretical work on relational contracts suggesting that relational contracts can achieve stable outcomes that are efficient and mutually beneficial too has found its way into empirical work on contract farming (Levin 2003; Gow et al. 2000; Gow and Swinnen 2001; Swinnen 2007; Blouin and Macchiavello 2019; Kirsten et al. 2009) all underline the centrality of private enforcement of contract mechanisms to stable and sustainable engagement and others explore the value of relationships in the setting of relational contracts (Macchiavello and Morjaria 2015).

Without delving into the extended debates on the relative merits and limitations of each of the many approaches discussed so far, it suffices to say that the recent proliferation of work that emphasize relational contracts and endogenous incomplete contracts show promise for research on contract farming in developing countries. In other words, with the incorporation of transactions costs, property rights and agency approaches into theoretical frameworks under incomplete relational contract theory, economic approaches to explaining diverse contracting structures have moved substantially closer to incorporating key elements of real world agricultural contracts, particularly in developing countries.

3.2 A Question of Methodology: An Assessment

The contrast in the approaches of economists and other social sciences is all too apparent from the above discussion. Unfortunately, there has been no collective or systematic effort to understand the potential of these diverse approaches to contribute to our understanding of contract farming, in part because there is a tendency for economists and non-economists to "caricature" one another (Oya 2012) rather than engage with each other.

Several specific criticisms are worth noting here. First and foremost is the emphasis in economic approaches on methodological individualism that "obscures class, gendered and generational conflicts and tensions that characterize commodity production" (Niño and Oya 2021). This emphasis on individuals as units of analysis implies that economists have less to say about domain-level effects on the scheme or community. This is despite growing recognition of the baseline inequalities in the domain. Further, several authors direct criticism at neoclassical and

neoinstitutional economic analysis, contesting its view of contracting as a purely technical arrangement, with a reductionist framing of power inequities into bargaining power differentials or information asymmetries (Niño and Oya 2021). There is rich literature that in developing countries a contractual relationship is more a relationship than a contract. Economists have been able to capture the relational nature of contracts as repeated interactions, but have not ventured to explain the large number of extra-contractual elements in a contract farming scheme or investigate their consequences. Furthermore, and secondly, the coexistence of positive impacts for participating farmers and disempowerment in other spheres including self-exploitation and indebtedness raises key questions about the narrow focus of economics research. Third, the logic of contract farming as an efficient solution to market failures necessary precludes the possibility that this may entail problems and inefficiencies of its own. Domain-level conditions, such as market structure and the outside options of farmers play a key role in determining whether contract farming itself generates a set of problems. Fourth, the analytical apparatus for the analysis of contract farming as a governance structure is often framed as a discrete decision or event, a choice between make or buy, and as a time when contractual terms are identified or resolved. Most principal-agent models including relational contract theoretical approaches factor in future interaction into present decisions, but thus far, few applications to contract farming have modeled the heterogeneity of farmers and/or explain the fluid dynamism of the contractual relationship itself.

The trove of decades of research on contract farming suggests that much of the above critique is well founded. The large body of work in empirical economics has occasioned several reviews (Ton et al. 2018; Otsuka et al. 2016; Minot and Sawyer 2016; Minot and Ronchi 2015; Wang et al. 2009; Bellemare 2018; Key and Runsten 1999; Minot 2008, 1986; de Treville 1986; Prowse 2012) (to name a few). These reviews suggest that economists have focused on some aspects more than on others and new insights and questions from empirical research do not all inform theoretical approaches. Several gaps remain.

For economists to redress some of the lacuna, I propose that there is a need to use a generic analytical framework that can be used to (1) highlight the heterogeneity in contract farming practice or the static diversity of schemes, (2) explain the dynamic diversity or the life-cycle of contract farming arrangements, and (3) permit the analysis of impacts of contract

farming at different scales of resolution, at the level of the farmer and the larger "domain" and (4) to accommodate the larger political and social context that shapes power relations.

Irrespective of ideological orientation, there is broad agreement that contract farming in practice manifests, at the same time, both diversity and a certain universality. The question then is perhaps not whether or not we should try to formulate a general theory but rather explore how we can develop such a theory that captures the universal aspects of contract farming as a phenomenon without negating its essential complexity or diversity. Also, (how) can this theory account for dynamics over time while including both partial and general effects, i.e., at the level of the farmer and of the contracting domain? To the extent that such a theory accommodates this diversity and does not privilege universality over differences, it could provide a space for a more coherent organization of empirical experience, and provide useful insights into policy making.

3.3 Imagining a Framework

The central challenge is that existing frameworks, each on its own, might not be adequate to address all these aspects. They can be best described as parts of a whole phenomenon. Those that focus on aspects such as global transformation tend to neglect the complexity of arrangements at the micro-level, while those focusing on the micro-aspects of behavior tend to miss the drivers of transformation in agro-food systems at the macro-level. In reality, contract farming in developing countries has emerged as an outcome of an interaction of macro and micro motives and behavior.

In this context, the scheme offered by Williamson (1991) and Delorme (1996) before him suggest in fact that the economics of institutions is best understood as a layered concept, operating at four different levels.[2] According to Delorme (1996) and thereafter Kirsten et al. (2009), economic space can be organized according to logical levels so that an encompassing scheme, would comprise four levels of analysis organized in a logical order: agency, organizational forms, institutional forms and

[2] See Kirsten et al. (2009) for a detailed treatment of the economic study of institutions. Interestingly, early Williamson's treatise on approach did not explicitly address the issue of embededness, notions of trust and so forth and drew criticism for this neglect. A later Williamson (1991) expands the reach of TCE approach by admitting different "levels" of institutions.

the level of the nature of interactions. It is then suggested that each theoretical sub-field in economics has a relative advantage over the others in explaining a particular level (Table 3.2).

Thus, while the study of embededness falls within the realm of social theory, property rights and political theory would be useful to examine the realm of institutional environment, comprising formal rules of the game, property rights and so forth. Williamson terms this layer first-order economizing. The third level which involves the alignment of governance structures to transactions costs can be termed second-order economizing, and TCE offers a useful tool to do this. Finally, the analysis of third-order economizing, that is, getting the marginal conditions right, is best served by neoclassical tools and agency theory.

In this architecture, we have the possibility of an encompassing framework, that provides the basis of thinking about a unified analytical framework for contract farming. It illustrates, in particular, how existing theoretical perspectives of contract farming shine a light on different "levels" of institutions rather than on the whole. This book contends that if one has to understand the debate on the normative aspects

Table 3.2 Institutions as layered concepts

Level	*Purpose*	*Theory*
Embeddedness or Social Environment (for example, informal institutions, traditions, norms, religion, culture, sociopolitical imperatives)	Protect, preserve, empower	Social theory
Institutional environment (for example, formal rules of the game, property rights, laws and constitutions)	First-order economizing create appropriate institutional environment	Economics of property rights Positive Political Theory
Governance: play of the game (aligning governance structure with transactions)	Second-order economizing create appropriate governance structures	Transaction-cost economics
Neoclassical analysis: performance (for example, optimality, prices, quantities, and incentives)	Third-order economizing create appropriate marginal conditions	Neoclassical economics (agency theory)

Source Kirsten et al. (2009). Adapted from Williamson (1991)

of contract farming we need a theoretical framework that transcends these levels, accommodating all the levels. Past reflections have, in principle, argued for precisely such frameworks (Dorward 2001; Kirsten et al. 2009). This framework has been applied innovatively by some scholars such as Sáenz Segura (2006). This framework also speaks to the call from other social scientists, particularly geographers. Echanove and Steffen (2005), for example, argue for a place-based analysis following Bebbington (2003), Gwynne (2003), Gwynne (1999) and Gwynne and Kay (2000). Bebbington stresses the need to relate existing local level processes with decisions taken at completely different levels and which largely define what will happen locally while for Gwynne, the different scales of geographical resolution go from the global to the local, via national and regional scales. They argue for a coherent theory of contract farming that is more than the sum of these parts.

Thus, some key questions remain. How can we restore what has slipped through the interstices of existing frameworks in a unified, eclectic, additive, analytical framework? Is such arbitration even conceivable? In the next chapter, I explore this possibility and lay out the contours of such a theory.

CHAPTER 4

Toward a Framework for Contract Farming

The challenge of developing a theoretical apparatus of contract farming that captures both static and dynamic diversity, and partial and general effects, requires a framework of institutional order but also a theory of change. In this chapter, I make a case for conceptualizing contract farming arrangements as institutions and for analyzing these contract farming systems within the Comparative Institutional Analysis (CIA) framework as proposed by Aoki (2001). While the core of this proposed theoretical framework of contract farming is essentially neoinstitutionalist and centered on transactions costs, the Aokian framework helps accommodate farmer-level and domain-level processes, contextual diversity as well as changes exogenous to the system, implied, for instance, by macrostructural shifts in agrifood systems. In essence, this enables the study of contract farming as institution within a specific framework of capitalist transformation and global integration. The goal is to achieve an "additive" framework that accommodates aspects of behavior and motives at the micro and macro levels, in the fashion of the layered scheme presented by Williamson. I suggest that this analytical framework can inform empirical work in ways that help us understand, more holistically, the emergence, evolution, sustenance (or not) of contract farming arrangements and also their remarkable diversity. In particular, it allows for the infusion of other disciplinary insights into economic research of contract farming.

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_4

4.1 Contract Farming Systems as Institution

Contract farming was previously characterized as an arrangement involving an agribusiness firm coordinating upstream with farmers, through written or verbal contracts, possibly providing farm inputs, credit and extension in return for guaranteed delivery of produce of specified quality sometimes at a predetermined price.

While retaining this "definition" of contract farming itself, it is possible to conceptualize a contract farming *system* in broader terms. The notion of a contract farming "system" is regarded somewhat differently in early literature, as being disarticulated from the local polity and economy (de Treville 1986). The word "system" is used here precisely to incorporate these contextual conditions. A contract farming system as institution is then not merely a technical arrangement between two or more economic agents. Rather, it is a set of rules and covenants, even outside of what is expressly agreed as part of a contract, that prevails over transactions in a particular domain. This domain admits an "expanded" unit of analysis, for instance, an agro-economic system, cropping system, geographical or political region, or some subsector of the economy.

This characterization of contract farming as institution is admittedly a theoretical preference rather than a prescriptive definition. The underlying motivation is to accommodate the idea that a contract in a contract farming system, far from being a mere economic transactional relationship, is a manifestation or representation of a relationship (Clapp 1988; White 1997). It is socially constructed, contested and negotiated in a way that the actual practice of contract farming connotes a broader socio-economic phenomenon. Its implementation then takes place in specific social and political contexts (White 1997).

An example of this aspect is when firms tolerate side-selling of output or diversion of contracted inputs to non-contract crops; the farmer is, in return, accepting of the firm's control over aspects of production decisions even while adopting everyday forms of resistance (Clapp 1994; Hambloch 2022). This practice, that enables the sustenance and maintenance of contract farming schemes, has been incorporated tacitly into the larger scheme of things even though not strictly part of the contract itself (oral or written). Another example is where firms recruit middlemen to identify farmers to contract with (Eaton and Shepherd 2001; Glover and Ghee Lim 1992). This preference for an intermediary has little to do with the actual contract itself. Neither is this a part of the exogenous

environment even though it might be motivated partly by the context. However, it does fashion the substantive features of the contract farming system.

A broader conceptualization of contract farming systems as institution aims to accommodate these features, especially acknowledging the fuzzy and crenulated boundaries of what is contractual and what is not. I now attempt to locate the discussion of agribusiness-farmer contracts, conceptualized as institution, within the analytical framework proposed by Aoki (2001). I first offer a general, recitative overview of this framework, for the most part as exposited by Aoki (2000, 2001). Subsequently, I explore the way in which we can write discussions of contract farming into this framework.

4.2 Institutions as "Punctuated" Equilibria

The Aokian framework is part of a larger body of theory that constitutes modern institutional economics or neoinstitutional economics. Menard and Shirley (2008) offer a comprehensive review of these perspectives. In general, if the economic process is analogous to a game, economists have regarded institutions variously as players of a game, as rules of a game or as an outcome of the game. Of these viewpoints, the latter two have come to characterize much of the recent work in neoinstitutional economics.

The "rules-of-the-game" view of institution, pioneered by North (1990), recognizes institutions as exogenous and influencing individual agents' behavior. Hurwicz (1977) had earlier formalized a similar notion. The game here is a relevant economic process and the rules may be formal or informal. Formal rules are, in some sense, given prior to the playing of the game and are exogenous in the sense that it cannot be determined or fashioned by the players of the game. Existing rules then shape the incentives of the players and drive effective demands for new rules in response to changing relative prices. Accordingly, "polity" defines and enforces the economic rules of the game (North 1995, page 23). Informal norms originate, on the other hand, in the social domain and constitute part of the "cultural heritage," to put it simplistically. The tension and interplay between the politically determined formal rules and persistent informal constraints influence the way economies change. The salient idea here is that institutions determine an agent's behavior.

The "equilibrium-of-the game" view endogenizes institutions and, in the tradition of methodological individualists, regards all institutions as

outcomes of interaction of individual, maximizing agents (Greif 1998). The core idea of the equilibrium-of-the-game view, which is antecedent to Aoki's CIA framework, is that rules are not all exogenously given, conditioned by polity or by culture but are endogenously created through interaction of the agents in a relevant domain and are thus self-enforcing (Greif 1998). Institutions thus emerge as equilibria from an objective game, played by agents who are perfectly informed of the structure and outcomes, and make strategic choices with regard to their action. The strategy profile, i.e., the set of actions economic agents choose under various scenarios, that emerges as the equilibrium is the institution. This idea is found in Schotter (1981) and has been developed by Greif (1998), Greif et al. (1994), Milgrom et al. (1990), Weingast (1997) and Young (1998).

Aoki's framework synthesizes these two views, while aligning itself closer to the latter. Although adopting the view that institutions are the equilibrium outcome of a game, Aoki tempers this view by incorporating the idea that institutions "embody" rules of the game. He proposes, therefore, what he terms the "endogenous-rules-of-the-game view". An institution is then "a compressed representation of the salient, invariant features of an equilibrium path, perceived by almost all the agents in the domain as relevant to their own strategic choices. As such it governs the strategic interactions of the agents in a self-enforcing manner and, in turn, is reproduced by their actual choices in a continually changing environment." (Aoki 2001, pages 26 and 185) Thus Aoki's framework allows for individual agency to operate within a larger political, social and cultural context that shapes their agency, while themselves being able to influence this larger context.

Aoki's expository tool, the COASE Box, is worth reproducing here. Briefly, the objective game represented by Table 4.1 is the one relevant to an individual agent and is defined over a domain. Belonging to this domain is a set of finite number of agents, its players. The entry, (A), is assumed to represent the set of all technologically feasible actions of agents in the domain, while entry (CO) is a consequence function that maps technologically feasible outcomes, contingent on some technologically feasible choice profiles, to observable consequences. These two sets of elements pertain to the environment that is not under the control of the agents (natural, technological and external institutional, i.e., institutions in other domains), but affects the physical outcome of agents' choices. The set of agents, the set of technologically feasible strategies

for each agent and the outcome function are the exogenous rules of the game.

Classical game theory then goes on to suggest that given the rules of the game (CO and A) and given expectations about other agents' strategic choices (E), the individual agent is assumed to make a strategic choice (S) to maximize his or her own payoffs. The domain is in Nash

Table 4.1 COASE Box representation of the generic structure of the game

	Parametric Data (exogenous rules of the game)	*Endogenous Variables*
Internal to Agent (Micro)	(A) set of feasible actions	(S) strategic choice of an action (plan)
External Constraints (Macro)	(CO) consequence function	(E) expectation of others' strategic choices

Table 4.2 COASE Box representation of a Subgame Perfect Equilibrium

	Parametric Data (exogenous rules of the game)	*Endogenous Variables*
Internal to Agent (Micro)	(A) complete knowledge of feasible (future) actions	(S) comprehensive strategic plan of contingent future action choices
External Constraints (Macro)	(CO) complete knowledge of the consequence function	(E) common beliefs regarding others' action on and off the paths of play.

Table 4.3 COASE Box representation of the Evolutionary Game

	Parametric Data (exogenous rules of the game)	*Endogenous Variables*
Internal to Agent (Micro)	(A) fixed sets of actions	(S) inertial imitation and mutation
External Constraints (Macro)	(CO) knowledge of "fitness" of strategies constructed from observations	(E) inference from limited memory (static expectation)

Table 4.4 COASE Box representation of the Subjective Game Model of an individual

	Parametric Data (exogenous rules of the game)	*Endogenous Variables*
Internal to Agent (Micro)	(A) activated subsets of choices	(S) best-response choice rule
External Constraints (Macro)	(CO) inference rule	(E) private beliefs
	(I) Institutions (shared beliefs)	

equilibrium when the agents' expectations about other's strategic choices and their own actual choices are mutually consistent. This equilibrium action profile constitutes the institution in a static setting. The equilibrium theoretic approach to institutions then suggests that an institution is a socially constructed state from which agents are not motivated to depart as long as others do not do so, and is in the nature of subgame perfect equilibrium (Table 4.2). The notion of evolution of institutions in this framework derives from either evolutionary game approaches that employ concepts of evolutionary equilibrium (Table 4.3) or repeated game approaches that use concepts of perfect equilibrium, subgame perfect equilibrium or some variant of sequential equilibrium.

Aoki's endogenous-rules-of-the-game view departs from this in some fundamental ways. Importantly, Aoki dispenses with the objective game (that is at the core of the institutions as equilibrium outcome of the game view) and replaces it with a subjective game from the perspective of individual agents (Table 4.4). The key assumption here is that the individual agent cannot have full knowledge of the technologically determined rules of the game nor can (s)he make perfect inferences about other agents' strategic choices. Instead, each agent's perception of the structure of the game is represented by a "subjective" game form.

In contrast to the objective game, rather than a technologically determined feasible set of actions, agents work with an "activated set of choices" (A), the agents' common perceptual representation of a strategy profile believed to prevail over the domain at a particular time.[1] Each

[1] Note that Aoki does not view this as a *strategy profile*, per se, of agents playing the game, in the way it is in the equilibrium outcome of the game view.

Table 4.5 The mechanism of institutional evolution

Sustenance of an old institution	*Feedback to, and redefinition of the subjective game*		*Evolution of "new" institutions*	
(S) action choice constrained by the activated subset of choice, the accumulation of neutral or suboptimal mutations →	(A) cognitive disequilibrium (perception of inadequacy of the existing repertory of action choices) →	(S) experiment, learning, emulation of new choice	(A) redefinition of a new activated subset of choices	(S) novel action choice
↕	↑	↕		
(E) existing institution (a system of shared beliefs)	(CO) environmental changes (technological change, external shocks, exposure to outside markets, change in complementary institutions in neighboring domains)	(E) crisis of shared beliefs, competing systems of predictive and normative beliefs	(CO) redefined, stable inference rules	(E) a new shared system of beliefs (a new institution)

Source Tables 4.1–4.5 are based on Aoki (2001)

agent then has a subjective outcome function. This serves as the agent's environment inference rule (CO). Both of these are in the nature of parametric data. Further, each agent plays the respective subjective game simultaneously. At any point of time, agents playing as they do, a subjective game, activate small subsets of possible actions, and choose a strategy from the activated set of strategies that, given a particular phenomenon

of the institutions (or their reading of it) and their private beliefs (E), is predicted to maximize utility; this is the best-response choice rule (S). Subjective games in this sense roughly correspond to the notion of "mental models" adopted in the induction theory of Holland et al. (1989, p. 12), i.e., as "models of the problem space" that cognitive systems construct, and then "mentally run" or manipulated to produce expectations about the environment. Here, not only are interactions of such models with external environments, but also with those of other agents who act in similar ways. Denzau and North (1994) discuss the concept of mental models in some detail.

When the agent repeatedly uses the same rules for environmental inference, payoff prediction, and choice, as well as the same phenomenal perception of institutions, we say that his/her subjective game is reproduced at the individual level (or in *cognitive equilibrium*). More generally and realistically, it may be considered that the agent possesses multiple rules of inference and prediction at one time. These could be mutually competitive in some respects, complementary in others. Then, given a continually changing institution, the agent may experiment with each of them and choose the one that he or she considers appropriate under a given circumstance. However, when the sets of multiple rules remain stored as useful tools by the agents, we may still say that their subjective games are reproduced. When agents perceive the phenomenon of the institution generated by the equilibrium as a relevant constraint, this equilibrium is sustained. Aoki then characterizes institutions as "substantive characteristics of self-enforcing rules for action choices by agents that are universally believed to be relevant in a repeated game situation." (Aoki 2000, page 14)

The institution as a summary representation of an equilibrium path, according to Aoki, must possess the following attributes. First, institutions are *endogenously* created. Second, institutions *summarily represent salient features* of the internal working of the domain and thereby reduce the uncertainty regarding others' action-choice rules, so that an agent need not have knowledge or expectations about every aspect of other agents in the domain. The third attribute refers to the durability or *robustness* of an institution. An institution should be identified with something invariant within a certain bound or threshold of environmental and internal changes. This is associated with a robustness to minor mistakes in experiments and deviance of the agents from the institution's implied rules. Fourth, an institution is *universally relevant* in the

sense that there is a common understanding and shared cognition among agents in the domain even though they may attach different meanings or interpretations to it. Fifth, institutions are humanly made orders, not technologically determined and there must be multiple ways for institutions being established under the same technological and ecological environment. The notion of *multiple equilibria* is an essential aspect of institution that this framework seeks to capture. There could be different pathways to attain the same institution just as there can be different institutions themselves. The "endogenous-rules-of-the-game" view of institutions is consistent with these requirements and provides a framework of order for institutions and their emergence.

The subjective game model then sets the basis for a discussion of institutional change or evolution. When an institution emerges from the subjective game, its reproducibility does not imply rigidity or stasis, in terms of how the subjective game is played. It is, in fact, consistent with and robust to agents' marginally changing the set of rules or random experimentation. When there is a gap between aspiration and prediction, then there is, from the individual agent's view, a subjective (cognitive) disequilibrium. Given agents' aspirations, they may start revising and refining the existing set of rules more substantially, in particular, generating new choice rules involving the expansion of the activated set of choices. However, not all changes can actually generate a new institution. In other words, a change, at the margin, might alter an individual's subjective game and outcomes, but need not necessarily alter the institution itself.

New institutions can evolve when the agents are then "induced" to reassess and substantially revise "subjective" sets of actions and rules for choices in a coordinated manner, consciously or unconsciously. This is what eventually leads to a new profile of moving equilibria and their substantive representations—new institutions. Table 4.5 summarizes the mechanism of institutional evolution. From the left, it deals with the choice of endogenous variables in the "old" subjective game, its feedback to the data of the old subjective game and its redefinition, and the emergence of the "new" institution. For institutional change to occur, however, a critical mass is required. This critical mass can come either from external impetus that ruffles the exogenous rules of the game or parametric data, or it could be internal cumulative effects relating to agents' perceptions and cognition. Depending on the domain in focus,

the process of institutional transition can be long or short, radical or gradual.

Thus, the essential idea of institutional evolution in the Aokian framework is that agents try to discover a new way of doing things, and through their interactions new institutions become self-organized. Once a particular institutional system is established, it tends to sustain itself. Change in the system may be more likely to be initiated by "sudden," discrete shocks rather than one that is slow and gradual, typical of evolutionary game theory. Characteristics selected during one point in time impose constraints on future possibilities (path dependence). The central thesis is, therefore, that institutions emerge as outcomes of a game, even while themselves influencing new rules of the game thereon. Institutional evolution is then analogous to the biological evolutionary process conceptualized as "punctuated" equilibria (Gould and Eldredge 1977), rather than by a steady gradual Darwinian selection process. Institutional change is thus triggered on an episodic basis. A turbulent change with critical mass that causes institutional crisis, followed by a sub-period where choices are placed under evolutionary pressure of selection or vice versa, when minor experiments cumulate and beyond a threshold causes a flip in institutions. If the focus is the former, change seems radical and short, built around the point of punctuation. If not, the institutional change appears to be gradual.

4.3 Contract Farming as Frictional Equilibria

The Aokian apparatus of CIA is particularly appropriate to frame the study of contract farming. To do this, I make use of the prevalent insights from transactions cost approach to institutions, the dominant analytical lens used by economists to view contract farming, along with key aspects of procedural rationality and learning processes. Procedural rationality entails the selection of information when more is available than an agent can process, but the agent chooses a mechanism constituting rationality of procedures used to achieve certain goals, resulting in satisficing behavior rather than a maximizing one. This is different from the conceptualization of bounded rationality, which is the notion that in decision making, rationality of individuals is limited by the information they have, the cognitive limitations of their minds, and the finite amount of time they have to make decisions. Aoki's thesis is framed within the context of bounded rationality . I adopt instead the concept of procedural rationality.

I propose that at any given point of time, the snapshot view of a farm-firm relationship mediated by contracts represents "punctuated" equilibria in a sense to be elaborated. As firm and farm work to establish transactional relationships in a context of uncertainty, frictions and imperfect and incomplete information, the choices made by firms and farmers are produced as best responses to agents' subjective games. The firms' decisions would include, for instance, decisions on (1) whether to contract, (2) how much to contract, (3) who to contract with or where, (4) how to operationalize the arrangement, and (5) how to enforce the contract. Farmers' decisions would be with respect to his or her livelihood strategy in its entirety, including production and marketing decisions across a range of crops. Their motivations to grow and sell under contract can be out of an absence of alternatives or an informed choice from among other potentially lucrative options. In this setting, features and practices extraneous to the contract itself emerge to maintain (or destabilize, as the case may be) contract farming arrangements as institution. These choices then define and support substantive characteristics of a particular contract farming system, which then becomes an institutional feature. The attributes of a particular system are, as Aoki suggests, contingent on institutions in other domains as well, as also contextual specificity.

Working with the notion of the contract farming system as institution, the domain can be defined variously depending on the specific context. In a simple, illustrative setting, the agents are a contracting firm and farmers. In envisaging the farmers and firm as players, the firm has a particular interaction with each farmer. This is different from the way farmers relate to one another. Within the framework of the economics of information, this is akin to having one principal and many (non-adversarial) agents. There may be other latent or passive agents in the system, who affect perceptions and thus agents' behavior. In some settings, such as tournament contracts where growers are paid according to their performance relative to other contract growers, the relationship between farmers may be competing, if not adversarial.

Agribusinesses (or firms) may like to ensure a long-term stable source of supply of produce. They may want to exercise indirect control over land, labor and production practices. The manner and extent to which they extract surplus could vary. Typically these involve decisions regarding which source to use. In the Williamsonian frictional world of transactions costs, it is a question of whether the "make or buy" for the firm. In general, agribusinesses choose whether to (1) buy in the spot market, (2)

vertically integrate and auto-source or (3) choose some form of , typically through contractual agreements. Significantly, even the choice of vertical coordination is not unique, i.e., a simplistic make versus buy or contract and firms could adopt plural structures, where they use multiple strategies to secure produce. Much of the Williamson inspired literature on contract farming imagines a single continuum, parenthesized by corporate farming indexcorporate farming and spot market transactions at each end, but seem to neglect the possibility of plural choices by the firm. In fact, across a large number of case studies, it is evident that firms often adopt multiple channels, contracting some part, auto-sourcing some other part and sourcing through spot markets simultaneously (Reardon et al. 2009; Narayanan 2007).

When relationships are mediated through contracts, oral or written, they are either "take it or leave it" contracts or could involve some bargaining and negotiation. The subjective game surrounds choices not only with respect to channels used but also regarding who to coordinate with if it is a contracting arrangement. Having decided to contract, and how much to contract, the companies need to decide who they would offer the contracts to and how they would operationalize and enforce the agreement. These could be sequential decisions, but are always interdependent.

However, the firm, like every other agent, operates in a world of uncertainty due to incomplete and imperfect information. For the firm, there is always a risk that the contractees may not honor the contract (Warning et al. 2002; Runsten and Key 1996b), for instance. This "moral hazard" can come from lack of effort, diversion of inputs in case of production contracts, or selling elsewhere after harvest and once the price is discovered in alternate channels. The firm then needs to accomplish two things: set the terms of the contracts to mitigate this risk and choose a set of farmers who are low risk. The firm's problem is then how to achieve a least risk arrangement at the lowest cost. Some of the transaction costs literature lumps costs of risk with other costs. In the context of contract farming relationships, a useful separation is to treat costs of risk from say, moral hazard, as different from other "direct costs" of contracting. However, because of constraints on rationality and asymmetric information along with the uncertainties of agricultural production, the firm has only its own conception of the game that is played.

From the point of view of the farmer, moral hazard arises, primarily, from the fact that the firm could reject their delivery on grounds of poor quality, timing, etc., attributes that are typically left unspecified in the contract or arbitrarily enforced. This is particularly the case when the firm, which needs a minimum procurement (say, to run the processing plant to the desired capacity) might also contract more quantity than they need, as a buffer, to guard against production risk, for instance. This rejection at the factory gate has been cited as one of the most contentious aspects of the farm-firm relationship (Echanove and Steffen 2005; Glover 1987; Mannon 2005). There have been documented instances of firms setting quality standards arbitrarily, becoming inexplicably stringent, if spot market prices collapsed. Sometimes, farmers have also had to bear the brunt of poor technical assistance, even plain cheating and deliberate default (Glover 1987; Ramaswami et al. 2005).

Thus, while contracting may provide farmers a way to mitigate price risks, it also entails new risks, such as the risk of rejection (Mannon 2005; da Silva 2005). This risk is subjectively evaluated by the farmer before contracting. Additionally the farmer might also evaluate the risk that the firm might not return the next season to contract. This is important, for instance, when the farmer would not want to sever any long-term relationship (s)he has with the village broker or trader. There could be other risks as well, such as risk of wrong advice, ecological damage and so forth (da Silva 2005). Quite apart from this, for farmers, contract farming is part of a larger set of decisions that are made as part of the farmer's livelihood strategy. This involves making complex choices such as how to deploy family labor and land, and so forth. Echanove (2003) and Echanove and Steffen (2005), for instance, provide instances where farmers in Mexico try to minimize their risks by planting vegetables for two different companies and, on occasion, cultivating produce for the national fresh market.

Given the context of uncertainty and constraints on rationality, and in the presence of what Williamson refers to as opportunism,[2] the theory of incomplete contracts emerges as an inevitable development. The incompleteness of the contract thus gives companies, as it does farmers, some latitude in keeping their terms of the contract. As Gow and Swinnen

[2] Opportunism is defined as self-interest seeking with guile. This is distinct both from mere self-interest seeking, which is consistent with behavior and from self-interest seeking with force.

(2001) observed, many firms actually prefer the incomplete contracts since it gives them greater flexibility. Thus, the agents in this stylized setting play a subjective game, given the exogenously determined context-specific constraints. The choices both have to make are multidimensional. This scenario is specifically one of double which are factored into decisions via subjective assessments by both parties. Their choices then jointly determine the larger form and nature of the contract farming system that emerges, including relational elements to maintain the system.

The risk of rejection faced by the farmer and the risk of defection faced by the firm are, in fact, mutually dependent and this produces a space where the firm-farmer relationship is contested, negotiated and refashioned. I contend that, at any given point of time, a snapshot view of a contract farming system captures this tension or friction and hence represents frictional equilibria. It is frictional in that the leads to "inefficiencies" relative to the first best case (Leibenstein 1966). It is frictional too because it is an outcome of best responses or procedurally rational decisions in a frictional world, with uncertainty and transactions costs (Furubotn and Richter 2005).

It is worth digressing a bit to reflect on the preoccupation some economists have relating to efficiency. In this context, the "nirvana fallacy" is relevant to empirical applications. The nirvana fallacy was given its name by economist (Demsetz 1969, p. 1), who said: "The view that now pervades much public policy economics implicitly presents the relevant choice as between an ideal norm and an existing 'imperfect' institutional arrangement. This nirvana approach differs considerably from a comparative institutional approach in which the relevant choice is between alternative real institutional arrangements." In the context of uncertainty and bounded rationality, it has been argued that outcomes of agents who are meliorizing or adopting procedurally rational cannot be regarded as inefficient.

I now turn to a key aspect that motivated the application of the Aokian framework, namely the ability to explain the varying dynamics of a contract farming scheme over time. To illustrate the mechanism of institutional evolution in this setting, I pick one aspect of the firm's decision, alluding to other aspects only peripherally. This is the selection, by the firm, of a set of farmers to contract with.

I suggest that in the first instance, the firms adopt a portfolio approach, one that balances the need to minimize the transactions costs of contracting with many farmers and the need to choose a portfolio of

farmers that minimizes moral hazard. The portfolio is based on the firm's assessments, given known costs of transacting, as to who might be low risk suppliers, or this may be assumed to be revealed through proxy characteristics. For instance, in a study of Senegal peanut contracting, Warning and Key (2002) found that companies used reputation ("social collateral"), making inquiries from villagers as to which ones were reliable. In others, eligibility conditions may be laid out somewhat more explicitly in terms of land holding, being debt free, experience with contracting, irrigation facility and so forth. This often involves a tradeoff, i.e., for example, large wealthy farmers might be low transactions costs but high moral hazard, small farmers may be low moral hazard but high transactions costs. This is likely why firms often contract with very different kinds of farmers (large, medium and small), even though there may seem to be more efficient ways of doing so, or even when there are known or recognized technical advantages for the firm in contracting with one rather than the other.

Thereafter, experience provides the information needed, so there is a learning process and a path of adjustment. From the firm's perspective, it is able to identify a "stable" set of farmers to contract with. There could, in general, be considerable churning of the farmers selected for contracting, if the firm is trying to learn about the attributes of individual farmers (say, regarding quality of produce, repayment of credit, if relevant, and so on).

From the farmer's perspective, the story is similar. Initially, the farmer takes a decision on whether to contract and may respond by a portfolio of options, e.g., part contracting, part spot market or maintain more complex portfolios across crops, and in a broader sense, allocate labor across farm and off-farm activities. Over time, (s)he has the opportunity to learn about the trustworthiness of the firm or learning from others' experiences, and adjust choices.

The portfolio then changes over time until a stable equilibrium is attained. The stability of these equilibria is then contingent on several factors. As with the characterization of institutional evolution by Aoki, a change in institutions is predicated on the existence of a critical mass that perceives subjective disequilibrium. It could happen in two ways (1) a drastic change in the environment, as a result of cumulative impacts of equilibrium sequences on the environment and payoff distributions, or possibly by both (2) internal cumulative impacts.

As external triggering conditions, Aoki lists the following:

- New technological innovation occurs so that new choices become feasible. This could be a new seed technology for farmers, for example.
- External shocks, such as war, perceived productivity and innovation gaps with foreign competitors, prolonged depression, compel the agents to perceive a need for rapid improvement in productivity and other performance characteristics. This kind of change triggering institutional change is common enough. The case of Kenya's exports of fresh fruits and vegetables to UK retailers is an example (Dolan 2005; Dolan and Humphrey 2000; Dolan et al. 1999) suggest that the UK retailer deciding to procure produce from a cheaper source had the effect of practically dismantling livelihoods.
- A large-scale institutional change occurs in a neighboring domain with which strong institutional complementarity exists. Glover and Ghee Lim (1992) describe the emergence of contract farming in Southeast Asia. In Malaysia, the implementation of vertical coordination, i.e., outgrower projects in rubber, accompanied resettling of laborers on land, an institutional change in another related domain. This enabled the emergence of stable contract farming in rubber.
- A large change in policy-determined parameters of the outcome function occurs. For example, if land ceilings for corporate farming are relaxed or subsidies for large-scale corporate farming are put in place, it alters the relative costs of "make or buy", internal and external exchange. This has been underway in parts of both India and Pakistan, for instance. Also, the policy in India strategy of Agri-Export Zone follows a cluster model that provides institutions and infrastructure and special regulations.

Alternatively, internal cumulative impacts might be one of the following

- Experiments with new choice rules that do not follow customs have occurred in a cluster.
- Cumulative outcomes of repeated games have generated disparity in the distribution of assets, power and social roles, that are conceived of as "unjust" and "unfair" by a critical mass of agents in the domain. For instance, in early 2000, a group of farmers in Punjab got

together and boycotted the firm that was contracting with them in response to perceived injustice. Contract farming was consequently abandoned in the area.[3]

- Repeated play of games according to certain external and endogenous rules of the game has induced the accumulation of competence and the capacities of agents that cannot effectively be employed anymore in the framework by those rules. A business executive recently said, "we want to get out of contract farming, the farmers get better at it and want to pursue other options and then don't return".[4] Similarly, in Thailand, (Glover and Ghee Lim 1992) observe that the success of the contract farming scheme is the very cause of failure. Farmers who became wealthier started investing in more lucrative avenues such as real estate. In a different case, degradation of soil quality consequent to recommended nutrient and pest management led to the firm abandoning contracting altogether in Mexico (Glover 1990; Mannon 2005) and in India.[5] This was endogenous environment degradation caused by the firm providing the inputs and technical advice.

The mechanism of institutional change in this Aokian framework is quite flexible in terms of the sources of changes it admits. Changes don't happen only at the margin, hinging exclusively on individual agents' choices, or micromotives. It recognizes different sources of change exogenous to the system, or macromotives, in other institutional domains, for example. In fact, anything that can alter the subjective game is a potential catalyst. Shocks, represented by any of these, can thus destabilize the system and set in motion a new vector of moving equilibria, possibly in perpetuity. It is conceivable, however, that such a system evolves into a new stable institutional setting. This comes from the nature and magnitude of impetus, and how this interacts with other domains, given the specific context.

[3] Personal communication with an agribusiness executive, Ludhiana, Punjab, India, March 2007.

[4] Personal communication with agribusiness executive, Madhya Pradesh, India, March 2007.

[5] Personal communication with an executive of a gherkins processing firm, Dindigul, Tamil Nadu, March 2007.

The importance of the "critical mass" that leads to punctuation cannot be overemphasized. Nowhere is this more powerfully demonstrated than in Visconti's 1948 film *La Terra Trema*. In this story of impoverished Sicilian fishermen in Aci Trezza, wholesalers control the market, suppressing prices, unfairly. Toni who wants to organize his fellow-fishermen into a cooperative, fails to persuade them to stop fishing for the wholesaler. He chooses to follow his own path and invests in equipment and opts to free his family from the hold of the wholesaler. He succeeds, until a storm destroys everything they have. Ultimately, in a poignant scene, he returns to the fold, choosing to give up his autonomy and pride, to fish for the wholesaler again.

In the Aokian setting, the individual agent changed his choices, but this failed to alter the subjective game, in this case because of catastrophic but idiosyncratic exogenous factors. Altogether, the substantive features of the institution did not change. As Aoki elaborates "A search for the re-definition of the subjective game can be initiated by an individual agent who perceives new opportunities even under a fairly stable environment. If proven successful, such a redefinition may be emulated by other agents and eventually become self-organizing as a spontaneous order. But, when the performance characteristics of the domain are satisfactory and no significant gap is perceived by the agents, the impact of such an entrepreneurial mutation may be limited" (Aoki 1998, page 18). It explains why some systems are resilient to changes.

Equally, it also allows the possibility that in stable systems, actors change without subjective game changing, for example, a state organization transferring ownership and operation to a private firm. Or in other instances, the same institution could merely develop new or different roles.

On the other hand, sometimes, agents can take action precisely to sustain a particular institution and to avoid altering the nature of the subjective game. Clapp (1994)'s emphasis on a moral economy of the contract, where firm and farmers are willing to tolerate deviation from the contract terms to a limited extent, in the interest of a lasting relationship, is illustrative of this. There have been instances too where in the face of a huge collapse in spot market prices, firms still honored the contracts as a trust-building measure taking a huge loss, although it would have been more (immediately) profitable to renege. In some cases, firms bear losses, just to honor contracts to maintain farmer trust. This is reminiscent of the Folk Theorem result in a repeated game setting. The existence

of such a "moral" economy of the contract has been documented (Clapp 1994; Hambloch 2022).

The Aokian CIA framework enlarges the scope of theory to include admit substantial static (in Aoki's words, "synchronic") and dynamic ("diachronic") diversity that marks contract farming systems. Institutional equilibria are characterized by both path dependence and novelty since, at the critical juncture of the change, the choice rules of agents imposing constraints on future possibilities. By showing the possibility of multiple equilibria in specific models the endogenous-rules-of-the-game approach is able to shed light on the "humanly devised" nature of institutions within specific contexts, rather than institutions that are products of technological, ecological or cultural determinism. It is capable of explaining why not all contract farming schemes are sustainable. In the extreme, it can lead to the firm abandoning contract farming altogether or to complete vertical integration on the other. As Minot (1986) points out, unsuccessful examples of contract farming are rarely documented. In particular, it is now possible to analyze how even from the same starting point, a contract farming system can evolve along different trajectories, based on the adjustment or learning path. This is evident in the contract farming literature. Similarly, this framework, also enables us to track agrarian transformation as manifest in social differentiation As an example, the composition of the portfolio of farmers selected into contract farming systems might influence the kind of system that has evolved. It can lead to peasant differentiation or polarization or homogenization.

The Aokian framework also accommodates a theory of change that is hinged on history and contextual specificity. It illustrates the importance, and indispensability, of combining historical and socio-political contexts in the reading of why, say, in Aci Trezza, an institutional transformation did not occur, while it did occur in the Punjab village. In fact, by addressing the interdependencies of institutions, this theoretical approach challenges ideas of institutional transplant, recognizing that social and political contexts can have unintended or unanticipated consequences (for example, how contract farming in Thailand, Malaysia and Indonesia all had different outcomes). Whether a new institution is mutually consistent with the broader context determines its viability in the original intended form. This is conceptualized by institutional linkages and complementarities. The Aokian framework enables a more rigorous analysis of all these issues, emphasizing "conditional robustness and the multiplicity of such arrangements."

The Aokian perspective of institutional change suggests that when agents operate in a constantly changing environment marked by uncertainty, frictional forces operating within an economic system imply that an equilibrium end-state is not reached instantly, and there is search for additional information that enables agents to improve upon the choices they make at a particular point of time. Thus "actors are seen to meliorize rather than maximize" (Brinton and Nee 1998, page 10) and in Herbert Simon's framing, agents are procedurally rational, but not substantively rational (Simon 1961). The fact that individuals experiment and learn is far closer to human behavior than an agent capable of working through the complex objective game structures to choose an optimal strategy. Learning and experimentation thus have an important role to play. In the context of this CIA framework, Aoki does not explicitly discuss learning rules. Like the framework itself, however, the learning process ought to be general enough and realistic, at the same time be tailored to the context. An institution is thus "the product of a long term experiences of a society of boundedly rational and retrospective individuals" (Kreps 1990, page 183). Furthermore, rather than a unique path, branching out along multiple paths may be possible (Aoki 1998). Therefore, for an understanding of the mechanism of institutional change, Aoki maintains that careful empirical studies based on historical and comparative information are necessary to sort out what major factors are influencing the selection of a particular trajectory instead of other possible ones.

CHAPTER 5

Operationalizing the Framework

While solving some of the perceived problems of existing mainstream approaches to contract farming, the Aokian framework raises a few problems of its own, the main one being the degree to which it allows formalism. Yet, this limitation is perhaps essential to be able to incorporate perspectives that are not amenable to quantification or to modeling. Another feature of Aoki's thesis is that it offers no specific guidance on empirical methods. As Aoki suggests, the choice of methods depends on the purpose and goal of the analysis itself.

If then, the purpose is to admit diverse perspectives into contract farming research, then it would be logical that the application of the framework too admits diverse empirical methods. Indeed, the use of diverse empirical methods is one way in which the concerns of disciplines other than economics can be incorporated into economic research of contract farming. A first step would be to move away from the customary way of modeling contract farming in economics.

5.1 Stage-Wise Analysis of Contract Farming

If contract farming arrangements are frictional equilibria, it is important to modify the analytical frameworks that undergird empirical work in economics. Contracts are typically framed within a principal-agent model. The principal-agent model is the workhorse model within economics for

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_5

studying contracts. It assumes that the firm, as principal, who does not have full knowledge of the type of farmers or ability and effort levels they would invest in the work proposed, attempts to write a contract that both induces a farmer to participate (because it offers an option better than the next best alternative) and ensures that the agent has an incentive to perform optimally according to his/her type. The firm is unaware of the farmers' ability to deliver produce according to the contract and is also unaware of their trustworthiness). As described earlier, the design of the contract folds in much of the action on selection and matching and the focus of theoretical research is on identifying the terms of the contract, and the consequent gains from such a contract.

Useful as this approach is, I make a case for unraveling the contracting problem in the principal-agent framework into its constituent stages, suggesting that the folding in or collapsing of these different constituents into a single theoretical model runs the risk of assuming away critical arena of (inter)action.

In short, I advocate for the development of a theory of contract farming that dismantles a composite problem into its different constituent stages, of whether to contract, of contracting, of honoring contracts and of contract enforcement. Each of these stages contains elements of friction that define the substantive features of the arrangement (Fig. 5.1). This approach, proposed by Narayanan (2011) aligns with the integrative framework of contract theory proposed by Gibbons (2005), discussed previously, and makes explicit the stages of ex ante and ex post commitment and negotiation. This stage-wise discussion of contract farming has since been used fruitfully in summarizing contract farming literature in economics (Barrett et al. 2012).

At the beginning of time t, the time of sowing, all agents, farmers and the contract firm make their contracting decisions. The firms decide who to pick as suppliers and farmers make assessments of anticipated welfare gains from contracting over the alternative opportunities available to them before they contract. At this time, farmers hold subjective beliefs about the firm's reliability and the firm has its own expectations of how reliable each farmer is likely to be. All agents also hold certain beliefs about market conditions and expected yields for the season. Following the contracting stage, supplier farmers are matched up with the firm in a temporary equilibrium. Nature then reveals yields and market prices. At the end of the season, after yields and prices have been revealed, comes the stage when the firm and contracting farmers make decisions on whether

to honor the contract or not. While honoring the contract, agents are assumed to take into account possible repercussions of their actions (or contractual performance) on opportunities to contract in the subsequent time period, factoring in any cost of the partner's attempt to enforce the terms of the contract. In the context of this study, firms also make a decision on whether to enforce the contract, either through legal channels or by terminating the relationship with the farmer. This option may be assumed to be unavailable to the farmer, broadly reflecting the realities of the empirical context of the work. The enforcement decision coincides with the firm's and farmer's profits being determined. This is the welfare outcome that is typically the focus of studies of contract farming. Following the enforcement stage, agents now have a chance to update their subjective beliefs regarding nature and regarding one another's reliability through a learning rule, based on the revealed decisions made at time t with regard to honoring and enforcement. They then move into the subsequent time period carrying these new updated beliefs that now form the basis for contracting decisions in time period $t+1$. This sequence of processes repeats itself, mapping the trajectory of a contract farming system over a domain and across time.

This approach, consistent with the proposed Aokian CIA framework, suggests that contract farming systems represent frictional equilibria, admits the idea that growers and farmers interacting with one another, while also responding to and shaping the broader contexts. On the one hand, the framework allows for context-specific or granular modeling of specific aspects of contract farming. This would take it closer to current practice of theoretical and empirical work in the field of contract farming. On the other hand, it is possible to rely on mixed methods to develop narratives that are informed by the concerns of other social scientists—of larger questions of agrarian change and political economy. There exists, as yet, no template for undertaking such a layered, holistic analysis. Ideally, for a deeper and integrated understanding of a contract farming scheme, a mixed methods approach would be required.

In the rest of the book, we take up one constituent stage at a time and investigate current practice in empirical research in economics, the theoretical underpinnings and identify the points of contention across disciplines and opportunities for infusing perspectives from other disciplines into current economic thinking around each stage. To do this, I rely heavily of material from my research in India.

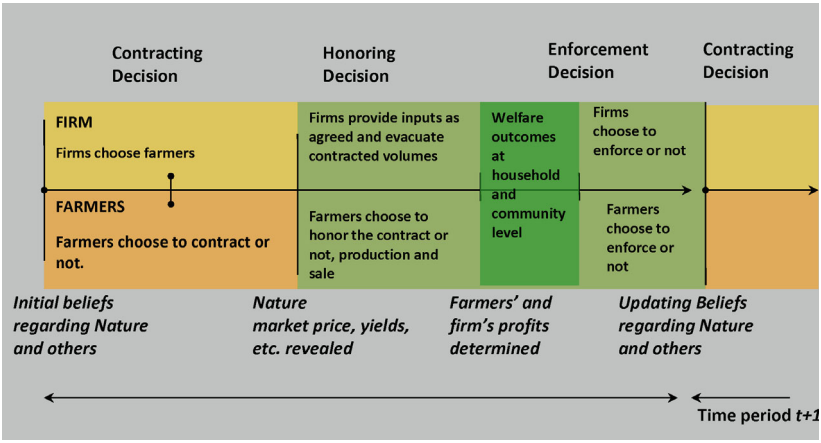

Fig. 5.1 Operationalizing contract farming research
Source Narayanan (2011)

5.2 Empirical Excursions in India

The study uses a combination of three main data sources: two sets of surveys of farm households as part of a study of eight different contract farming schemes in India, interviews with 42 agribusinesses in India that use or used contract farming for procurement, and contractual documents from 23 different schemes within India.

The surveys of farmers are from the southern Indian states of Tamil Nadu and Karnataka (henceforth referred to as the Tamil Nadu Farmer Survey and the Karnataka Farmer Survey, respectively).

The Tamil Nadu Farmer Survey of 825 farmers covers five commodity sectors: cotton, gherkins, marigold, papaya and broiler chickens and includes contract farmers, those who attritioned and those who had never contracted. The study area—nine administrative districts in the southern state of Tamil Nadu—is heterogeneous in its agro-ecological conditions, physical features and levels of socio-economic development, spanning districts that are among the richest as well as the poorest in India. The survey was conducted in two phases between 2007 and 2010, the first covering a cotton and a gherkins scheme and the second covering a second gherkins firm, a marigold and a papaya scheme.

The Karnataka Farmer Survey comprises interviews with 325 farmers covering three commodities, chilies, baby corn and gherkins in the area surrounding the city of Bengaluru. A first round of survey was conducted in 2005 by the IFPRI and in 2017 we revisited these farmers for a decadal perspective of the contract farming schemes. In each commodity, we focused on one firm's operations in each of the commodity complexes described above.[1] The baby corn firm procured for domestic retail stores, whereas chilies were primarily for export. The broiler agribusiness was a large integrator, different from the one covered in Tamil Nadu. Given my focus on the data from the Tamil Nadu Farmer Survey, I describe these in detail (Table 5.1).

A second source comprises detailed interviews with various field officials and executives from the firms selected for study; this is supported by a broader survey of agribusinesses (henceforth "Agribusiness Survey") across several other commodity sectors operating in other regions in India. The Agribusiness Survey constitutes interviews with executives and field officers of 42 agribusinesses across India engaged in contract farming, and offers an opportunity to understand the similarities and differences in contracting experience across regions and commodities. These were conducted between 2005 and 2015.

A third source of data includes the analysis of 23 contracts from different contract farming schemes between 2005 and 2020. All these sources are used to create a composite empirical mapping of contract farming practice in India.

The contract farming schemes I study in Tamil Nadu operate in rainfed agricultural areas and have diverse arrangements with farmers. Gherkins are a non-traditional export crop with no domestic market. The crop is procured from farmers, and processed at small-scale plants, by washing, rinsing and preserving in brine, acetic acid or vinegar. These are either bottled and labeled for international clients or shipped out in barrels for bottling. Cotton is a traditional cash crop in parts of the study area, with established local markets and networks. The years leading up to the survey saw mills integrating along the garment chain, and extending backward to contract with farmers for good quality, long staple cotton for milling. Papaya was introduced in the region in the 1990s for extracting papain, which has wide-ranging industrial uses. The variety is appropriate,

[1] The names of the firms are withheld in keeping with Non-disclosure Agreements to protect the identity of both the firm and their contract suppliers.

Table 5.1 A snapshot of the sample contract farming schemes (the Tamil Nadu Farmer Survey)

Commodity	*Districts in the study region*	*Type*	*Use*	*Alternate market*	*Number of farmers*	*Remarks*
Marigold	Erode, Coimbatore	Family Owned, private limited company	Extract Oleoresin and Lutein for export	Local fresh flower market and competitors	200 farmers (2007). Operations in Karnataka larger, around 2000 acres, over 1000 farmers	Initiated operations in , fluctuating international markets
Cotton	Coimbatore, Salem	Private limited company	Vertically integrated, miller and garment firm, exports and domestic	Established local market	76 farmers (2008)	Groups and individual contract, credit and extension form part of contract. The scheme folded up in 2009
Gherkins	Dindigul, Madurai	Foreign owned, private limited company	Pickled and exported, barrels and bottle	No local market, several gherkins processors	5000 farmers, 2500 acres (2008)	Individual contracts. Among the oldest firms in the region. On an expansion mode to other parts of Tamil Nadu

(continued)

Table 5.1 (continued)

Commodity	*Districts in the study region*	*Type*	*Use*	*Alternate market*	*Number of farmers*	*Remarks*
Poultry	Coimbatore, Dindigul, Erode	Private limited company	Broiler and Layer, trades in domestic wholesale market, firm owns retail brands and outlets as well.	Local market, mix of traditional traders and other integrators	500 growers (2009)	Operations nationwide, touted as largest poultry integrator in Asia
Papaya	Coimbatore, Erode, Dindigul	Sole proprietorship	Papaya is used for papain extraction; fruit is paid for separately, pulp is sold to juicers domestically	No direct competition from other firms, local market is tiny and for an alternative variety	2000 acres; 500–600 farmers (2008)	Individual contracts. Price fixed for latex and fruit. Skilled labor for latex extraction supplied by the firm, although farmers pay for the labor. In 2008–09, mealy bug and ring spot virus epidemic have destroyed crop

Source Compiled from interviews with the contracting firms

but not ideal, for table consumption, and the fruit is a by-product that is used to make candied fruit or for pureeing. Marigold contracting was initiated by firms for oleoresin extraction for export, mainly as coloring agent for poultry feed. Marigold has a thriving local market, however, for fresh cut flowers that are used for a number of occasions, religious and otherwise. The broiler industry in the study region is almost completely vertically coordinated, a process that began in the mid-1990s. Here day-old chicks are provided by the firm and bought back by the contracting

firm. The firm acts as an aggregator-intermediary, but also has its own brand of chicken in various processed forms.

This section outlines briefly some salient features of the contract farming arrangements to introduce the schemes, mainly based on interviews with the contract firm's executives, field officials and observations from the field.

5.2.1 Scale and Evolution of the Schemes

The scale of operations varies across the commodities, and interestingly, also over the lifetime of the scheme. All the contract firms selected for the study started their operations in the 1990s, but have followed different trajectories.

The cotton firm originally started contracting in 2003 with 600 farmers in 25 villages, and over the next three years dwindled to 130 by 2006–07. In the season of the survey, the cotton firm was procuring from 77 farmers in a handful of villages in the study region. The firm had contracted with 93 farmers in the summer in another area, after which they abandoned contracting altogether in the latter region.

When the papaya firm commenced operations on a commercial scale in 1994, the area under contract was about 1500 acres in the first year. Over the next decade, the firm scaled up gradually to around 2000 acres, contracting with 500–600 farmers at a time in three districts, namely, Coimbatore, Erode and Dindigul. At the time of survey, however, owing to extensive yield loss due to mealy bug and fewer international orders, this had reduced to 600 acres of tapping area with around 120 farmers. The firm was exploring new areas for expansion and several of the contract farmers were contracting for the first time with the firm.

The broiler firm had a more chequered history in the region. In 1984, the firm began procuring broiler through contracts, but gave up operations soon after, due to several constraints unique to the firm. It resumed contracting within Tamil Nadu in 2004 on a large scale. The procurement shed straddles three districts, Erode, Dindigul and Coimbatore, with offices in three hubs, Coimbatore, Pollachi and Dindigul. At the time of the survey, there were around 400 contract growers in these three districts.

The gherkins firm has the largest scale of operation in terms of acreage of contract procurement. It started commercial operations in 1999. By 2008, the firm had expanded to contract from over 5000 farmers spread

over more than 3000 acres and has stabilized at that scale, though depending on the economic conditions in the importing countries, this fluctuated a bit from year to year.

The study area represents only a subset of their procurement shed for all contract commodities other than cotton. All of the cotton that the mill procures is from within the study area. For gherkins and papaya, a major proportion of the contract procurement is from within the study area, with procurement from other areas accounting for about 5–15% of total procurement by the firms. In the case of broiler, the firm operates across the country. The procurement from Tamil Nadu accounts for between a third and a half of their countrywide operations. Similarly, in the case of marigold, a major portion of the firm's procurement comes from the neighboring state of Karnataka so that only a small portion of the contract produce is sourced from the study area. The firm's executive puts it at 25%. The area in Karnataka from where marigold is sourced shares the same geographic and socio-economic conditions and form a contiguous unit constituting the Sathyamangalam hills.

5.2.2 Operational Aspects

For all field crops, firms contract acreage rather than quantities, so that the firm takes on the yield risk. This is a shared feature across schemes in India, and is quite different from practice in most developed countries, where contracts are written in terms of quantities. Firms and farmers arrive at how much land the farmer will bring under the contract crop, and the firm provides seeds for that acreage, factoring in the spacing recommended for optimal yields. In the case of broilers, it is equivalent, in the sense that the maximum number of birds per contract cycle is determined by the size of the shed and the number of feeders and drinkers available for use, with the final buyback based on live weight of the birds.

In the cotton scheme, seeds come from the mill's own breeding division that has developed a variety appropriate to their needs. A multinational input provider partners with the firm and provides the farmer with inputs at cost, monitors the crops and also provides advice. Loans are offered by commercial banks against the contract but they also require that the land documents be deposited with them. No farmer seems to be clear as to the consequences of default. In some cases, firms contract with groups, but the group contract is notional and often involves a large

landowner with several marginal farmers that the lead farmer has identified. In general, some sign contracts, and others do not. Some farmers sign contracts directly with the firm, others have a contract with the lead farmer. The price is not fixed and is linked to market price, a mark-up on the wholesale price of a reference market, for an agreed reference period.

In the gherkins contracting scheme, every farmer has a passbook. Three copies of these are made, one is with the farmer, the second is with the procurement wing of the firm, the third copy is filed with the head office at the gherkins factory. The procurement wing also provides inputs to the farmers, including pesticides and fertilizers, according to a set of recommended practices. Five grades of gherkins are identified. These grades are related to the size of the gherkins, the smallest size commanding a premium, at Rs. 14 per kg and declining to Rs. 2 per kg as the size increases. Pricing is fixed up front, before sowing, and interviews with firms in the region suggest that industry buyers coordinate on farmer price to prevent undercutting. Grading takes place in the presence of the farmer at harvest time, when a sieve separates gherkins by size. At this stage some obviously poor quality produce (very crooked, rotten and so on) is winnowed.

The papaya contract farming scheme is unique in this region. The firm in question is a pioneer and was also the only one operating in the study area at the time of the survey. The study area is not a traditional papaya growing region and observers suggest that it was a highly unpopular fruit until recently. So although the firm is a monopsonist, it is dependent on a small pool of papaya contract farmers for its supply. The agreement with the farmer is mostly oral, and when there is a written contract, it is usually modeled as a land leasing arrangement rather than as a marketing contract. Thus, the terms of the contract do not find explicit mention in the document, but are agreed upon orally.

The firm supplies seeds, for which the farmers pay. The variety that is cultivated is Co2 and the farmer undertakes to follow a package of practices recommended by the firm, procuring the required inputs on their own. During the nursery stage, there is close supervision and assistance, with the field officials of the firm visiting the farm on a daily basis. During the flowering stage, male and female trees are identified; culling is done at this stage. Once the tree starts producing fruits, after the seventh month, the firm assigns two laborers to each farmer for extracting latex. The farmer pays the wages, but because latex extraction requires skill, the firm trains a pool of workers themselves for the purpose. The equipment

for harvesting is provided by the firm, although occasionally the farmer takes on this responsibility.

Once the latex is collected, it is stored in drums provided by the firm for that purpose. The latex needs to be taken to the plant as soon as possible and it is the farmer's responsibility to bring it to the local collection centers. Quality is measured rigorously with the help of the Brix meter that monitors papain activity and latex is weighed in the presence of the farmer. Farmers often check the reading themselves, using the Brix meter, having been taught its use by the firm. Accounts are maintained on the farm and at the collection center. The terms of the contract are very clearly specified here. The contract price for latex is specified "as Rs.90 per kg...latex at 17 °C."[2] Once the latex has been extracted from the fruit, the firm agrees to buy the fruits from the farmer at a pre-specified rate (Rs.0.75 per kg.). Payment is made at the time of collection, or within a fortnight of delivery. It is mutually agreed of course that the farmer will not divert or side-sell, nor adulterate the latex with milk, flour, water, etc.

The marigold firm first establishes the acreage a farmer wants to commit and distributes seeds accordingly. Seed distribution takes place in early summer (April-May). Seeds are obtained from a multinational seed company. The variety that was in use during the time of survey was Peruvian. The firm usually collects money for that, although it subsidizes the cost of seeds heavily. At that time, the firm typically signs a written contract with the farmers that fixes price and has the farmer commit that all produce from the acreage contracted is delivered to the firm. The contracting firm also provides credit, or cash advance, to farmers if they need it, apart from the required fertilizers, herbicides and offers technical support should the farmer require it. Typically, for each crop of marigold there are 7–8 harvests. Flowers are harvested weekly. When they harvest it they put it in bags given by the firm, stitch it and bring it to different collection points for weighing. Sometimes, the flowers are picked up at the farmgate. Payment is made weekly in settlement of the previous week's delivery minus any amount owed to the firm, sometimes in installments. Entries for transactions are made in a passbook.

The system of contracting in the broiler industry is remarkably similar across firms. Under this system, the integrator invests in the entire value chain, including grandparent farms, parent stock farms, hatcheries and

[2] This was for the year 2009–10.

feed mills. Poultry farmers invest in poultry sheds and equipment on their existing land. Integrators provide day-old chicks, feed, medicines/vaccines, training to farmers in process and cost management, and technical supervision. Integrators pick up the broilers at around 42 d of age (six weeks), and farmers are paid growing charges according to a formula that factors in feed cost and a given productivity norm based on the Feed Conversion Ratio (FCR). The farmers are given an incentive bonus if the FCR and/or mortality rate is better than the contracted level. The birds are weighed on farm and collected on site. Payments are made within a week. Although the contract is fixed for a 42-day cycle, typically the firm communicates to the farmer the number of cycles the farmer will be provided for the whole year. This is by way of an oral agreement. For the farmer, given the fixed investment in sheds, drinkers and feeders, ideally they seek to undertake six cycles of contract production annually. The placement of the birds is, however, the firm's discretion, and often this varies depending on the firm's particular strategy to exert control over supply conditions.

5.2.3 Relationship Intensity

In many ways, the five schemes are fairly typical of contract production arrangements elsewhere in the developing world. All contract commodities are cash crops and involve production processes that require farmers to respond continuously to the need to maintain quality. These quality standards are often established outside the production system, driven by end-user preferences. In the case of gherkins, food safety issues imply stringent norms governing the use of inputs, fertilizers and pesticides, especially of pesticides that need to be on the "approved" list of the importing country. So too with poultry, that enters domestic food chains directly. In the case of cotton, quality is expressed as the need for exporting mills and garment manufacturers for Extra Long Staple cotton that is not contaminated, i.e., free from impurities and particulate matter. In the case of papaya and marigold, while the varietal choice is more critical than the production process, they do require good cultivation practices, especially for papaya, that ensure high yield and care during harvesting.

Firms engaged in contract farming thus engage actively in the production process, not only providing critical inputs but also maintaining close supervision from sowing through to harvest and post-harvest handling.

The commodities and firms selected for study represent varying degrees of involvement by the firm in the production process or intensity of contractual relationship.

The cotton firm brings in a third-party input manufacturer to monitor and advise farmers, arranging for credit from a bank and providing materials to store the harvested cotton. The mill's role is confined to coordination and oversight of operations. The gherkins firm provides farm inputs (seeds, fertilizers and pesticides) on credit; this is later recovered from the farmers at the time of harvest, when farmers are paid for the produce, net of input costs. Field officers on the company's rolls monitor crop health and advise farmers periodically. Broiler represents even higher relationship intensity with the firm's officials visiting contract growers every day to monitor health and status of the birds. These firms provide day-old chicks to the farm and has detailed protocols for the feed mix and vaccination schedules. For papaya, the involvement of the firm varies over the life-cycle of the crop. In the nursery stage, field officials monitor the crop closely with daily visits and once the plant matures into the flowering stage, there is limited oversight, unless the situation demands it. In papaya, an interesting feature is that labor for latex extraction is organized and trained by the firm, with the wages being borne by the farmer. Latex extraction requires great skill and the firm believes it can ensure quality and supply of latex for the plant by deputing labor to contract farms. Marigold represents the least participation of the firm in the production process, related partly to fewer quality requirements that need only modest supervision. In fact, the marigold firm suggests that monitoring is required more for contract enforcement rather than for production under contract. The marigold firm thus restricts itself to providing high quality seeds at subsidized prices and training new contract farmers in the cultivation practice for marigold. Its field officials advise farmers periodically on pest and disease control.

In the rest of the book, I provide a high resolution view of the stages of the contracting process (Fig. 5.1). As each stage is discussed, I use data from these schemes and from analysis of contracts and data from the Agribusiness Surveys to elaborate and illustrate specific aspects and insights. Those discussions do not focus, however, exclusively on these schemes, and as mentioned, I draw on examples from elsewhere in the world too. Together, they highlight both the variety and some commonalities in contract farming across space and time.

Part II

CHAPTER 6

Why, When and How Do Firms Contract?

The first stage of the contracting process involves a firm weighing its options to decide its procurement strategies, before it chooses its procurement shed and farmers to recruit. In the context of globalized agribusinesses, these could involve decisions on which regions of the world to source from and in the context of local businesses these can be a choice of which villages or clusters of community to select.

6.1 Polyarchal Governance

As Chapter 3.1.2 outlined, theoretical perspectives often treat contract farming as an intermediate form of governance between make and buy. This stylization is a useful organizing tool. Yet, there is strong empirical evidence to suggest that firms invariably use a combination of institutional arrangements (e.g., contract farming with factory-owned farms and spot markets) to support their operations rather than one or the other (Mugwagwa et al. 2019; José Carrer et al. 2014; Du et al. 2016; Narayanan 2007). Contract farming rather than being an "intermediate" strategy between spot market and vertical integration , may well substitute or complement other procurement strategies. Early recognition of this is evident in discussions of outgrower estate production, where contract farming enables the nucleus estate to supplement its own production (Ayako 1989, for example). Yet, this issue has received limited attention

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_6

in the context of agribusiness procurement strategies. This is important because it raises key questions about the place of and preference for contract farming as a procurement strategy, that goes beyond binaries of make or buy and complicates taxonomies. The emergence of contract farming as an institution over a domain is thus predicated on alternatives available to a firm.

There is ample empirical evidence of plural procurement strategies or polyarchal governance . In a study of frozen vegetable industries in Mexico, Echanove and Steffen (2005) point out that for the eight companies they surveyed, an average of 59% of land under their "control" is contracted whereas the remaining 41% were purchased or rented for factory production or autosourced. Only two companies (Bird's Eye and Green Giant) specialized in one governance structure, namely contracting. The same appears to be the case with the US pork industry, where large firms typically use a mixture of own farms and contracts. Reimer (2006) reports, for example, that overall 44% of hogs marketed by top producers in the US are finished on own farms. In 2004, Seaboard, the third biggest pork producer in the US raised 60% of the hogs produced at its Oklahoma plant on own farms, while Smithfield another large producer, raised 35% of hogs, contracting for the rest (Reimer 2006). Similarly, in a case study of apple and onion packers in China, the share of procurement from contract farmers was found to range from 20 to 70%. All packers also used company farms and spot market purchases (Miyata et al. 2009). In Swaziland, the Mhlume Sugar Company of Swaziland self-produces 67% of all sugarcane processed on four company estates that occupy some close to 9000 hectares (Kirsten and Sartorius 2002). These are but a few of many examples of polyarchal governance available in empirical literature.

Why do firms prefer plural sourcing methods? In the Agribusiness Survey in India, several firms discussed their rationale for such strategies. A firm operating in southern India reported producing gherkins on 200 acres of their own farms, while sourcing the rest from another 200 acres owned by about 150 farmers through contract farming. The Chief Executive Officer (CEO) of this firm felt that the factory's farms "ensured" that they got enough gherkins for processing. Another firm, a sole proprietorship, that operated a comparable 200 acres said that they autosourced only for one season a year. "We have two seasons here - one safe and one risky. We have thousands of contract farmers for both seasons, but we autosource in the risky season alone." Gherkins

firms in Tamil Nadu also regularly procure from each other to make up shortfalls in stocks—so that inter-firm sourcing is a small but important channel. The Indian dairy industry too is replete with inter-firm contracting for milk supplies (Narayanan 2019). Baby corn exporters in India too combine corporate farming with contract farming. Field Fresh, an exporting firm, farms for baby corn on 300 acres of land, leased for 99 years from the Government of Punjab and contracts with 350 growers. Interestingly, after growing other crops such as okra and bittergourd on their own land, it proved too costly to be viable (Singh 2022b). Another Indian firm that has been engaged in organic horticulture farming owns 900 acres across geographies within India while simultaneously contracting with grower groups. The executive explained that while their own farms ensured that they never defaulted on their "high-worth" clients, contract farming enabled them to reach high production volumes with minimum land investment. This is echoed by Chinese firms as well. (Miyata et al. 2009) report, for instance, that the expansion of their own farm is not meeting the growing demand from supermarkets and export markets. It is also costlier for firms to invest in their own farms and thus contracting farmers is a way to meet this demand.

An Indian floral-extract plant producing food additives for food processors sourced from 25 acres of their own fields while contracting with growers for 2000 acres. Their own farms, they said, produced flowers with close monitoring so that it set quality benchmarks for the contracted produce. Additionally, the land was also used to test new varieties before distribution to the farmers, so that yield risks unrelated to weather are minimized to the extent possible.

In jatropha contract farming, which gained popularity for a brief period in India, it is common for biofuel factories to maintain large jatropha plantations even while contracting with farmers for jatropha seeds. One conglomerate, involved in wind energy as well, maintained that since there was "wasteland was anyway" available between the windmills they had erected, they raised their own jatropha plantations, although contracting was their "main source."

Many combine spot market transactions with contracting. For instance, a potato French fries manufacturer in India disclosed that about 50% of their potatoes come from spot markets, about 15% from factory-owned land and the remaining from farmers through contract farming. According to the procurement officer, because of the incidence of late blight, contracting and autosourcing "created problems" and buying at

the spot market was much easier. Some supermarkets combined dedicated collection centers with contract farming, until they abandoned the latter in favor of the former.

Are these polyarchies exceptional or special cases? One could argue that when a firm has multiple plants, each plant relies on a unique governance structure, so that at the aggregate level, the firm appears to use plural structures. Perhaps each governance structure services one type of client or one kind of product. For example, produce procured through vertical integration could be dedicated to servicing the client that demands the highest quality standards. Such instances do prevail. Regardless of these instances, however, the Indian examples discussed above are for firms that run single plants dealing with non-differentiated products and similar clients.

What then do these examples mean for narratives of contract farming as an "intermediate" option? It seems evident from empirical experience that polyarchies are unique neither to place nor crop sector. TCE-inspired applications to agriculture, note that the choice of governance structure is a response to specific combinations of Williamson's organizing principles of asset specificity, uncertainty and frequency of transactions, but do not explicitly accommodate polyarchies (Mugwagwa et al. 2019). Further, we still need to be able to explain why among polyarchies, the relative intensity of use of different channels might differ across firms (Du et al. 2016). As the examples suggest, there is much variation across firms in the extent to which they use different arrangements, adding a new source of variation that defies simple typologies.

This calls for a new way of assessing firm's choices. First, as we know from the history of contract farming, the political and policy context can shape firm procurement strategies. One motivation for having multiple channels of procurement seems to be that there are limits to expansion in any single channel, so that, for example, contract farming is resorted to for attaining high volumes. This could be true, for instance, when available spot markets are thin or when there are restrictions on land utilization or ownership through ceilings that prevent factory-owned farms. Many contract farming schemes in India are run as Corporate Social Responsibility (CSR) initiatives on a small scale or as projects with local governments (Chapter 2). Often, agribusinesses operate contract schemes on a small scale to be able to leverage state subsidies and build goodwill with governments. Many of them may not view contract farming as a serious procurement option. As a company executive stated, we "find that

200 farmers or so is reasonable for us as a CSR initiative, but it doesn't make sense otherwise. We need 10000 bales, we get 150–200 bales from contracting and scaling up is not possible."[1]

Second, there could be tradeoffs between costs and risks across strategies (Narayanan 2007). For instance, autosourcing always needs land, bought or rented, and hired employees dedicated to conducting production operations, thus entailing higher costs than alternatives. At the same time, relying wholly on a single channel is a risk if that channel fails to deliver. These "maladaptation" costs could be high, including the risk of losing an international client on account of default. These tradeoffs prompt firms to use plural sources. Plural strategies can also put agribusinesses in a powerful position relative to growers when they do not fully depend on contract growers. José Carrer et al. (2014), for instance, notes that Brazilian meat firms used spot markets, own farms and forward contracts with suppliers to reduce dependence on a few suppliers, strengthen their own bargaining power and retain the flexibility to respond to changes in demand.

Plurality in institutional arrangements in modern supply chains is thus best seen as a portfolio allocation problem where firms maintain a portfolio of procurement channels, working as substitutes or complements, reflecting careful balancing of their priorities, risks and costs (Narayanan 2011; Du et al. 2016).

Even within one governance structure, say contract farming, firms could use different types of arrangements. In the gherkins sector in southern India, virtually all processors combine direct contract farming with an intermediary model where the firm contracts with "agents" who source supplies from farmers, often from the same procurement shed. Mugwagwa et al. (2019) note that Malawian soyabean firms use many different types of contracting schemes in the same region to source produce from smallholders—contracting via a non-governmental organization, an informal producer organization, an FPO as well as individual medium and large-scale farmers. The bulk of its raw soybeans (60%) is, however, sourced from the spot market comprising independent traders and a commodity exchange. In this instance, interestingly, the firm began these multiple approaches as an experiment to be able to identify their preferred mode.

[1] Agribusiness Survey, Tiruppur district, Tamil Nadu, March 2008.

This perspective aligns well with the idea that in the Aokian framework of contract farming as frictional equilibria, many frictions lead firms to experiment, learn from and adopt plural strategies for procurement, that can evolve endogenously over time (See Sect. 11.3 for discussions on this aspect). These shape domain-level outcomes in terms of the extent and spread of contract farming and whether contracting schemes emerge or survive.

6.2 How Do Firms Choose Farmers?

Just as contracting is one of many options, firms face the problem of choosing a portfolio of farmers suppliers from among many. Firms contracting for seasonal crops usually at the start of each growing season and typically firms balance many considerations before offering contracts. Firms need to identify potential contract farmers in a context where they know little about farmers' abilities and willingness to grow under contract. They do this by deploying several strategies, based on their own beliefs about the economic environment and about the farmers.

Many empirical studies identify correlates of participation in contract farming schemes, using these to infer contractor preferences for farmer attributes. Yet, there is little serious reflection on how firms choose farmers. There is relative neglect in economic modeling, including those that are inspired by relational contract theory, of the question of selection of farmers from among a large set of potential suppliers, especially when they are heterogeneous. Most approaches tend to assume a representative grower who has a participation and incentive compatibility constraint. The contracting firm writes contracts to both induce participation and to ensure that the grower has an incentive to behave consistently with their "type" in terms of their dependability and productivity. The heterogeneity of participants, especially based on characteristics beyond what the firm can observe or know, is a new source of risk for firms who may know little about the ability and willingness of farmers to deliver on contract (Hueth and Hennessy 2002; Tsoulouhas and Vukina 2001; Goodhue et al. 2000). These may undermine sophisticated contract designs. Goodhue et al. (2000) and Tsoulouhas and Vukina (2001), for example, suggest that agent heterogeneity in tournament contracts, discussed earlier, where farmers earn based on their performance relative to other contract farmers, render relative performance evaluation risky, complex and costly to implement. It is well established too that search

frictions can compound the problem of relational contracting (Rosch et al. 2015). These search costs prompt firms to adopt diverse strategies of selection.

We draw on the Agribusiness Survey to uncover and conceptualize a stylized process of selection that firms in India, and possibly elsewhere, employ to develop procurement sheds and identify farmer suppliers. Much of the current literature on farmer participation in contracting schemes, whether in agro-processing or the supermarket-driven retail sector focuses predominantly on one kind of inclusion, that is based on individual farmer characteristics, including farm size, farmer wealth and access to resources (Runsten and Key 1996a, b; Dev and Rao 2005; Glover and Ghee 1992; Miyata et al. 2009; Warning and Key 2002; Michelson 2013). Relatively less attention within the economics literature has been devoted to spatial selection of procurement sheds by firms on account of crop characteristics, agro-climatic factors or locational advantages. Virtually all studies recognize this aspect, but most economic studies do so only perfunctorily, adding location or geographic characteristics mechanistically as an additional variable that explains participation. Further, as the discussion below shows, sometimes attributes do not matter in a consistent way. This is a question that has been better researched by geographers in particular who have paid attention to community and regional level outcomes and the uneven geographic spread of contract farming (Fold 2009; Echanove and Steffen 2005).

Agribusinesses routinely sort over geographies and over farmers. The effort in this chapter is to shift the focus of analysis of selection away from individuals, as economists tend to, to incorporate communities and geographies as units of analysis, an approach sensitive to place-based analysis, as some researchers have advocated (Fold 2009; Bebbington 2003). This is essential to help us better understand domain-level impacts along two dimensions—geographies of selection and social performance of contract farming schemes.

6.2.1 Layered Selection Process

Across India, firms typically tend to first select broad agro-climatic regions where contract commodities can feasibly grow, often locating processing plants and procurement or collection centers accordingly. Within these regions, firms choose particular geographic tracts before choosing individual farmers as contract suppliers. Firms then pick a portfolio of contract

farmers. They then agree on specific volumes (or more often acreage) to contract. Firms have an opportunity to reassess and modify this portfolio over time, based on experience and learning from contractual performance and in response to changes in the external conditions. All of this is conditional on farmers being willing to contract with the firm. This selection process itself is modeled formally elsewhere (Narayanan 2011). What follows is a descriptive account of the layered nature of selection, drawing on (Narayanan 2014a).

Figure 6.1 illustrates the process where, usually, a contracting firm chooses the region (blocks) from which to source produce. I refer to this spatial selection as the "domain layer" or stage of selection. Firms then pick villages in these areas. Within these "contract villages," the firm usually draws up a list of potential participants who are willing to contract, either through field officials or through intermediaries. Farmers may also approach the firm and express a desire to participate. Subsequently, contingent on the potential participants fulfilling any eligibility criteria that the firm might establish, the firm "chooses" farmers with whom to contract. At this stage, participation in contract farming schemes is a matching problem (hence called "matching layer" or stage), of farmers willing to contract with the firm, and the firm choosing farmers with whom to contract. This is driven not just by the perceived benefits of doing so but also by mutual perceptions of reliability and trust or, inversely, riskiness (Chapter 7 discusses farmers' contracting choices in detail). Each layer of selection is associated with a different set of characteristics, both those observable to the researcher and those known only to the firms and not to remote researchers, that influence which regions are selected and which farmers are chosen as contract suppliers.

6.2.2 Sorting Geographies, Sorting Farmers

The Agribusiness Survey suggests that agro-climatic conditions and seasonality are important considerations for spatial selection and this, in turn, hinges on the suitability of the crop to the region. Cotton, for instance, requires black soils and is typically less productive in other types of soils. Papaya does not do well in windy areas, where the young trees could break. Similarly, given the warm temperatures in parts of India, commodities such as potatoes, marigold and some medicinal herbs are only feasible in the cooler, mid-elevation regions. As a marigold processor, focusing on the oleoresin business explained,

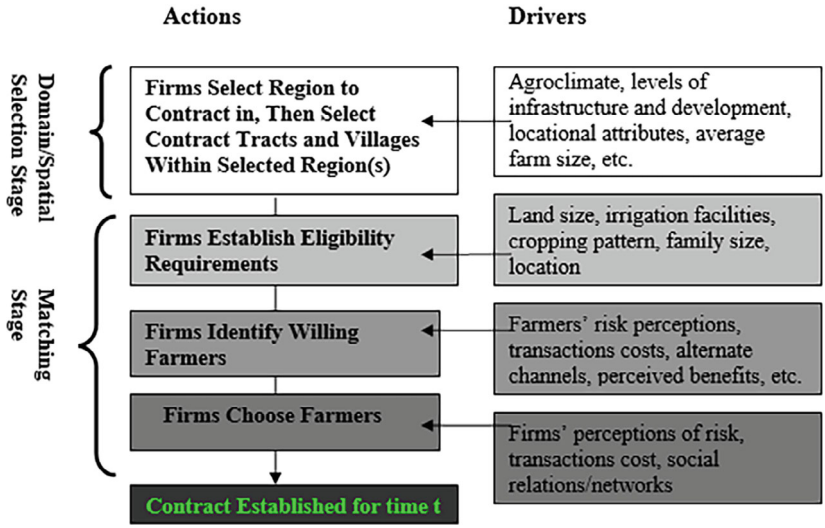

Fig. 6.1 Layered selection process

"although earlier we procured from the plains, today we focus 90% of the procurement from the mid-elevation areas. The oleoresin content is much higher in these areas. Yield of marigold is also higher. In the plains if we get 6–7 tons per acre, in the hills it could even be as high as 15 tons per acre" (Agribusiness Survey, Karamadai, Tamil Nadu, 2007). Other characteristics, such as the color and quality of the produce, might also drive a firm's spatial preference. One agribusiness executive said that the firm avoided procuring from some regions, even those that were close to the plant, because the gherkins that grew in that particular tract had "no color" (Agribusiness Survey, Sirumalai, Tamil Nadu, 2007).

Firms often choose areas where they can procure across many seasons, in order to run the plant through the year or choose a portfolio of geographic regions where they can procure in different seasons. Sometimes firms choose regions exclusively for procurement smoothing, procuring during seasons when the regular procurement shed does not grow the contract commodity. For example, the state of Jharkhand in north India was deemed ideal for potato contracting purely because it offered the processing plant potatoes during a season when potatoes were

not available in neighboring West Bengal, the main source of potato supplies (Agribusiness Survey, Ranchi, Jharkhand, 2008).

Often, plants are established within the agro-climatic zone where cultivation of the contract commodity is feasible, if not favorable. Once the plant is established, perishability of produce often induces firms to procure within an acceptable radius around the plant, imposing constraints on spatial coverage. The best known example of this is sugarcane, where the cane needs to be crushed within a few hours for optimum extraction. These sometimes also discourage other firms from establishing plants in the same location to avoid potentially costly competition for suppliers. For papaya, once latex is extracted, it has to be used in the plant within three or four hours. So, the firms choose farmers located close to the plant. Gherkins firms in India usually procure from within a 50 km radius of the plant. Gherkins are highly perishable and firms try "to get them to the processing plant as quickly as possible, within hours if possible" (Agribusiness Survey, Hyderabad, undivided Andhra Pradesh, 2008).

Even when perishability of the crop is not a concern, firms sometimes choose a portfolio of villages in a particular tract, before they match up with farmers for contracting. These can be either to ensure yield, hence volumes, or to obtain better contractual performance in terms of reliable deliveries. As one executive said, "we choose villages. That's what makes sense to us. We select villages where land is suitable, where there are sandy soils and good water" (Agribusiness Survey, Bangalore, Karnataka, 2008). This would reduce risks of not getting enough volumes for processing, he pointed out. Another said, "we want to go and select villages where the farmers are very poor or tribals" to ensure better compliance (Agribusiness Survey, Hyderabad, Andhra Pradesh, 2008). Yet another executive explained, "we focused on villages that had no market access. There are many villages where farmers have no clue about the outside world, let alone about markets. Their mentality is such that they never cross the line" or transgress (Agribusiness Survey, Dindigul, Tamil Nadu, 2007). This approach to selecting communities is driven by more than just geophysical or agro-climatic considerations. Crucially, here is an example of where locational advantage or access matters but not in the direction usually presumed.

Once villages are chosen, firms may identify farmers with whom to contract. There is often a time lag between a farmer getting to know of the option and actually declaring willingness to contract (Chapter 7). In some places this happens quickly. An agribusiness executive said of the

Punjab: "Adoption by farmers in Punjab is fairly quick. Farmers tend to watch others' fields keenly. As soon as they find something interesting, they approach you and ask: What is this? How does it grow? What do I have to do? Can I join?" (Agribusiness Survey, New Delhi, 2008). In other places, it may take time. An executive of a distillery procuring grain explained, "Farmers were skeptical and did not understand the process of ethanol making ...we undertook some demonstrations. This gave the farmers some confidence that such an option was indeed possible and real" (Agribusiness Survey, Hyderabad, Andhra Pradesh, 2007). In some cases, it is hard to persuade certain classes of farmers. For example, a firm contracting sorghum claims that they could never get the large and rich farmers interested in contracting because sorghum was considered a poor man's crop. Sometimes firms choose poor farmers, just like they choose distant villages, to ensure sustainable relationships. "We ensured that we picked some really vulnerable people who had few other alternatives. When there were enough people like that there was a critical mass that wanted to keep the contracting scheme going" (Agribusiness Survey, Vijayawada, Andhra Pradesh, 2007).

Many firms, for crops like gherkins and papaya, only select farmers who have access to irrigation. In other crops, the opposite can hold true. For jatropha for instance, an agribusiness executive explained: "We go to areas and find farmers with minimal water resources. For instance, if there is a farmer with ten acres who is growing banana on two acres and leaves the eight acres fallow for want of water, we tell him to grow jatropha on all the ten acres, it will require the same amount of water as the two acres under banana." Sometimes, labor availability is an important criterion. A crop like gherkins, for instance, has high peak labor requirements, at the time of harvesting. In contrast, with tree crops and biofuels, firms tend to choose farmers and regions that have labor problems, and farmers are looking for crops that have low labor demand. An agribusiness executive for coconut contracting said they went to big farmers, those with a hundred acres or so, since these people are looking for "low management crops." This was the case with jatropha and pongamia as well.

Farmer exclusion can thus happen due to multiple reasons working at different levels, sometimes in ways that may surprise researchers. For example, across the domain, farmers located in villages farther away from the processing plant or wholesale warehouse might be prone to exclusion, whereas within a "contract" village, the farmer whose ethnicity is distinct from the "lead" farmer or the dominant group might be excluded. This

layering of how different attributes affect selection at different levels has eluded empirical research in economics on contract participation. The spatial aspect of contract procurement or sourcing based on geographic characteristics is well documented. Yet, typically survey-based research focusing on a single scheme, even with multiple crops, does not allow for a comparative perspective on differences in geographies of contract procurement across commodities.

6.2.3 Cluster-Based Versus Scattered Approach: Evidence from India

Continuing from the interviews above, in this section I draw on the Tamil Nadu Farmer Survey to present comparative perspective of the strategies that the broiler, papaya, marigold, and gherkins firms use. Figure 6.2 illustrates the tendency for clustering and dispersion across the schemes. Table 6.1 presents these differences across schemes.

Whereas all the firms in the study choose over both geographies and farmers, some follow a cluster approach contracting with several farmers within a village, and operating in contiguous villages with the same area. In contrast, some choose farmers or villages spread over a wider area, in this case over multiple districts within the state. In other work, I develop a simple statistical approach to test whether firms prefer to sort geographies or farmers beyond the recognition that they do both (Narayanan 2014a). The idea is to compare farmers across regions that are matched based on region characteristics and share the same probability of being selected to be part of the procurement shed. If, on average, the predicted probability of an individual farmer being selected based on farmer characteristics alone is higher in one region than in the other matched region, it can be inferred that farmers' characteristics matter and that firms are also discriminating between farmers conditioned on regional characteristics. An alternative test is to compare two groups of farmers who share characteristics that would make them equally likely to be selected for contracting. If the predicted probability of the region being in the procurement zone is different, this is suggestive that firms choose areas rather than farmers. A comparison of the relative strength of these two effects, if any, suggests patterns of sorting. Accordingly, I find that whereas broiler and papaya tend to be more discerning over choice of farmers relative to regions, the reverse is the case with marigold, cotton and broiler (Narayanan 2014a).

This statistical test is consistent with qualitative interviews with the firms. The spatial dimension of operations varies across these schemes. Broiler and papaya contract farmers are scattered over a large area with typically a handful of growers in each village where the firm operates. In both these cases, social contact drives most initiation of contractual relationships and farmers are scattered fairly widely. Also, because papaya and broiler need significant upfront investments and enterprise, the firms are more discerning in their choice of contract farmers. In contrast, for marigold, cotton and gherkins, the firms follow a cluster approach, so that contract farmers are densely concentrated in particular villages. For instance, in the case of gherkins, villages where the firm contracts, often have few farmers who do not participate in contract farming. Most gherkins firms tend to follow this practice, choosing villages and within that contracting with as many farmers as possible. This allows for easier supervision and procuring large volumes from a small region.

Beyond this broad assessment of patterns of sorting—based on geography or farmer characteristics, each contracting scheme has its own distinct pattern of procurement and is correlated differently with observable characteristics at various levels. Below is a description of these complex patterns based on qualitative interviews with the firm, contract farmer lists and statistical analysis of the correlates of contracting implemented at each level of selection, block, village and farmer following Fig. 6.1. These analyses treat the administrative unit of a block as equivalent to a geographic unit within a district and villages as an intermediate layer. This conforms broadly to the articulation of various agribusinesses of their procurement strategies.

As mentioned earlier, the marigold procurement shed is confined to the hilly regions of Thalavady and Kadambur in Sathyamangalam taluk in Erode district. Marigold demands cooler temperatures and yield more flowers under these conditions. The firm's plant is located at the foothills. Cotton similarly requires particular soil types and climate, so that the firm procures exclusively from traditional cotton growing areas of Coimbatore and Salem districts. Gherkins cultivation is confined mainly to Dindigul and parts of Madurai districts in the study area, tied in part to the location of the processing plant. This is primarily owing to the high perishability of gherkins that demand quick processing of the harvested produce.

The broiler contracting firm chooses areas (blocks) where the average cultivated land per household is high and where villages are tightly clustered around urban centers. Within these blocks, however, the firm tends

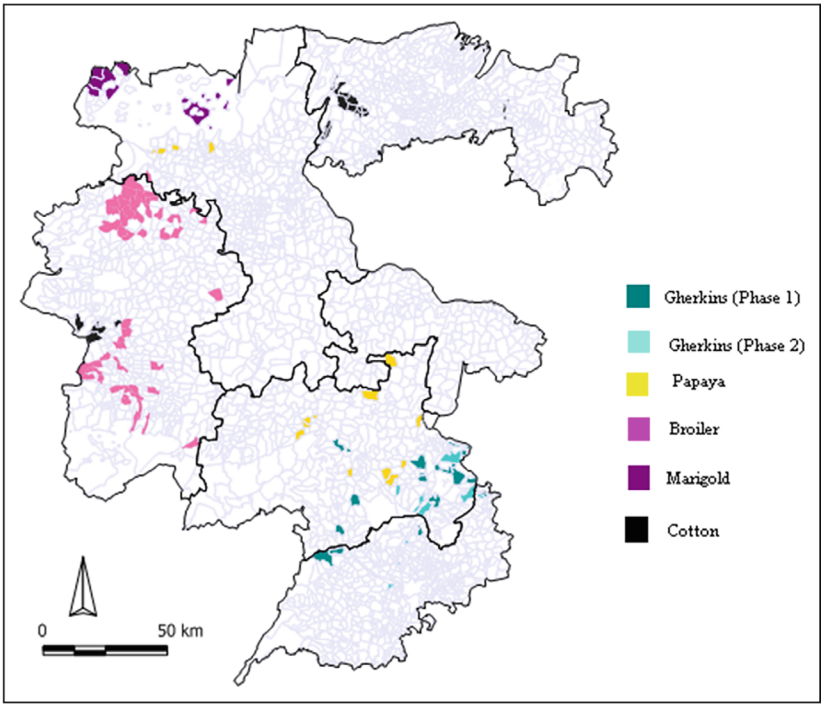

Fig. 6.2 Spatiality in selection

to pick large, more sparsely populated villages, where cultivation is not on a large scale, indicated both by the per household availability of cultivable land and by the total number of cultivators. The average income of the villages selected is also lower relative to those that are not.

For marigold, consistent with their choice of hilly mid-elevation regions, the availability of cultivated land per household is low, owing to the presence of thick forests. Block selection or selection of the geographic area within the broader region is also positively associated with the percentage of workforce whose main occupation is agricultural labor. Within these blocks, the firms choose villages where availability of cultivated land per household is higher, and those that are less remote, in terms of distance to the nearest town. It is interesting to see how the same attribute, nearness to a town, works in opposing ways at different stages of

Table 6.1 Cluster versus scattered selection of contract farmers

Commodity	*CVs*	*Farmers/ CV*	*CBs*	*Farmers/ CB*	*CFs in study area*	*Sample CVs*	*%age of cultivators in sample villages who contract*			
							Mean	*Std. Dev.*	*Min*	*Max*
Cotton	20	9	6	28	170	7	46.3	6.7	33.3	52.63
Broiler	54	2	11	8	93	35	4.9	5.7	1	32
Papaya	16	5	11	8	85	10	4.7	4.8	0.3	14.6
Marigold	8	10	2	41	82	15	20.6	9.3	6.7	35.7
Gherkins 2	22	20	6	75	449	6	35	30	6	91
Gherkins 1	21	27	8	72	573	5	24.0	22.1	6.3	58.8
All	**2500**		**97**							

Source Based on Narayanan (2014a)
Notes CV, CB and CF mean contract villages, blocks and farmers respectively.

selection. While marigold contracting is prevalent in blocks where villages are scattered so that, on an average, villages are farther away from the nearest town than in non-contract blocks, within a block, firms choose villages close to urban centers. The distance from the nearest town is a proxy for road infrastructure and choosing villages closer to towns makes it easier for the firm to evacuate contracted volumes, just as it lowers the costs associated with delivering inputs and monitoring.

The papaya firm too tends to contract in blocks where villages are, on an average located farther away from major towns amid sparsely populated blocks, and yet within a block tend to choose villages that are closer to smaller towns. In the case of papaya, the collection centers for latex are located close to towns, but firm officials suggest that the location of the latex collection point is established after they identify farmers who contract for supplying latex. The firm's selection of village is associated positively with the irrigation facility in a village as indicated by the percentage of cultivated land that is irrigated.

The spatial selection pattern for gherkins procurement reveals a greater preference for blocks where average cultivable per household is small, where family sizes are large or where a relatively larger proportion of the workforce are agricultural laborers, reflecting, perhaps, the labor demands required for gherkins cultivation. Within blocks, firms seem to choose villages that are farther away from the town or those populated

predominantly by those from marginalized castes. Indeed, even within the surveyed villages, during the survey, it was apparent that the hamlets where contract farmers were located tend to be remote or populated by particular social groups belonging to the Scheduled Castes and Tribes.

At the time of the survey, cotton contracting was concentrated highly in a few blocks in Coimbatore district; it was the last season of operation and the small clusters are vestiges of a scheme that had seen better days. A large number of blocks located in Salem district had just been dropped by the firm. This clustering around Coimbatore city is reflected in the selection of blocks with the average distance of villages being lower in the contracting blocks. Within the block, selection of villages is associated with lower literacy but higher average income per household. Villages where the average cultivated land per household was smaller were more likely to be contract villages.

6.3 Implications of Region and Farmer Selection

Evident here are patterns of correlation that defy generalization. The complex considerations for area and farmer selection shape the nature of the contract and how these arrangements operate. For example, where firms choose geographies and are less selective in terms of individual farmers, i.e., where firms follow a cluster approach, one is far more likely to see the use of boilerplate contracts that are not amenable to negotiation. It is common too to see within cluster approaches, firms tend to be more lax in adhering to their contractual terms while also adopting sophisticated enforcement strategies. For example, firms may enforce penalties for contract breach on just one farmer to set an example for the entire cluster (discussed in Chapter 10). These firms also tend more to strategic overcontracting; in the industry, it is typical to contract for 10–15% more acreage than estimated requirements, to allow for yield losses, poor quality of produce and non-deliveries on contract. Firms that follow cluster approaches are also prone to using agents or intermediaries who are paid a commission to manage relationships and enforce contracts. In contrast, firms that form a scattered approach, select farmer suppliers carefully, often via personal contacts, have more formal contracts, even partnership contracts, where firms engage more closely with production conditions. Cluster- based approaches are a way for firms to overcome the frictions associated with search in relational contracting and also tend to select in contract farmers who may not be the least cost producers or the

most dependable (Rosch et al. 2015), for example. A contract farming scheme, in this instance, likely sees more churning, i.e., the movement of farmers in and out of the portfolio of contract suppliers, as firms and farmers learn more about one another's reliability.

6.3.1 Social Performance of Contracting Schemes

Contract farming scholarship within agricultural economics has focused on the drivers of smallholder inclusion in order to identify conditions under which smallholders are able to participate (Runsten and Key 1996a, b; Glover 1990; Wang et al. 2009; Dileep et al. 2002; Kumar 2007a; Carter and Mesbah 1993; Boselie et al. 2003; Von Braun et al. 1989b; Louw et al. 2007). This is an old concern. For advocates of contract farming, farmer selection into these schemes is important for obvious reasons. If contract farmers indeed do better or are believed to fare better, it is contingent on their being "selected" into systems. Therefore, if contract farming is advocated as a way to involve small farmers in markets, they would need to be inclusive. This aspect has now come to be called social performance (Warning and Key 2002), indicating a certain notion of "equity" in selection. For others too, who view contract farming as an arrangement that is founded on unequal power relations and fosters differentiation, the question of who contracts and who does not is deeply relevant.

Economists have tended to use a somewhat literal accounting approach to assessing smallholder inclusion. The contractors' motivations for their inclusion such as malleability and manipulability, both highly salient considerations from a firm's point of view, are typically ignored. Further, if exclusion and inclusion can occur in multiple ways, at the level of geographies or communities and at the level of farmers, this complicates narratives of smallholder inclusion.

Perhaps on account of this complex set of considerations of farmer selection, the evidence on inclusion of smallholders is rather equivocal. In general, while there is evidence that small farmers are particularly challenged to meet the volume, cost, quality and consistency requirements of downstream players, increasingly dominated by supermarket chains and large-scale agro-processors this does not necessarily mean that there is widespread exclusion and thus upstream consolidation in the food system (Reardon et al. 2009; Reardon and Timmer 2005).

A number of studies show that small farmers do indeed participate in these schemes. Some suggest they participate overwhelmingly in these schemes. There are also examples of firms contracting *exclusively* with smallholders (Glover 1990; Von Braun et al. 1989a; Wang et al. 2009). In several other schemes, however, larger farms seem the likely participants in contract farming arrangements (Dileep et al. 2002; Kumar 2007a; Carter and Mesbah 1993). This is often despite the high labor intensity of contract crops, where small farmers might be able to draw on family unpaid labor. One reason is the high cost of managing a large number of small farmers. One agribusiness in India noted simply: "I can manage ten or twenty farmers, but not thousands" (Witsoe 2006). Some studies find that retailers tend to source from large-scale processors in order to reduce transaction costs, because those processors possess adequate logistics and transportation capacity and are able to meet the private standards of the retailer. Small farmers who do not have the capital to meet the requirements of retailers tend to be excluded, as illustrated in studies of potatoes in Ecuador (Zamora 2004) and vegetable producers in Thailand (Boselie et al. 2003). Neven et al. (2009) find that a threshold capital vector for entrance in the supermarket channel hinders small, rainfed farms in Kenya. Most of the growers participating as direct suppliers to that channel are a new group of medium-sized, fast-growing commercial farms managed by well-educated farmers. In such cases, it is not clear if contract farming does solve missing market problems for large farmers or whether these firms may be leveraging "an advantage" and replacing existing institutions.

While the debate on small farmer inclusion persists, it has been observed by many that land size may not be a key driving factor at all. Stated another way, wealth or land size, defined variously, do not seem to be the factor distinguishing contract farmers from non-contract farmers (Miyata et al. 2009; Ramaswami et al. 2005; Nigel Poole and Heh 2003). Geographic selection of procurement sheds and cluster approaches often outshadow land size as the key attribute for selection, as the Indian examples show. Further, often younger, less experienced farmers get selected into these systems, as do farmers who may have non-land assets or even specific skills or attributes such as commitment to quality (Runsten and Key 1996a, b). The ability to make fixed investments (Berdegue et al. 2005, 2006, 2007), quality certification, irrigation and access to roads is important (Hernandez et al. 2007; Miyata et al. 2009; Stringer et al. 2009). In this case, land size may be an observable correlate of this

ability, masking underlying constraints. Yet, as the Indian examples show, these can be important in opposite ways, as the cases of firms preferring to choose remote villages or vulnerable farmers to ensure compliance. Further, the actual process of farmer selection is usually intertwined with social relations. Sometimes a lead farmer or village head is asked to identify potential contractees, sometimes, middlemen (on occasions, former traders). There are instances too of the firm asking villagers to choose on the basis of reputation of the potential contractee among the villagers (Dev and Rao 2005; Glover and Ghee Lim 1992; Miyata et al. 2009; Nigel Poole and Heh 2003; Warning and Key 2002; Aoki 2001; Aoki and Hayami 2001). This underscores the importance of issues such as social networks, reputation, trust and perhaps even ethnicity in the selection process, rather than the size of landholding. Some find that older, smaller and horizontally coordinated farmers with higher levels of trust in buyers tend to secure higher levels of buyer investment through increased vertical coordination (Ba et al. 2019).

Furthermore, the debates on smallholder inclusion are only on the extensive margin, i.e., whether farmers participate in contracting schemes or not. There is the question of the intensive margin, that measures the proportion sourced from small versus large farmers. It is eminently possible, for instance, that firms may choose to procure a bulk of supplies from a small proportion of large farmers and procure a small quantity from smallholders. In reality, the expressed preference of firms for certain classes of farmers can be complex. In all the contract schemes selected for the study, firms typically insisted that farmers grow no more than an acre or two under the contract crop. Even when larger farmers express a desire to bring more acreage under the contract crop, they are often dissuaded. This is common practice in India (Sivramkrishna and Jyotishi 2008). A firm might only be willing to procure small quantities from large farmers to ensure that farmers are still able to retain on-farm diversity of crops to limit potential risk from exclusive exposure to the contract crop. I discuss more such instances in Sect. 8.2 in the context of power balance between firm and farmer. Another motivation for limiting intensity of participation could be labor constraints. A gherkins executive said “right now we contract with 200–300 farmers, covering over 200 acres, each no more than half to one acre. Since gherkins is highly labor intensive, if we go for higher acreage than this, due to limited labor availability this is not feasible so we restrict ourselves to small clusters. We stick to around 30

acres per village." Other firms might prefer to procure larger quantities from small farmers.

Thus a firm's choice of a portfolio of suppliers should not be oversimplified by using farm size as the sole dimension of interest. Similarly, the fact that certain attributes such as remoteness and poor literacy are positively correlated with contract participation should not be interpreted as positive social performance since these attributes may be used by firms as proxies for vulnerabilities that enable the firm to have greater power over the grower.

6.3.2 Landscapes and Procurement Sheds

The evidence presented so far underscores the need to eschew an exclusive focus of the farmer as a unit of analysis and zoom out to treat geographies or domains as units of analysis. Scholars from disciplines other than economics recognize this more. Just as a firm's considerations can shape the baseline for a process of social differentiation, these can also shape geographic differentiation.

There is ample empirical evidence of these aspects. Echanove and Steffen (2005) note, for example, how frozen vegetable contract farming clusters developed in just those locations within Mexico that gave agribusiness firms a geographical advantage in supplying products to states in the eastern US, over the state of California, which is the largest frozen vegetable processing zone in the US. Fold (2008) describes via distinct case studies how transnational value chains shape geographies in sourcing countries. Often, standards established at the retail end of the chain can shape which regions in sourcing countries are included. For example, among citrus producers in South Africa, those that were located in areas with the conditions to be able to meet standards were included in these lucrative value chains whereas others were not, leading to exclusion on the basis of geography (Mather 2008). Zinyama (1988)'s account of spatial differentiation in Zimbabwe and (Gatto et al. 2017)'s long-term village studies of oil palm offer other examples.

This sort of spatial differentiation can also lead to diverse environmental consequences and is not unique to contract farming of course. Kubo et al. (2021) document how China-centric production in Myanmar where brokers perform lead firm functions leads to a strategic coupling of two locations with highly uneven environmental despoliation.

As Fold (2009, page 16) observed, the restructuring of global agri-food system engenders "an archipelago of privileged spaces" in rural social landscapes, especially in developing countries. Regions that are excluded from of contracting firms could in some circumstances become geographic poverty traps (Jalan and Ravallion 2002; Barrett et al. 2016). In other circumstances, when the terms of engagement undermine farmer independence and autonomy and alter existing landscapes, contract farming may well become pockets of despair. For example, the spatial concentration of contract farming could limit diversification, increasing dependencies. This is particularly an issue if these chains are linked to fickle transnational capital. Fold et al. (2017), for example, highlight the need to analyze global value chains bearing in mind the implications these have for particular settlement trajectories that constitute regional development pathways.

CHAPTER 7

Why Do Farmers Contract or Not?

In the previous chapter, we focused on agribusiness motivation to contract and their approach to selecting a portfolio of farmer suppliers. In this chapter, we turn our attention to farmers. In the history of contract farming, there have been instances where farmers have been forced to contract, or had to accept compulsory contracts, such as in the sugarcane outgrower schemes in Ethiopia, (Wendimu et al. 2016) cotton parastatal monopsonies in West Africa (Minot 2011) or indigo contracting schemes in British India (Swamy 2015). In other instances, such as oil palm in India, coffee in Rwanda and cotton in west Africa (Gerard et al. 2022; Tschirley et al. 2009) governments often "allocate" areas to agribusiness under zoning regulations for contracting schemes. Here too, farmers have little choice but to contract with a designated firm. In most private sector led contracting schemes, however, farmers do have some agency to decide whether or not to contract, and which firm to contract with, even if they are constrained by meager alternatives.

In the proposed framework of contract farming as a sequence of stages (Fig. 5.1), there is, therefore, a "matching layer or stage", a two-sided selection process that eventually sorts farmers into contract farmers and non-participating farmers. While firms try to sort heterogeneous farmer types based on location, reliability, size, soil quality and so forth, farmers' perceptions of the benefits and risks associated with contract farming and its spillovers drive farmers' propensity or willingness to contract or be

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_7

considered by firms for contracting (Narayanan 2011). Farmers might factor in several issues such as entry costs, family size, perceived returns to the contract crop relative to alternative uses of land and labor, social learning and beliefs about impact on soil fertility and quality, health and so on. At this stage, it is not simply a matter of firms picking farmers. The identification of contract suppliers is contingent on the farmers being willing to contract (Narayanan 2011). In many contexts, farmers, when presented with the option of contracting make considered decisions on whether or not to contract and how much exposure they wish to have to the contract firm or for the contract crop, which may be a new or exotic crop.

This issue of farmers' motivations to contract has garnered attention from economists but has often been oversimplified as a summary participation constraint in theoretical models that treat the firm as a principal and farmer as an agent (Sect. 3.1.4). In this model, the principal offers the agent a contract such that the design of the contract makes contract participation beneficial for the agent (i.e., meets the agent's participation constraint) for otherwise there would be no transaction at all. This constraint also implies that farmers only ever choose to participate in the contract if contracting can yield greater gains on average (usually, profits) than the next best alternative, defined usually as expected profits or utility. A contract that fails to provide a "better" alternative is likely to be rejected by farmers. This way of modeling farmer decisions offers a theory of "opting into" a contract farming scheme and not one of "opting out" and as such orients economics research on contract farming to studying inclusion rather than exclusion. It also allows the claim that farmers are free to contract so that the question of being "forced" into contract does not arise (See Sect. 9.3 for more on this).

Much of the literature on contract farming in disciplines other than economics too seem to pay limited attention to the varying motivations farmers have to contract or opt out, as opposed to the rich literature on farmers within contracting arrangements. Research on farmer agency *within* contracting arrangements has received more attention than their agency *at the time of* contracting. The dominant narrative in these accounts appears to be that farmers have few alternatives and hence opt for contracts in a setting of "constrained agency." Here too, studies of farmers opting out or foregoing opportunities to contract remain few and far between, though not altogether absent.

In this chapter, we take a closer look at a recent stream of work that explores farmer motivations to contract or not that contributes to redressing this gap and consider evidence from India on farmer preferences for contracting and for specific contract features.

The goal is to shed light on three aspects. First, there is a popular view in mainstream economics that farmers are risk averse and seek price insurance via contracts. Yet, both are only partially true. Many farmers are seen to prefer variable price contracts, seeking an opportunity to benefit from windfall increases in prices, while desirous of shielding themselves from price falls via an assured price floor. Thus, farmers may not care for reduced price volatility and may be merely downside risk averse. Second, even if a contractor offers price insurance for risk-averse farmers, contracting comes with its own attendant risks, many of which are not easily measured or measurable in monetary terms. In many instances, farmers are discerning and make considered choices when there are trade-offs between high returns or price insurance and non-monetary risks. Farmers, therefore, often treat contract farming as a risky option even if they associate it with potentially high returns or as a price insurance. Third, often farmers view contracting as one component of a broader livelihood strategy. For farmers, an opportunity to contract is not evaluated against not contracting for that commodity, but against a set of other options that provide a source of income and employment for the household, including, for example, options such as migration or off-farm employment.

This chapter reviews the literature on these aspects, presents specific evidence from India and concludes the discussion with implications for research. Each of these challenges the notion that contract farming arrangements may be a win-win and solve for missing markets, while also challenging the notion that contracting entraps farmers.

7.1 An Insurance, a Risk and a Livelihood Strategy

Policy prescriptions advocating contract farming often appeal to the notion that contracting schemes solve missing market problems and provide insurance, via fixed pre-agreed prices, to farmers who have limited ability to bear such risk. There is empirical evidence that suggests that these claims are true to some extent. Many studies show that contract farmers are at least partially insured against income and price volatility,

settling for lower prices (Bellemare et al. 2021; Michelson et al. 2012). Arouna et al. (2021) go so far as to suggest, based on a randomized experiment on types of contracts, that once price risk is resolved through a fixed-price contract, other elements of a contract are redundant and something that farmers are able to address on their own.

Yet, there is compelling evidence to suggest that we need a more nuanced understanding of farmer preferences for contracting. Sometimes farmers seek contract features that override or negate their desire for price insurance. Some studies note that farmers seek savings in transactions costs associated with contract often because of farmgate collection of produce, assured market access and easy and timely access to good quality inputs (Abebe et al. 2013; Ochieng et al. 2017). These are consistent with the argument that contract farming may fill in for missing markets of various kinds.

More interestingly, some studies point out that farmers in several contexts prefer a variable contract price rather than the fixed price (Blandon et al. 2010, 2009b, a). Rather than seeking protection from price volatility, farmers might seek protection specifically from downside price risk (Guo et al. 2007). A variable price contract benchmarked to open market prices, for example, allows growers to take advantage of the higher prices preventing the temptation to side-sell under a fixed-price contract (Blouin and Macchiavello 2019). Indeed, it has been pointed out that this is the reason that few Indian agribusinesses use contracts that agree on a fixed price, especially for commodities with spot markets (Asokan and Singh 2003). This is in sharp contrast to Bellemare (2012), for example, who finds in his study in a different context that "contracts almost always specified a fixed price to be paid by the processor to the grower."

Further, as Key (2005) pointed out, non-pecuniary aspects associated with alternatives matter. He notes that hog producers in the United States have a strong preference for autonomy. Moderately risk-averse growers are willing to pay more for the attributes of independent production than they would for the risk-reducing benefits of a contract. In developing countries too, independence as a grower was a key reason, despite higher prices and price insurance, that farmers opted not to contract (Schipmann and Qaim 2011). Researchers have also documented the role of social preference, where perceptions of unfairness of under tournament contracts reflect in willingness to contract (Sheremeta and Wu 2012; Wu and Roe 2005).

Several early works explore farmers' appetite and attitude toward risk and their preferences for contractual features (Drescher and Maurer 1999; Gribbohm and Kühl 1999; Monier-Dilhan et al. 1999). This stream of inquiry has continued. Interestingly, contrary to common belief that contracts are attractive to risk-averse farmers who seek to mitigate risks associated with spot markets , Wang et al. (2011) find that "risk lovers tend to use contract farming instead of risk averters." If, contract farming, like a new technology, comes with its own attendant risks, then one would expect that less risk-averse farmers adopt contract farming first. In fact, in India Miglani (2013) notes that larger farmers, who are presumed to be less risk averse than smallholders, tend to adopt contract farming first and smallholders follow suit having had the opportunity to observe fellow farmers' experiences with contracting. Such "wait to adopt" strategies are common elsewhere as well (Michelson 2017). Others find that risk preferences don't matter for contract choice but there is heterogeneity of preferences over contract features (Vassalos 2015). Recent work has also highlighted that farmer preferences and attitudes, including risk aversion, ambiguity aversion in the context of incomplete contracts, time preferences affect contract participation (and enforcement) in complex ways (Fischer and Wollni 2018; Barrowclough et al. 2019).

So far we have discussed farmer's risk preferences and preferences over contract features, including non-monetary features such as independence and autonomy. We now focus on a crucial aspect of contract farming introduced already—that contracting might entail new risks. The attendant risks associated with contracting may be sufficiently salient and serious that many farmers opt not to contract. Arbitrary rejection of produce, contract breach by the firm, delayed payments, uncertain technologies each thwarts farmer's willingness to contract, even in the face of presumed benefits (Barrett et al. 2012; da Silva 2005; Echanove and Steffen 2005; Glover 1987; Mannon 2005; Ramaswami et al. 2005; da Silva and de Souza Filho 2007; Pomareda 2006). Rosch and Ortega (2019) find that imperfect contract enforcement could impact participation in French bean contracting in Kenya. Farmer willingness to contract may, therefore, depend on whether firms can be trusted to adhere to contractual terms. Some researchers find a strong preference for not contracting at all and that personal trust matters as much as the availability of inputs or markets (Schipmann and Qaim 2011, for Thailand sweet pepper growers). This is consistent with research on marketing channel

choice more broadly, where trust and social relations drive trader preference (Fafchamps 2003). Among coffee growers in Ethiopia, for example, farmers seemed to value trader characteristics more than price (Gelaw et al. 2016). Gelaw et al. (2016) argue that in the context of market uncertainty, farmers may prefer to anchor their transactions to private relationships so that social relationships and economic relationships are intertwined.

Farmers may also be attracted to contracts when they perceive that penalties for default are negligible. Indeed, agribusinesses recognize this and in some Indian contracts, discussed later, firms specify that growers are free to sell to anyone and are not obliged to sell to the contracting firm! Indeed the emergence of "open-source intermediation" or the establishment of collection centers in India by firms seeking supplies,where coordination happens without contractual obligations to do so reflects a response to farmer preferences. Such flexibility may be necessary to motivate farmers to contract. For example, Fischer and Wollni (2018) find among Ghanaian pineapple growers that risk-averse farmers are willing to contract more only if lower quality grades are accepted. Ochieng et al. (2017) find that farmers in Kenya opted out of contracts with supermarkets because of quality rejections and delays in payments, among others. Blandon et al. (2010)'s experimental work in Honduras indicated that twice as many farmers preferred traditional marketing channels as those who preferred channels governed by supermarkets. While farmers appreciated pre-agreed prices and quantities with buyers, they also valued attributes of traditional spot markets, such as the lack of grading produce, receiving cash payments, lack of delivery schedules, ability to sell at the farm gate, and ability to sell individually. In such cases, one way to interpret these is that existing institutions already have evolved to fill specific needs of the farmer in ways that render contract farming unattractive. Further, farmers may prefer market channels that do not require major upfront investments (Blandon et al. 2009b). Such investments, especially if based on loans, can deter farmers from contracting. High level of indebtedness is an entrenched feature of contract farming in several contexts (Hambloch 2022). Thus although contracts may redress the problem of missing markets, they may also be associated with a cost.

Furthermore, to the extent that contract farming is popularly seen by development organizations and governments as a way to alleviate poverty, it makes sense to situate the opportunity to contract within the context

of broader livelihood strategies of farmers. Not only is the farmer's decision, whether or not to contract with a specific firm for a specific crop, the decision may well be bundled with whether or not to grow a new crop, how much land to allocate or whether to commit scarce resources such as family labor or credit to a "new" livelihood activity. Farmers make decisions across a portfolio of crops and non-farm activities; these would influence whether and how much land they are willing to bring under a contract crop.

In gherkins contracting in Tamil Nadu, several farmers in Tamil Nadu noted that whenever a farmer wanted to buy a motorcycle or conduct home repairs, they would choose to contract for gherkins for a season or two before dropping out. Such episodic participation is documented in greater detail in Sect. 11.3. Farmers might, therefore, consider future returns but not necessarily in ways that relational contract theory models may assume. In the Karnataka Farmer Survey, we found that in peri-urban Bangalore, contracting was a preferred option for farmers whose children had jobs in the city and who had divested some of their land and engaged in non-farm activities. Farmers seemed willing to cede control to contracting firms viewing this as a convenient option. In other instances, baby corn contracting was popular because the rejected grade of baby corn served as dairy fodder and had a substantial positive effect on dairy yields. Dairying had emerged as a new and lucrative peri-urban activity. Farmers opted for contracting in such contexts where "strategic coupling" or complementarity across their livelihood activities could be achieved (Kannan et al. 2018). Contracting is often one among many strategies even within farm production. Echanove (2003) and Echanove and Steffen (2005), for instance, provide instances where farmers in Mexico try to minimize their risks by planting vegetables for two different companies and on occasion, cultivating produce for the national fresh market as well. In other instances, in India, for example, contract farming for chilies variously provided a basis for diversification for some, for the cultivation of fallow lands for others and for upgrading to higher value outputs among existing chili growers (Pritchard and Connell 2011).

The availability of other cropping or livelihood options influence both whether or not farmers are willing to contract and how much land they can bring under the contract crop at a given period of time. In a sense, therefore, farmers are making allocation decisions across a portfolio of crops and making decisions to allocate labor across these crops and in non-farm activities, these would influence how much land they are willing

to bring under a contract crop. As Chapter 6 noted, firms may be sensitive to these constraints and may themselves ensure that farmers do not allocate all their land to the contract crop. These examples show that contrary to the idea that contracting presents a winning opportunity for farmers, the wide range of concerns implies when an opportunity to contract presents itself, it might not be attractive relative to the status quo. In fact, it may be a losing proposition that farmers would opt out of if they could. This aspect is important to be able to understand the extent, spread and survival of contract farming schemes, as well as social performance within a specific geography.

7.2 Risk and Returns to Contract Farming in India

In this section, I draw on evidence from the Tamil Nadu Farmer Survey to further interrogate the notion that contract farming is an insurance mechanism for farmers, hypothesizing that such arrangements are instead analogous to new technologies with ambivalent welfare implications.

Using a set of elicitation techniques I map farmer perceptions of returns from contract and its next best alternative. I first elicit farmers' subject distributions of yield, prices and income under the option of contracting and under the next best alternative. I am, therefore, able to compute the relative mean returns from contract farming to its next best alternative as well as the coefficient of variation, and skewness of these returns distributions, comparing these for contracting versus the next best alternative. The next best alternative is not contracting but is defined differently for different contract commodities. "Not contracting" could mean growing the same crop but without contracts (as for marigold), or growing a non-contract crop when contracting involves growing an exotic crop for export markets (tomato for domestic spot markets rather than gherkins contracting). This mimics the choice farmers have when an opportunity to contract presents itself.

I supplement these subjective measures of distributions of anticipated profits with a detailed elicitation of non-monetary risks that farmers associate with contracting and not contracting. This involves requesting farmers to list all the attributes they associate with contracting and not contracting, classifying these as risk enhancing and risk attenuating attributes. Farmers are then asked to rank the importance (or criticality) of that specific attribute to them on an absolute scale from 0 to 10 where

a score of 10 implies they value that attribute a great deal. I also note their expectations on how frequently that specific attribute may occur or manifest itself out of 10 cropping seasons. I then compute an incremental risk exposure from contracting, where each relevant attribute is weighted by the criticality and frequency and summed up. Thus we weigh each attribute by two dimensions, criticality and frequency, of how much that attribute matters to either aggravating or attenuating risks associated with contracting and its next best alternative.

This score is a measure of the net incremental risk the farmer associates with contracting. The greater the score, the greater the risks farmers believe they are taking on with contracting, relative to their next best alternative; this score thus adjusts for risk attenuating factors from contracting but also nets out the net risk of not contracting. This score does not reflect monetary values though some of the component attributes affect incomes directly. These risk scores are coarse measures but offer useful tools to make select comparisons across farmer groups distinguished by contracting status. It also offers a tool to map the heterogeneity in the distribution of attributes that operate on risks and uncertainties across different contracting schemes.

Sometimes an attribute can be deemed to be an attenuating factor by some and an aggravating factor by others. Examples of these attributes include losing/gaining autonomy or self respect, (un)reliability of the extension worker, impacts on soil health, human health, etc. A farmer can note, for example, that soil health improves under contracting (so that it is an attenuating factor) and another can note that it deteriorates under contracting. By construction it is designed to capture farmers' perspectives as faithfully as possible.

Figures 7.1 and 7.2 provide a flavor of the results for the sample farmers across all the schemes studied as part of the Tamil Nadu Farmer Survey. Whereas both contract participants and non-participants relative returns to contracting similarly, the latter perceive a larger variation in anticipated contract price. Interestingly, non-contract farmers associate contract farming with higher net incremental risk than their next best alternative.

In a formal analysis I use the moments of the subjective distributions of returns to contracting relative to not contracting, including not just the average returns and its variance (a proxy for risk) but also skewness of these returns (to account for preferences for gains rather than losses). In

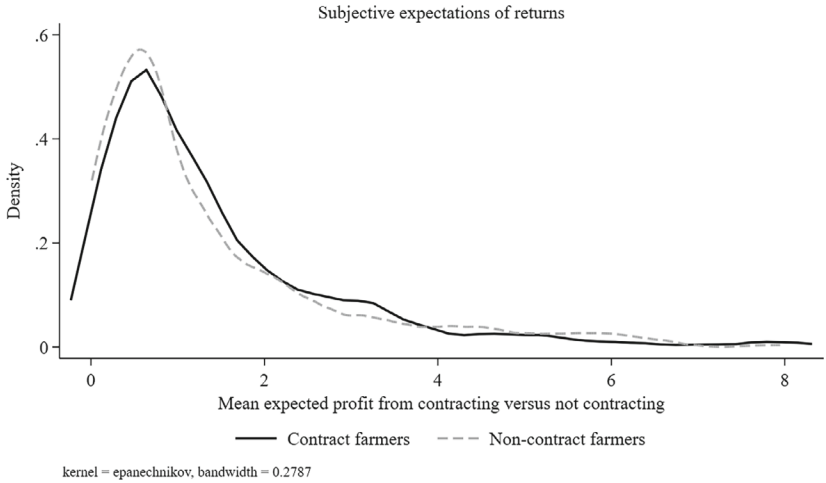

Fig. 7.1 Subjective distributions of ratio of net returns from contracting versus not contracting
Source Computed using data from the Tamil Nadu Farmer Survey

addition to the above, the incremental risk exposure metric for contract farming is also used as a predictor for contract participation.

The analysis, details of which are not presented here reveals the following insights. First, many farmers associate contract farming with higher mean returns relative to not contracting, including those who do not contract. Second, farmers are attentive to mean returns from contracting but are likely to take into consideration the entire distribution of returns. For example, whenever the alternative market offers options for an occasional windfall, this might override considerations of mean returns when opting out of contracts. Rather than farmers being risk averse, it is possible that farmers may exhibit loss aversion and prefer skewness. Third, other attributes that enhance or mitigate risks can exert a reinforcing or countervailing influence on the decision to contract. Interestingly, in the sample studied, many farmers who do not contract reveal that subjective returns from contracting stochastically dominates the returns distribution from not contracting. Yet they do not participate. Relatedly, even when farmers deem contracting to be a more profitable option, sometimes the risks and non-monetary costs they associate with growing under contract can be large enough to prompt them to stay out.

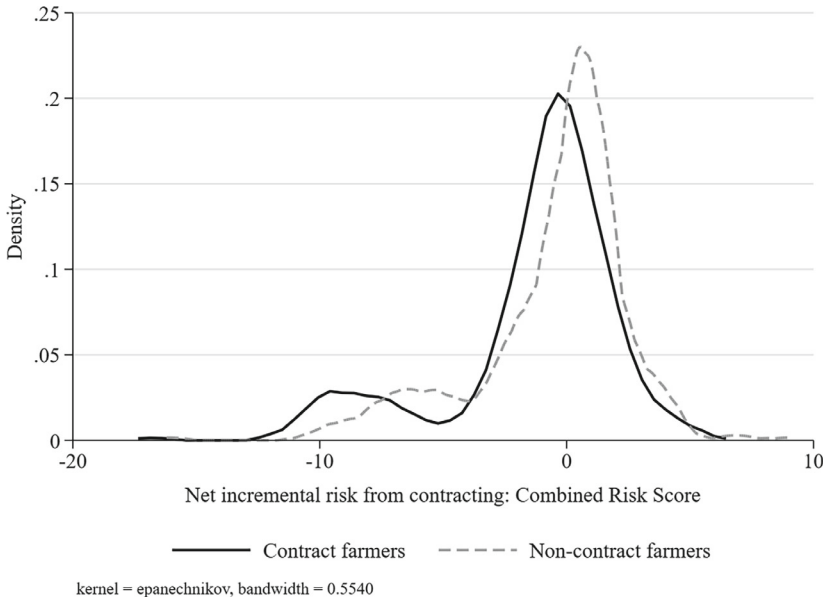

Fig. 7.2 Perception of risk associated with contracting versus next best alternative
Source Computed using data from the Tamil Nadu Farmer Survey

While a plausible explanation is that they were rationed out by the contracting firm, this is not always the case. Indeed, when those who had never contracted were asked whether the firm excluded them or they opted out, the percentage of farmers who said they opted out despite an opportunity to contract do so was 48% for gherkins, 50% for marigold, 55% and 30% for broiler and papaya, respectively. Evidence from the survey bears out the premise that there might exist other overriding concerns for non-participation, such as large and catastrophic risks that do not enter the calculus of monetary returns.

What then are these perceived risks that can influence the uptake of contract farming? A more granular analysis reveals variations across schemes (Narayanan 2012). Even as gherkin is regarded as lucrative and despite the decade long embrace of gherkin, it continues to be an exotic crop grown for the "factories". No local market exists for gherkin and it does not figure in local diets. Many farmers had visited the factories

as part of the company's efforts to build confidence of farmers in this new crop. To most farmers the rapid growth of the gherkins crop was a wonder, attributed to the high level of inputs. In fact, across the survey region, the Tamil name for the crop was *visha vellri* or poison cucumber, a reference to the relatively high level of chemical inputs it required.

It is also clear that gherkin is a highly demanding crop in terms of labor inputs, especially during harvesting. Timely harvesting of produce is critical. This has something to do with the structure of the contract, where small gherkins command a premium over larger ones. Since the gherkins grow rapidly in size, from day to day, in order to get the maximum returns, the farmers need to harvest gherkins "on the day that matters" (The Tamil Nadu Farmer Survey, 2008, Reddiarchatram block, Dindigul district). Any delay could cause a profound dent in the revenues a farmer can get. Farmers opined, for instance, that "even if there is a death in the house at harvest time, we have to put the body aside until we finish with the gherkins" (The Tamil Nadu Farmer Survey, 2008, Natham block, Dindigul district). Many who chose not to contract cited small families and lack of family labor or lack of availability of labor as reasons for not doing so.

Also, women tend not to work on gherkins plots. There is a popular perception among the farming families that the pesticide use in gherkins fields is detrimental to women's reproductive health and causes workers (especially women) to faint. While this is largely unsubstantiated in the sense that there is no independently available scientific evidence on the link between morbidity and pesticide use in the specific context of gherkins cultivation in the study area, the higher incidence of women's health issues in the villages has been enough to keep the women away from working on gherkins fields. This sometimes has an impact on the willingness to contract as well.

Another impression that was shared across villages in one part of the study area is that gherkins cultivation led to deterioration in soil quality. Some farmers claimed that paddy, when it followed gherkins on the same plot, yielded half of what it would otherwise. Some others claimed they changed the top soil layer, when they switched from gherkins to another crop, in order to restore soil quality. As a consequence of soil quality concerns, some farmers participate in episodes, growing gherkin every other year, rather than each year. Indeed, field officers recommend switching plots and rotating crops to maintain soil fertility.

The riskiness associated with cotton contract farming is quite different in complexion. Cotton is a traditional cash crop in the region, and the contracting firm is well known in the region. Farmers associated cotton contracting with significant benefits. For example, a positive externality from contracting for cotton is the advice farmers got for plant protection for other crops, notably for tomato. This has obvious value, against the background of a collapse in state agricultural extension programs. According to most farmers, the field officers advised them against the indiscriminate use of pesticides and that fertilizer application needs to take into account the type of soil. This seemed to be a revelation for the farmers. But this advice also seemed very dependent on who the field officer was. Despite these benefits, the pricing in the cotton contracting scheme, a mark-up on the market price, exposed farmers to market price fluctuations the same way as the alternatives for the farmer. The quality requirements of the firm for staple length and cotton free from external impurities was considered a problem. Most of all, however, many farmers believed that the firm did not pay on time and discounted prices somewhat arbitrarily. Collectively, these rendered cotton contracting a risky proposition relative to the alternative. Most cotton contract farmers suggested that they would opt to grow a competing crop like tomato or chilies, or cotton for the open market. Interestingly, the year of the survey was the last season the cotton firm contracted (Sect. 11.3).

In the case of papaya, contracting had been growing popular across swathes of the study area. Despite requiring a long gestation period, since the trees bear fruit only in the eighth month or so, farmers were content with the contracting arrangement that paid for the latex and also for the fruit. However, in June 2009, the worldwide epidemic of papaya mealybug reached southern India and the contract papaya fields and farmers in the area lost entire plantations to the pest. Consequently during the survey, virtually all contract farmers expressed risks of pest and consequent yield loss as the most important risk associated with contracting.

Marigold was viewed as bringing on less incremental risk for several reasons. It needed low initial investment, was not too labor demanding and in a region that is fairly remote up in the hills, firms collected produce at the farmgate while delivering all the inputs to the farmer. The firm had been around for over two decades. In addition, unlike gherkins or papaya, there was a vibrant alternate domestic market. In the case of marigold, therefore, the fixed price offered by the firm and

the relative indifference to quality (because they were crushed for oleoresin) made it a reliable insurance mechanism for the farmer. Indeed, the spot market offered a lucrative side-selling option during festive occasions when the marigold price spikes and firms have struggled to prevent this. For the farmer, therefore, the alternative of growing for the spot market and growing on contract are not mutually exclusive owing to weak contract enforcement (Chapter 10).

For broiler, at the time of the survey, perceived risks related to the placement of birds, administration of vaccines, quality of feed and timely lifting of birds. In general, broiler contracting firms exert substantial control over wholesale market prices of live birds by regulating the volume traded. Each growing cycle spans six weeks and firms calibrate the volume of chicks placed with contract farmers based on projections of market prices six weeks ahead. This implies that whenever the firm wants to curtail supply in the upcoming months, it cuts back on placements of chicks with contract farmers. Farmers who are promised five or six poultry batches (or cycles) annually may then be offered fewer batches. Some farmers are rationed out on the extensive margin by not being offered birds at all in a particular cycle, so that their bird sheds are left empty. Many farmers are offered fewer birds per cycle, or are rationed out on the intensive margin. By the same token, firms can also time the picking up of the birds, so as to control supply in the wholesale market. For the broiler grower, this affects the price they get via the weight of the bird at the time of pickup, so that they might end up with a sub-optimal FCR.

Across schemes, it is noteworthy that farmers considered the risk of losing land as an important one. Poor land titling often implies that farmers hesitate to sign contracts for fear that it might involve confiscation of their land in case of defaults. Close to 15% of the sample farmers stated that they associated contracting with the possibility of losing their land to the contracting firm. The qualitative information from the survey suggests that some of these farmers stated a preference for oral contracts on account of this. Attributes that were most often cited as risk attenuating in the context of contracting were availability of inputs, technical advice and the benefits of not having to physically travel to a market to sell produce. An assured buyer who pays lumpsum is also viewed as a distinct advantage, with almost 30% valuing this as a relevant benefit with contracting. Labor demands also appear to occupy a big place, as the case of gherkin illustrates.

Throughout the survey villages, it was common to find that farmers who contracted were less sure about the company they were contracting for than the field officer who interacted with them. This is not surprising, since to most of the farmers the field officer was the face of the company and took responsibility for every interaction throughout the cropping cycle. This also meant that where farmers were aware of the identity of the contracting firm, the field officer's competence was projected on to that of the company. The latter did not seem to have an existence independent of its personnel. The trustworthiness of the field officer thus also finds place in their mental maps of risks.

In general, therefore, several risks appear important and have important implications for contract farming uptake and survival.

7.3 Researching Farmer Decisions to Contract

The accounts presented in this chapter make it amply clear that contract participation is not always driven exclusively by firm preferences or the contracting agency. Farmer willingness to participate in these arrangements can often emerge as a constraint, at least in some settings. Further, this can involve a variety of considerations. The empirical evidence presented here argues for a more careful consideration of farmer risk attitudes, and perceptions of the risks and benefits associated with contract farming when studying participation in contract farming arrangements.

First, workhorse theoretical models in economics assume that the utility function of farmers involves profits (and not other non-monetary concerns); we need to extend these to incorporate other concerns such as perceptions of work effort, autonomy, environment and health. Second, the assumption that farmers are risk averse and seek price insurance via contracts bakes in the idea that contracts offer price insurance. Indeed, contract farming is most commonly defined as an arrangement that includes a commitment to buy back produce at a "pre-agreed price" when often the agreement is restricted to a mutual understanding of a pricing mechanism. Those advocating the promotion of contract farming often highlight price insurance as a key virtue, wherein contract farming resolves ubiquitous failures of formal insurance markets in developing countries. Yet, farmers may be merely downside risk averse or be willing to take on these risks on account of the prospect of higher returns. As Hueth et al. (1999) proposes farmers may sometimes face risk because significant benefits may exist for farmers' exposure to risk. Just (2002)

considers a range of issues on risk perception and attitudes to contracting. Third, modeling efforts today incorporate a richer characterization of the potential of longer term benefits of repeated contracting (Michler and Wu 2020; Wu and Roe 2005; Macchiavello 2022). Yet, there is a need for a more realistic characterization of the alternatives available to farmers, of the risks and costs of committing to long-term relationships that may erode alternatives and to sophisticated strategies such as episodic participation.

To summarize, exclusion from schemes cannot be deemed to be the firm's discretion and farmers could well opt not to contract. A systematic effort in investigating farmer's role in why contract farming does not take root in many contexts would be useful to explain the low prevalence of contract farming (Sect. 11.3). Further, the fact that farmers, in some context, may be able to choose what works best for them, has implications for assessing impacts of contract farming. If farmers are matched up to the alternative that works best for them then it would imply contract farmers do better when they are contracting and non-contract farmers would do worse if they were contracting. This phenomenon of hierarchical sorting is discussed in Sect. 12.1 and calls for a more nuanced approach to inferring impacts of contract farming participation.

CHAPTER 8

Market Structure, Outside Options and Motivations

The matching of contractors with growers happens within diverse contexts and these contextual conditions shape both whether there is uptake of schemes, the nature of arrangements and the relative position of the grower. Market structure has been widely regarded as the crucial factor that determines whether farmers are "forced" into contracts, whether they have only notional freedom to contract or whether they have substantive agency. The extent to which farmers' agency is constrained or not is important; it determines whether assumptions that farmers act as free agents or the assumption that a farmer who contracts is deemed to have done so willingly, are justified. Herein lies a critical point of contention between economists and most other social scientists.

8.1 Monopsonies, Competition and Collusion Among Contractors

Recall that under the transactions costs approach, vertical coordination mechanisms are a desirable intermediate form between spot markets and own production. They are most apt when spot markets fail. At one extreme, competitive markets are often idealized by economists since the presence of multiple buyers and sellers precludes the possibility of either having the power to dictate prices and trading volumes. At the other

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_8

extreme, the decision about prices and volumes is rendered redundant when a firm decides to integrate fully and produce rather than procure.

Contract farming, as an intermediate form that is short of vertical integration, may be seen as a solution to missing markets, when spot markets don't exist or develop, but also as an arrangement that side-steps competitive markets. As such, therefore, while lauded for its potential to solve market failures, contract farming also lacks the many desirable features of a competitive market. Being two sides of the same coin, whether contracting arrangements offer an efficient solution or introduce inefficiencies of their own is largely an empirical question. This is particularly relevant in the context of growing concentration of global agribusiness and the long reach of global capital (Key and Runsten 1999).

What then governs which aspect of contract farming arrangements becomes salient? Sometimes, government policies themselves facilitate anti-competition biases through what Bernstein and Oya (2014) refer to as market-defying interventions. In many state-sponsored contract farming schemes, across Sub-Saharan Africa, monopsonies constructed by the state offer little agency to farmers in advocating for their preferred terms of the contract, as Nankumba and Kalua (1989) describe in an early study of Malawi's Smallholder Sugar Authority and the Smallholder Tea Authority. In much of SSA in the 1980s, states or their arms, marketing boards ran contracting schemes. Many governments also implement zoning restrictions that provide contractor exclusive access to suppliers, effectively creating monoposonies where competitive conditions could have prevailed.

Researchers have noted that monopsony and market failure invariably serve as necessary conditions for contract farming schemes to emerge and thrive, enabling better contract enforcement (Sivramkrishna and Jyotishi 2008; Eaton and Shepherd 2001; Swinnen and Vandeplas 2007a, b). Some observe critically that, in fact, contract farming institutionalizes monopsony or monopoly relations (White 1997). For Baumann (2000) and Singh (2000), monopsony is crucial for contract farming's viability and the only way that companies can generate a return to the costs of operationalizing contract farming schemes. Clapp (1988) emphasizes the (near) universality of the condition, describing contract as usually an arrangement between a company, which is both a monopoly seller of its final product, and a monposony buyer of inputs. Even as one might view contract farming as solving for missing markets, there are several ways

in which monopsonies load the die in favor of contractors. Monopsonistic conditions are seen as enabling unequal contracts, poor bargaining power because the "outside option" is non-existent for growers (Reimer 2006; Key and Runsten 1999). Indeed, monopsony is often equated to bargaining power. We discuss in detail in Sect. 9.2 how contracts can be written in ways that skew the odds in favor of the contractor. Most of all, it enables better enforcement of the contracts (Swinnen and Vandeplas 2007a). Key and Runsten (1999, page 390) note, for instance, that firms with monopsonistic market power "are in a stronger position to enforce contract terms" (Brindley et al. 2023; Wu 2015).

Monopsonistic conditions not only enable contractors to more strongly enforce the terms of the contract, but also enable firms to breach the contract themselves without retribution. MacDonald and Wu (2009) find that when there is concentration in favor of buyers, buyers will typically structure more discretionary contracts, which can be used for either incentive purposes or rent seeking. As Rehber (2000, page 13) points out 'it is a fact that contracting is a negotiation between unequal, economically powerful agro-business and rather weaker farmers ...if the integrator has gained monopsony position, he could abuse his position to violate contract provisions in his favor'. These include arbitrary rejection of produce, providing poor quality of services and inputs, for instance. Several studies identify violation of the terms of the agreements by the company (Porter and Phillips-Howard 1997; Singh 2001).

Sivramkrishna and Jyotishi (2008, page 15–16) note that the result of this unequal power is harsh on sellers—firms "lock growers into production through exploiting gaps in the contract", "contracts enforce monocropping". Further, they note that "manipulations of contract relating to quality standard" are common and that weak bargaining position of growers make them vulnerable to "manipulation by project authorities" (p. 25).

The study of what competition implies for growers and contracting firms is an area that economists have only just begun to explore in earnest, as several recent reviews testify (Macchiavello 2022; Michler and Wu 2020; Macchiavello et al. 2022; Sexton and Xia 2018). However, this is not by any means a recent line of inquiry (See Nardone et al. 1999; Canali 1999, for example).

The first question is whether contracting firms can survive in the absence of monopsonistic conditions. In general, empirical evidence

suggests that India, contract farming has only survived in niche commodities where there is no robust spot markets (Narayanan 2010). We saw some evidence of this already in Chapter 6 when some firms prefer to choose remote locations where farmers have fewer options. We will see later that contracting schemes for cotton in southern India struggled to survive in the face of a spot market that provided a compelling alternative market for farmers (Sect. 11.3). Sometimes even in the face of apparent competition, firms can collude to ensure oligopsonistic conditions.

In the context of gherkins contract farming in southern India there exists no alternative domestic market. However, over the years, the number of gherkins processors has increased over time and the intense competition between the firms ensures that there are credible alternatives for the farmer even without domestic markets. Gherkins firms in India procure from the same procurement shed and it is not uncommon to see multiple firms buying from the same geographies. However, there is often a "gentleman's agreement" to not tread on each other's toes, effectively ensuring small territorial monopsonies, where different firms work in different clusters, villages or even sections of the village; firms that have been operating in the region for long do not "cross-purchase" or poach other firms' suppliers. However, newer firms and those from another region sometimes do. At other times, they may collude on prices to be received by farmers.

This is true of other crops as well, where many buyers are organized into strong associations of processors or solvent extractors, that offer platforms for such coordination. Collusion among buyers then replicates monopsonistic preconditions, even if there are several potential contracting firms. Collusion, however, has its limits and it is only in these instances, that the presence of alternatives implicitly strengthens the ability of farmers to walk away.

This tussle for power, where firm and farmer carefully maintain their relationship with one another, where farmers offer resistance and firms excuse transgressions, is discussed at length in Chapter 10. But this again is not without its feedback effects. As more farmers walk away, contractors who are not tied to place via expensive investments in processing facilities typically move to find areas where they can wield more power over growers. Section 11.1 described how competition can threaten the survival of contract farming schemes and how firms cope in various ways. Noting that monopsonistic conditions may improve contractual performance, the real question, according to Swinnen (2007), is with regard

to the contract farmer's power of bargaining. Existing empirical evidence suggests a great deal of complexity. Macchiavello and Morjaria (2020) find, as one would expect, that competition between coffee mills erodes relationships with farmers and is detrimental to the mill's efficiency. At the same time, they find that competition does not translate into higher prices paid to farmers. In studies of impacts of zoning, that create monopsonies per force, qualitative evidence suggests that zoning reduced local trader activity and farmer side-selling, which benefited mills (Gerard et al. 2022). Yet, by assuring suppliers for contractors and a buyer for growers, zoning also appears to incentivize firms to strengthen service provision and prompt farmers to invest in their coffee plantations in the short run. Other studies show that greater levels of competition are not necessarily associated with better system performance. By drawing on the liberalization experience of Ghana, Mozambique, Tanzania, Uganda, Zambia and Zimbabwe, Poulton et al. (2004) note that while the capacity of the state to support markets remains weak, there may be tradeoffs between the level of competition and the degree of coordination achieved between players within a sector.

Roberts and Key (2005) note differently that contracting, even if it holds potential advantages for contracting parties, could hurt other growers and processors who use spot markets if they cause spot markets to thin. This too over the longer term erodes outside options for contract growers. Another cautionary note is that even contexts that seem competitive locally can merely be a mirage. As Mazwi et al. (2020) note in their study of tobacco contract farming in Malawi, although 20 companies were registered in 2015–16 to contract, they all supplied to just three global buyers, who colluded. Thus, the local firms had little control over how much they could pay contract farmers.

Figures 8.1 and 8.2 present some perspectives on market structure and price competition among gherkins, marigold and broiler firms in Tamil Nadu. In the case of marigold, contracting firms have had to contend with a vibrant and robust spot market for fresh flowers, whose price is substantially higher than their contract price. This is because the firm crushes these flowers for oleoresin and treats marigold as a low value input; the spot market on the other hand is more quality discerning and flowers are a high-value perishable. Broiler is dominated by a few large poultry firms and a strong trader-led local market that is largely competitive. The spread of prices (i.e., the extent to which contract price differs from the price offered by the next best alternative) varies. In the case of gherkins,

however, a small cluster of firms that coordinate on pricing implies that there is virtually no difference that farmers can get if they side-sold. It is important to note that such a pattern can be evidence of both competitive markets and collusive oligopsonies, so that this interpretation is enabled by qualitative interviews with the firms. Interestingly, when farmers were asked if they would be willing to accept a contract that offered a price lower than the next best alternative, a majority of marigold farmers were willing to do so, knowing that in the context of weak enforcement they could side-sell in the local market without. In contrast, gherkins farmers were the least likely to settle for a lower price, owing to the outside option, even in the presence of collusion. This implies that it is harder for an individual gherkins firm to undercut other firms and still expect to attract growers. In the Tamil Nadu Farmer Survey, most of the farmers felt they had considerable power in the relationship, despite the collusive elements mentioned above.

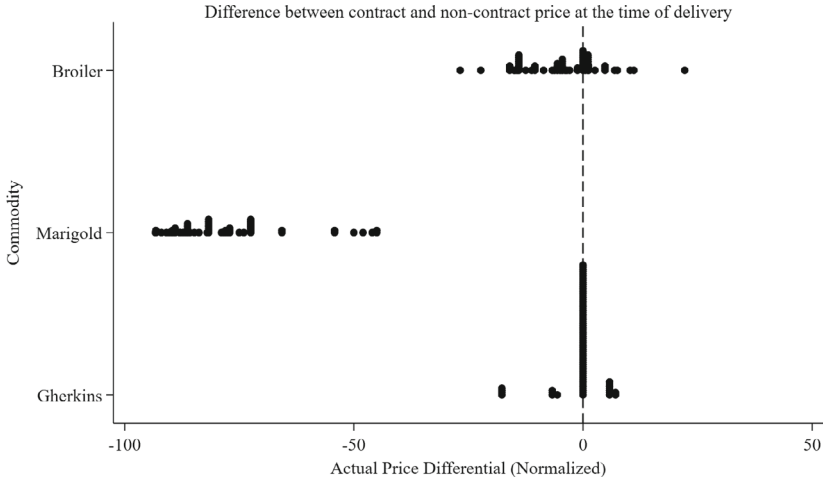

Fig. 8.1 Competition and prices
Source Based on data from the Tamil Nadu Farmer Survey

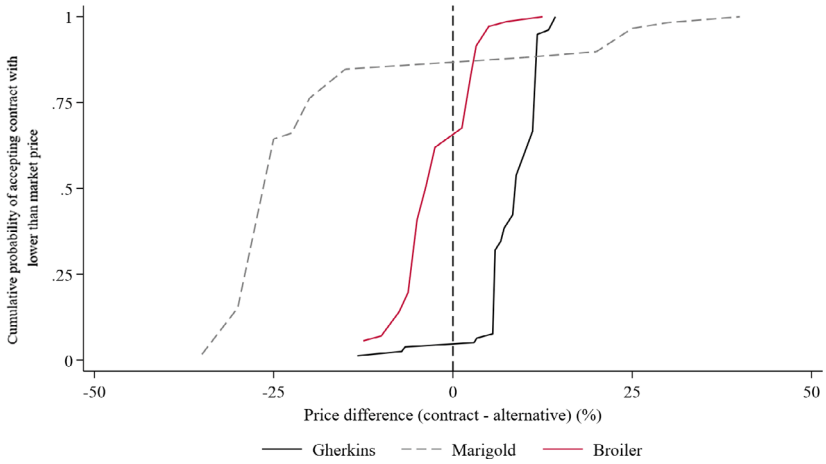

Fig. 8.2 Accepting contracts that offer a lower price
Source Based on data from the Tamil Nadu Farmer Survey

8.2 Predation, Symbiosis and Cooperative-Conflict

The narrative of power imbalance between contractor and farmer is often rooted in this specific feature of contracting—of a powerful, often, oligopsonistic buyer contracting with growers who have few outside options. White (1997, page 106), for example, sees contract farming as the institutionalization of monopsony/monopoly relations between farm and agribusiness and the ability of the latter to capture value added by the producer through price manipulation. Since two equal parties do not negotiate the contract, small farmers are "potential prey for whatever social-political predators may be present in a particular national or local context."

Such a characterization of contractual relationships as predatory is without doubt true in many instances. Yet, it is easy to see from the previous section that the narrative of monopsonistic conditions and farmer power in a contractual relationship is not straightforward. Even as contracts are instruments of control, the motivations of contracting firms and their contexts can vary a great deal. Ultimately, not all relationships between contractor and grower, even under monosponistic

conditions can be characterized as predatory, even if contractors are driven by self-interest.

Ultimately, protagonists matter. In India, for instance, a number of agribusinesses run contract farming schemes as supplemental ways of procurement and are often managed by the CSR departments. In another instance, Pritchard and Connell (2011) write about a commercial export-oriented processor engaged in chili contracting in southern India. Within each production site, the contracting scheme "operates as a perennial social contract" from which growers or the company can exit without huge loss. In each site "the company has trained growers and built up strong relations of trust, but does not have sunk costs (such as holdings of land or fixed capital) which tie its fortunes to those of growers. Growers are not dependent clients of the company. If the company abandoned a particular grower community, there would be a resultant loss of income (because net returns per hectare exceed other cropping alternatives) but growers would not be left high and dry. They were thus able to retain diversity and flexibility without deskilling." Here too, the popularity of open-source intermediation in India, alluded to earlier, aligns with this idea of providing farmers freedom to supply.

Sivramkrishna and Jyotishi (2008) write, for example, about gherkins contracting companies in Karnataka, that the companies do not attempt to restrict cropping options for small farmers to strengthen their bargaining position. Firms themselves insisted that growers cultivate only a small area to be able to better monitor the quality of output. They also insisted that plots be rotated, to minimize pest attacks and the use of chemical pesticides. In the Agribusiness Survey, an executive of a firm contracting for barley for malting similarly said that they insist that contracting farmers cultivate wheat for their own consumption and devote only some part to barley, suggesting a ratio of 3:1 as the allocation. In another example, an agribusiness executive stated that their preference was for larger farmers, not because they could procure more from them but because they could ensure that the contract farmers could maintain on-farm diversity. He said "Our farmers owned about 4–5 acres. We went in for this size because we wanted to encourage the farmer to retain a part of his land to cultivate a crop of his own choice, his own way. In only one part of the land, usually no more than an acre he was to 'do as we say.' This way, we would not expose the farmer completely to risk on account of us. With small farmers, this would not be possible, it would jeopardize them." These sorts of examples abound in India.

Without doubt, these are strategies that serve the firm well, reduce the reputational risk that they face; they can also be construed and dismissed as narratives of paternalism. Yet, this would not quite fit the description of being predatory.

Indeed, one can argue that there are instances where the relationship between contractor and grower may be symbiotic. The example of papaya contracting is a relevant one. The contractor is a dryland farmer himself, who invested in small papain processing plant. Committing to papaya contract farming involves necessarily a two–three-year lock-in. The papaya variety that is grown has high latex content as opposed to a recent table variety that became popular in that region of Tamil Nadu. As noted earlier, the papain contractor places skilled workers who extract latex from the skin of the fruit while it is on the trees. Once the latex has been extracted, the fruit does not fetch remunerative prices on account of the lacerations on the skins. The processor noted that this was a problem and began to procure the fruit as well for pulping and drying supplying it onward to food industries. This "strategic coupling" of sorts served as the basis for what comes close to a symbiotic relationship, where neither thrives without each other. In this instance, the empathy that the processor had for the contract growers was apparent in the level of transparency in measuring latex content through the Brix meter, the insistence on standing by the farmer at all times, even in the face of crop damage, rather than just as a fair weather friend. The contractor, beyond the empathy, noted that the firm's business decisions are based on the recognition that this was a symbiotic relationship.

Farmers' outside options must be seen in a broader sense of alternative crops and economic activities as opposed to just an additional buyer for the contract commodity. Sometimes contextual factors can shape the availability of outside options, over which contracting firms have little control.

Often discontent can coexist with farmer satisfaction over the contracting arrangement (as reported by Singh (2001, 2000), for instance, in contract vegetable production in Punjab state in India). Little (1994) compiled a set of seven case studies of contract farming in sub-Saharan Africa, focusing on conflicts between farmers and the contracting firms and the imbalance of power between the two parties, again, despite rising incomes (Brannstrom 2000; Collins 1993).

The idea that contract farming is exploitative, therefore, is not a matter of course and needs to be proven rather than assumed as a logical starting

point for analysis. A more fruitful approach is to investigate the context and conditions and the protagonists of contractual relationships. Issues of power imbalance between farmer and firm may sometimes be better analyzed via the lens of cooperative-conflict. In some contexts, interdependence between grower and contractor is driven by limited outside options for both, or by technological characteristics of processing or crop characteristics, making it fruitful for grower and contractor to cooperate; but the division of costs, benefits and risks that emerges from such cooperation may nevertheless remain an area of conflict.

Part III

CHAPTER 9

The Contract

Previous chapters discussed the many considerations that enter firms' and farmers' decision to contract. This matching exercise culminates each season, contracting period or growing cycle in a "contract", the defining characteristic of contract farming. It has been noted time and again, even within this book, that contract farming arrangements manifest a bewildering variety. In fact, as Baumann (2000) points out, as an analytical category, perhaps the only thing that binds all contract schemes together is the contract. Yet, even the notion of a contract is not straightforward in many developing country contexts. This chapter discusses the immense diversity of contracts and contract farming arrangements and the use of contracts to set the balance of power between contractor and grower.

9.1 Polymorphism of Contracts and Contracting Practice

The most telling feature of contract farming schemes is its polymorphism. Economists have spent much effort in developing typologies to categorize the diversity of contracts.

One classification is based on the extent of control over processes, due to Mighell and Jones (1963) and propagated by Minot (1986). This is presently the most popular way of thinking about contract farming. Accordingly, *market provision contracts* refer to those where the grower

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_9

and buyer agree to terms and conditions for the future sale and purchase of a crop or livestock product. *Resource provision contracts* are market provision contracts that have, in addition, commitments by the buyer to supply selected inputs, including, sometimes, advice on land preparation and technology. The third category with the maximum intensity of control is the *management specification contracts*, with the grower agreeing to follow recommended production methods, input regimes, and cultivation and harvesting specifications.

Another classification makes distinctions on the basis of actors (private sector firms, public sector firms and parastatals, international aid agencies), presumably on account of their different motivations. These are outgrower schemes, satellite schemes and nucleus estate-outgrower schemes. *Outgrower schemes* provide production and marketing services to farmers on their own lands. For some authors, however, these generally connote a government scheme with a public enterprise, purchasing crops from farmers, either on its own or as a joint venture with a private firm, or private firms operating exclusively (Glover 1990). *Nucleus Estate-outgrower schemes* are those where a core estate and factory is established by the firm and farmers in the surrounding area grow crops on part of their own land, which they sell to the factory for processing. *Multipartite Arrangements* is a term used to emphasize the participation of several actors, each being responsible for a particular aspect of the contracting arrangement (Ellman 1986; Glover 1990).

These categories were incorporated into a more detailed scheme by Eaton and Shepherd (2001), who then propose a five-fold classification: (1) Centralized model, (2) Nucleus estate model, (3) Multipartite model, (4) Informal model and (5) Intermediary model. The centralized model involves a centralized processor and/or packer buying from a large number of small farmers, often used for tree crops, annual crops, poultry and dairy. Products often require a high degree of processing, such as tea or vegetables for canning or freezing. Vertical coordination is through quota allocation and tight quality control and the sponsors' involvement in production varies from minimal input provision to the opposite extreme, where the sponsor takes control of most production aspects. The nucleus estate model is a variation of the centralized model, where the sponsor also manages a central estate or plantation. The central estate is usually used to guarantee throughput for the processing plant but is sometimes used only for research or breeding purposes. It is often used with resettlement or transmigration schemes and involves a

significant provision of material and managerial inputs. The multipartite model may involve a variety of organizations, frequently including statutory bodies. These can develop from the centralized or nucleus estate models, for example, through the organization of farmers into cooperatives or the involvement of a financial institution. The informal model is characterized by individual entrepreneurs or small companies and involves informal production contracts, usually on a seasonal basis and often requires government support services such as research and extension and involves greater risk of extra-contractual marketing. The intermediary model involves a sponsoring form that subcontracts linkages with farmers to intermediaries. Consequently, there is a danger that the sponsor loses control of production. It turns out that these are often overlapping categories and schemes could combine aspects of these different types. Much of the empirical work on contract farming even today relies on similar typologies (Wang et al. 2014; Otsuka et al. 2016) and researchers continue to build on these typologies (Jha et al. 2022; Mugwagwa et al. 2020, for example)

The number of such characterizations and approaches for typologizing contract farming arrangements illustrates the challenge of organizing diversity in meaningful ways. Beyond these commonalities, there could be significant differences both in what constitutes the "terms of the contract" and in the exact nature of arrangements.

While many contracting firms use boilerplate contracts or uniform contracts, where all contractees accept the same terms, there could be differentiated contracts (different contracts for different growers) as well. Differentiated contracts were used, for instance, by Campbells in Mexico; they were later pressured by other firms in the region to give these up (Key and Runsten 1999).[1]

Contracts can be oral or written . Both are widely prevalent in developing countries. Indeed, both can coexist within the same scheme, so that a single contracting scheme can have customized modes of contracting, even if the terms of the contract are similar.

The contractual price itself could be fixed or formulaic. For instance, in the case of the latter, it could be linked to a reference market price, e.g., a mark-up on the price, or a moving average or to technical norms of cost

[1] In economic theoretical terms, this is akin to separating or pooling equilibria in a principal-agent framework or could be characterized as a collection of bilateral bargaining islands where transactions take place.

of production and so forth. These also include tournament-based pay, where grower payments are tied, in part to their performance relative to other growers, as in the case of broiler in the US (Knoeber and Thurman 1994, 1995). In the Rwandan coffee sector, contracts pay farmers in two installments, where the first is a pre-agreed rate and the second payment is tied to the auction price (Gerard et al. 2022). A wide variety of pricing arrangements was observed and documented even in the 1970s by Kirsch, cited in Glover (1990). Different pricing arrangements have different implications for which of the contracting parties bears a greater part of the price risk. The price structure is often designed to address the threat of side-selling in alternate, competing markets (Gow and Swinnen 2001; Blouin and Macchiavello 2019).

Quantities committed in the contract too can be specified in diverse ways. These could be explicit, precisely mentioning the quantity to be delivered with some allowance for mortality (for livestock) or tied to a FCR or spoilage for perishable field crops. Instead, they could also merely specify a minimum quantity that the farmer has to commit to. Further, these could be volumetric or in terms of acreage. In other words, contracts can imply farmers committing to a particular quantity to be exchanged or it could involve the farmer committing to a certain acreage for sowing the contract crop. In the former, the farmer is more likely to bear yield risk, whereas in the latter, the firm shares some of the yield risk.

The duration of the contract too varies a great deal. It might involve a long lock-in period, even ten years or more, especially for tree crops such as oil palm and other perennial crops or this could be as short as a single season for field crops.

Contracts vary widely in specifying the commitments of the contracting firm—notably with respect to input provision and in mandating production practices. Many contracts mention the practices growers are expected to follow. A commitment to provide inputs such as seeds, fertilizers and pesticides may be explicitly included or in other cases, the contract may merely specify the type of inputs the grower needs to use. Provision of credit too might figure in the contract. In India, for example, credit is a sensitive issue, and is often left out of contracts. The extent of input provision may vary widely even within schemes. Often some of these are left unstated and the extent of services provided may differ across farmers. As noted earlier, in the papaya contracting scheme in Tamil Nadu presented in this book, the firm places skilled labor on farm for latex extraction

and for broiler farmers, vaccines are administered to chicken on site by company staff.

Contract farming relationships may also include several "non-contractual elements" that are tacitly agreed but not formalized in the contract. The nature of contract is thus beyond what is explicitly stated or discussed. There is a rich literature that notes that alongside the technical fixity of the contract, there is a fluid "moral economy" of the contract (Clapp 1994; Scott 1976; Hambloch 2022), where minor transgressions and deviations from the contract are excused by both sides. I discuss this at length in the following chapter, but it is useful to note that depending on the disciplinary lens one uses, these are viewed either as "everyday forms of resistance" or more innocuously as "relationship maintenance."

As far as operationalization of contracts is concerned, contracts could be with individuals or with groups, sometime with the male head in the household, and in rarer cases, with a woman within the household. In more recent development projects, it is not unusual for donors to mandate contracts in the name of women. Typically, when there are a large number of farmers willing to contract and firms have the luxury of selecting farmers, such selection may be done by the firm's employees, appointed agents or by informal intermediaries, typologized as the intermediary model. The intermediaries could be of many kinds such as village leader, progressive farmer, trader-middleman and farmer collectives and cooperatives. The scale of contracting and the mode of identifying suppliers allows for varying degrees of negotiation and bargaining. Where smaller number of farmers or farmer groups are involved there could be some bargaining over contract terms. Few larger schemes entertain bargaining or negotiation of specific terms of the contract. Often contracts are rationed, especially with group contracts, with no more than one contracting group per village.

Intermediary-based contracts are particularly popular with firms that work with thousands of smallholders; the costs of negotiating contracts, supervising and enforcing these contracts are so high that these are delegated or outsourced to agents on a commission basis. Some firms have formal contracts with agents who have informal understanding with suppliers whereas others may have more formal contracts with growers. Incentives for agents to source cheaply and pick more reliable farmers may be higher, paid as they are on a commission basis, than for field officials on company rolls; this makes it attractive for firms to outsource both selection and contract enforcement to such agents. These intermediated

contracts also become a vehicle for contracting firms to put themselves a safe distance away from production. In Sects. 13.1 and 13.2, we discuss the implications of these arms' length contract for liabilities relating to the environment and labor. In this chapter, we focus later on how the writing of contract enable such distance.

The contract in contract farming schemes can also embody a shift in cropping pattern. Contracts could be with people already growing the required crop, while in others, it could involve introducing a new crop, so that contract farming embodies, implicitly, a new technology and effects a new cropping pattern. The nature of crops varies as well; some are highly perishable, high value whereas others are low value storables like staples. These contract crops could be processed further or sold with minimal value addition, like packaging and grading. The processor may be interested in the whole produce or just some parts of it (like oleoresin from marigold, or papain from papaya, for example). In the case of marigold, for example, flowers grown for the cut flower market are considered high value, but are considered a low value input by the firm that crushes these for oleoresin. The destination for these could be export markets, which would entail, typically, stringent quality and health standards, or for the local market, which may admit a wide range of qualities, that risk-averse farmers may prefer (discussed earlier in Chapter 7). In developing countries, the latter would make fewer demands on quality and traceability, although this may be changing with the coming of big food retailers. Arrangements can be multi-party or solo efforts, and these could be propped up with implicit and explicit state subsidy or with no support at all. Multipartite arrangements usually enable such state support, often because the state is one party involved.

We have already encountered cases where the identity of the firm can be quite diverse. On the one hand, many governments or arms of the government, like monopsony marketing boards run contract farming schemes; private agribusinesses—both driven by global and local capital may implement schemes as do donor and development organizations. Commercial enterprises themselves may operate contracting schemes as an intrinsic part of the commercial sourcing of supplies or run schemes as CSR initiatives.

While it is suggested that each of these elements influences the nature of vertical coordination arrangements and their welfare outcomes are variously defined, it is useful to think of these elements, as themselves being determined simultaneously. These contracts, their specific terms

and arrangements are best understood as responses to the wide variety of contexts of types of firms, farmers, market structures and policies. Depending on the particular goals of the firm involved and the exogenous context, various aspects of the contracting arrangement share a complex endogeneity so that they are jointly determined.

For example, where farmers' perceptions of risks are high, firms might have contracts that have minimal clauses of restraint or penalties built in. Interestingly, in a few cases, there is no commitment at all so that farmers are actually free to sell elsewhere, if they choose (mentioned earlier in Chapter 8 as open-source intermediation).[2] If upfront investments are large, contracts could be of longer duration to assure farmers. In the US, MacDonald and Korb (2006) find that grower debt and scale of production are inversely related to the duration of the contract. On the other hand, farmers who have worked for several years with the contracting firm may settle for shorter term contracts on account of the trust they have. Which contract terms are specified ex ante and which ones are not depends only in part on technical aspects such as commodity characteristics and the needs of the processing industry or retail markets. They represent a response to the many frictions involved in contracting, including perceptions of reliability of people involved, of market structure, agrarian context and the laws of the state, to name just a few.

Reflecting these many factors in what gets written, a gherkins contract in India may be just two pages long as against a hog contract in the US that may be as long as 18 pages (FAO toolkit, www.fao.org/in-action/contract-farming/toolkit/en/).

9.2 The Writing of Contracts: Incomplete, Implicit, Relational

Economists working in the field of contract theory, law and economics, particularly those working on US agriculture have reflected a great deal on the content of contracts. Not only are agricultural contracts complex and incomplete, in the sense that it is not possible to provide for all possible

[2] Personal communication with an agribusiness, 2018.

contingencies, they are often implicit and relational.[3] What determines what gets written? Written contracts can be expensive to negotiate and write, especially in contexts where a large number of small farmers are identified as potential contract growers. So firms typically prefer to write "take it or leave it" contracts rather than bargain bilaterally over contractual terms with each farmer. These take it or leave it contracts contain boilerplate elements and involve standardized terms; these terms are typically already tested in courts, are not subject to bargaining and are presented as take it or leave it contracts (Farnsworth et al. 2001; Goodhue and Hoffmann 2006). These reduce the costs of contracting while also minimizing judicial uncertainty over interpretation.

Contracts are often written to ensure vertical restraint, imposing restrictions on the grower, sometimes as a way to induce contract enforcement (Klein and Murphy 1988). In extensive reflections on "contracting for control", Baker et al. (2006) and Hart (2017) note that the business contracts are often used to control decisions that in principle fall outside the firm's domain, in this case, the growers. This is achieved through specific terms in the contract. Contracts can also be instruments to achieve the opposite. Firms may leave some terms incomplete to allow firms to stay at arms length from commitments and to ensure freedom from culpability. As Gow and Swinnen (2001) noted in the context of transition economies of central Europe, incompleteness provides flexibility to firms.

Much of what is written is typically written to self-enforce. Wu (2006) summarizes some insights from the economics of incomplete contracts and I paraphrase his summary here. First, contracting firms typically pick contract terms carefully to govern relationships that may be largely self-enforcing and the use of court-enforceable contract terms

[3] A relational contract is described in different ways. It is a contract that specifies only the general terms and objectives of a relationship and specifies mechanisms for decision making and dispute resolution (Milgrom and Roberts 1992). Another description considers a relational contract to be one that do(es) not try to take account of all future contingencies but are nevertheless long-term arrangements in which past, present and expected future personal relations among the contractual parties matter (Furubotn and Richter 2005). A third common characterization of relational contracts is simply as (i)nformal agreements and unwritten codes of conduct that powerfully affect the behavior of individuals (Baker et al. 2002). Often the contract is a very broad representation of the relationship, where agreements on particular aspects are no more than notional. Relational contracts are thus incomplete contracts that govern performance via informal incentives, which are self-enforced via a repeated game parties, i.e., parties have an incentive to honor their agreements if future relationships are sufficiently valuable to them.

is chiefly to supplement self-enforcement. Second, explicit terms that may be enforceable in court can be regarded as a necessary evil and are used mainly to protect the contracting firm and its reputation. Third, contract terms cannot be understood in isolation from self-enforcement and terms in incomplete contracts must be recognized as instruments by which the contractor retains control. A more detailed discussion of contract and enforcement follows in Chapter 10, where this connection between incomplete contracts and self-enforcement is made explicit.

These concerns and motivations lead to two general features of most contracts in developing countries—they are replete with ambiguity and often one-sided. These two quotes below sum up many written contracts between farmers and agribusinesses across developing countries:

> "When I use a word,"Humpty Dumpty said in rather a scornful tone,"it means just what I choose it to mean - neither more nor less."
> Carroll (1898, Alice in Wonderland, page 124).

> This contract is so one-sided, I am astonished to find it written on both sides of the paper.
> Lord Evershed, M.R. quoted in Megarry (1973).

There is no dearth of examples from contracts and here is a small sample. One written contract from India carries a clause that reads: "This agreement is based on mutual trust and belief" (Singh and Asokan 2005), emphasizing explicitly that the firm is non-threatening but also expects the farmer to adhere to the contract. Quality requirements are almost always couched in ambiguous terms in the contract—"contract produce at the time of delivery should be of satisfactory quality" (contract provided by agribusiness in Andhra Pradesh, April 2007). There are indeed cases where it is possible to define, precisely, parameters for judging what might be satisfactory. For example, in papaya contracts, firms use a device called the Brix meter to measure papain activity in latex in papaya contract farming by gauging the refraction and translucence of the latex which, in turn, indicates papain content, a minimum of which is required as per the contract. This device is easy to use and the farmers have an opportunity to measure it themselves. Similar clarity is not offered for the color and appearance of chipping potatoes, for instance, which potentially leads to disputes with uncertain outcomes. In the Indian state of Jharkhand, when a multinational chipping company rejected payment to farmers for

their small potatoes claiming that they couldn't process these, the farmers confronted the firm with chips packets, demonstrating that the firm was in fact processing even the smallest potatoes (Agribusiness Survey, Ranchi, Jharkhand, 2008). Likewise, it is hard to imagine that a firm's contractual commitment that it "shall provide high quality seeds and technical knowhow at reasonable prices" clarifies the responsibilities of the firm (contract provided by agribusiness in Karnataka, November 2007).

9.3 Power and Position Within Contractual Relationships

A natural corollary of the way contracts get written is the extent to which they represent iniquitous power relations. Narratives of imbalance of power in contractual relationships abound in contract farming research. So do narratives around the loss of autonomy and independence for the growers who enter into contracts. Both are frequently deemed to be a chief problem in the capitalist transformation of agriculture (Clapp 1994; Collins 1993; Gwynne 1999; Watts 1994b; Key 2005; Watts 1994a). Clapp (1988, page 33) writes, for example, "the contract as a legal form is an attempt to naturalize unequal social relations and to represent that inequality as just." The contract is thus legal fiction that normalizes the relationship between farmer and company as one of mutual obligation freely undertaken by two equals, obscuring deeply unequal social relations between them (Cohen et al. 2022). Niño and Oya (2021) critique economists for reducing these critical aspects to asymmetries of information. This is not without merit. Cohen et al. (2022) highlight the positions of some economists quoting Richard Posner: "[t]he argument of 'exploitation' based on 'unequal bargaining power' ... lacks, so far as I can see, any economic basis" (Posner, 1973, p. 24), and then Richard Epstein: "inequality of bargaining power" is an "incoherent" concept (Discussion, 1988, p. 312).

As Klein (1980), who contemplates these concerns seriously, notes "terms such as 'unfair' are foreign to the economic model of voluntary exchange which implies anticipated gains to all transactors." Yet, there is a rich literature within economics that analyze the content of contracts and identify elements of contracts that generate power imbalances and "unfair" elements. This recognition that contracts are essential instruments to control decisions outside the firm's boundaries (contracting for control) and that they represent vertical restraints and

replace independence with interdependence abound in economic theories of contract (Henderson et al. 1998; Ling et al. 1998; Boehlje et al. 1998; Sauvee et al. 1998; Royer 1998; Holloway et al. 1998; Azzam and Pagoulatos 1999).

This recognition of the contract as an instrument of power and control has motivated research by economists on the content of contracts to identify the source of power imbalance and potential exploitation. Most of all, this stream recognizes contracts as simultaneously seeking to control some decisions and to cede control over others, in ways that are discussed below.

When contracts are written by one party in the form of take it or leave it contracts, the terms of the transaction are often explicitly in favor of the firm. Goodhue and Hoffmann (2006), in a rich analysis of contracts in the US, note that specific boilerplate terms can compromise growers. Much of the following section paraphrases discussions from that analysis. For example, in the US, designating growers as merchants can shift burden to growers, since merchants, in the eyes of the law in many states in the US, are expected to be familiar with contract terms and law provisions, including those conditions under which oral agreements are binding. The status of being a "merchant" can affect how a court rules on the unconscionability of a specific contract provision. Sometimes such presumed expertise finds explicit mention in contracts. Goodhue and Hoffmann (2006, page 1238) quotes a 2001 DuPont Specialty Grains contract:

> GROWER and DuPont Specialty Grains are experienced and knowledgeable in the cultivation of corn and business transactions involving corn.

Contracts sometimes include disclaimers of services they provide. Goodhue and Hoffmann (2006) note that the following clause in a ConAgra Broiler Company's contract seeks to protect the contractor from liability if a grower is harmed by relying on information provided by the contractor

> ConAgra shall have no liability, direct or indirect, expressed or implied, to Grower for any error or omission appearing in such plans and specifications for the design,construction, materials, equipment, quality, installation or workmanship of all or any part of the growing facilities or equipment.

Sometimes contracts are framed to shift the burden of compliance to growers. Contract provisions are also used to reduce the risk that one party's failure to comply with federal, state or local law will affect the other party. Boilerplate content can be used to clarify the legal relationship between the contracting parties toward this end. For example, it is common for contracts to portray the grower as an independent contractor rather than as an employee of the contractor. Declaring growers as independent contractors then protects the contractor from liability associated with the grower's actions taken while fulfilling the contract. Vukina (2003) note, for example, that contractors attempt to impose full liability for environmental violations on growers even when the growers are not the least cost complier. This is a socially inefficient outcome. There have even been suggestions that contract poultry growers in the US be deemed employees to prevent firms from shifting the burden of commitments and responsibility to the growers (Kulwiec 2017). This is a critical concern and we will see examples of how contracts are used to shield contracting firms from responsibilities in Sects. 13.2 and 13.1.

Another approach builds in warranties of compliance on the part of the grower, as in the following two examples from Goodhue and Hoffmann (2006) again. The first, of Calavo Growers, Inc from 2003, provides a very general warranty. The second example, of Diamond Foods, Inc., 2005, is a more specific warranty.

> Grower warrants that the avocados have been grown and harvested in conformity with all applicable federal, state and local laws and regulations.

> Grower agrees to conform to (i) the provisions of the pure food and drug laws and other present or future laws of the State of California, and (ii) the provisions of the Federal Pure Food and Drugs Act of the United States of June 30, 1906, and all amendments thereto. Grower warrants that walnuts delivered under this contract will not on the date of delivery be adulterated or misbranded within the meaning of any applicable law of the State of California or the Federal Food, Drug and Cosmetic Act. Grower further warrants that the walnuts have not been subjected to any pesticides or chemicals that may detrimentally affect the natural state of such walnuts or the saleability thereof. All products delivered hereunder will be produced in compliance with the requirements of Section 12 of the Fair Labor Standards Act of 1938, as amended, and all other requirements of the Act so far as they may be applicable.

In India too, many contracts share these features. Singh and Asokan (2005) find that often, for any loss or encumbrance not mentioned in the contract, contracts make growers liable to compensate the company. While a few contracts did allow for compensation to the farmer in the event of the firm violating certain terms of the contract, in most others, firms seek compensation for farmer's breach of contract, while remaining silent on the question of the firm reneging on its contractual obligations.

Clauses that invest the contractor with power to make unilateral decisions are another major source of imbalance. Broiler contracts in the US allow contractors to alter both rates and payment methods unilaterally with ex post adjustments to pay (Hamilton and Stiegert 1999). Other aspects, for instance, involving termination of the contractual relationship, are also often one-sided, as this example from India shows. "The parties hereby agree that the lease shall be discontinued for genuine reasons which shall be decided by the first party (the firm)" (Singh and Asokan 2005). Another contract states that at the time of delivery, "canneries have the discretion to increase/decrease the quantity of (contracted commodity) to be supplied" (contract provided by agribusiness in Punjab, March 2007).

Dispute resolution mechanisms are also often chosen to be more accessible to the contractor than to the grower. Since drafters pick the choice of law, venue and the arbitrator or mediator, these too can severely disadvantage growers.

9.4 Redressing Power Imbalance

There have been several suggestions on approaches to redressing these problems with written contracts. One approach by governments is to prescribe types of contracts in the form of "model contracts." Several governments and international donors, including the FAO, UNIDROIT and GIZ have deliberated on drafting guidelines to support fairer contracts (UNIDROIT and IFAD 2015; Pultrone 2012). In India, too, the government has focused on this approach to shape the nature of contractual relationships between agribusinesses and farmers.

Other "good practices" have been to encourage firms to contract with groups of farmers, cooperatives and collectives (Karatepe and Scherrer 2022; Maze and Menard 2010; Narrod et al. 2009). Ba et al. (2019) find in a study of rice contract farming in Vietnam that older, smaller and horizontally coordinated farmers with higher levels of trust in buyers tend to

secure higher levels of buyer investment through increased vertical coordination. In China too, there are instances when "dragon-head firms" engaged in contracting are also encouraged to develop "bargaining associations" for farmers in an effort to build in countervailing power (Guo et al. 2007). Indeed, as Zhang (2012) notes in China the context of strong collectives at the village level has itself shaped contract farming arrangements.

Yet, urging businesses to contract with farmer groups can be counterproductive. In India, there have been several instances of firms contracting with farmers groups, only to drop them in favor of weaker groups, as soon as they start demanding specific terms and conditions. In a telling example, discussed before, a chipping company that rejected payments for small potatoes faced heat when farmers purchased packets of chips to demonstrate that the company was in fact processing these small "rejected" potatoes while denying them payment. The company eventually dropped this group of farmers and chose other groups that did not challenge the company's practices. Further, enforcement within groups can itself be an issue (Casaburi and Macchiavello 2015).

In specific commodity sectors, third-party assessments of quality can effectively reduce disputes ex post. In the US, the contrast between livestock and tomato contracting has often been used to illustrate this point. Whereas in poultry and other livestock sectors, processors tend to weigh animals, determine mortality rates unilaterally, grower allegations of processor manipulation are pervasive. In contrast, quality manipulation complaints are rare in the California processing tomato industry mainly because the Processing Tomato Advisory Board (PTAB), a third-party institution is involved in the quality grading of tomatoes (Wu 2006).

The power imbalance inherent in the written contract is enabled to some extent by the absence of outside options for the grower, so that these are better addressed not by intervening in contract drafting directly but via competition policy, that promotes an expansion of outside options. From this perspective, zoning policies and providing agribusinesses with monopsony rights without adequate regulatory oversight deserve careful scrutiny.

Despite many recent efforts to redress the idea of a power imbalance, a key driver of firm decisions to contract is the exercise of control to work with pliable growers—any effort that alters this is likely to make the grower unattractive to the contractor and indeed make contract farming itself a relatively less attractive option.

9.5 Signing Without Reading

Earlier, in Chapter 8, we saw how market structures and fewer outside options can reduce grower power to walk away. De Geest (2016) points out that the real danger of market power is that it can be used to exploit "signing-without-reading" problems. The principle of free contract entails that parties are free to enter into contracts and to determine their contents (principle of party autonomy). Some go further to note that these contracts ideally need to be based on consensus between the parties, referred to as *consensus ad idem* (Ayako 1989). Yet, few contract farming schemes work on the basis of contracts that fit these descriptions.

In a large number of contracting schemes across developing countries, the writing of contracts involves no participation of the farmers (Ayako 1989, Mazwi et al. 2020). This is the case in India too, where farmers across the schemes I studied seek an opportunity to draft the agreement and "assist in the wording of specification in terms the farmer can understand" (Interview with farmers, Coimbatore, 2008). and demand that the "management ensures that farmers know what they are signing" (Interview with farmers, Dindigul, 2008).

In most legal traditions, such non-involvement of farmers in drafting contracts to which they are party would make these contracts non-judiciable. Acceptance, in judiciary terms, needs to be a "valid acceptance." As Sridevan (2006) elaborates, to be faithful to the Indian Contract Act, for example, which is the relevant piece of legislation for agribusiness-farmer contracts, every clause in the agreement needs to be discussed, negotiated and then finalized, once there is consensus on each point. The contracts in use in contract farming schemes in India mostly suggest otherwise.

Quite apart from participation in the drafting of the contract is the problem of signing without reading or comprehending. In Thailand, for example, "farmers don't clearly understand the contract—they want to work, so they just sign without studying the details. Thai farmers don't read documents much and just sign and trust the terms" (Marks 2022). Further, Marks (2022) notes that a provincial Livestock Development official in Thailand declared that some farmers who had been contracting for 20 years had never had a chance to read their contracts. Further, the contracting company declined to share a copy, saying they had already read it.

In India too, it is not clear that farmers understand the specific commitments implied by their signature. This is despite an explicit statement of acceptance of the terms laid out in the contract. The Tamil Nadu Farmer Survey reveals that while a number of farmers did understand the legality of the contract, a number of others were not sure what was meant by a contract document. In some schemes, firms hand passbooks to contracting farmers, in which transactions are recorded whenever there is transfer of inputs, credit or produce. They were not sure if the "passbooks" they had were, in fact, contracts. The Tamil Nadu Farmer Survey shows that only a half of all contract farmers who signed contracts kept a copy (Table 9.1), ranging from a tenth to four-fifths across the schemes. Fewer still (44%) had read them or knew of their contents through other means. Importantly, a significant proportion (37%) who had signed contracts did not think it was valid in court. Less than half thought the contracts were legally valid, and 14% were not sure. This is true across schemes, although to varying degrees. It is interesting, for instance, that in the broiler subsector, only a small proportion stated that they had signed written contracts. Yet, almost all of them considered these valid in court. In contrast, in the papaya contracting scheme, while an overwhelming proportion had written contracts, almost all the contract farmers believed these had no legal validity. This pattern of perceptions is owing partly to farmers being unaccustomed to formal transactions, a related absence of understanding of the import of contracts, and partly due to illiteracy. It also has much to do with the level of trust farmers have with either the company or its representative or agent. Although the Indian Contract Act deems oral contracts admissible in courts provided there is evidence of such a contract, in general, such proof is not available in the context of contract farming schemes in India.

Interestingly, farmers often maintain a contract in someone else's name, usually a member of the farmer's family "who has brought luck in the past." In the Tamil Nadu Farmer Survey, several names on the contracting firms' roster of contract suppliers were of toddler-children of the farmers. In some cases, the contract was in the name of deceased family members. The contract is then signed by yet another person and

Table 9.1 Modes of contracting and farmer awareness

Details	*Average among all schemes(%)*	*Range across schemes (%)*	*Number of Respondents*
Percentage of farmers who have a written agreement	54	18–90	438
- Percentage of these who have a copy	52	9–82	
- Percentage of these who have read it or had it read to them	44	22–67	
- Percentage of these who believe it is valid in court	49	0–58	
- Percentage of these who are unaware if it is valid in court	14	0–40	
- Percentage of these who think it is *not* valid in court	37	2–100	
Percentage of contract farmers who contracted as part of a group (See note 2)	44	14–95	158

[1] The data uses responses from Phase 1 and Phase 2 of Farmer Survey
[2] This figure for group contracting pertains to only the Phase 1 farmers in cotton and gherkins.
[3] All figures have been rounded off to the nearest whole number.

they may be cousins, members of the extended family and on one occasion, a neighbor. The actual contractual obligations and cultivation are carried out by the farmer.

In general, this absence of farmers' clear understanding of their legally binding contractual obligations raises interesting questions about whether the courts would in fact consider these contracts valid and uphold farmers' acceptance of their obligations. This contributes to uncertainty in judicial outcomes.

Textual and legal analysis of contracts remain fascinating areas for exploration and can offer useful starting points for negotiating disciplinary divides, since they represent a convergence of political and social considerations with specific individual preferences and choices. This also illustrates

the limitation of using intensity of the relationship between farmer and sponsor or contractor to typologize contract farming schemes, since this itself is a function of domain level specificities that lead firms to draft certain kinds of contracts rather than others.

CHAPTER 10

Enforcement

In the previous chapter, we discussed the contract, the defining feature of contract farming. Across developing countries, a chief problem with contract farming schemes stems from challenges in enforcing the contract. Weak public institutions for enforcement give latitude to both farmers and firms to renege on the contract and parties inevitably resort to various forms of self-regulation and other private means of enforcement to maintain transactional relationships. This significant reliance of self-regulation shapes the nature of contract farming and its trajectories in different contexts.

The issue of contract enforcement in contract farming has been studied for decades by economists and recent years have seen a systematic effort to research this topic within the neointitutionalist and relational contract theory frameworks, often relying on field and laboratory experiments. Swinnen (2007), Gow and Swinnen (2001) and Ruben et al. (2006) reviewed studies of contract farming schemes highlighting the reliance on private enforcement. Informal mechanisms can often succeed where public enforcement fails, as has been shown Gow et al. (2000) for Slovakia, Guo and Jolly (2008) for China, Beckmann and Boger (2004) for Poland, several others for India (Asokan and Singh 2003; Gulati et al. 2008; Jain 2008). A number of studies have shown that relational contracting reduces contract breach in general (Kunte et al. 2016), but such breach depends on contract structure, particularly with respect to

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_10

price (Blouin and Macchiavello 2019). Courts are typically resorted to only as a last resort if at all. Beckmann and Boger (2004) that among farmers in Poland in 1999, only 38.5% believe they could use courts to enforce contracts and would do so only after incurring substantial costs. Both the nature of their relationship with the firm and the costs of going to court would determine whether they do so. Similar patterns prevail among Indian farmers, as discussed in the previous chapter.

In this chapter, I delve into the implications of incomplete, implicit and relational contracts for enforcement and how partners navigate frictions around enforcement. In particular, I offer a broad analysis of contract and enforcement in select contract farming schemes in India, examining the role of relationship in contract farming schemes, using qualitative and quantitative data from the Tamil Nadu Farmer Survey and Agribusiness Survey.

10.1 Enforcement as Theoretical Subject

It has long been recognized within economics that markets need to be supported by institutions for economic governance. Institutional creation and maintenance was a role left to the state, by even the most libertarian of economists, like Friedman (1962). Traditional economics typically veered to the view that the framework of law is a necessary condition for the market to succeed, for, in its absence, unbridled opportunistic behavior could lead to dysfunctional societal systems. Another view, derived from Coase (1937), went further to suggest that such a legal framework might even be a sufficient condition, so that as long as property rights are well-defined, in the absence of transactions costs, voluntary economic exchange would follow as a matter of course and produce optimal welfare outcomes. Correspondingly, in the development literature, early views associated "development" with a move from relation-based transactions to rule-based transactions, or from custom to contract and informality to formality.[1] This strand is evident in more recent works,

[1] As Harriss-White (2008) points out, each of the classical political economists—Smith,Marx, Weber, Veblen, Schumpeter and others—expected archaic forms of exchange to be *replaced* by markets, the struggles of wage labor against exploitation and illusion and the rationality of state bureaucracy and planning, and by the discipline of machines, technology and education, respectively.

like those of de Soto (2000) and Acemoglu et al. (2005), who see well-defined property rights as fundamental institutional preconditions for "development" (Harriss-White 2008).

To the extent that contracts assign *relative property rights* and given that institutions that enforce these contracts protect these rights (Furubotn and Richter 2005), "development" itself is associated with the establishment of such enabling institutional frameworks that accommodate formal contracts. Prescriptions that emphasize the installation of legal mechanisms to enable contract farming are aligned closely with this tradition of legal centralism and a positivist-formalist understanding of contracts.[2] They privilege the view of a rational state that oversees economic exchange in a non-partisan and costless manner. Yet, this is far from reality.

The challenge to the above positivist-formalist view comes from various quarters. Among these is the natural and intuitive critique that transactions costs do exist and influence forms of economic governance structures. Furthermore, the state (or judiciary) is itself socially regulated, far from being an informed, non-partisan, omniscient arbiter.[3]

The presence of transactions costs then implies a search for an economic governance structure (in this case, an enforcement mechanism) that minimizes these costs (Williamson 1996). A number of enforcement mechanisms outside of the state are, in fact, available to parties engaged in economic exchange and governance is not always carried out by the government. Taxonomies of enforcement mechanisms classify these modes of economic governance either as private ordering versus public ordering depending on the role of the state, or as first-, second- or third-party enforcement (Dixit 2004).

First-party enforcement operates at the level of the individual. Norms of behavior are internalized so that reward for compliance or punishment for deviation takes the form of moral or social imperatives (Dixit

[2] The core of legal centralism presumes contractual conflicts are costlessly decided by well-informed courts in an objective, legalistic way. See Griffiths (1986) for a detailed discussion.

[3] The economics view or the NIE view is thus not the only critique. Economic exchange represents a complicated subject where law, economics and sociology intersect. For instance, sociologists fault the legal-centric view for being "under-socialized" in ignoring the social embeddedness of transactions (Granovetter 1985) and the role of social networks and norms.

2004). Platteau (1994) elaborates, for instance, on the role of "generalized morality," while Fafchamps (2004) discusses incentives to comply driven by shame and guilt.[4]

Second-party enforcement refers to bilateral and multilateral links with other members of the same community or network, for relationship-building and punishment. Bilateral relationships recall the notion of a repeated game setting between two players and of the Folk Theorem result, where short-term gains from defecting are overshadowed by long-term gains from cooperation (Kandori 1992). In the case of multilateral enforcement, the group collectively sanctions deviant behavior on behalf of the aggrieved player. Greif (1993) studies Maghribi trader coalitions that supported the operation of a reputation mechanism to tackle agents' commitment problem and Genoese traders' use of merchant guilds. Milgrom et al. (1990) look at the role of merchant courts in the Champagne fairs of medieval Europe as institutions for enforcement. More recently, Macchiavello and Morjaria (2015) emphasize the role of reputation as a contract enforcement mechanism in export value chains in the Chilean wine industry. Establishment of credit reporting bureaus offers a contemporary example (de Janvry et al. 2010).

Third-party enforcement is a broad term that refers to an outsider-arbiter, who is not directly involved in the transaction. In game-theoretic terms, this third party essentially transforms a one-shot game between two players into a repeated game of each player with a third party. Third-party enforcement is traditionally thought of as enforcement by state agencies, e.g., courts or quasi-judicial entities. The literature on enforcement has now come to recognize this category as being immensely diverse. The third party could adjudicate privately in the shadow of formal law, as "private government" (Dixit 2004) or it could be for-profit direct enforcement (as in the case of the mafia described by Gambetta (1996)). Another kind of third-party enforcement could simply involve the provision of information to various players who then use this as the basis for sanctioning, so that the third party facilitates second-party enforcement (for example, credit and quality certification agencies).

The plurality of enforcement mechanisms implies that the choice of means of enforcement rests on the assessment of relative transactions costs , following Williamson's "discriminating alignment" hypothesis

[4] Kolm (2000) makes the distinction between moral and social imperatives. Guilt for violation is moral but shame is social.

(Williamson 1996). State mechanisms for contract enforcement are then neither the only mechanisms available nor the most important. In fact, state institutions might be neither sufficient nor necessary for economic exchange. For example, Gow et al. (2000) demonstrate that in the Slovak sugar industry self-enforced contracts in the absence of public or third-party enforcement increased productivity and efficiency. McMillan and Woodruff (2000, 1999) elaborate on the role of private enforcement for businesses in Vietnam, Otsuka et al. (1986) study the Philippines, Clay (1997) discusses mining rights during the Gold Rush in California and Ellickson (1991) discusses boundary and cattle trespass disputes in Shasta County, California. Further, the different means of enforcement (formal and informal) are not mutually exclusive categories; state enforcement, for example, is often embedded in other forms of enforcement (Barzel 2002). Such a "mixture of both formal and informal relations" (Macneil 1980) is common across diverse contexts and empirical studies observe that the different means are jointly employed to support diverse kinds of exchange (Macaulay 1963; Bernstein 1992; Guo and Jolly 2008; Johnson 2002; Johnson et al. 1999; Lane and Bachmann 1996; Maze and Menard 2010; Poppo and Zenger 2002). These formal and informal mechanisms of enforcement could interact in complex ways, in particular, as complements, where, formal mechanisms strengthen informal enforcement, or as substitutes, where, formal mechanisms replace informal private mechanisms and could potentially undermine or replace self-enforcing arrangements (Lazzarini et al. 2004; Poppo and Zenger 2002; Schieffer and Wu 2010). Schieffer and Wu (2010) note that in laboratory experiments the complementarity effect occurs in certain situations, but that the substitution effect does not occur as predicted, possibly because people do not punish transgressions in the manner that the theoretical model assumes. The complementarity view suggests that the joint use of formal and informal arrangements provides more efficient outcomes than the use of either arrangement in isolation. For instance, third-party enforcement by the state provides a backstop for second-party enforcement mechanisms (Klein 1996, 1991; Lazzarini et al. 2004). Complementarity arguments assert, too, that formal contracts through incentives or punishments can reduce gains from short-term defection thereby increasing the value of honoring informal dealings, what Klein (1996) refers to as the "self-enforcing range of agreements".

In general, the complementarity view has often taken precedence in discussions of agrarian transactions in developing countries (Fafchamps

and Minten 2001; Maze and Menard 2010). However, formal contracts can also have a significant "motivation crowding effect" or substitution effect. The prospect of punishments could discourage an individual's voluntary compliance based on reciprocity norms, thereby damaging the quality of exchange outcomes (Macaulay 1963; Malhotra and Murnighan 2002; Sitkin and Roth 1993). Sitkin and Roth (1993) caution that "legalistic remedies can erode the interpersonal foundations of a relationship they are intended to bolster because they replace reliance on an individual's good will with objective formal requirements." Likewise, Macaulay (1963) stresses that detailed negotiated contracts get in the way of creating good exchange relationships between business units. In essence, rules can compromise the "handshake ethic".

These theoretical insights on the plurality of enforcement mechanisms and their complementarity and substitutability offer an appropriate lens to examine agribusiness practice of contract farming in India. In particular, the tension between the "motivation crowding out" effect and complementarity effect is especially valid in the context of enforcement in contract farming systems in India.

This approach to understanding contract enforcement, as will be evident, allows for a domain-level view of contracting arrangements where social relations play a key role, where the balance of power is contested, where possible, ultimately influencing the trajectory of a scheme. Note that these are dimensions that only a few scholars within economics have engaged with.

10.2 Enforcement and Enforceability in India

References to Indian customs in early Greek literary sources during the time of Herodotus (5th Century B.C.) suggest that Indians had a reputation for seldom going to law to settle disputes (Singer 1972). This rings true for agribusiness in contemporary India as well, where contractual relationships are seen more as relationships and less as contracts.

In conversations with agribusiness executives in India, the very mention of the term "contract farming" evokes passionate response. One executive pointed out "We don't do contract farming, we do relationship farming" (Agribusiness Survey, Hyderabad, Andhra Pradesh, 2007). Another interjected "I call what we do *contact* farming" leaning forward to ensure one did not miss the point. "We have contact with the farmers, there is no written contract; it is by word of mouth, based on mutual

understanding" he elaborated (Agribusiness Survey, Hyderabad, Andhra Pradesh, 2007). Yet another said, "I would prefer you called it corporate-linked farming" (Agribusiness Survey, Mumbai, 2007). Each phrase used to describe their procurement strategy negates the idea of formal contracts that are enforceable by law.

Their careful rewording also suggests that these firms' executives view firm-farm transactions as a problem of relationship maintenance rather than of contract enforcement. On the one hand, a combination of a languid legal system in India and the sheer number of farmers involved offers little prospect of economical public enforcement of contracts, pushing firms to rely on informal mechanisms. Indeed, this lies at the heart of arguments that advocate establishing formal, legal mechanisms for contract enforcement. However, on the other hand, even with a hypothetical legal system that works efficiently for agribusinesses in India, the social context of contract farming and the inherent nature of agricultural transactions bestows judicial options for enforcement with limited value. This comes partly from difficulties of non-observability and verifiability of contracts and partly from farmer perceptions of formal legal modes of economic exchange, which could crowd out personalized transactional relationships. The following sections investigate how, in this empirical context, a combination of these elements drives agents to choose certain modes of contracting and enforcement over others.

10.2.1 The Question of Enforceability

First, there is the question of whether the contracts used in contract farming schemes are enforceable at all. Given the nature of agriculture, it is virtually impossible to fashion a contract that provides for all possible contingencies in a way that is verifiable by a third party. Contracts are, therefore, invariably incomplete. As an executive observed "Our problem is, these contracts are not actionable. There is nothing we can do in the event of a breach" (Agribusiness Survey, Hubli, Karnataka, 2008). Some contractual obligations are only imperfectly observable at the farm level or have a very high cost of detection—like the farmers' use of recommended practices or even side-sale of contracted produce. A firm that contracted for marigold (where farmers contracted acreage rather than volumes) in southern India explained how side-selling of the flowers was rampant, especially during the festival season, when the open market prices shot up relative to the contracted price. "Every contract farmer is sending our

flowers from the contracted acreage to the open market; each of us has at least fifty farmers to look after, we cannot be in every farm at the same time to detect that" (Agribusiness Survey Thalavadi, Sathyamangalam, Tamil Nadu, June, 2009).

Such *de facto* non-observability and non-verifiability then render the outcome of judicial enforcement highly uncertain. Dispute resolution in this case is a probabilistic outcome. A legally binding contract does not offer the kind of guarantee it would for less complex transactions in manufacturing or services. This, in effect, undermines the Weberian notion that "legal guaranty gives a higher degree of certainty that the promise will be kept" (Weber et al. 1978, page 667). The certainty that comes with legal guarantee is what led Weber to suggest that it would be possible to expand the sphere of voluntary economic exchange because this higher certainty would enable people who did not know each other to transact with one another.

However, it is not merely the lack of predictability of dispute resolution outcomes that is a problem. A shared perception holds among a number of firms that the judiciary in India would give the farmer the benefit of the doubt for political reasons. Especially in a context where the might of large agribusinesses dwarfs a smallholder's power, dispute resolution is widely perceived to be pro-farmer. Essentially, agribusinesses perceive it to be hard to get verdicts against the farmer. As an executive observed "in India, corporates have to be very careful; in any dispute between a farmer and corporate, the firm is always assumed to be the culprit" (Agribusiness Survey, Mumbai, Maharashtra, 2007).

The problem of enforceability also arises from the way contracts are written, from a legal perspective, with implications for the economic analysis of transactions, since it renders judicial proceedings stochastic. The legal perspective on contracts in these schemes is important to see why firms shy away from contracts.

10.2.2 Costs of Enforcement

Even if it were possible to write out complete, verifiable contracts, farmers and agribusinesses in India encounter public institutions for enforcement that are expensive relative to the loss associated with the contractual dispute. The proverbially slow legal machinery in India, caused in part

by a backlog of pending cases, almost guarantees long waiting times.[5] This prevents new cases from entering the court system without a very good incentive.

Given that firms transact with a large number of farmers for very small quantities, often the costs of legal action exceed any claim firms could realistically hope to recover. Further, most contractual disputes would be on a case-by-case basis. This implies that for the firm, every farmer taken to court, however small the transaction, entails a fixed cost.[6] As a procurement officer put it, "we had a big problem with enforcement, but it is simply not worth going to court" (Agribusiness Survey, Hubli, Karnataka 2008).

As an illustration, consider the data on defaults by farmers in a gherkins contract farming scheme in Tamil Nadu. Farmers are offered inputs on credit at the time of sowing, agreeing that when the contract produce is delivered to the firm, the amount owed against inputs is adjusted and the farmer is paid the net amount. For various reasons, such as yield risk and side-selling, the farmer often ends up delivering less than the expected commitment and hence becomes indebted to the firm. Firms are left with the choice of writing off the outstanding debts, carrying it over to the next season or attempting recovery, either through private means or through courts. It is not unusual in contract farming schemes in India to have a very large number of defaulting farmers, each with a very small debt. In this example, 37% of contract farmers in the study area had some default (485 out of 1296 contracting farmers), but the average value of default was only Rs. 3750 (approximately US $78). This is equivalent to the retail value of eight, 12-oz. jars of gherkins pickles or around 220 kgs. of the highest grade of contract output, which is 0.05% of what was eventually procured that season in the study area. Figure 10.1 plots these defaults in decreasing order of magnitude. Given that the firm could potentially seek to recover these amounts from each defaulting farmer, this represents a *maximal marginal recovery curve*. It

[5] As of October 31, 2001, 20.3 million cases were pending in the district and subordinate courts, 3.5 million in the High Courts and 21,995 in the Supreme Court (Parliamentary Standing Committee on Home Affairs, 2003). Normal adjournments in Delhi's courts, for example, are for 4–6 months, the trial dates are not available before 2 years and settlement of suit takes place over 15 years (Upadhyay 2003).

[6] Procedurally, in most legal systems, even mass standardized contracts would not admit class libel and would have to be decided on a case-by-case basis (The Yale Law Journal Company Inc 1949). This is necessarily the case, therefore, for individual contracts.

is a "maximal" curve because, given uncertain judicial enforcement, this represents the best case, where the firm recovers all that is due to it by the farmer. Superimposing a rough estimate, collected from interviews with agribusinesses in Tamil Nadu, of the *marginal cost* of taking a farmer to court, it is clear that for a majority of the defaulters (and constituting a large proportion of actual procurement) the costs of recovery far exceeds the amount that can be recovered. From a purely economic perspective, the higher the costs of court-aided enforcement, the fewer the farmers the firm would go after; in particular, it only ever makes sense for them to attempt recovery from farmers located to the left of point E, the optimum, where the marginal returns to recovery effort and marginal cost that it entails are equal. At the higher end of the enforcement cost range, E' is the optimum, so that it makes sense to take even fewer farmers to court than at E. In this example, assuming an enforcement cost of Rs. 5000 per farmer, the firm could seek court enforcement for about 124 of them (approximately, 26% of all defaulting farmers), without incurring fiscal losses, assuming full recovery of outstanding dues. This figure drops as enforcement costs increase. At Rs. 12500 per farmer, it would make sense for the firm to incur this enforcement cost for only 14 farmers (less than 3% of defaulters), again assuming complete recovery of dues.

Indeed, the gherkins firm in question asserted that legal recourse emerges as a less-preferred option given the relatively small recovery amounts per farmer and the large number of farmers who are culpable. The firm may still choose to strategically enforce contracts to induce future compliance. Firms express a willingness to "let it go" if the volumes or defaults are small and even larger amounts if they trust the farmer not to have diverted contracted output.

The farmers' enforcement options are far more limited, especially given that most contracts explicitly favor the firm; most often this involves opting out of contracting itself. Few ever go to court (about 1% of the respondents in the Farmer Survey), partly because for many farmers, recourse to legal redress is practically out of reach, if not in terms of monetary costs, in terms of other barriers such as legal literacy, demands on time and access to legal assistance.

At the same time, there are examples where farmers in India have held their own and sought to resolve disputes via courts and, sometimes via creative means.

In 2004, Ambika Devi, a woman farmer owning 1.5 acres of land entered into a contract farming agreement with Nandan Biomatrix Ltd.

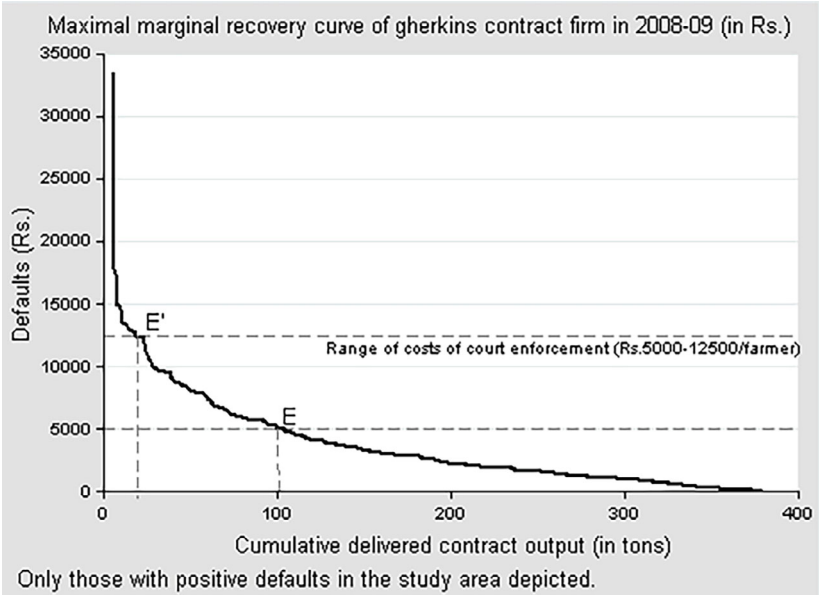

Fig. 10.1 Farmer defaults in gherkins contracting, 2008–09
Notes based on data shared by the gherkins contract company of defaults by farmers. These were stacked in ascending order of defaults and the graph shows the cumulative value of defaults
Source Based on data from the gherkins contracting firm

for the sale of safed musli a medicinal crop. When the company failed to buy back the produce as per the agreed terms, Ambika Devi took an unusual step and approached the Kerala State Consumer Disputes Redressal Commission in April 2008 under the Consumer Protection Act 1986. The Commission dismissed the company's claim that it was a commercial contract between two parties with freedom to contract, and instead noted that the agreement was in the nature of both the sale of product and rendering of service, and would therefore fall under the ambit of the Consumer Protection Act 1986. When the company approached the Supreme Court of India, it ruled in favor of Ambika Devi and noted that "excluding such farmers from the purview of the 1986 Act would be a complete mockery of the object and purpose of the statute" (M/S Nandan Biomatrix Ltd. vs S.Ambika Devi on 6 March, 2020).

Another example involves investors in a contract farming scheme. In a bizarre, admittedly rare occurrence starting in 2006, an "emu mania" swept across Tamil Nadu. 42 firms in Erode district had collected over Rs. 2000 million from members of public, claiming to be involved in emu contract farming. To finance its operations it sought deposits. Given the popular narrative of contract farming successes at that time, several people channeled their savings into these companies most of which eventually went bust; some of them siphoned away the money for private use. It appeared that many of the firms had been running a ponzi scheme in the name of emu contract farming. Several years later, the culprits were apprehended on the basis of action initiated by those who lost money.

These are but isolated instances in a context where small farmers (and in the latter case, investors) are unlikely to be able to seek court-based enforcement with success.

10.2.3 Private Ordering in the Shadow of the Law

Given that both enforceability and enforcement are problems in equal measure, what is the role of the contract itself in these contract farming schemes? Is it conceivable that if enforcement were not a constraint, firms would treat contracts as legally binding instruments, preferring these to informal arrangements? Interviews with agribusiness indicate that such a scenario is unlikely. As discussed in Chapter 9, the contract is devised to exercise control over processes outside the firm, while also staying at arms' length from the production process so as to guard against culpability. The Agribusiness Survey reveals these motivations in full measure as does research from elsewhere.

First, the very fact that a contract tries to be specific and rigid in defining claims is, in the firms' view, a disadvantage, since the firms lose "flexibility" (Klein 1996). Gow and Swinnen (2001) observe in the context of Slovak sugar industry that firms often value the flexibility that comes with informal arrangements. In India, for instance, the year 2008–09 saw gherkins processors lose international orders on account of the global economic slowdown; many firms had contracted far more than they wanted. At times like this, an executive explained, "we would like the farmers to cheat and side-sell to other companies. That would actually be a great help! But the contract obliges us to buy what they produce, even though we have no orders" (Agribusiness Survey, Dindigul, Tamil Nadu, 2009).

Importantly, the social context these firms operate in influences agribusiness attitudes to the contract as a legal instrument. The very idea of a contract carries little meaning when few farmers understand the document they are supposed to sign. In fact, in some parts of India, fly-by-night operators have duped farmers of their lands, while the farmers had no idea that they had signed away their land as collateral. Several such cases have been reported in the state of Odisha in earlier years.[7] In much of rural India, the idea of committing to anything in writing is often disconcerting to the farmer. "If you go to a farmer with a pen and a document, you can be sure he will run away," said a field official, explaining how the company first establishes contact before explaining the procurement arrangement to the farmer (Agribusiness Survey, Secunderabad, Andhra Pradesh, 2009). This can often be a long process and some farmers take years before accepting to grow produce for the company. Firms thus tend to believe that for contract farming relationships, "trust is a precondition, whereas a contract is not, absolutely not" (Agribusiness Survey, Hyderabad, Andhra Pradesh, 2009). This sentiment is pervasive. Said one executive: "what is the use of contract? You can't do anything with it anyway. Trust is a hundred times more valuable than a contract" (Agribusiness Survey, Coimbatore, Tamil Nadu, 2008).[8]

The firms typically claim that they are unlikely to ever take legal action for breach of contract. One firm's executive pointed out that it was a very sensitive issue, politically. "In our country, we can't go after the farmers, it is not even right to go after them in case of breach—you can't fight the *annadatas*" (Agribusiness Survey, Mumbai, Maharashtra, 2007).[9]

Another agribusiness executive explained that "even if contracts were easily enforceable in courts, that is not the way you work with farmers. You need to establish a relationship with them. The loss from breach is easily made up; a relationship that is strained is not!" (Agribusiness Survey, Hyderabad, Andhra Pradesh, 2007). Another executive

[7] Personal communication with Action Aid (India), Bhubaneshwar, Odisha, March 2007.

[8] While it is conceivable that exogenous change in education, literacy and awareness would assist transition to contract-based relationships, it is unlikely that court-aided enforcement would ever render trust irrelevant, as has been pointed out repeatedly even in developed countries (Macaulay 1963, for instance).

[9] The term *annadatas* means "givers of food" and carries the connotation of a noble profession.

responded to government attempts to formalize contract farming saying: "governments don't understand these things. You can't force farmers to enter into paper contracts with some third party settling disputes. That would make it impossible for ius to work with them" (Agribusiness Survey, Coimbatore, Tamil Nadu, 2008). In the case of Maharashtra, in response to laws that required registration of contracts with the government, while the stated reason for the poor response of agribusinesses was that these laws were not sufficiently well-publicized, industry sources felt that both firms and farmers preferred "informal arrangements based on trust, experience and market dynamics instead of having a formal arrangement" (Ghadyalpatil 2008).

In the Indian setting, the contract is, at best, a tool to declare seriousness of intent or to initiate a process of discussion with the farmer for better clarity of the terms of the transaction. Thus, even if the contract is rarely (meant to be) enforced, contract agreements help to spell out clearly the rules of a relationship (McMillan and Woodruff 1999). One representative of a firm that contracted for gherkins stated that even though the chances of litigation were minimal, they were investing a lot of effort in making the contracts tighter and more specific so that the farmer understands the parameters of engagement well. Another agribusiness representative stated, "We have written contracts but they are of no use. They are not legally binding; but they *are* morally binding. Every year about 5–8% of the contract farmers deceive us, but others have integrity" (Agribusiness Survey, Belgaum, Karnataka, November 2008).

At other times, rather than serving as a mechanism to ensure that farmers honor their commitment, the contract is a defense mechanism for the firms so that should the farmer approach the courts they have adequate protection. This explains, in part, why contracts are one-sided. A procurement manager explained, "Sometimes the farmer can also be unreasonable. We once had a notice from a lawyer suing us for Rs. 4 lakhs (approximately US$ 8500). The farmer blamed us for his low yields. We countered it by saying that he had not really followed the practices and the contract clearly states that the farmer is expected to follow the recommendation. His fields were waterlogged and we had already advised him. The court saw the point" (Agribusiness Survey, Hubli, Karnataka, November 2008).

When viewed in these terms, it is possible to read the terms of the contract differently. What seems like ambiguity from a legalistic perspective is now consistent with the purpose of the document, when there is a document.

Indian agribusinesses typically articulate a concern that the motivation crowding out effect or substitution effect might outweigh the complementarity effects of formal mechanisms, that formal agreements might undermine voluntary compliance and hence the self-enforcing nature of arrangements. Firms appear to factor in the substitution effect seriously in their contracting decisions, ensuring, even in the context of formal written contracts, that the highly personal and customized nature of engagement is not undermined. This is sometimes evident in the contract document itself. For example, one of them reads: "In case of any dispute with regard to the lease between the parties, the same shall be settled by mutual discussion" or, as another puts it, disputes will be "endeavored to be solved through dialogue" (contracts provided by firms in Tamil Nadu and Andhra Pradesh, 2008).

The Tamil Nadu Farmer Survey reveals that private order enforcement dominates overwhelmingly as the means through which transactions are maintained, with law playing only a peripheral role, if at all (Table 10.1). Only 6% of those interviewed as part of the Farmer Survey thought the firm would take them to court, if the farmer breached the contract. More than a fifth of the farmers felt that the firm would attempt to recover outstanding amounts privately, through field officers, by complaining to village leaders and local representatives and so forth.

Firms often rely on repeated interaction over the long term to discourage farmers from breaching contracts. "We are so big, that none of them can afford to burn bridges. At some point of time if not now, at some time in the future, they have to sell to us. No one can hope to avoid us completely all the time, so this helps and encourages them to keep up their commitment" (Agribusiness Survey, Kangeyam, Tamil Nadu, 2007). Across schemes, farmers seem to know this. A majority of 35% of the respondents in the Farmer Survey said the firm would stop contracting with them in the future if the farmer breached the contract in some way.

In some cases, it is a form of collective punishment. "As a rule, we always tell the farmers, if any of you cheat, we will boycott the village and even the good ones will lose out. This works a bit, but there are always a few who cheat" (Agribusiness Survey, Hyderabad, Andhra Pradesh,

Table 10.1 Farmer perceptions of enforcement in select schemes

What would the firm do if you breached the contract?	*%*
Stop contracting, deny advances or credit	35
Attempt recovery through appropriate action, not pay us	21
Warn us or do nothing	15
Go to court	6
Others	14
No response	9
What would you do if the company breaches the contract?	%
Stop contracting, and/or switch firms	36
Give up the contract crop altogether	13
Nothing, we are powerless	32
Make a representation to the firm,complain to other authorities, demand compensation	17
Go to court	1
Others	1
Total number of respondents	484

[1] The data uses responses from Phase 1 and Phase 2 of Farmer Survey

[2] All figures have been rounded off to the nearest whole number

2008). In still other cases, reputation plays a big role. The gherkins cluster in Karnataka and the poultry cluster around Coimbatore in Tamil Nadu have developed a system where they inform one another of "blacklisted" farmers. While the gherkins firm felt it was beginning to work, the poultry firms were still refining the system. In the initial phase, they did not anticipate that farmers would approach other companies through other family members and sometimes alter the name of the farm to escape recognition. The firms were now working to identify farmers by the survey number of the plot they owned. Another relatively recent development is a whole class of contracting agents who have emerged as aggregators of contract produce for the firm. This is particularly true for firms that operate on a large scale. They are involved in selecting and maintaining farmer relationships on a commission basis, not unlike traders in traditional market channels. This appears to be the firms' response to get the incentive problem right, and from the perspective of this work, it outsources enforcement, in some sense. This is discussed further in Narayanan (2011).

As Galanter (1981) points out, the plurality of enforcement mechanisms available implies that as the parties come to terms with the intrinsic

limits of court ordering, they craft their own transaction-specific contractual supports that involve private ordering. As actors recognize that their purposes are served by continuity and cooperation, the concept of contract as legal rules gives way to the more flexible concept of contract as framework or a focal point. A contract is then incomplete and "almost never accurately indicates real working relations, but affords a rough indication around which such relations vary, an occasional guide in cases of doubt, and a norm of ultimate appeal when such relations cease in fact to work" (Galanter 1981; Llewellyn 1931). The contract document is then something of a "social artifact" or a "social representation of a relationship" (Suchman 2003).

On those rare occasions when the firm does sue the farmer for breach in contract, a very different logic is at work. For instance, in 2007, a contract supplier for a broiler firm sold the entire stock of over 6000 birds to a wholesaler even though the contract expressly forbade this. The broiler firm decided to take him to court. There were other things the firm could have done, a multilateral strategy, for instance, where all broiler firms would boycott the farmer. In the broiler industry in Tamil Nadu contracting firms tend not to cross-purchase, so that the side-selling usually occurs with wholesalers in the open market. However, such a coordination mechanism had run into difficulties since they were unable to establish the identity of defaulting farmers with certainty. Farmers often used the names of firms for their farms while signing the contract, changing these if they did default. So too with individuals, who typically signed contracts in the name of different members of the family each time they signed a new contract. Further, the wholesalers, the alternate market channel, were outside their network, so the penalty for the farmer would not be effective. The case had been going on for two years and an executive confessed that they had spent far more money than the loss they incurred. "But," he said, "we feel that this sets an example. We show other contract suppliers that we will not take it lying down. From that perspective, we think, rather, we hope that it is worth it " (Agribusiness Survey Coimbatore, Tamil Nadu, 2009). There are similar cases where the firm has successfully sued intermediaries or agents who sub-contract with farmers. Their experience has been that this reduces the chances of cheating (Agribusiness Survey Dindigul and Nilakkottai, Tamil Nadu, 2007).

In a more recent high profile incident that attracted media and civil society attention, on April 5, 2019, PepsiCo India sued nine farmers in

three separate courts located in the Indian state of Gujarat. The company maintained that the farmers had cultivated and marketed a proprietary variety of potato (FC5) and had thereby violated its intellectual property right under Section 28 of the Protection of Plant Varieties and Farmers Rights Act (PPVFR) 2001. The company sought compensation ranging from Rs. 2 to 10 million. This unleashed protests and negative attention on social media, including calls for a nationwide boycott of PepsiCo India products. PepsiCo withdrew the lawsuits against the farmers.

Recourse to courts can thus work both ways. One executive confessed "we would never take a farmer to court; it would jeopardize relations with all the farmers and not just the one who defaulted" (Agribusiness Survey, Mettupalayam, Tamil Nadu, 2007). There is a pervasive sense among contracting firms that suing a farmer would effectively scare away or lose all their contract farmers the following season. Here, we see evidence that third-party public enforcement mechanism goes beyond a backstop and is quite differently embedded in a set of multiple enforcement mechanisms. Legal recourse is not the last resort. Rather, it signals the firm's intent to punish so that farmers see it as a credible threat. At the same time, it could both deter breach or discourage contracting itself.

Firms need to factor in this tradeoff between the complementary and substitution effects of formal contracts and their enforcement in their procurement and enforcement decisions.

10.3 Relationship Maintenance and the Moral Economy of Contract

It is evident from the above that farm-firm contractual relationships in India are viewed in very broad terms. This is indeed relationship farming more than contract farming. An agribusiness executive likened the firm-farmer link to a marriage, "you have to work at it until you die, there may be lots of ups and downs, but you have to stick with it" (Agribusiness Survey, Hyderabad/Ranchi, 2008). Relationship maintenance is viewed as a critical ingredient of contract farming by most agribusinesses.

An alternative but related view of scholars has characterized these elements of a contractual relationship as a "moral economy" of the contract (Clapp 1994; Hambloch 2022). This moral economy of the contract offers a space wherein firms reward the "ostensible observance" of the salient terms of the contract by farmers by overlooking minor

transgressions (Clapp 1994; Scott 1976). The firm-farmer relationship occupies a space larger than that defined by the contract; even as everything in these "contracts is not contractual" (Durkheim and Bellah 1973), extra-contractual interactions between the firm and farmer influences contract performance, for instance, by altering the incentives for compliance.

Interpretations of this space can vary. One perspective characterizes agribusiness approaches to contract as leveraging narratives of trust to exert power, which farmers resist continually using the means available to them. An economist's interpretation of this would instead view these as investments on the part of both farmer and contractor to maintain a relationship which generates a surplus, that they share, if unequally. Regardless of these interpretations, there are a number of features that characterize this interaction.

For instance, many field officials working to monitor crops and offer technical advice to the farmer for the contracted crop often end up helping the farmer with other crops as well, teaching them about pesticide use for non-contract crops, crop planning and so forth (Table 10.2). Nearly, a fifth of all respondents in the Tamil Nadu Farmer Survey had sought advice from the field staff of the contract firm for crops other than the contract crop. The nature of advice ranged from specific actions to tackle problems with specific crops to a much broader engagement seeking general advice on new technologies, crops and markets, cultivation practices and so on. Some firms employ workers from farming families in their processing plants, many of whom are contract suppliers. While the Tamil Nadu Farmer Survey does not provide cases of this, it is apparent that the firm-farm relationship for those families who transact with the firm for both wage employment and supplier of produce could enhance the durability of the relationship.[10] The Agribusiness Survey reveals too that several firms directed CSR activities to contract villages, including donations to schools, village festivals, conducting medical camps, etc. Larger agribusinesses leverage goodwill created over the years through their community engagement to put contract farming arrangements in place. Indeed, these firms, especially, see the grafting of formal contracts onto their preexisting relationships as detrimental to

[10] This parallels the copious contract interlinkage literature in development economics (Braverman and Stiglitz 1982, for example).

the trust that has been built over the years, undermining farmer-firm relationships.

Such non-contractual actions influence tacitly, and positively, the contractual performance of farmers. Often, there is ex post-forgiveness of deviations from the contract and a large class of actions is pardoned as "excusable breach" (Fafchamps 2004). In general, the moral economy of a contract implies explicit recognition of "excusable breach" on account of reasons the field agents deem as being beyond the farmers' control or too minor to merit enforcement(Fafchamps 2004).

Often, breach is not literal or obvious. There are many elements to a contract and even when there is not an obvious violation of the salient terms of contract (i.e., delivering the produce of a given quality at a particular time and place) the terms of engagement can be subverted by farmers in many ways.

For instance, several contract farmers are known to use contract inputs for non-contract crops (called "input diversion"). According to the Tamil Nadu Farmer Survey, 17% of the farmers admitted to input diversion in the most recent contracting season. Often, contracts oblige farmers to follow recommended cultivation practices. Many do not. "Our procurement takes place from 25,000 farmers, of whom about 65% really follow all the technical information we provide" (Agribusiness Survey, UgarKhurd, Karnataka, November 2008). In other cases, it is blatant cheating. Some marigold contract farmers soak the flowers before they deliver to the company so that they weigh more. Sometime papaya latex is adulterated with flour, sometime with water. "One season, they got our laborers to adulterate our latex with water. But for the farmers, we are their *adaikalam* or refuge. They went astray but all of them have come back to the fold" (Agribusiness Survey, Oddanachatram, Tamil Nadu, 2007).

The more obvious kind of contract breach by farmers is side-selling. It is common for firms to contract acreage, obliging the farmer to sell all the crop harvested from the contracted acreage to the firm. Sometimes, farmers divert contract produce to other buyers who pay more at the time of harvest. In the Farmer Survey, 17% of the farmers admitted to have sold at least some part of the contracted produce to buyers other than the contract firm during the most recent season they contracted (Table 10.2). Despite side-selling being a clear breach of contract, it is sometimes on account of personal exigencies. Firms recognize this, often saying, "we don't penalize the farmers for doing that. They are

Table 10.2 Kinds of breach and the moral economy of contract farming

Details	*Average percentage across all schemes (%)*	*Range in the different schemes (%)*	*Number of respondents*
Percentage			
• who diverted contract inputs for non-contract crops	17	0-26	481
• who engaged in side-selling the previous season (self-reported)	17	2-64	484
• of other farmers in the village who engaged in side-selling the previous season	12	0-26	484
• who received advice for other crops from the field official	19	0-43	475
Percentage unable to deliver on the contract at least once in the past	44	0-88	484
The reason for this, in the last such instance:			
• Weather or yield loss	52	35-65	
• Urgent need for cash	15	10-25	
• Market or competitor price was higher	10	6-22	
• Firm delayed or did not show up	5	0-18	
• Produce fell short of quality standards	5	5-19	
• Personal reasons (e.g., death in the family)	13	9-19	

(continued)

Table 10.2 (continued)

Details	*Average percentage across all schemes (%)*	*Range in the different schemes (%)*	*Number of respondents*
Percentage who felt the firm had *not* honored the contract in the last season	10	0-23	438
Percentage reporting rejection of some contracted produce	45	9-97	475
Ratio of days until full repayment under contract (relative to alternate market)	7*	1-27	381

[1] Data pertains to the Tamil Nadu Farmer Survey

[2] Figures have been rounded off to the nearest whole number

[3] The total number of respondents varies depending on the category of farmers who were asked the question. Some questions were addressed only to currently contracting farmers, others were addressed to both current and former contract farmers and so on

[4]* This figure is a number, not a percentage

not entirely to blame. Sometime they need cash urgently, so they sell to someone else" (Agribusiness Survey, Karamadai, Tamil Nadu, 2007).

Indeed, the Tamil Nadu Farmer Survey suggests that in general, about 44% of the farmers have been unable to deliver the contracted produce as promised at least once in the past (Table 10.2). More than half of the farmers who admitted this attributed their violation to crop loss due to pests or the weather. Close to 15% of them said they side-sold only because they were in urgent need of cash. Another 13% were unable to deliver owing to personal reasons, like a death in the family or illness. These were typically overlooked by the firm as excusable breach. One executive, like his counterparts elsewhere, put things in perspective "We found that whereas the loyalty was 92% in 1995, it has now dropped to 82% thanks to the other agribusinesses encroaching. Farmers sell to them because of many reasons. Sometimes, they are in need of cash. At other times, they want to sell (and harvest) earlier than we recommend so that they can accommodate another crop. Also, there are some mills that outprice us after we announce our price. But, we have been here about 60 years and we are the largest, so we are not under major threat. In

our company, loyalty of farmers is high" (Agribusiness Survey, Dharwad-Belgaum, Karnataka, 2008). This instance speaks to the role of market structure and competition that may influence the balance of power and contractual performance in contracting arrangements.

Only when the transgression exceeds limits does the firm actively seek to enforce, by whatever means they deem appropriate. Many firms that are committed to maintaining trust often take huge losses. "We succeeded in contract farming because we did not reject or refuse to accept produce, once we had got what we want. We used to take it even if we did not want it" (Agribusiness Survey, Coimbatore, Tamil Nadu, 2007). Another procurement officer said that there were seasons when they weighed the produce, paid the farmers and emptied it into the mud to discard. In one scheme for medicinal herbs, operating in Karnataka, the firm specifies in the contract that should the firm fail to take delivery of contract produce, it would cover the expense and arrangements to sell in the open market.

From the farmer's perspective, knowing that this moral economy offers space for minor transgressions prompts them to maintain the system. They offer similar room for the firm's transgressions and address these by raising the relevant concerns with the firm's officials or field agents. In the Tamil Nadu Farmer Survey, 17% of the farmers said they would approach or confront the firm's representatives if they found that the company had breached the contract.

About 10% of the farmers in the Farmer Survey felt that the contracting firm had not honored the contract in some way in the most recent contracting experience (Table 10.2). This is likely an underestimate, since in some survey villages farmers were reluctant to discuss this issue, fearing that doing so would jeopardize their relationship with the firm. The firms' breach of contract can be just as varied as the farmers'. It is not confined to a refusal to show up to buy the contracted produce and is often more insidious. Firms could instead establish non-transparent quality standards, reject produce arbitrarily and alter prices when the produce is delivered. This was already discussed in Chapter 7 as a key source of risk for farmers.

It could even offer harmful technical advice. A few farmers in the Tamil Nadu Farmer Survey mentioned that firms recommended chemicals that kill the standing crop if they have obtained sufficient supplies. Farmers stated that this often depended on the field officer and a few of them mentioned this had happened in the most recent contracting season. There could be other issues as well, as a particular NGO employee, who was mediating the firm-farm relationship between a chipping company

and potato farmer groups, explained: "Our agreement was that seeds would be delivered on such-and-such date and harvest and delivery at the factory gate would happen at a certain date. In practice, the delivery of seed is spread over weeks. It is sent by trucks and almost two weeks separate the arrival of the first consignment and the last consignment. The farmers who sow last, because they had to wait for the seed, nevertheless have to harvest the potato on the given date, as per the contract. Consequently, these potatoes all tended to be under-sized since they were harvested prematurely. These are rejected. So the firm actually controls the supply by regulating timing of seed delivery" (Agribusiness Survey, Ranchi, Jharkhand, 2008). In broiler contract farming in Tamil Nadu, the firm's need to have control over total market supply to influence prices implies that they often contract for fewer growing cycles per year than they originally promise the farmers. The Tamil Nadu Farmer Survey reveals, for instance, that in 2009, while contract growers were promised six batches that year, 43% of the growers were offered only five batches, 48% were offered four and the rest had to settle for three of fewer batches that year. Other ways in which the firm dilutes its commitment include delayed payments for contracted produce, or late lifting or evacuation of contracted produce (which results in higher rejection rates or sub-optimal live-weight of the birds).

But, as with firm response to farmer breach, it is only when the firm's breach inflicts a cost beyond what is perceived to be reasonable to the farmer, that the supplier revisits his/her decision to contract. In general, farmers are in a weaker position, relative to the firm, unless there is a viable alternate market and one where collusion among buyers is not possible. Close to a third of farmers say that they are powerless to do anything in the event of the company breaching the terms of the contract. Again, this goes back to the way contracts tend to be written. Close to half would stop contracting with the firm, switch firms or give up the contract crop altogether (Table 10.1). A few farmers also stated that they would not let the concerned firm "step into the village" again if they violated their terms of the contract. The Tamil Nadu Farmer Survey suggests too, that in the event of the company breach, only 1% of the farmers would attempt to go to court.

It bears repeated emphasis that the availability of outside options and market structure can dramatically alter the power farmers have to seek redressal. Given the contract farmer's normally weak position in a contractual arrangement, the ability to side-sell, to stop contracting or to switch

firms is what gives farmers agency and depending on the particular market structure for the contract commodity, can redress, partly, imbalance in the contractual relationship. Swinnen (2007), for instance, discusses the effects of competition on rent distribution and the welfare implications for farmers. The exit of farmers itself offers a signal to the more responsive firms, who then have an opportunity to assess their own contractual performance and make necessary adjustments in order to survive. This is particularly the case when there are competing firms that offer contracts to attritioning farmers. This is reminiscent of Hirschman (1970)'s thesis on exit, voice and loyalty, which suggests that the firm's ability to respond to exit and voice would contribute to maintaining the system. Interviews with businesses that have survived suggest that most respond with new arrangements that work on the participation constraint of the farmer, where a contracting firm has to make offers at least as attractive to the farmer as the next best option available. In 2007–08, there were so many firms contracting gherkins in the study area that firms had begun to offer cash gifts and vacation packages to the farmers to induce them to contract.

In another sense, this also bears out the view that competition among contracts leads to convergence in forms (Eggertson 1990). In most commodities, competing firms end up offering remarkably similar terms of contract, at least on paper.

In general, the centrality of personal relationships in contract farming systems in India is manifest in the way firms identify and conduct business with farmers (already discussed in Chapter 6). The process of identifying farmers with whom to contract differs substantially across schemes. For both papaya and poultry, the identification of farmers is primarily through social networks and contacts; 57% of papaya contract farmers and 95% of broiler growers entered into contracts based on preexisting social relationships with the firm's employees. For marigold and gherkins, the firms tend to identify a small region and then canvass in the villages within that region for farmers who might be willing to contract. Only 8% of all gherkins contract farmers and about 12% of marigold contract farmers were selected based on social networks. Once the contracting arrangement is in place, field officers of all the firms in the survey interact closely with the farmers in a highly personalized way, partly owing to the need for oversight of the production process. In the case of broilers, field officials visited the farmer everyday, for gherkins and marigold this was three to four times a fortnight. For papaya at the nursery stage, field officers visit

contracting farmers daily, tapering off their visits once the tree attains maturity.

The primacy of trust and relationship both enables informality in contracting and is also a result of the absence of legally valid written contracts. It is common in the contract farming literature to see a scheme described in categorical terms as being formal (written contracts) or informal (oral agreements) or as contracting with groups or individuals. In contrast, the evidence presented in this chapter suggest that firms engage with farmers in different ways depending on what works for each farmer, so that even within the same scheme there is a mix of formal and informal, of oral and written contracts, of group contracting and individual contracting, etc., although the major terms of the contract might be shared. It is "contact" that enables field officials to determine where an oral contract would work better than a written contract or where it is appropriate for farmers to contract as groups rather than as individuals. The focus here is purely on the firm's field officers functioning at the firm-farm interface or as "boundary" persons. When firms expand and scale up, several re-intermediate, using agents on a commission basis to mediate these relationships with farmers.

10.4 Relationship Farming Has Its Limits

This chapter elaborated on what is perhaps central to contract farming practice in developing countries. Despite the role of relationships and the place for a moral economy of contract where minor transgressions are pardoned in the interest of sustaining the system, relationship farming has its limits.

As the following chapter discusses, if the frictions around contractual performance cross a threshold, then it threatens the survival of the contracting scheme itself. In the Aokian framework, the firms and farmers play a subjective game repeatedly, updating their beliefs about one another and reevaluating their strategy profiles continuously. The payoffs from strategies can cumulate and effect changes among a critical mass of agents in this instance or dramatic enforcement action can disrupt fragile relationships suddenly with implications for the survival of contract farming as institution.

This chapter focused disproportionately on the Indian experience but there is evidence elsewhere to suggest that these concerns are shared across many contexts. In the Kenyan value chain, various studies of the

export French beans sector found that imperfections in contract enforcement systems created buyer-seller search frictions by increasing the costs of buyers and sellers finding new partners (Rosch et al. 2015; Preckel et al. 2000; Rosch and Ortega 2019). This could increase the costs of contracting relative to other governance structure. While stronger third-party enforcement can improve contractual performance and enhance investments by farmers as Saenger et al. (2014) show for dairy farmers in Vietnam who get their third-party test of milk quality, their absence could curtail such investments that make contracting profitable for farmers. Cungu et al. (2008) too find that delayed payments, if significant can farmer investment in Hungary. These impinge on farmer motivation to contract. Ajwang (2020) notes that entry and exit in Kenya were underpinned by relational transactions so that the quality of relationship can influence retention of farmers in the long run. Sometimes, large price differentials between the outside option and the contract can undermine the value of a continuing relationship into the future for both farmer and firm (See Blouin and Macchiavello 2019, for instance). Often, these trigger contract farming schemes to collapse or implode.

CHAPTER 11

The Fluidity of Contract Farming Schemes

The Aokian interpretation of contract farming as frictional equilibria (Chapter 4.3) and its operationalization in analyzing contract farming as component stages acknowledge that farmers and firms learn, adapt and respond to their experience with contracting over time. These changes in decisions can happen at the margin, wherein the contract farming scheme itself remains largely unchanged. Such changes may also accumulate so that the contract farming scheme may evolve incrementally. Further these changes can emanate from individual agents, i.e., from the firm, that may switch procurement sheds, for example, or from the farmers, who, for example, may alter decisions to contract and how much land to allocate. Such decisions could then have implications for domain-level outcomes in terms of geographic spread and social differentiation. When these changes attain critical mass, these may trigger larger changes in the contract farming system, including the demise of the scheme itself. Contextual changes including a shift in consumer preferences, the emergence of new technologies and macro shocks can similarly trigger tectonic shifts that affect the survival of contracting schemes. This chapter dwells on the dynamics of contract farming schemes, drawing on empirical evidence globally and from India that suggests that firm and farmer strategies and contexts could evolve over time, with possible implications for the survival of the contract farming scheme itself.

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_11

11.1 Abandoned or Kicking Away the Ladder?

As Minot (1986), Minot (2008), Minot and Ronchi (2015) and Narayanan (2013) point out, the failure of contract farming schemes in developing countries is high, but poorly documented. Why do contract farming schemes die? As noted above, on the one hand, sudden or incremental changes in the exogenous context can alter participant incentives, leading to withdrawal from these schemes. On the other hand, the source of these changes can emerge from within, i.e., endogenously, where experience with contracting prompt farmers and firms to revise their decisions to participate. Further, these changes, both exogenous and endogenous, can be from the firm's or farmers' side. A scheme's survival is threatened only when these changes are sufficiently large. We discuss a few examples of these.

Exogenous changes downstream, originating with consumer demand, often have implications for firm strategies for procurement. Studies suggest that when food retailers in developed countries switch suppliers, it is often without warning, and this could have sudden but costly impacts that drive firms to alter their sources of procurement or procurement sheds and abandon sourcing from a particular community altogether (Dolan and Humphrey 2000; Mannon 2005). Fold and Gough (2008), for example, report how changing consumer preferences in the EU affected contract pineapple production in Ghana. Ashraf (2008) documents the breakdown of a DrumNet contracting scheme in Kenya. They point out that in the case of DrumNet, although participating farmers experienced a 32% income gain, the exporter stopped buying from DrumNet because farmers could not meet new EU production requirements. Farmers sold to other middlemen and defaulted on their loans from DrumNet. Mehta et al. (2002) and Mehta and Nambiar (2007) discuss the collapse of layer contracting in India following the EU ban on eggs on account of sanitary and phytosanitary issues. These risks have important feedback effects into farmers motivation to contract over the longer term and for other commodities as well, making them less likely, for instance, to adopt export crops. Neilson and Pritchard (2011) discusses these dynamics in the context of tea and coffee value chains in southern India.

Sometimes, changes originate upstream. The evolution of commodity market structure in the contracting region could trigger similar impacts. Chapter 8 noted how an essential precondition for contract farming

schemes may be quasi-monopsony (Sivramkrishna and Jyotishi 2008). Sometimes a lead firm that pioneers a contracting crop in a region is soon joined by new firms that begin to compete for the same set of potential suppliers. The early advantages of monopsony no longer apply to the firm that now faces the prospect of more widespread side-selling. We noted some examples of these already in the previous chapter. It is now apparent that where there is competition in contracting, it may be hard for firms to maintain contracting relationships unless the firms collude (Swinnen 2007). The sustainability of a contract farming scheme is predicated on contract enforcement in these contexts and private enforcement has its limits (Chapter 10.4).

Relatedly, commodity price fluctuations too tend to put grower-firm relations under great strain can undermine contracting even if they are not fixed-price contracts (Glover and Ghee Lim 1992; Gulati et al. 2008). Here, relationship farming has its limits especially when prices rise and contracting firms need to match these prices to procure the crop and prevent side-selling. Farmers may have limits to their capacity and willingness to sacrifice potential gains from side-selling in such cases.

Production conditions may also prompt changes in firm procurement strategies. For example, degradation of soil quality sometimes consequent to recommended nutrient and pest management has on occasion led contracting firms to abandon contracting altogether in Mexico (Glover 1990; Mannon 2005). Gherkins firms in India are known to shift procurement sheds as yields decline in areas where gherkins has been grown intensively for years. These sort of "slash and burn" strategies can thwart the sustainability of a scheme in a particular region or community, sometimes leaving contract farmers high and dry, with vastly impoverished soils.

Farmers could exit because of their inability to deliver the necessary quality of produce; these quality standards could force resource-constrained farmers to exit these arrangements. Mazwi et al. (2020) note that a third of tobacco contract farmers in Malawi dropped out. Ashraf (2008), Fold and Gough (2008), Andersson et al. (2015) and Barrett et al. (2012) each record similar problems with compliance leading to significant exit from schemes. Bachke (2010) observes that without handholding by cooperatives in Mozambique, as many as 64% of farmers in a contract farming arrangement dropped out of the system. These are but a few examples of what might be termed as forced or involuntary exit from contract farming schemes.

Sometimes it is a case of too many cooks spoiling the broth. Singh (2022a) discusses complex arrangements in multipartite models in India where a large number of stakeholders come together to operate a contracting scheme, sometimes leading to coordination problems and conflicts. He remarks that multipartite models can be quite difficult to sustain.

While a firm's procurement decision due to downstream change drives dynamics of participation despite farmer willingness to contract, farmers could also voluntarily exit these arrangements, "kicking away the ladder," so to speak. An agribusiness executive in India said, for example: "we want to get out of contract farming, the farmers get better at it and want to pursue other options and then don't return. It becomes difficult for us" (Agribusiness Survey, Bengaluru, 2017). A classic "macro-example" is that of Thailand (earlier discussed in Chapter 4.3) where the failure was systemic (Glover and Ghee 1992). With Thailand's economic growth in the 1980s, options for farmers became more diverse; several took to investing in real estate and left contract farming. As Glover and Ghee (1992) point out, contract farming became the victim of Thailand's economic success. They note that it's passing, if it comes about on account of positive development, should not necessarily be resisted.

11.2 Churning Portfolios of Farmers

While the survival of contracting schemes is an important question there is also the question of change in the composition of contract suppliers. It is clear, and recognized as such in the literature, that firms might alter their portfolio of farmers based on experience and learning. Over time, those farmers who were contracting may be dropped and others who were not, included. The evolution of a firm's portfolio and the churning of suppliers have been well documented in empirical work.

Runsten and Key (1996b) find that multinational tomato processors in Mexico first contracted with large growers but then eventually involved also the small growers because side-selling was a problem with their larger growers. An exporter in Thailand that started producing its own horticultural products on company land later shifted to smallholder contract production (Minot and Ngigi 2004). Herath and Weersink (2009) note that the Sri Lankan tea sector has changed from being dominated by vertically integrated plantations to one where processors source from

small, independent growers. Minot and Ngigi (2004) describe the evolution of several contract farming schemes in Kenya, including Del Monte pineapple that gave up on contract production and others that shifted from large-scale to small-scale production.

The reverse, i.e., movement from small- to large-scale suppliers could happen as well, a trend that perhaps does point to the difficulties of sustained smallholder participation. For example, the Xiaobaiyang chain in Beijing is known to have shifted from 1000 to 300 processed food suppliers in two years as it centralized its procurement system reflecting consolidation rather than a shift of the total volumes processed (Hu et al. 2004). Dolan et al. (1999) show a consolidation in the export sector in Kenya with a sharp reduction in the proportion sourced from small farmers. In the case of processing, Farina et al. (2005) find a similar trend for dairies in Argentina and Brazil. Similarly, leading Russian chains focus only on a handful of foreign and domestic suppliers for dairy products (Dries and Reardon 2005). In Senegal, green bean exporters switched from small-scale contract production to large-scale production (Swinnen and Maertens 2008).

These shifts are also often on account of the inconstant participation of contract farmers. Ajwang (2020) and Narayanan (2013) find, for instance, that farmers go in and out of the contracting schemes. Such episodic participation is discussed in detail below, but is consistent with the changing motivations of farmers to contract from season to season (Chapter 7).

11.3 Dynamics of Contracting in India

The discussion above suggests that the sustainability of contract farming schemes is important to track, but equally important are the incremental shifts in schemes that track the essential character of a specific scheme. This section uses data from the Tamil Nadu Farmer Survey and the Karnataka Farmer Survey to highlight the following. First, we document the episodic nature of farmer participation in contracting arrangements, wherein a spell of non-participation is sandwiched between spells of contracting. Using insights from the field survey, Narayanan (2013) illustrates how smallholders often leverage the opportunity to contract occasionally as part of a dynamic portfolio of alternatives. Second, we turn our attention to an understudied topic, namely the intensity of participation , where farmers continue to participate but change land allocations

to the contract crop. Third, we map attrition of contract farmers, i.e., those who exit and do not expect to participate ever again in the contract farming scheme. Fourth, using specific data on the reasons for exit we are able to distinguish between voluntary exit, where the farmer opts out versus forced or involuntary exit. The latter can result when the contracting firm drops the farmer as a supplier, the farmer faces insurmountable difficulties in meeting the demands of the buyer or the firm's interaction with the farmer forces the farmer out (for example, when the firm reneges on the contract). Fifth, we document trajectories of contract farming schemes to illustrate their diachronic diversity, Aoki's term to capture the evolution of institutions.

11.3.1 Episodic Participation

Almost universally, even when firms are willing to offer contracts every season, many farmers who contract prefer to do so only in some seasons and years (Chapter 7, as with the gherkins farmers who wanted to buy bikes and renovate homes). A contract commodity often has a very specific place in the farmer's annual cropping pattern and portfolio of livelihood activities. There may be competing cash crops that farmers move in and out of over the year. Over the longer term too, farmers' participation in contracting is often episodic, where a spell of not contracting can be sandwiched between two periods where the farmer is contracting for the commodity. Indeed contracting firms too seem to encourage this practice (Chapters 6 and 7). The Tamil Nadu Farmer Survey shows that 46% of contract farmers reported that they had breaks in their contracting history. It is as low as 8% for broilers and as high as 73% for marigold farmers. The former reflects both the level of fixed investments required and the fact that broiler farmers have begun contracting only recently. In the case of papaya, breaks from contracting indicate spells when no latex was extracted. In the case of gherkins, there is no consistent pattern in the timing of the breaks. For marigold, on the other hand, most spells are clustered around 2004 to 2008, several ending in 2008. For broiler and papaya, such breaks appear less common, and seem to be of shorter duration, typically, less than a year.

It is apparent too that the phenomenon of episodic participation is not confined to a particular landholding size category. In the Karnataka Farmer Survey that tracked contract participation of 344 farmers over 11 years (2005–2015), only 20% consistently contracted throughout, as

much as 55% of those who contracted in 2005, did so for just 4–6 years of the 11 year period (Kannan et al. 2018).

The reason for episodes of not contracting could be on account of the firm's withdrawal or the farmer opting out. The Tamil Nadu Farmer Survey mapped reasons for breaks in contract. In some instances, the episodic nature of farmer participation is governed by the ebb and flow of the international orders downstream that the processing firms get, implying that there are years when the pool of contract farmers shrinks. About 28% of those with breaks declared that the firm had not offered them contracts. In particular, the pattern for marigold, which saw breaks clustered between the years 2004 and 2008 marked the time when the firm had few export orders and had scaled down operations considerably. In many other instances, an individual farmer opts out of the contract crop, either willingly, responding to potentially high profits for a competing crop, or involuntarily, when personal circumstances of the farmer, for example, illness of family members, pose particular constraints on contract cultivation. In the context of gherkins, during the year of the survey, many farmers mentioned that they had switched to tomatoes that year since they expected prices of tomatoes to be extremely high. In the case of marigold, the competing crop was turmeric, which competed for farmer interest. Farmers also mentioned that owing to the perceived decline in soil quality with repeated growing of gherkins, some farmers often chose to stay away from gherkins for a few seasons before growing them again (Table 11.1).

11.3.2 Intensive Participation

Churning, i.e., entry and attrition, has to do with extensive participation. Intensive participation on the other hand, refers to quantities or acreage that a farmer and firm agree to for a given contracting season. Sometimes, firms might choose to work on the intensive margin rather than on the extensive margin, i.e., preferring to source larger volumes from a given set of growers rather than expanding the pool of contract growers.

The intensity of participation limits the usefulness of small versus large farmers as useful analytical categories. Assessments of small farmer inclusion could then be cast in terms of the proportion of contracted produced in a given season sourced from small farmers. For instance, even in instances where, say, 80% of the firm's portfolio of farmers are smallholders, they might account for only 20% of the total volume contracted.

Table 11.1 Episodic participation

Commodity	*Percentage of total respondents*	*Number of respondents*
Gherkins (Firm 1)	49	98
Cotton	55	58
Gherkins (Firm 2)	44	77
Marigold	73	59
Papaya	43	72
Broiler	8	71
2. Reasons for the break in contracting for those with episode of non-participation		
Reason	Percentage of total responses	Number of responses
1. Firm did not offer contracts	28	34
2. Water constraints	18	22
3. Pest issues	16	20
4. Losses with contract crop the previous year	11	14
5. Low contract price	9	11
6. Wind and weather issues	4	5
7. Contracted with another firm	3	4
8. Grew for the spot market	2	3
9. Health issues	2	3
10. Went away from the village	2	3
11. Death in the family	2	2
12. Labor shortage	2	2

Note Farmers were allowed multiple options to capture all the relevant reasons for the break. *Source* The Tamil Nadu Farmer Survey

Evidence from India suggests that this is an arena for a contracting firm's strategic action that is often neglected in empirical work. This is especially relevant when firms adjust portfolios over time. In the Agribusiness Survey, for instance, several firms said that they prefer to focus on yield improvements on a low acreage base to secure large volumes from a limited number of small farmers rather than expanding on the extensive margin. A related question is who among contract farmers absorbs shocks, when firms reduce procurement volumes.

Figure 11.1 shows the change in intensity of participation of the entire portfolio of contracting farmers supplied by the cotton contracting firm for the years 2007–08 and 2006–07. This figure uses a complete roster of contract farmers shared by the cotton contracting firm, who contracted

in both years. The figure shows a fitted curve, with the change in a contract farmer's contract acreage plotted against the initial acreage under the contract crop in 2006–07. It is apparent that smaller farmers have expanded acreage under cotton contracts whereas the larger farmers have on average reduced the acreage devoted to contract cultivation. This could be due to a combination of factors. First, it could reflect learning, and perhaps gravitating to an optimal ratio of contract and non-contract acreage. Some farmers might have started off experimenting on a small area and given a positive experience, might have expanded the contract acreage, the reverse holding for those who started with larger contract acreage. It could also be that larger farmers are contracting a small acreage but are growing cotton for the open market as well. In field visits, many cotton farmers considered the advice provided by contracting firms to be very valuable and it could be that they are leveraging this to increase yields on all cotton plots, while retaining access to the spot market which makes fewer demands on quality.

Figure 11.2 shows fitted plots for each of the other four contract commodities. These are, however, based on the survey data and do not have the same interpretation as contracting histories supplied by the firm (as in Fig. 11.1). Figure 11.2 plots the change in an individual farmer's intensity in participation, of the most recent contracting year relative to the farmer's first year of contracting. Since different farmers in the sample entered the system at different points of time, these figures do not reflect a firm's strategy over the years, general economic conditions, or the firm's volume of procurement over time.

Tellingly, for gherkins, marigold and broiler it appears that farmers who have increased intensity of participation are those who started off with a low intensity of participation. Those who devoted greater acreage or took in more chicks in the first year of contracting appear to have lowered these in the most recent year of contracting. In the case of broiler, although this relationship holds broadly, there is much variation. As for marigold, there is no instance of farmers increasing acreage under marigold contracts relative to their first year of contracting. Papaya is the clear exception. Papaya farmers appear to have added acreage since they first began contracting.[1]

[1] The figure needs to be interpreted with caution. The observation period is only four years, and for a contract that is three years, it is premature to identify trends. Also, this expansion does not reflect the mealybug infestation that had taken hold just prior to the

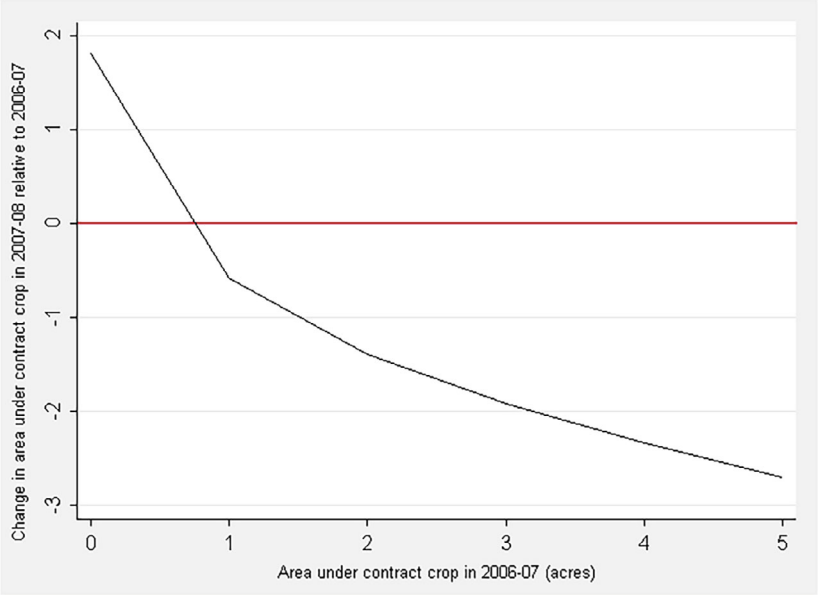

Fig. 11.1 Changing intensity of cotton contract growers
Source Based on data shared by the cottons contracting farm on acreage contracted for farmers in the study area

11.3.3 Attrition: Who Exits and Why?

In the Tamil Nadu Farmer Survey, a houselisting process in all the sample villages reveals that farmer attrition is fairly commonplace, although it varies across sectors. For broiler, for every seven growers currently contracting, there is one grower who gave up. The ratio is three growers to one exiting for papaya, and exit is even more common for marigold. In gherkins, which are exotic to the region, the ratio is the reverse, where for every ten farmers who are currently contracting with the subject firm, there are fifteen who no longer contract with the subject firm. While this is possibly an overestimate of those who have exited permanently, it gives some sense of the extent of attrition. As expected, there seems to

survey. When this is factored in, it is certain to reflect in the intensity of participation of contracting farmers more accurately

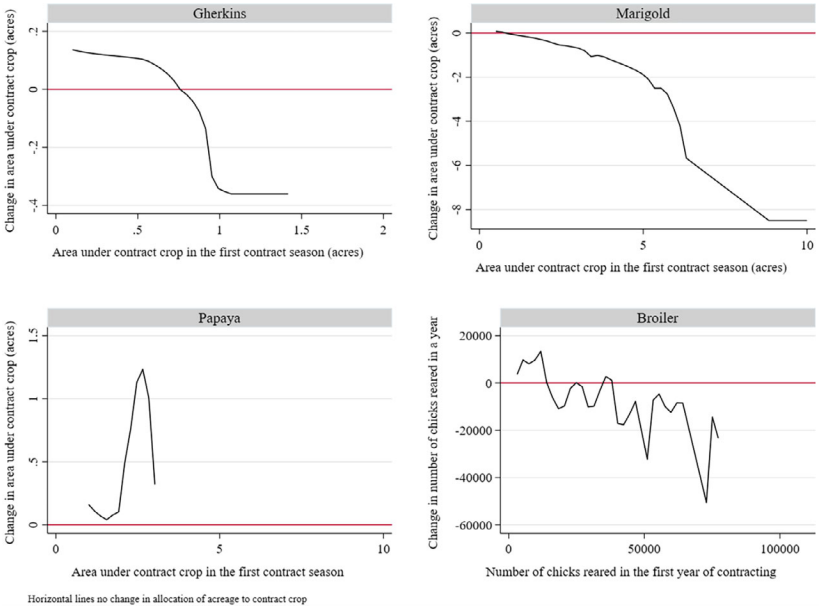

Fig. 11.2 Changing intensity of participation among contract farmers
Source Based on The Tamil Nadu Farmer Survey

be a negative correlation between the initial fixed investments required for contract participation and farmer exit, with broiler that requires sunk costs in construction of poultry sheds, feeders and drinkers seeing the least churning. In the case of papaya which is a tree crop and will yield latex for three to five years, the sunk costs perhaps keeps attrition low. Field crops like gherkins and marigolds see a relatively greater proportion of attrition farmers.

If farmer attrition is as widespread as the houselisting process suggests, is there something systematic about who exits and who sustains participation in these arrangements? In a regression analysis using an econometric model that associates the probability of a contract farmer exiting a contracting arrangement with the sample firm and a number of explanatory variables, I find no systematic bias in attrition and the smallest land-size class was as likely perhaps to exit as the farmers with larger landholdings (Narayanan 2013). However, a dummy variable or binary

variable that takes the value 1 if survey investigators assessed that the farmer seemed to be among the bottom 40% of the villagers, showed that poor farmers are more likely to exit, suggesting perhaps a particular set of wealth constraints that prevent poorer farmers from continued inclusion in these arrangements. Farmers who were relatively better education show a low propensity to attrition whereas those belonging to historically disadvantaged marginal groups appear to have a higher probability of exit from contracting arrangements. More interestingly, however, conditional on social group and poverty, those who perceived negative net benefits from contracting relative to the next best alternative also were more likely to exit the contracting arrangement. So too were those who are more risk averse. Risk aversion was measured through an experiment where the farmer was offered a sure prospect of winning an amount versus an alternative in which the farmer would win an amount linked to a coin toss, greater than the sure amount if heads and lower that the sure amount if tails. The experiment was set up such that the expected average winnings would be exactly equal to the sure amount. Ambiguity aversion was not, however, a significant correlate. Farmers were regarded as ambiguity averse if, when presented with two options, with the same odds of securing a white ball from a bag containing white and black balls, he or she did not choose an option where the odds of winning unknown over an option where the odds were revealed (even though the odds were kept the same across the two alternatives).

While it is difficult to understand and fully ascertain the basis of farmers' perceptions of working with the contracting firm, it is suggestive of farmers evaluating their contracting experience against other alternatives available to them.

The Tamil Nadu Farmer Survey attempted to understand the causes of exit in some detail, asking those who ceased to contract with the subject firm after prior experience, as to why they did so, leaving the question open-ended. The responses were then organized into 19 specific reasons. The data indicate, expectedly, that there exists a fairly wide variety of reasons for farmer attrition (Table 11.2). Some involve the firm terminating the relationship, when they either drop entire villages or drop some farmers from their portfolio (ranked 8 and 14 out of the 19 reasons). This is often a consequence of the firm altering its scale of operations in response to either sluggish downstream demand or on account of a geographic shift in the areas of procurement. This is documented in other works as well and indeed the most commonly recorded reason for farmer

exit from contract arrangements (Dolan and Humphrey 2000; Mannon 2005; Glover 1990). Though farmers might not be candid with admitting that they were dropped by the firm, several did confess that they were unable to deliver contract commodity of the quality that the firm required. This is notable for broiler and gherkins, where this inability led to higher rejection rates and in the extreme, leading to the firm dropping the farmer supplier altogether. These are also other barriers and constraints that farmers might face that prevent them from participating in potentially profitable supply chains. This includes credit constraints. Several other reasons explicitly point a finger at the firm as a cause for exit (including poor technical support, poor quality of inputs, delayed payments, etc.) together constituting an average of over 12% of the responses.

Confirming the regression analysis, alongside situations reflecting involuntary exit, there is strong evidence of farmers experiencing a disconnect between realized outcomes and expectations. Other than for broiler, a considerable proportion of attrition farmers state that the profits were not as high as anticipated, and that this was a reason for exit (Table 11.2). Other reasons for exit include excessive demands on family labor, limited availability of hired labor at low wages and yield losses. Personal circumstances representing idiosyncratic reasons for farmer attrition also figure among the reasons, while rain- and pest-related yield loss is also significant. Perceptions of detrimental impacts on soil quality and health on account of contracting appear serious enough to drive some farmers to exit contracting. Triggers for farmer attrition from contracting schemes thus encompass both those that fall within the ambit of traditional policy concerns, such as provision of credit support for smallholders, skill building and so on or establishing oversight on firm practices, and those that are outside the realm of policy making involving farmers' assessment of alternatives available to him or her.

11.3.4 Trajectories of Contracting Schemes

The discussion thus far on episodic, intensive participation and attrition was farmer-level outcomes. Yet, when they occur beyond a threshold. Such attrition can thwart the survival of the contracting scheme itself. This would be a domain-level outcome, not typically studied or tracked by economists. This section discusses the example of five schemes in the

Table 11.2 Self-reported causes of farmer exit

Reason for attrition	*Percentage of attrition farmers citing the reason*					*Average weighted by total number of responses)*
	Gherkins (Phase 1)	*Gherkins (Phase 2)*	*Marigold*	*Broiler*	*Cotton*	
1. Not as profitable as anticipated	18	17	11	0	44	20
2. Labor costs too high	20	9	25	0	10	16
3. Too much labor required	21	14	21	0	7	16
4. Low price for output	3	0	23	0	2	7
5. Improper payment by the firm	0	3	4	53	2	6
6. Soil quality deterioration	5	17	4	0	0	5
7. Rain-related yield loss	5	3	0	0	15	5
8. Firm stopped contracting in the village	6	0	0	0	15	5
9. Pest problem	2	14	0	0	2	3
10. Farmer unable to maintain quality standards	5	0	0	20	0	3
11. Poor quality of inputs	3	0	2	20	0	3
12. Health issues	0	9	4	0	0	3
13. Inadequate/ poor technical support from firm	6	0	2	0	0	2
14. Firm refused me a contract	5	3	0	0	0	2

(continued)

Table 11.2 (continued)

Reason for attrition	*Percentage of attrition farmers citing the reason*					*Average weighted by total number of responses)*
	Gherkins (Phase 1)	*Gherkins (Phase 2)*	*Marigold*	*Broiler*	*Cotton*	
15. Personal reasons	3	6	0	0	0	2
16. High cost of cultivation relative to other crops	0	0	5	0	2	2
17. Water problem	0	6	0	0	0	1
18. No advance or credit available	0	0	2	0	0	1
19. Delay in input delivery	0	0	0	7	0	1
Number of responses	66	35	57	15	41	

Source The Tamil Nadu Farmer Survey.
Note 1. No papaya attrition farmer was interviewed. Hence, papaya is not included in the table.
2. The reasons are in descending order of average percentage of responses in the last column

southern India, for cotton and gherkins in Tamil Nadu, and broiler, chilly and baby corn in Karnataka illustrating their diverse trajectories.

Figure 11.3 presents trends in the procurement patterns for cotton and gherkins in Tamil Nadu that present something of a contrast. The cotton firm started contracting with a lot of promise in 2004–05. In what came to be known as a Tripartite Model for contract farming, the Government of Tamil Nadu brought together three cotton mills (one of which was chosen as the subject firm) and the government marketing organization called Cotton Corporation of India for contracting with the farmer. The Integrated Cotton Cultivation Programme and the Tamil Nadu Agricultural University (TNAU) were to provide research and development (R & D) support with the Commissioner of Agriculture providing extension support and training to the farmers. Commercial banks would step in to provide credit facilities to the identified farmers with insurance and

dispute settlement, if any, shall be looked after by the Central Institute of Cotton Research (CICR). In 2007–08, the firm began to procure summer cotton from Salem district, and this is reflected in the increase in the number of blocks, villages and hamlets that year. Despite this expansion in procurement area, the contract acreage and the number of farmer suppliers did not increase substantially, indicating possible farmer attrition in the Coimbatore region. By the time of the survey in 2007–08, the cotton firm was procuring from 77 farmers in a handful of villages in the study region and it was apparent that it would not survive. By 2008–09, the firm had abandoned contracting in conventional cotton. An executive associated with the program declared "Contract farming in conventional cotton is an absolute flop everywhere" (Coimbatore, Tamil Nadu, 2008). The firm was planning then to commence contract farming operations in organic cotton. As a newspaper reported "the mill sector has lost its initial enthusiasm for the concept". Most of the spinning mills that embarked on contract farming operations in 2003–04, had abandoned contracting by 2008–09, save as a CSR initiative.

Many factors were at work. Against a strong traditional market for cotton, it was difficult to ensure that the farmer did not divert the harvest to the open market. Even when a premium was fixed, because payments to farmers were not instantaneous and poor quality was penalized, this made it a less attractive for the farmer, relative to the spot market. From the firm's perspective, the costs of transacting were often higher than importing raw material internationally where trade credit of six months was available to the spinning mills. A final blow came from the interlinking of credit. In 2008–09, farmer debts were waived through a national debt waiver policy. Contract farmers who had already delivered produce faithfully to the mill, had repaid the loan automatically since it was deducted from their receivables, while those who side-sold had their loans waived by the banks. This vitiated the relationship between those farmers who honored the contract and these latter farmers opted out of contracting the next season. As a consequence of these multiple reasons, the mill could not sustain the operations.

The experience of the gherkins firm is a contrast. It started commercial operations in 1999. By 2008, the firm has expanded to contract from over 5000 farmers spread over more than 3000 acres and has stabilized at that scale. The scale fluctuates across years. While the numbers of contract hamlets, villages and blocks or even contract farmers in the study area have not declined dramatically, the volume procured from the study region

has seen a comparatively marked decline, indicating decreasing volumes procured per farmer (Fig. 11.3). Interviews with executives of the firm indicate the firm's strategic shift to new geographies for procurement. At the time of the survey, the gherkin processor was sourcing a majority of gherkins from outside the study area, moving to the east and south of the study region. This was partly on account of the stiff competition from other gherkin processors located in and around Dindigul town. The other reason, according to an executive with the firm, is declining yields from the "old areas" (Dindigul, Tamil Nadu, 2008.) It reflects too the effects of the economic downturn in importing countries, that saw fewer international orders, so that the firm reduced total procurement nationwide in 2007–08 and 2008–09. Interestingly, whenever their procurement needs fall, the gherkins firm, as a policy, tries to ensure that rather than dropping farmers they contract less acreage on average from each of them, so that they do not lose the trust or loyalty (of supply base) represented by the farmer. This implies a considered strategy for managing fluctuations and stemming attrition. Farmer attrition in this instance has been mostly voluntary, though the firm does shift geographies of procurement once in a few years, forcing farmers in older areas out of the system.

These two contracting schemes illustrate how firms do or do not manage farmer attrition and delicately balance their often challenging contexts downstream with those upstream.

The marigold contract farming scheme in Tamil Nadu illustrates the consequences of the emergence of a new alternative market. When the contractor started the scheme in the 1990s, marigold had few alternate uses in the region. In the community which grew it, the flower was used only for funerals and this association meant that the alternate market for these flowers was limited. Over time, norms changed and the flowers were ubiquitous in political meetings, social events and so on. This generated a robust alternate market where prices spiked often enough to up to 40 times the contract price. Improved access to markets where marigold was widely used further eroded the special conditions that enabled contract farming (Agribusiness Survey, Sathyamangalam, August 2010).

In Karnataka, a mapping of farmer participation in sample villages between 2005 and 2015 yields similar insights (Fig. 11.4). These data are constructed from detailed contracting histories of a set of farmers who contracted for chilly, baby corn and broiler in 2005. While the chilly scheme had "closed" in the sample villages, baby corn and broiler contracting continued albeit on a smaller scale.

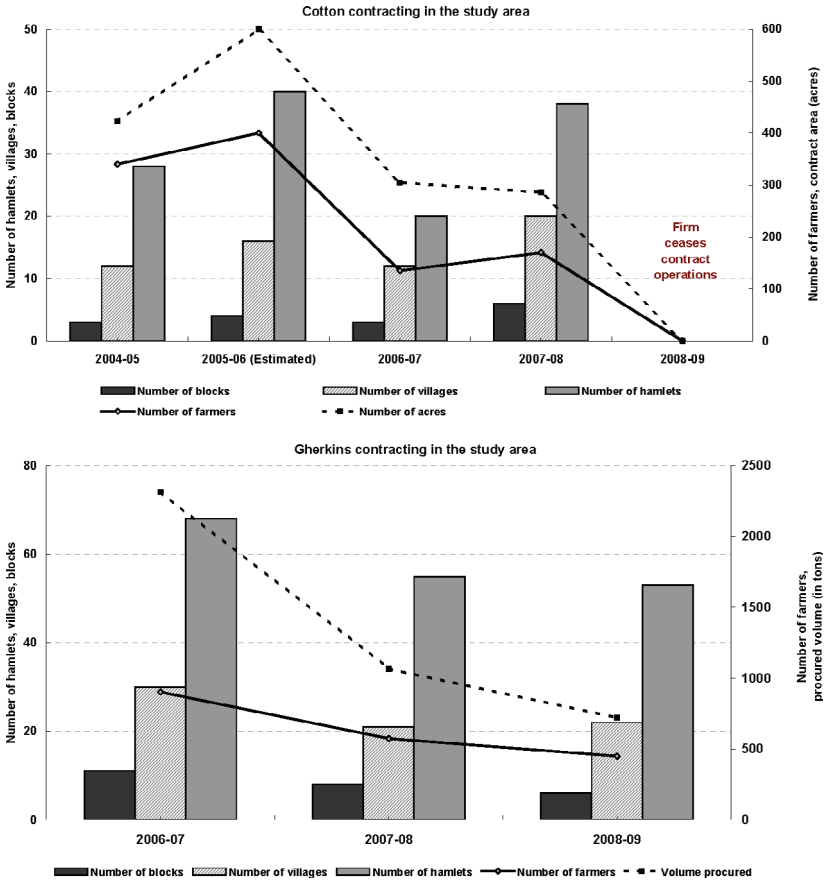

Fig. 11.3 A tale of two schemes in Tamil Nadu, India
Source Based on data shared by the cottons and gherkins contracting firm on their contracting history in the study area

In the case of chilies, many farmers had made huge losses on account of widespread disease and had to spend a significant amount on chemicals. The proximity to Bengaluru, a large, vibrant city also meant that labor was hard to come by. Here, despite the interest of contracting companies, farmers had mostly switched to coconut plantations, that in their view was much easier to manage. The baby corn contracting firm had

lost half of its suppliers over the decade. When it began contracting in the area, baby corn was a new crop, and not popular with farmers. By the end of the decade, not only was baby corn widely grown in the area, a large spot market in Bengaluru dented the contracting firm's ability to attract supplies. It seemed that their contract farmers had learnt how to grow baby corn and reach markets on their own, kicking away the ladder. The exit of broiler contract farmers was in part due to the threat of avian flu and in part due to the entry of other broiler contracting firms. As a company official noted, farmers keep switching buyers and some began contracting with the new firm seeking better terms and services. He observed "the new daughter-in-law is always deemed better than the old daughter-in-law" and this turned out to be a problem for us (Agribusiness Survey, Bengaluru, 2017). Here again is a story of a changing market structure and competition thwarting the survival of a contracting scheme. Overall these cases illustrate the varying trajectories of contract farming schemes.

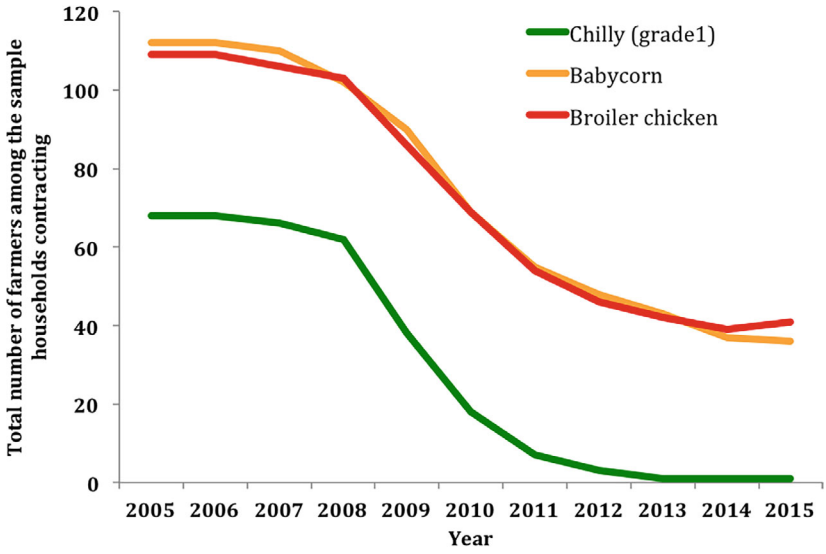

Fig. 11.4 A decade of contract farming in Karnataka, India
Source The Karnataka Farmer Survey

11.4 Implications

A key motivation for proposing an alternative framework for analyzing contract farming is because existing research in economics seems to neglect "diachronic diversity" at both the level of the individual and over the larger contracting domain. Even relational contracting approaches that leverage the idea of repeated contracting do not seem to capture multiple trajectories of contract farming schemes or account for peculiarities such as episodic participation. Both the intensity of participation and the episodic nature of participation complicates mainstream understanding of inclusivity. This neglect of the study of contract farming dynamics may be in part due to the significant resources required to track schemes over time. At the same time, the dynamics of contract farming schemes raise critical questions that merit research.

Reflecting the dynamics of contract farming schemes, welfare impacts too may be modulated by the maturity of the scheme, emphasized rightly by Ton et al. (2018), for example, in their systematic review. There could also be significant differences impact between early and late entrants into the contracting scheme (Harou et al. 2017; Gatto et al. 2017). Even for those who are included, short-term gains from participation may come at a cost. Participating farmers often experience an erosion of alternative institutions, markets or livelihoods, that undermines their position by creating dependency and increasing their vulnerability. Initially, firms set attractive terms to start off with, to get farmers into the fold, and then subsequently tighten them—a practice called "agribusiness normalization" (Glover and Ghee Lim 1992; Glover 1990). Also, when external market conditions become unfavorable for firms, they may alter their relations with producers by imposing higher quality standards and enforcing tougher contracts. This was seen at the end of the 1980s in the case of small-scale fruit production in Chile, for example. The tough conditions written into some of the contract clauses forced some producers to sell their land to the fruit-exporting firms because of high levels of indebtedness (Gwynne 1999). Similar findings on higher levels of indebtedness among contract farmers are not uncommon (Mazwi et al. 2020, for example). Here too, whereas contract farming arrangements are also viewed as capable of solving for missing credit markets (Deb and Suri 2013), McMichael (2013) notes that the incorporation of smallholders into value chains often creates debt relations that extract surplus.

A key implication of these dynamics, however, is that they can shape the nature of social stratification. Korovkin (1992) observes that contract farming contributes to the "differentiation and disintegration of the peasantry," offering rich peasants opportunity to incorporate modern technologies, augment assets and increase their reliance on wage labor, while at the same time accelerating the transformation of poor peasants into a "rural semi-sub proletariat". This has been documented by others such as Collins (1993), Gwynne (1999), Storey and Murray (2001) and Watts (1994b). Some have noted an increased concentration of land ownership (Gwynne 2003) in the region. Sometimes, the poor sell their land, while the going is good, i.e., when they get employed as farmhands on contract farms. This puts them in vulnerable positions vis-a-vis exogenous shocks that destabilize these schemes (Korovkin 1992), and these "new labor" choose to migrate to the cities. There is now a rich literature on class differentiation and accumulation from below among the rural communities when some contract and others don't. These come from a wide range of contexts, including India, China, Zimbabwe, Malawi, Mozambique and Malawi, to name a few (Isager et al. 2018; Zhang and Zeng 2021; Zhang 2015; Shonhe and Scoones 2022; Shrimali 2016; Vicol 2019; Levin 1988; Niño 2018; Martiniello and Azambuja 2022; Mazwi and Chambati 2023).

This is an area that holds great promise for cross-disciplinary collaborations where survey-based longitudinal studies can complement research that seeks to track social differentiation and agrarian change.

Part IV

CHAPTER 12

Welfare Impacts of Contract Farming

Contract farming impacts have been a focus of academic interest for several decades. The results from such evaluations are often used to provide a rationale for advocating contract farming. In this chapter, we focus on household impacts and spillover effects of contract farming. We also devote attention to critical reflections on these studies and highlight what Oya (2012) has evocatively referred to as the "Battle of Interpretations."

12.1 Household, Community and Spillover Effects

The recent enthusiasm for evidence-based policy making and the so-called "credibility revolution" have spawned a large literature within mainstream economics that conduct impact evaluation of contract participation. This has occasioned a number of reviews over the past decades (Bellemare 2018; Minot 1986; Minot and Ronchi 2015; Ton et al. 2018; Bijman 2008; Otsuka et al. 2016; Wang et al. 2014; Prowse 2012, to name a few). There have been reviews focusing on specific regions and countries as well (Cariappa et al. 2023; Bellemare and Bloem 2018; Oya 2012; Minot 2011; Ayako 1989; Mishra et al. 2021). Much of the literature within economics focuses broadly on three aspects: inclusivity in contract farming participation, impacts on participants and spillover effects on the

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https://doi.org/10.1007/978-3-031-76487-5_12

community. The issue of social performance, of who participates and who does not, has already been addressed in Chapter 6.3.1. Here, I summarize briefly the copious literature impacts of contract farming participation here, directing readers to the reviews above for a more detailed account of these studies.

Virtually all the reviews note that most of the existing evidence suggests that participating in contract farming improves the welfare of those who participate. Contracting farmers do earn higher incomes, either relative to non-contract farmers or relative to what they might have earned had they not contracted. These income gains include those from growing the contract crop and sometimes on overall household income. Little and Watts (1994) concludes that incomes from contract farming increased for a moderate (30–40 percent) to a high (50–60 percent) proportion of participants. In a review of Africa's experience with contract farming in the early 1990s, Porter and Phillips-Howard (1997) conclude that farmers were generally better off as a result of their participation in contract farming. Studies from the past two decades indicate that the impacts can range from modest increases in income in the range of 10–20 percent to close to 185 percent (Otsuka et al. 2016). While the results seem to suggest that contract participation tends to increase incomes, in some cases, the effects were reported to be ambiguous or negative (Escobal et al. 2000; Narayanan 2014b). Ton et al. (2018) find that in most of the studies they reviewed contract participants had more assets and larger landholdings, implying possible inequity in inclusion. Studies suggest too when farmers participate in modern food industry channels, that sometimes are via contracts, they have higher net earnings per hectare or per kilogram marketed compared to those who sell only through traditional channels (Gulati et al. 2008; Reardon et al. 2009; Singh 2007; Sharma 2016).

Apart from direct pecuniary benefits in terms of income, there is some evidence of reduction of price risk for the farmers, although only a few studies document this with any rigor. Knoeber and Thurman (1995) find that close to 97% of the price risk in broilers faced by the farmer is transferred to the firm. Ramaswami et al. (2005) find a similar situation in the case of broiler contract farmers in southern India, as does Michelson et al. (2012) for suppliers to Walmart in Nicaragua. Bellemare (2010) reports that the volatility of the total income of the average household fell by 16 percent, implying that participation in contract farming has impacts on household welfare..

Benefits could also be in terms of reduced risk of not finding markets, due to prior agreements and preferred supplier relationships as Hernandez et al. (2007) show in Guatemala. Benefits could also be in the form of better access to quality inputs (Minten et al. 2009). Such findings extend to efficiency and technology adoption as well. A number of recent studies find positive overall impacts of contract farming on productivity or efficiency. In a study covering livestock farms in the Philippines, India, Thailand and Brazil, Delgado et al. (2008) found evidence that contract farming tends to improve the relative profit efficiency of small farmers. Key and McBride (2001) found evidence that hog farming under contracts in the US tends to have higher factor productivity than independent hog farmers. In a study on poultry production in India,Ramaswami et al. (2005) found evidence that contract farming helped reduce farmers' production costs through improved technology and management practices as did Kumar (2007b) for tomatoes in India.

Food security and nutrition have received relatively less attention (Kennedy and Cogill 1988; Chege et al. 2015; Bellemare 2018; Mishra et al. 2018; Ochieng and Ogutu 2022). An early study by Kennedy and Cogill (1988) found that in the Mumias sugar scheme in western Kenya, since payments were made to the men in the household, there were problems with alcoholism and misuse of the income leading to poor nutritional outcomes, despite improved incomes overall. Others note that contract participation improved food security, including greater dietary diversity and lower seasonal hunger.

Many of these impacts differ across participants based on their own characteristics suggesting that some participating farmers stand to gain more than others who participate. Such heterogeneity stems from differences based on farmer characteristics (such as land size, other endowments, age and education, risk preferences and attitudes, etc.). They also vary across types of contracts (oral and written, as well as resource provision, management and marketing contracts), commodities, and across places.

Economists unsurprisingly focus on economic outcomes as proxies for welfare, such as income from the contracted crop, household income and possible tradeoffs therein of contract cultivation, wealth, poverty, food security, income volatility, employment, production efficiency and technology adoption. Spillover effects include contract and technology adoption among others in the community including neighbors but also community-level employment effects. In contrast, research in other fields

explores a broader range of themes, beyond those listed above, including several social outcomes on labor conditions on contract farms, implications for gender, farmer autonomy, social differentiation and the role of the state in modulating these impacts. Importantly, they are able to study the quality and nature of the contractual relationship and the everyday workings and tensions, relying on rich and granular evidence to do so. For example, research by other social scientists documents the emergence of reverse tenancy in India (Singh 2022a), accelerated land sales in Guatemala consequent to oil palm expansion (Hervas 2017), greater levels of indebtedness among tobacco growers in Malawi (Mazwi et al. 2020) and India (Ray et al. 2021) and greater social stratification and differentiation, as discussed in other parts in this book. These studies provide a different hue to contract farming impacts, reflecting perhaps the disciplinary divide in our preoccupations and empirical methods.

Aspects such as employment effects are discussed in the following Chapter 13.1, but I highlight here that impact evaluation techniques deployed by economists are far more likely to overlook domain-level outcomes such as social and economic inequality, and the consequences of contracting for market-level outcomes, including for land and tenure, credit and indebtedness.

12.2 A "Battle of Interpretations"

If contract farming is an arena for ideological contestation, contract farming research too is a "battle of interpretations" to borrow Oya (2012)'s phrase. Mirroring efforts to organizing the diversity of contract farming arrangements in meaningful ways, there have been efforts to typologize the diverse literature on contract farming impacts. Glover (1990) offered an early typology in 1990 that Oya (2012) extended to reflect literature until the 2000s. As Oya (2012) notes, Glover's classification mixes methodological and ideological criteria, but is regardless useful to understand the variety of voices in this field. One approach comprises evaluation studies done by development practitioners, following largely an NIE approach and including evaluations for donor-led interventions; a second approach includes the "Food First" group, of academics and practitioners, who are highly critical of agribusiness and privilege "food self-sufficiency" and a pro-peasant discourse; a third approach is a "business school" group, mostly concerned with transnational corporate behaviour and management perspective with little focus on grower

welfare, or indeed on other social and political issues. To these three Oya (2012) adds a "political economy" and an "economic sociology" group. This group views contract farming through the lens of social relations and power dynamics to track the process of agrarian transformation in the larger context of history, politics and society, with papers in Little (1994); Vicol et al. (2022) being prime examples. Some of these themes are evident in earlier development evaluations as well. Yet, as Gore (2000) notes, a key shift that occurred at the end of the 1970s from historicism to ahistorical performance assessment may have afflicted economic analysis of contract farming as well. As such, this trend, still persistent, rends apart a field that enabled economists and other social scientists share common ground.

It is possible to add a group to this list that focuses on impact evaluation of contract farming schemes; this approach has come to dominate economic research drawing heavily on household survey data. I reflect on this trend in the rest of this chapter, since it is here that much of the desired "infusion" from other disciplines needs to occur. Much of the current work on impacts of contract farming, guided by the rapid developments in causal inference techniques, compare similar groups of farmers, some of whom who contract with others who don't. There is greater attention today to whether or not a causal interpretation can be accorded to empirical findings. As Bellemare (2015) and Bellemare and Bloem (2018) remind us, this identification problem remains, and a correlation between contract participation and welfare outcomes is not necessarily causation.

The central challenge in attributing impacts to participation in contract farming is the fact that one cannot observe the same farmer under both regimes (contracting) and not contracting. This necessitates sacrificing the hope of obtaining causal impact at the level of the individual (scientifically more precise and desirable), to focus on average impacts across contract participants and non-participants. Since these two groups could be very different on account of the selectivity with respect to who participates, if these are overlooked, then one would obtain estimates of impacts that may well have to do with the attributes drive contract participation rather than contracting itself. Economists, therefore, attempt to "construct" a realistic counterfactual so that they are able to compare the outcomes of interest for the contracting farmers with the outcomes for a group of non-contracting farmers who "look" similar to the contracting farmers—this adjustment is typically achieved statistically, by picking groups that share

the same observable characteristics (matched comparisons), by statistically controlling for these characteristics or by identifying a key variable (called instrument) that is crucial for being selected into contract farming schemes but cannot also influence outcomes. Such an instrument, that cannot directly influence outcome can then be credibly viewed to impact outcomes only by altering the chances that the farmer is selected. These approaches "cleanse" the comparisons of other attributes that influence selection and hence any differences in outcomes can be reliably regarded as have been *caused* by contract farming. Randomized control trials, often considered the gold standard of causal inference, are founded on the premise that the true causal relationship of contract farming on outcomes is only revealed if contract farming participation is devoid of selectivity of who contracts, and achieves this by randomly assigning farmers into contract farming schemes.

Ironically, what is regarded as the ideal approach to assessing impacts of contract farming also urges us to get as far away from reality as possible to that point that it seems antithetical to the incorporation of social and political contexts and of the complex selection processes that form the basis for establishing and maintaining contract farming schemes. This raises pertinent questions about the usefulness of findings. From a policy perspective, the relevant question is arguably not at all about whether contract farming benefits a "randomly" selected farmer.

Another less appreciated fact is that in seeking to create a counterfactual group, most empirical economists choose a group of farmers who do not currently contract. Yet as Narayanan (2013) points out, this may lead to hierarchical sorting, where farmers who opt to contract are better off and do better as contract farmers, while farmers who do not participate do better without contracting (Chapter 7). Most of this literature computes the Average Treatment Effects on the Treated (ATOT) that compares contracting outcomes to a hypothetical counterfactual of what these farmers would have experienced had they not contracted. This is different from the Average Treatment Effects on the Untreated (ATOU) or the Average Treatment Effects (ATE). The former compares outcomes for non-participants asking whether their outcomes would change if they participated. The latter computes an average for the entire sample comparing outcomes if all of them were contracting relative to those they would obtain if none of them did. It is easy to see that if there is hierarchical sorting the answer to these three questions would differ, so ATOT would be positive, ATOU negative and ATE would depend on

the relative strength of the two. Yet, studies compute ATOT and do not investigate the phenomenon of sorting. Only a few studies investigate this systematically.

There are also significant challenges in the construction of counterfactual. Too often economists insist on comparing apples with apples in the sense that contract participants and non-participants need to be similar except for their contracting status. Yet, sometimes contract farming entails adoption of a new regime altogether of a different production technology or crop. Indeed, contracting may urge farmers to grow oranges rather than apples, and here these would be deemed to fall short of standards of rigor for impact evaluation. These have been addressed to some extent via endogenous regime switching models (Rao and Qaim 2010; Narayanan 2014b, for early examples).

Likewise considering that contracts can be differentiated even within a scheme, a simplistic characterization of contract participation as a yes or a no neglects variations across individuals within a scheme on the inputs from a contracting scheme. Several studies have tackled these by comparing resource provisioning contracts versus marketing contracts (Dubbert and Abdulai 2022) or by comparing oral versus written contracts (Ma and Abdulai 2016; Sununtar and Leung 2014)). Arouna et al. (2021) conduct an RCT that is able to isolate the impact of different contractual features in a rare and useful example of the use of RCTs to understand contract farming features. These studies offer a way to isolate the consequences of specific contractual features.

We have already noted that contracting arrangements can be highly dynamic and exhibit diachronic diversity. In the expansive literature on contract farming impacts, only a handful are sensitive to the maturity of the scheme, duration of participation or timing of entry (Ton et al. 2018). Harou et al. (2017), for example, note in their comparison of outcomes for early and late entrants that late entrants benefited less, partly because by that time, the scheme itself faced challenges. Narayanan (2014b) finds negative impacts at the cusp of the collapse of a contracting scheme. Chapter 11.3 also pointed out the episodic nature of participation, so that cross-sectional studies that deem some farmers as non-participants on account of their status in a given season, may neglect that fact that farmers may not be optimizing their income in a single season but over several. In these cases, counterfactual groups must be chosen carefully and outcomes need to be measured over multiple seasons to be more realistic.

Bellemare (2015) highlights that most empirical quantitative evaluations suggest contract farming has positive impacts and notes that this may well be on account of a publication bias, that favors publication of positive impacts as opposed to neutral or negative impacts. Survival bias too matters (Ton et al. 2018), since researchers can only collect data of currently contracting farmers in schemes that survive; these are more likely to survive and farmers continue to contract on account of the benefits they derive. Noteworthy here is an early assessment of tomato contract farming in Indian Punjab (Rangi and Sidhu 2000), that continued to be cited well after the contract scheme itself had collapsed!

Commentators have also noted the challenge of inferring impacts of contract farming because of the limited external validity of most impact evaluation studies, i.e., the extent to which we can extrapolate the results of one study to other contexts, times and contracting schemes. This, along with the publication bias, impedes our understanding of contract farming schemes (Bellemare and Bloem 2018). Yet, given what we know about the diversity of contracting experiences over time and space, one should expect a range of findings from impact evaluation studies and the absence of consensus may be more consistent with empirical realities than a consensus across studies, that may be the outcome of publication and survival bias. There is hence little reason to worry over the lack of consensus; at the same time therefore, if the wide variety of contracting arrangements precludes external validity, then it raises key questions on how far such empirical evidence can be used to advocate for contract farming. Rather these surveys need to be combined with qualitative research to be able to explain the diversity in findings and to understand the impacts of these arrangements more fully before such evidence can inform policy. This is one way in which the Aokian framework can provide a broader framework within which to situate impact evaluation findings. Rather than a formulaic and sometimes tired approach of comparing mechanistically groups of farmers, embedding such rigorous analysis within the larger context of contract farming might enable us to uncover critical concerns around contractual relationships or provide insights into why these impacts obtain, or which baseline contextual feature shape these outcomes.

CHAPTER 13

Labor and the Environment

Of the many strands of inquiry within economics on contract farming, issues of labor, including of women and children, and environment appear as rather peripheral concerns. This is despite the broader recognition that agricultural commercialization matters for both labor and environment (Barbier 2008; Pingali 2001; Reardon and Barrett 2000). Studies that engage substantively with these issues typically ask if participation in contract farming schemes increases the adoption of sustainable practices, for example, or increases the use of hired or family labor, both on farm and at the regional level, as "spillovers" or employment effects.

In contrast, for researchers in other social sciences, these concerns are central to contract farming practice. The emergence of corporations as enthusiastic contractors of produce has as much to do with their desire to control labor on farms (both household labor of farmers and of the workers they may hire) and resources such as land (as a more acceptable form than land grabbing) and water without the associated managerial or supervisory costs of doing so (Niño and Oya 2021; Vicol and Niño 2023). Contracting arrangements may vary with respect to how much control over production and labor contracting farmers have—ranging from notional and illusory control or substantive autonomy to growers to virtually complete control where farmers are just workers on their fields. In this chapter, we review some of the key issues relating to labor, drawing attention to women, children and health, and the environment.

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Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_13

We reflect on how research within economics can better incorporate labor and environmental concerns. Note that in some instances, social and environmental implications of contracting arrangement can influence uptake and survival of a contract farming scheme itself, as was evident in farmer motivations to contract (Chapter 7).

13.1 Labor

Commentators have often pointed out the inherent tension between commercial dynamics and societal dynamics, as well as production versus social reproduction in global agricultural value chains (Barrientos 2019)—a tension that seems inevitable as large players downstream encounter small farmers upstream. The issue of labor, of women workers and children in particular, on contract farms illustrates this tension particularly well. Unsurprisingly, this is also an area where the disciplinary divide between economics and others is quite sharp. This divide stems not merely from differences in preferences for empirical approaches but rather from their respective theoretical points of departure.

As noted earlier, because contract farming is viewed as an instrument to organize and indirectly control labor, without incurring the costs of hiring, monitoring and supervision, for most non-economists and heterodox economists, labor is central to contract farming (Jha et al. 2022; Bahati et al. 2022,for example). Some argue that contract farming represents the real subsumption that Marx described, where labor is reorganized substantively to service the interests of capital to the point where a symbiotic relationship between firm and farmer is unfathomable (Mabbett and Carter 2018, for example).

Questions around the sort of labor regime that contract farming represents and how surplus is extracted is, therefore, an important preoccupation. Recall that one critique of contract farming stems from the Chayanovian perspective that commercialization of smallholder agriculture entails "auto-exploitation" of family owned labor. As White and Wijaya (2022) write, 70 years after Chayanov's work, contract farming is still commonly regarded as "disguised proletarianization" (Little 1994; Watts 1994a; Taylor and Rioux 2017; Little and Watts 1994) with peasants becoming workers in their own land (Baglioni 2021). Watts (1994b, page 64) noted that some contracts make the farmer "little more than a propertied laborer, a hired laborer on his or her own

land." On the other hand, outgrowers and contract farms may be "semi-commercialized", often useing their own family labor on farms in addition to hiring in farm workers (Deere and de Janvry 1979).

13.1.1 Hierarchies of Control

At the heart of contract farming as institution is a hierarchy of control, starting from contracting firms, intermediaries or company field officials, contract farmers, supervisors and farm managers and down to workers. The terms on which labor is incorporated in contract farming schemes depend on the specific configuration of the contract farming scheme and the context (Little 1994; White and Wijaya 2022; Finemore and McAllister 2018). Shrimali (2021) provides a rich account of the pressures and strategies employed by actors within such a hierarchy in the Indian Punjab. Similarly, Niño (2018) notes that in tobacco contract farming in Mozambique, pressure of merchant capital on farmers is internalized within households and transferred onto workers and sharecroppers. Even among workers or contract farmers, there may be differences in how much voice and agency they have. Thus, within the broad class of workers, children, migrant, even undocumented, workers and women may not all be incorporated on similar terms, and within this hierarchy, contract farming can accentuate gender and social inequities and prompt intra-household tensions over the allocation of new revenues (Carney 1988, 1994; Collins 1993; Dolan 2005; Dolan et al. 2002; Watts 1994a; von Bülow and Srensen 1993; Barrientos et al. 1999). These hierarchies of control can engender new forms of control as well. Raynolds (2002, 2000) discusses studies that point to the modification of class relations among agents who intervene at different points in the commodity chain, where contract farming has resulted in new forms of control over agricultural production by food processing companies, banks and supermarkets.

Such hierarchies of control allow agribusinesses that contract with farmers to put themselves at arms' length from these labor arrangements, exculpating themselves from on-farm practices that may exploit workers. This sort of arrangement is not unique to contract farming nor to contemporary times. The British East India Company, for instance, used an agency system, where *gumasthas* or agents contracted with weavers, advancing capital and buying back output. The Company gave agents

power to enforce these contracts resulting in financial exploitation and often physical abuse (Swamy 2015).

Both the incorporation into such hierarchies and exclusion from it can produce social differential depending on the context. If, for example, employment opportunities either via contracting or working on contract farmers are lucrative, but are not available for all contract farmers or all workers, clearly, this has the effect in the longer run of stratifying agrarian societies and possibly exacerbating economic inequalities if it puts the two groups on different income growth trajectories (Key and Runsten 1999; Korovkin 1992). Little (1994) points out increasing rural inequality in their studies as contract farmers grow wealthy enough to hire farm laborers. This hierarchy of control contributes to and aggravates social differentiation, even among the workers, who may be peasants themselves. The way labor is organized becomes one pathway to peasant differentiation (Zhang 2015, for example).

13.1.2 Employment Effects of Contract Farming

This kind of critical reflection on what contract farming implies for labor, whether for the farming household itself or for those they employ, is largely absent from most studies by economists. In general, many economists view the emergence of contract farming as one element of the structural transformation of the economy and at the household level. Global value chains speed up and feed this transformation. Contract farming may increase farm productivity and can potentially release labor from farms. Contract farming then has the potential to both employ people—the farmers themselves more productively on their contract farms as well as hired workers to meet the demands—and at the same time to release family labor from farms (either due to productivity and labor-saving technologies on farm) to supply to the off-farm sector. Within this paradigm, economists focus on the potential for contract farming and associated agroindustries that sponsor these schemes to generate employment on and off farm, for the contracting farmers and for landless workers.[1]

[1] Given the focus of the book, we focus on contract farming set aside the context of large factory farms or agroindustries, often multinational firms, managed by paid professionals who hire workers for farm and post-harvest operations, that are often advocated as a way to generate employment, alleviate poverty and earn foreign exchange in developing

A number of studies show that contract farming leads to additional labor use in farm production, harvesting and post-harvest handling (Benali et al. 2018; Meemken and Bellemare 2020; Neven et al. 2009; Rao et al. 2012). Thus, often, when smallholders are excluded or exit contracting arrangements, they may nevertheless have employment opportunities on contract farms and outside through ancillary or related activities, for example, as employees in the associated agro-processing sector for exporting firms (Maertens 2009; Maertens and Verhofstadt 2013; Van den Broeck and Maertens 2017; Humphrey et al. 2004). In Senegal, a decade-long study finds that employment opportunities in agro-processing expanded (Maertens and Swinnen 2009) and contracting generated substantial opportunities for people to work on contract farms in contexts where such opportunities were scarce. For participating farmers, higher levels of on-farm hired labor use have been noted (Maertens and Verhofstadt 2013; Neven et al. 2009; Meemken and Bellemare 2020; Rao et al. 2012; Benali et al. 2018). Large-scale contract farmers often hire seasonal laborers, who are often themselves smallholders (Runsten and Key 1996a).

Key and Runsten (1999) show that contract farming can have important multiplier effects on employment, infrastructure and the development of local markets in Latin America. Neven et al. (2009) documents positive employment effects generated by supermarket suppliers in Kenya and similar studies focus on the impact of the Chilean fruit boom (Jarvis and Vera-Toscano 2004), or the growth of vegetable export zones in Guatemala (Von Braun et al. 1989a) and in Senegal (Maertens and Swinnen 2009). Participation in these supply chains via labor markets has positive effects on income, agricultural production and poverty reduction (Maertens and Swinnen 2009; Maertens 2009; Maertens and Verhofstadt 2013). These labor effects may have also been particularly important for women (Maertens and Verhofstadt 2013; Rao et al. 2012), with feedback into lower fertility, better primary schooling and relieving on-farm liquidity constraints are all documented. Van den Broeck and Maertens (2017)) find that (foreign) investments in large-scale commercial and export-oriented farming can trigger pro-poor growth—directly through

countries (Barrientos et al. 2003). Indeed such factory farms that have come to dominate several agro-export sectors such as pineapple in Ghana or the cut flowers export industry in Kenya (Riisgaard 2009; Ehlert et al. 2014).

employment effects and indirectly through investment and consumption linkages with the small-scale farm and non-farm sector.

Notwithstanding the largely positive impacts on employment, it is evident that the extent to which contracting enables contract farmers to diversify into off-farm employment is unclear. These may depend on the crop and the production technology. For example, Ruml and Qaim (2021) find that in Ghana simple marketing contracts lead to reallocation of the saved household labor to off-farm employment, whereas resource-providing contracts lead to a stronger reallocation of labor within the farming enterprise. Household labor is more affected by labor-saving technologies than hired labor and they find that agricultural labor intensity is substantially reduced through the contracts, because contracting in Ghana is associated with the adoption of labor-saving procedures and technologies. Bellemare et al. (2020) too observe a decline in off-farm employment of contract farming participants; while Ochieng et al. (2017) note no tradeoffs with non-farm sources of income. Others find no significant spillover effect in terms of employment for agricultural workers in most of the countries they studied and limited effects only in Tanzania (Meemken and Bellemare 2020).

13.1.3 Downgrading, Upgrading or Just Degrading?

A major concern is that despite these employment effects on and off farm, for contract farmers and others, there is little discussion within economics of the working conditions or the quality of employment. Economists have recently attempted to explore aspects of quality of work on contract farmers (Van den Broeck and Maertens 2017); Fabry et al. 2022). Others have attempted to assess satisfaction and happiness (Dedehouanou et al. 2013; Väth and Kirk 2014). For example, in the horticultural sector in Senegal, the quality of employment is assessed through wages and a decent work index that captures multiple wage and non-wage dimensions of job quality (Fabry et al. 2022). Results suggest that job quality is better in the agroindustry than on small-scale farms. Agroindustry is inclusive towards migrant, female and young workers, but disparities in job quality existed within and across companies. They found substantial gender wage gaps across companies, but not within companies, and a lower likelihood of having decent employment among migrant and young workers.

Yet, inclusion and economic upgrading of growers in value chains does not necessarily translate into social upgrading and may in fact be

consistent with a downgrading of livelihoods (Barrientos 2014; Barrientos et al. 2011). Involvement in an agrifood value chain is often detrimental to workers and small farmers, in terms of precarious employment, lack of voice and insecurity and some insults are harder to remedy than others (Pegler 2015). Barrientos et al. (1999) noted that in global value chains, there was often an associated fragmentation and atomization of seasonal employment, with women occupying the most insecure jobs, even though they happened to be crucial tasks in export fruit production. The patterns could vary widely however. Barrientos (2014) highlights case studies from African traditional and high-value agro-exports to highlight three scenarios where: in some cases, the floriculture sector, for example, economic and partial social upgrading have gone together, in others, horticulture, upgrading and downgrading outcomes are mixed and in still others, such as cocoa. Economic and social downgrading have gone together. Some recognize that contracting can be used as an instrument to alter gender imbalances when the terms of such inclusion are carefully designed (Adams et al. 2019; Tietje and Tuider 2022). Koczberski (2007) highlights opportunities on account of a more gender equitable payment scheme in oil palm contract in Papua New Guinea. Adams et al. (2019) shows that in sugarcane contract in Malawi, while contract farming led to a masculinization of farm management and ownership together with a feminization of labor, although there were conditions in which women were able to advance their agency and interests.

Recall in the chapter on selection of contracting areas and farmers (Chapter 6), the issue of labor availability both within the family and in geographies was often expressed as a key criterion for contracting firms. Too often selection of regions where firms seek to operate is based on the availability of labor, both plentiful and cheap. Narratives of "hardworking" and "enterprising" farmers or farmers who can be "trusted" and "controlled" often accompany business strategies that select communities for contracting operations. These choices are efforts to align actors with and assign them to hierarchies of control—contractor, intermediary, farmer and worker, where surplus is extracted in multiple ways, including through wages, debt and usury, entailing "accumulation by disempowerment" if not by dispossession (Shrimali 2021).

These hierarchies tend to exploit deeply entrenched inequities across class, migrant and gender.Shrimali (2021) provides a rich account of these hierarchies in the Indian Punjab describing how the hierarchy incorporates farm manager, supervisor, their labor recruitment strategies and use

of child labor. In San Quintín, located in the Baja Californian peninsula, local producers use Oaxacan day laborers for their agricultural operations (Novo 2004). Migrant laborers are prepared to work at wage levels below their level of reproduction and in Indonesia, "failed" transmigrants compete with the local population for jobs on the contracted plantations leading to conflicts over land and jobs (Li et al. 2016). Child labor on a contract farm also provides a "cheaper" labor option for contract farmers in India and South Africa (Singh 2002b; Porter and Phillips-Howard 1997; Venkateswarlu and da Corta 2001; Venkateswarlu 2007). Seed contract farms for contracting in India routinely deploy child labor (Venkateswarlu and da Corta 2001). Singh (2001) points out that in the case of India, most of those employed on contract farms were paid below legal minimum wages and worked in poor conditions. A majority of them were women and children. Singh (2003) notes elsewhere too that contract farms disproportionately recruit migrant workers and women, often in deplorable conditions. In the context of the tomato agroindustry in Mexico, Barron and Rello (2000) point out similarly difficult circumstances for these farmer-laborers, as does Selwyn (2007) in the case of sugar contracts in Brazil. LeBaron and Gore (2020) study cocoa supply chains in Ghana suggest forced labor and stark gender inequities.

If the availability of outside options is key to redressing the power imbalance between growers and contractors, this is more so the case for labor on contract farms and in processing plants (Oya 2012), especially the landless among them who have few options. Some suggest that discussions of the forcedness of labor are often "ring-fenced" and that this distinction is one of degree and not type (Brandão and Schoneveld 2021). Indeed, some recent work on labor arrangements on contract farms is eerily reminiscent of the less desirable colonial practices of recruitment of workers by labor contractors on plantations in colonies (Swamy 2015; Behal 2014). In colonial India, for example, plantation owners were given the right to arrest workers via a special law. The hold of employers over migrant workers from distant lands changed only when transportation and declining costs of travel, facilitated both sharing of information on the conditions in plantations and expanding outside options. Many of the accounts of plantation workers are similar, the more egregious forms fictionalized by Gabriel Garcia-Marquez in One Hundred Years of Solitude and Álvaro Cepeda Samudio in his La Casa Grande. Even if agribusiness and contract farmers, who may be smallholders themselves, today do not have the sanction of the laws of the land, and stories of

indentured labor and "modern slavery" persist in industrial plantations rather than on contract farms, it is hard to imagine reasons contract farms should be any different.

In developed countries such as the US, contract farms often employ immigrant, often undocumented workers, under conditions that can have serious implications for worker health and well-being (Holmes 2013). As Guthman (2017, page 97) notes, drawing on research on fumigant use in California's strawberry contract farms, "contract farming devolves biopolitical responsibility, as well as political economic risks to growers, who face difficult choices about making life live." Strawberry plants, Guthman (2017) writes, are vulnerable to soil pathogens; this pushes contract farmers who are under intense pressure economically and need to comply with both the contract and regulations to use highly toxic soil fumigants and other agrochemicals. Harmful to workers, neighboring communities and farmers themselves, but not to consumers, contracting out production allows companies to shift these responsibilities to farmers. Meanwhile, they avoid the costs of regulatory compliance and divest the risk of yield losses. "It also makes it easier for them to distance themselves from the moral baggage of fumigant use, which has come under increasing public criticism." Writing about Driscoll's, she notes that even as Driscoll's' work to reduce fumigant use and researches alternatives, its contracts do not forbid fumigant use, and the company's public stance sends a message to outgrowers to consider farming without them. Yet, it provides no direct financial assistance to help with this transition. Elsewhere, in Thailand, Marks (2022) notes instances where farmers have chemical residues in blood by virtue of the increase in the use of chemicals and the type of agriculture contract farming promotes in that specific context. It is particularly in the sphere of health that it is possible to appreciate the power imbalances and constraints on agency of growers and workers on contract farms.

Another egregious example is the use of child labor in contract seed production in India. This section draws fully on illuminating work by Venkateswarlu (2003) and paraphrases his narrative. Seed companies in India often rely on seed "organizers" to procure seeds from farmers via contracts. This entails supply of parent seeds and promised buyback of the multiplied seeds. Contract farming in seeds is widely regarded as a success in India in the sense that it continues to be the dominant form or organization. To ensure high quality seeds, often seed companies prescribe

fairly detailed guidance on production practices that are explicitly incorporated into these contracts. Starting early 2000s, several credible reports emerged of the use of child labor on the seed contract farms. These were amplified by local and international media. Civil society organizations in the Indian state of Andhra Pradesh and current day Telangana took the lead in highlighting this issue (Venkateswarlu 2003). Faced with a reputational risk globally, different firms took different positions on the issue. Some firms claimed that their contracts were with "organizers" and as such they denied that they were responsible for the actions of farmers that the organizers worked with. Venkateswarlu (2003) documents the following interactions of these firms, reproduced below with minimal paraphrasing.

In response to several unflattering news articles, the General Manager, Corporate communications, Hindustan Lever Limited (HLL), noted in a press statement:

> HLL has third-party seed organizers who get seeds produced from numerous farmers on sale/purchase basis and supply them to HLL. In no case, HLL deals with any farmer, either for production or for payments. Though HLL does not control or influence seed organizers' selection/dealing with farmers, the seed organizer typically supplies parental seeds to farmers at a cost with a buyback arrangement of the resultant seed production. To carry out actual production, the farmer and his entire family work in the fields and employ additional labor whenever required. HLL or the seed organizer has no direct or indirect role in the farmer's practice of either taking help from his family members or employing labor.

In Kurnool, one firm noted that while child labor was widely prevalent in the cottonseed industry, they do not encourage child workers saying:

> We are not responsible for the practices of local farmers with whom we do not directly make any contracts.

The solution to this problem, the firm's spokesperson elaborated, did not lie in the nature of institutional arrangements but rather in technological solutions. The company noted that new cotton hybrids would halve labor requirements in production of seeds by half, paving the path for ridding the industry of this disturbing practice.

A representative of Unilever made similar observations in a communication to NOVIB, a developmental organization:

> In the agrarian sector in India, just like in other developing countries, it happens a lot that children are working on the farms of their families. This is a way of life in societies where children are seen as active members of the family and in that capacity have to contribute to the family enterprise. This naturally differs from any other form of forced labor ...Our company does not employ any child labor and we cannot enforce any regulations on the seed farmers since they are not employed by us. Most of the farmers who supply seed for us are small farmers. They primarily depend on their own family labor including their children for cultivation of seeds and employment of outside child labor is less.

As the report notes, however, this absolving of responsibility flies in the face of their own contracts that indicate considerable influence and control over many other aspects of seed production. The companies supply foundation seeds, set prices and quality standards to be followed by the farmers; further company representatives make frequent visits to the farmers' fields, with the aid of seed organizers to check whether or not they are following norms prescribed by the company while cultivating the seeds and offer technical advice to them about the use of fertilizers and pesticides, precautions to be taken while doing cross-pollination work, etc.

Below we quote from the report which notes that the legal agreement a company called Advanta makes with its seed farmers for production of seeds is in fact considerably detailed.

> the grower (seed farmer) agrees to carry out under the supervision and guidance of the officer/ representative of the company, the entire work relating to preparation and ploughing of scheduled land, attend to other agricultural operations such as proper and timely irrigation, interculture, application of proper quantities of fertilizers, application of pesticides when required, roughing, pollination, attend weeding operations, male chopping etc. and finally at the time as may be advised by the company harvest the seeds. During the currency of this agreement, the representatives, employees, agents or servants of the company shall have a right to enter the scheduled land for assessing the progress of cultivation and production of hybrid seeds and to ascertain and verify whether the grower has followed the advise render by the company pursuant to the provisions of this agreement and the grower agrees to allow such representatives, employees, agents or servants of the company to have ingress and engress to the land.

Consequent to this flurry of media reports and public attention, some firms began to explicitly include a provision in their contracts with seed organizers, that explicitly forbade child labor on the growers' farms. Others noted that since the practice of child labor was more prevalent among rich contract farmers, they urged their seed organizers to work with smallholder farmers who were more likely to use family labor. This claim was, in turn, contested by child rights advocacy bodies, who noted that seed production is so labor intensive that even an acre under contract seed production would demand hired workers. Others wrote into contract terms stating that farmers should comply with all the central- and state-level laws regarding child labor. One company, Syngenta, explicitly included in the written agreement that children should not be used in cultivation of seeds.

There are no easy solutions to the problem of work on contract farms. Regulation has historically tended to be ineffective, and is a loophole firms might seek to exploit. Solutions such as certification are unlikely to be effective on contract farmers and may be more relevant for factory farms and might work better too for environmental conditions than for labor. This is especially the case when even the identification of contract farmers is hard, as Chapter 2.1 explained. The evidence is on impacts of certification are mixed. Many find positive impacts on wages, contract duration and working conditions (Krumbiegel et al. 2018; Schuster and Maertens 2016). There are some documented cases of successes. For example, Larsen and Gillett (2017) track contract farming and CSR projects in the Tanzanian tobacco sector where companies tightly oversee the contract farming schemes and inspect and monitor farm production processes through a joint venture subsidiary, the Association of Tanzanian Tobacco Traders. These resulted in better social and environmental performance.

Other studies conclude that certification might improve the terms on which smallholders participate in agrifood value chains, these are unlikely to percolate to workers on those farms. For example, under Fairtrade requirements, individual farmers who employ workers are less strictly formulated and monitored. Some studies have also questioned the ability of smallholder farmers to pay higher wages, especially when certification is not associated with substantial increases in earnings. Wages for workers are not higher for workers in certified systems (Oya et al. 2018). The predicament of workers, who not on certified factory farms or cooperatives but on certified small farms, is worse, suggest perhaps that

certification regimes are likely to influence worker conditions in cooperatives but perhaps not on small farms (Meemken et al. 2019). As Meemken et al. (2019) note, the premium associated with Fairtrade certification are often disbursed to farmers with some delay, and not at the time when the wages for farm workers are calculated. This means that whether and when these benefits are passed on to the workers depends on each individual farmer. In general, therefore, the hierarchies of control may sometimes get replicated within solutions proposed to dislodge these hierarchies.

13.1.4 Incorporating Labor Concerns in Contract Farming

As a field researcher of contract farming schemes, workers on contract farms are largely invisible and difficult to reach, since access to farm workers is often managed and mediated by the farmers. All too often therefore surveys conducted by economists focus on the contract farmer and contract farm as units of analysis and the impacts on labor and employment are read through data collected on operations of the contract farm. While this precludes opportunities to understand crucial issues such as the conditions on which hired labor is employed on contract farms or their working conditions, there is still a lot that one can learn about what contract farming implies for labor.

There are three possible approaches to addressing this gap empirically. As noted above, surveys by economists tend to assess employment and labor issues via the contract farm or the contract farmer, rather than via surveys of the workers who are employed on contract farms. Although this falls short of tracking workers themselves and constructing a credible sample of such workers, this exercise is nevertheless useful to understand the impacts of contract farming on workers, beyond wages and employment effects. Disaggregated data on labor and tasks usually goes a long way in mapping some of the labor arrangements, including those concerning gender and children (Benali et al. 2018).

Second is to more explicitly incorporate concerns of "autoexploitation." Most assessments of impacts on incomes of contract farmers or households often use paid-out costs and do not factor in the imputed costs of family labor (Otsuka et al. 2016). In these cases, studies overestimate the economic benefits of contracting by overlooking the costs of family labor. Incorporating family labor costs at imputed wages and adjusting incomes for these would better reflect the true returns to contract farming.

Third, an explicit commitment to surveying workers on contrac farms would be desirable. A recent trend in developing psychometric measures for contract farmers or worker preferences over labor contracts can be productively used to capture elements such as drudgery, exploitation, hazards, harrassment, etc., on farm and in the workplace (Dedehouanou et al. 2013). Multidisciplinary studies that focus on health and nutrition of workers are also as yet limited (Holmes 2013). There is scope too to study cases of and the impact of interventions that seek to improve labor conditions on contract farms, including certification and increasing awareness around contracts, wages and working conditions (Jäckering et al. 2021, for example).

Theoretically, modeling efforts within economics can easily incorporate labor issues into the contracting problem, at contracting stage and factor in the costs associated with drudgery or environmental externalities. Ultimately, however, to truly grasp the trajectories of social differentiation and power imbalances from hierarchies of control, it is not enough that surveys are longitudinal or repeated. It is hard to find a substitute for in-depth qualitative research of the sort that has thus far highlighted these issues.

13.2 Environment

The introductory chapter noted that questions around corporate commitment (or the lack of it) to the environmental consequences of contract farming are important. Yet, in the rich literature on impacts of contract farming, only a few studies focus on contract farming's implications for the environment or how environmental concerns shape contracts and contracting practices. Since many contract farming firms influence cropping patterns, varietal use and specify production practices that contract farmers need to follow, they can exert a strong influence on the environment and ecology, both on and off farm. On the one hand, these may lead to more sustainable practices. On the other hand, since contract farming enables firms to access land for farming without actually owning land, firms are not directly invested in maintaining the land or the environment, and don't directly bear the costs of action. Environmental groups often argue, therefore, that contract farming has deleterious consequences for the environment.

In the context of the environment, the pertinent questions are very many: To what extent do contract farming arrangements engender

a transformation of the geographies? Do independent growers have stronger commitment to and stewardship of natural resources? How much incentive do firms have to be environmentally responsible? Do contracting companies propagate specific technologies that inflict ecological damage on and off farm and can they promote those that do not? To what extent do contracts specify or incorporate such concerns? Specifically, who controls specific actions that can aggravate or prevent such damage? How do contracts and contracting arrangements deal with who bears the consequences of these outcomes? How do contracts incorporate existing environmental regulations? Who bears the regulatory burden and who is held liable for failures? Several studies have attempted to answer at least some of these questions, although this is an area where we know far less than we should.

13.2.1 Cropping Patterns and Sustainable Practices

The spread of contract farming and more generally of the type of agriculture it fosters, namely plantations and monocropping often leads to a decline in biodiversity on a large scale, for example, as with oil palm contract farming in Indonesia (Li 2021), sugarcane contracting in Thailand (Marks 2022), biofuels globally (Shepherd 2013). Burch et al. (1990) note that the emergence of contracting and large-scale industrial agriculture in Australia, led to a narrow genetic base of crops, greater input dependence and land use control for farmers.

To the extent that the contract farming promotes intensive cultivation, it can result in negative environmental consequences. The structure of contracts can push farmers to focus narrowly on productivity and short-term profits at the expense of sustainability (Morvaridi 1995). Critiques of broiler contract farming via tournaments in the US note that production practices are unsustainable socially and environmentally. Statistically speaking, in some contexts farmers with a propensity to participate in contract farming tend to have low probabilities of using sustainable farm practices (Dubbert et al. 2023). In a different case, degradation of soil quality consequent to recommended nutrient and pest management as part of contract farming eventually led to the firm abandoning contracting altogether in Mexico (Glover 1990; Mannon 2005). Grossman (1998), in his compelling work on bananas in the Caribbean, reveals the unanticipated consequences of corporate requirements of input use, organochlorine insecticides and herbicides in the 1960s, on the

environment and on food production. Strawberry farms documented in Guthman (2017)'s work saw the proliferation of the use of chemical cocktails used on bananas to food crops with uncertain health effects. These were in response to pressures on contract growers to maintain yields.

Vukina (2003) discusses these issues in the context of livestock highlighting that the debate is more nuanced. Here, large, intensive livestock production units, that contracting may promote, may, in fact, be environmentally friendlier than small, family farms because they can afford technologically advanced waste management systems because of significant economies of scale. Belton and Little (2008) note that in Thailand whereas the production of domestic aqua-products is largely positive for consumers, farmers and the environment, intensive production of shrimp for export resulted in disease outbreaks and overcapitalization, debt and environmental degradation at the farm level. Castellanos-Navarrete et al. (2021) notes that the most threat to environments comes from industrial plantations and at the frontiers, where despite benefits to smallholders, there may be social conflicts over between smallholders (often migrant settlers) and forest-dependent (indigenous and Afro-descendant) communities opposing this industry. Mitra and Rao (2021) make similar observations from field studies in Odisha, India.

No doubt, contract farming does not always have adverse impacts on the environment and as with most other aspects, these impacts can vary depending on the nature of the commodity, the actors and the contract. There are, therefore, positive examples as well of the adoption of more sustainable or cleaner production practices. These may be a consequence of these contracting arrangements propelled by either a discerning consumer base, certification strategies or closer supervision and guidance/extension (Ren et al. 2021; Ogishi et al. 2003). Interestingly they may also be on account of specific contractual features. Preckel et al. (2000) analyze implications of contract design for nitrate-based environmental externalities generated by seed corn producers. They argue that contract insecurity, in which the probability of contract renewal depends on yield performance, distorts input use, causing an increase in nitrogen use by about 12%, resulting in a 17% increase in nitrate leaching. They call for a change in contracting practices to tackle nitrate leaching.

13.2.2 Cost and Culpability

As with contracts that do or don't regulate labor practices on contract farms, a parallel issue exists with environmental practices. Firms may choose to transfer the costs of compliance and the responsibility to contract growers. Goodhue and Hoffmann (2006) in an analysis of specific contracts note that firms often write contracts that absolve them of any responsibility in the event of environmental damages (Chapter 9.2). This has typically been achieved by classifying growers as experts. Yet, many court cases have implicated the contracting firm for negative environmental consequences.

Goodhue and Hoffmann (2006) cite the example of Sierra Club v. Tyson Foods in 2003, when the court dismissed Tyson's claim that a growers' independent contractor status absolved Tyson's of responsibility for reporting related to the growers' activities under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), noting the control exercised by Tyson over production, as well as its ownership of the chicks. In Sierra Club v. Tyson Foods, the court rejected boilerplate content designed to eliminate contractor liability and tied responsibility for environmental compliance to responsibility for production.

Elsewhere, in a study of Panama disease in banana contract farms in the Philippines, de la Cruz and Jansen (2018) found that the companies contractually compel the latter to bear the burden of the disease, while blaming them for its spread noting that this allowed inequitable relations to remain unquestioned, and constrained possibilities for control of Panama disease.

As environmental concerns associated with contract farms increase, it is possible that contractors forego some control of the production process to try to avoid liability for environmental violations. This remains a critical area for future research.

Beyond foisting the grower with environmental responsibilities, a more egregious example is of contractors allowing farmers to bear the environmental costs of contract production, that causes crop loss or deterioration in soil and environmental conditions over time. In Costa Rica, for example, contracting resulted in farmers using their land more intensively, with higher use of agrochemicals and water exhaustion. All these environmental costs were borne by the farmers in the long run (Pomareda

2006). This is especially true if the firm is not tied locationally to an area (via say, a processing unit or factory), making it easy to shift to another region to source produce. We already noted some examples with gherkin contracting in India, where firms move their procurement shed as soil quality deteriorates from repeated contracting. Whether these are slash and burn strategies or a scorched earth approach is unclear. Firms that have a more symbiotic relationship with the farmers tend to be more invested in the long-term sustainability of contracting with the farmers. Others could trade away long-term relationships with some farmers in favor of building new relationships with a new set of farmers who wish to enter contract farming.

Quite differently, there have even been instances of allegations that inappropriate technology was recommended to farmers by the firms. This has been discussed earlier as well. In one case, farmers noted that an Indian firm had overcontracted for produce, as is typical practice. That year, the yields were much higher than the average and the company would have had to reject the produce of a large number of farmers. Instead, farmers allege that the firm got their field officials to recommend inputs and input dosages that damaged standing crops. This ensured that they were not forced to procure the produce or be seen to be rejecting the bumper harvest, in excess of what they sought.

Environmental concerns, like those of labor, can eventually impact the uptake and survival of contract farming schemes. Here is another example of how in the Aokian framework of contract farming as frictional equilibria, there is an incremental change in the environmental conditions that, beyond a threshold, may make contracting itself untenable. Alternatively, it could result in a virtuous circle that can engineer systemic impacts on better and cleaner, more sustainable production.

Part V

CHAPTER 14

The State

The question of the role of the state in contract farming expansion has attracted a great deal of attention, with opinions divided on whether the state should promote it, disallow it or ignore it. In this chapter, we reflect on state role in contract farming—first focusing on the doctrines that undergird state role, and then focusing on two aspects of policy: facilitation and promotion of contract farming on the one hand and regulation, on the other. We then focus specifically on the relationship of the Indian state with contract farming.

14.1 Doctrines that Underpin Contract Farming Promotion and Regulation

As Oya (2012) noted, there is a need to understand more deeply the doctrines, both agrarian and economic, that drive contract farming policy, its advocacy and promotion. During the 1960s and 1970s, much of contract farming among the countries in SSA were led by the state. Many of these countries, emerging from colonial rule, proactively sought to invest in and manage agricultural production via contract farming, motivated by concerns over food self-sufficiency and poverty alleviation and the need to generate export earnings or conserve foreign exchange, as the case may be. Contract farming schemes by monopsonistic state marketing

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_14

boards became a common way of transitioning out of the colonial plantation system. In the 1980s, the Washington Consensus's diagnosis of impediments to rural development in Africa was that state intervention distorted the proper functioning of markets. The "Berg Report" (World Bank 1981)) argued that state regulation of all kinds actively hurt farmers in SSA, disincentivizing production and efficiency. This leads to a widespread doctrine that the state should retreat to allow markets to function, unleashing a wave of privatization and liberalization.

There was soon a growing recognition that smallholders had been "left behind" in the wave of liberalization reforms that marked the 1980s and 1990s. The philosophy of "as little intervention as possible," expressed in its extreme form as a sort of market fundamentalism, therefore gave way to a "market plus approach." This approach offered a tempered view of the role of markets. Bernstein and Oya (2014) note that the market plus approach focused on making markets pro-poor, by linking smallholders to global agrifood chains, riding on the paradigm of agricultural growth based on the efficiency of smallholder agriculture (Ellis and Biggs 2001). This approach has been consistently reflected in the reports of several international organizations, notably World Development Report 2008 and Agriculture for Development (World Bank 2007). In this approach, the state would undertake non-market interventions that would enable market development and "empower" small farmers, including the construction of infrastructure, providing extension services, inputs and value chain finance and fostering farmer institutions. Included in these measures are the development and strengthening of institutions for contract enforcement, widely seen as an impediment to private sector participation and investment across sectors of the economy..

Both the promotion of contract farming and producer organizations can be viewed as twin foci of the "market plus" approach to agricultural development. Also increasing in prominence are PPPs to assist the state redress a range of market failures. What was originally the responsibility of the state, has recently devolved on private sector players and certain types of CSOs that now often leverage state support to implement these approaches. Others note that the market plus approach recognizes that unequal power is a key problem with contract farming and that this can and must be solved to support voluntary exchange—a phenomenon that Cohen et al. (2022) refer to as the new distributive contract.

Deliberations on the state role in contract farming in developing countries can be viewed through this lens. In developing countries, the state's

role is envisaged as a blend of promotion, facilitation and regulation of contract farming. This is somewhat different from the state's current role in developed countries where the state regulates but has little direct involvement in facilitation and promotion, albeit one can argue that the overall policy environment implicitly facilitates contracting arrangements.

14.1.1 Facilitation and Promotion

There are a number of ways in which governments in developing countries have facilitated and promoted contract farming.

An obvious way in which governments promote contract farming is by operating schemes themselves, as was the case in much of Sub-Saharan Africa (Ayako 1989; Minot 2011; Oya 2012). Over time, however, reflecting the more recent doctrines of the market plus approach, many governments, including those in some states of India, often engage in multipartite arrangements with private sector players to encourage contract farming. In Punjab for example, to encourage farmers to diversify away from rice-wheat cultivation, the state government engaged private sector corporations to enter into contracts with the state providing inputs and training to farmers (Singh 2005, for example).

An alternative approach is for governments to allocate territorial concessions to specific contractors to operate contract farming schemes in specific areas. In Rwanda, government zoning regulation in the coffee sector explicitly provided monopsony rights for processing mills in an effort to tackle breach in contracts (Gerard et al. 2022). Cotton in some countries of West Africa followed a similar trajectory (Minot 2011). In India, such zones were allocated to sugar mills and more recently for the expansion of oil palm in an effort to gain self-sufficiency in edible oils.

Differently, the state can introduce specific changes in policy to allow for or enable contract farming. In Malawi, for example, contract farming in tobacco was rendered impossible when it was mandated that tobacco be sold via auctions (Jaffee 2003). Since 2005, however, a separate section of the auction floor allowed contract buyers, although in 2007-08, a law deemed that no more than 33% of the tobacco to be sold in this way. Such examples can be deemed to be "market-defying" interventions that work to allow contract farming (Bernstein and Oya 2014).

In China, dragon-headed enterprises offer an interesting example of the state ensuring markets to domestic private enterprises while tasking them with input and technology transfer to smallholder agriculture.

Companies that receive official recognition as dragonheads get strong state support in the form of subsidies, tax breaks and loans, as well as practical help in establishing rural production bases (Guo et al. 2007; Zhang et al. 2015; Schneider 2017; Luo et al. 2017). Since 2002, for example, they receive financing from the Agricultural Development Bank of China.

In many of these above cases, especially under state-run schemes and zoning regulations, farmers have limited agency and are often left with few options but to participate.

Governments can also facilitate contract farming more discreetly. Many contracting firms, for example, lobby with governments favorable import and export policies and the state can shape incentives for contract farming within a country by altering the calculus of make or buy internationally. Governments can also indirectly promote contract farming in the country by adopting policies that favor contracting firms. The Kenya Tea Development Authority's success is in large part due to the scheme's exemption from export tax which allows the project and its growers to receive a large share of the export price (Glover 1990).

It is not unusual for states to provide expanded credit, subsidized inputs training, extending subsidies to contracting firms, as the Chinese example already shows. In Thailand, for example, contract farmers were eligible to receive credit at concessionary interest rates, at 7 rather than 10 percent for non-contract farmers (Marks 2022); they also received loans of up to 100 percent of the value of their collateral as against the 70-80 percent usually provided. Contracts lowered default risks for bankers, and loans made contracting an attractive option for farmers. In India, the state of Punjab offered a 3.5% reduction in marketing fees for contracting firms though it was withdrawn later (Singh 2022a).. This wide array of explicit government effort to foster contract farming is less common in most developed countries.

14.1.2 Regulation

In most developed countries, state attention to contract farming is in the realm of regulation, with most governments trying to establish the right amount of regulation. Too little would leave farmers at the mercy of the contractors, as was seen in the discussions on written contracts and too much would deter contract farming altogether, the welfare outcomes of which remain unclear. Regulation itself can cover two broad

areas: regulation of contract farming and regulations that affect contract farming.

At a broad level, among issues that affect contract farming are property rights laws. Property rights regimes shape the extent to which contract farming is a credible option for firms (Reardon and Barrett 2000). As Escobal et al. (2000) note, agroindustrial firms could not own land in Peru at that time. India too has restrictions on corporate ownership of farmland. Such laws push firms to consider contract farming and these also then provide a justification for the promotion of contract farming. More recently, in the face of widespread concerns globally of landgrabbing, contract farming is projected as a more inclusive alternative that incorporates smallholders without dispossessing them (Vicol 2017; Vicol and Niño 2023; Oya et al. 2018). These may set in motion a process of accumulation without dispossession (Shrimali 2021). Similarly land ceiling limits, land redistribution that prevents land consolidation can also influence that organizational forms in agricultural markets.

Mainstream economists generally have reservations relating to the regulation of what is essentially considered the private sphere, where parties have freedom to contract and enjoy the principle of autonomy. At the same time, there is recognition that due to the incomplete nature of contracts, contracts themselves can generate serious inefficiencies. Thus, if market failures justify government intervention, then contract failures should too (Wu 2006). Economists have thus reflected on when it is appropriate for governments to intervene and regulate contracts. There is broad consensus today that there are instances when regulation is welcome and indeed necessary. First, when incomplete contracts leave contractors with too much discretion and farmers with too little, including specific clauses that contracts can be prematurely terminated unilaterally by the contracting firm. Second, when monopsony conditions prevail contracts can be prematurely terminated. Third, dispute resolution processes may explicitly or implicitly favor the contracting firms. Fourth, when some contractual elements are deemed unfair. Fifth, when there exists damaging consequences for health and environment in ways that are not internalized. Several of these issues have been discussed in earlier chapters (Chapters 8, 13.1 and 13.2) and few would disagree that these warrant intervention and regulation. The US offers examples such as the Packers and Stockyard Act of 1921 (PSA). Acts to protect producers and contract growers. A ban on tournament contracts has also been richly debated (Tsoulouhas and Vukina 2001; Wu and Roe 2005; Wu 2015).

Yet there are constraints to these approaches to regulation in the developing world, as amply clear from discussions in Chapter10. Some interesting examples of promulgating a contract farming law include the experience of Thailand with its special Act titled The Contract Farming Promotion and Development Act (2017) (Marks 2022) and India with its decades of attempting legislation around contract farming (Singh 2022a), discussed below. The Indian case represents one approach of incremental and uneven, contested reform that has arguably led to diverse experiences in contract farming across states and sectors within the country. The Chinese example offers a different account. Zhang (2012) writes that the Chinese experience of contract farming is marked by its instability, lack of competitiveness and its impact on rural inequality is shaped by its encounter with strong preexisting rural institutions including collectives, strong domestic markets and active state support for agriculture. Governments also are guided by different doctrines, both agrarian and economic, in their imagining of agriculture and the future of small farms. Furthermore, as Glover (1990) reminds us it is oversimplification to speak of "the government" one must distinguish among the often conflicting objectives of its various agencies, or indeed in a federal structure, the various levels of governance. There remains considerable scope for comparative analysis across states and countries that provide different contexts for the growth of contract farming.

14.2 The Indian Experience

The Indian experience of contract farming facilitation, promotion and regulation largely tracks the evolution of doctrines, but has been a contested process. Here is a short account drawing on Narayanan (2010)

Ever since Independence in 1947, transactions in farm commodities have been regulated heavily, notably through the Essential Commodities Act (ECA) and the Agricultural Produce Marketing Committees Act (APMC Act). ECA imposes restrictions on storage and movement of certain "essential" commodities by private parties, mainly to protect consumers. The APMC Act, on the other hand, mandated that purchases of certain agricultural commodities be through government-regulated markets (*mandis*) with the payment of designated commissions and marketing fees. Furthermore, the Land Ceiling Act proscribed firms from owning and operating large-scale factory farms. Together, these severely circumscribed private sector participation in agriculture.

Though the APMC Act was designed to protect farmers' interests, it perversely rendered farmers dependent on middlemen, who were financiers, information brokers and traders, all rolled into one. This dependency often turned exploitative; farmers received but a fraction of the price paid by the final consumer, with middlemen cornering a large part of the rest. Over time, critics felt that APMC Acts and the ECA had perhaps overextended their reach, compromising farmers and consumers in favor of trader-middlemen.

In India, since 1991, when economy-wide reforms began, three broad trends began to put severe pressure on the severely regulated and state-biased agricultural market policies that were perceived to be anachronistic, inefficient and iniquitous (Narayanan 2010). First, with the growth of private sector participation and export-orientation in processing industries following industrial delicensing, control over the source of feedstock to ensure quality and traceability became desirable. Second, the emergence of supermarkets and modern retail chains necessitated a steady supply of fresh produce of consistently good quality. Third, against a background of a silent collapse of state extension systems and rising input subsidies to agriculture, the state began to disengage from traditional forms of policy intervention in the agricultural sector and sought to create spaces for the private sector. Contract farming began to feature prominently in this effort.

As part of what was termed the "Rainbow Revolution," the National Agricultural Policy (2000) promised that "private sector participation will be promoted through contract farming and land leasing arrangements to allow accelerated technology transfer, capital inflow, and assured market for crop production ...." In 2003, a Model Act (The State Agricultural Produce Marketing Development & Regulation Act) outlined a framework for contract farming operations that would safeguard the interests of both firms and farmers equitably. This was later complemented by the creation of Agri-Export Zones (AEZ) as part of the EXIM Policy, 2001-02, across the country, where firms involved in agri-processing for exports would benefit from tax breaks and specific infrastructural facilities. The policies listed above are illustrative of different kinds of interventions that reflect assumptions about the transformative power of modern agricultural supply chains. Implicit in the articulation of the vision for a Rainbow Revolution is an assumption, for instance, that the spread of private sector participation would be a matter of course.

Recent years have seen enormous emphasis placed on developing strong and effective legislative frameworks for contract enforcement and dispute resolution in India with a view to creating favorable conditions for the growth of contract farming. In India, agriculture is a state subject so that substantive policy levers in the country work within individual states. Legal provisions regarding contract farming would be state-level laws rather than a federal-level or national law. Some states, like Tamil Nadu, had always permitted contract farming. Others were already providing space for such arrangements in select sectors such as horticulture.Still others disallowed contract farming. It was, however, Punjab that led the way, when it proactively permitted PepsiCo to take up tomato contracting for its processing plant in 1989. Soon after, contracting in high-value commodities, such as basmati, spices, chilies, flowers and fruits began in many states. By the late 1990s, the basket of contract crops already included "exotic" commodities like baby corn, cut flowers, etc. Several states followed suit.

The 2003 Act, mentioned earlier, outlined a framework for contract farming operations that would safeguard the interests of both firms and farmers. States were urged to adopt this legal framework to enable rapid growth of contract farming. The Model Act provided for registration of all contracts and a thirty-day window for resolving contractual disputes. These Acts have found many advocates. The World Bank (2005) believes, for example, that the "government can foster the development of contractual arrangements by facilitating the creation of producer organizations, *legislating an appropriate contract law and enforcing it effectively*" (emphasis added). The US-India Knowledge Initiative (KIA),[1] a bilateral program in agriculture, suggests that "legal mechanisms for contracts and alternative mechanisms for regulating contracts would be evolved based on the American experience" (Kuruganti 2008). There have also been calls for regulating contract farming so that firm-farm relationships are more "equitable and farmer-centric" than at present. The National Commission on Farmers Third Report, 2006, for instance, advocates a Code of Conduct for all agribusinesses engaged in contract

[1] The US-India Knowledge Initiative on Agricultural Education, Teaching, Research, Service, and Commercial Linkages was initiated on July 18, 2005, with the US, with secured funding of $8 million in fiscal year 2006 and a total of $24 million pledged through 2008. (http://www.fas.usda.gov/icd/India_knowl_init/factsheet.asp, accessed October 23, 2008).

farming, that would pay special attention to clauses dealing with quality standards, withdrawal conditions, pricing standards, paying arrangements, acts of God clauses and arbitration mechanisms. This is a cross-section of opinion with diverse ideological content that emphasizes legislation to varying degrees as a way to foster contract farming arrangements, under the implicit assumption that legislation would in fact encourage actors to enter the legal fold to transact while protecting poor farmers. Several economists too have proposed thoughtful strategies to remove restrictions on contract farming such that farmers are not left at the mercy of big business (Banerjee et al. 2002).

Many states have since reformed state-level laws to permit contract farming. However, these transitions have not been smooth. For example, in 2008 Metro Cash and Carry's APMC license was renewed in West Bengal only under condition that it would not pursue contract farming. Even those that have reformed the laws have seen limited use of the law. In Maharashtra, for instance, four months after an "appropriate law" with a blueprint for enforcement was put in place, the officer overseeing proposals had failed to receive even a single proposal. "Earlier, contracts between companies and farmers were not governed by a dedicated Act. Now, we have the Act which stipulates rules that have to be followed. But contracts are not being signed under this Act." Ghadyalpatil (2008) This is not unique. In states where the Model Contract Farming Law has been adapted, the response of firms to undertake contract farming schemes within this framework has not been encouraging (Ghadyalpatil 2008; Gulati et al. 2008). More recently Punjab rolled back its dedicated law to promote contract farming Singh (2022a).

The recent history of contract farming legislation has been similarly chequered, with suggested Model Acts being proposed at frequent intervals. In 2020, however, in an unusual move, the federal government implemented the Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, (2020), more conveniently referred to as the Contract Farming Act. The Act aimed to bring all states into the ambit in an area where hitherto states had legislative powers. While detailed critiques are available elsewhere (Singh 2022a), the Act represented a way of positioning what was essentially an instrument to promote contract farming as a regulatory device to protect farmer interests and redress potential power imbalances. As Singh (2022a) notes the Act was more about facilitation and promotion than about regulation. As is now known, the Act was repealed, along with two others that were

passed at the same time, after popular protests by farmers. Noteworthy is that even businesses that ought to have had something to cheer about did not feel the need for an Act. In 2020, in a meeting at the peak of COVID-19, before ill-fated Contract Farming Act, a representative from a large agribusiness with successful contract farming schemes told the government representative with folded hands "Please do not bring a special act, the Indian Partnership Act works well for us."

The notion that state agencies can be party to contracting arrangements, either as third-party guarantors, enforcer or even as the buyback agency does not entirely resolve all the concerns outlined above as constraints for the expansion of contract farming, given the specificities of commodity and context. Thus just as the absence of enforcement mechanisms can thwart contractual compliance, its presence in the form of effective enforcement can rob firms of the flexibility that they value.

The history of policy making around contract farming in India and the account of its operation and impacts suggests that contract farming cannot serve as a broad-based strategy for rural development, given the difficulties in sustaining contractual relationships, the equivocal impact of contract farming.

CHAPTER 15

Conclusion

This book is based on the premise that the ideological divide, between economists and other social scientists, with respect to the normative implications of contract farming in developing countries represents a false binary. This, as many have already acknowledged, emanates from the fact that particular theoretical frameworks that inform empirical work do not often speak to each other. This prevents any reconciliation of the diverse and apparently contradictory evidence of whether contract farming is a good or a bad thing. As Oya (2012) pointed out, researchers who subscribe to mainstream economics viewpoints and methods on the one hand, and geographers, anthropologists, sociologists and political scientists on the other tend to caricature each other, often without a deeper dialogue or collaboration.

I was motivated by the possibility that an additive analytical framework would provide a platform for economists to acknowledge, appreciate and incorporate the broader concerns of social scientists, without necessarily sacrificing the insights that they are well positioned to highlight.

The main purpose of this book is to establish a case for a unified framework, drawing on Comparative Institutional Analysis, that conceptualizes and operationalizes contract farming as frictional equilibria. A second goal is to tackle the methodological divides across disciplines to explore the possibility of using mixed methods to address these divides. Further,

S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5_15

rather than dismissing existing economic approaches as being inadequate and rejecting outright approaches that are based on methodological individualism or models that examine individual motivations propeling behavior and choices, the book identifies promising elements, that offer scope for further development. Third, the book offers suggestions on how to better infuse perspectives from other disciplines and highlight areas where research would be welcome.

Each discipline brings its own unique lens that at times are fundamentally different. At the same time, there is a case to be made for delineating areas where different disciplines are better placed to contribute than others and to view these endeavors as complementary rather than conflicting. Further, even when theoretical perspectives are irreconcilable, the empirical world of contract farming can offer a platform for different theoretical interpretations and empirics that can facilitate a fruitful dialogue.

Such an endeavor requires some effort to redress current lacunae in approaching contract farming research within economics. The theoretical lens for analyzing contract farming in economics has viewed the farmer (or firm) as a unit of analysis, precluding a systemic and dynamic view that would accommodate richer empirical realities. This book argued for a recognition of the different "levels" of institutions that are relevant to the analysis of contract farming in a way that (1) traverses different scales to capture phenomena both at the farmer level and at the level of a contract farming "domain", (2) incorporates substantively the heterogeneity of farmer types and farmer experiences with contract farming, (3) incorporates dynamic elements of contract farming relationships, acknowledging not only the impact that continuity of these relationships into the future can have on economic decisions in the present, but also admitting that these assessments of the future themselves can be flawed and (4) incorporates better the question of power within social relations and social outcomes.

This book thus made a case for analyzing contract farming as institution, as dynamic systems, where equilibria prevail over a domain, advocating the Aokian Comparative Institutional Analysis (CIA) framework as an appropriate theoretical apparatus to do this. Although adopting the view that institutions are the equilibrium outcome of a game, Aoki tempers this view by incorporating the idea that institutions "embody" rules of the game. He proposes, therefore, what he terms the "endogenous-rules-of-the-game view". An institution is then

"a compressed representation of the salient, invariant features of an equilibrium path, perceived by almost all the agents in the domain as relevant to their own strategic choices. As such it governs the strategic interactions of the agents in a self-enforcing manner and in turn is reproduced by their actual choices in a continually changing environment" (Aoki 2001, pages 26 and 185). The context of uncertainty, incomplete information and agents' constraints on rationality introduces frictions so that contract farming emerges as frictional equilibria over a particular domain. Contract farming as institution then denotes a set of substantive characteristics representing agents' subjective expectations of a game and their choice of stable, procedurally rational actions within it. Individual choices among heterogeneous agents then jointly determine the larger form and nature of the contract farming system that emerges, including relational elements to maintain the system. Further the responses of agents can change incrementally or dramatically, endogenously or in response to exogenous changes.

The key strength of Aoki's framework is that it allows for individual agency to operate within a larger political, social and cultural context that shapes their agency, while themselves being able to influence this larger context. As such therefore it seems to provide an overarching framework that can accommodate the atomistic approach of economists within a relational domain-level approach preferred by other social scientists. A second strength is that it is not fetishize specific empirical methods, so that the choice of methods depends on the specific questions one seeks to answer. The Aokian CIA framework opens up a range of possibilities for both context-specific modeling and impact evaluation that represent the current concerns of economists and to couch these in broader qualitative historical and political analysis of contract farming schemes themselves.

While the book does not attempt to directly apply this framework, it advocates the analysis of contract farming not as a discrete experience or event but as a set of component stages where individuals and firms interact with each other and choose their best options in response to frictions and to contexts that they may not always have control over. The rest of this book attempted to justify such an approach relying heavily on qualitative and quantitative survey data from India and literature on contract farming globally. The persistent effort was to shine the light on the the areas where economics can make valuable contributions, either via enriching abstract models with insights from other disciplines or via the incorporation of broader concerns, domain level and dynamic outcomes into empirical methods that are an essential part of an economist's toolkit.

I conclude with some reflections of how we may begin to apply the CIA framework contract farming research. Without doubt, disciplines have boundaries with good reason. The goal is not to smudge those boundaries. Rather the effort is to see if an additive framework such as the one proposed in this book can be operationalized by economists in ways that offer a platform for dialogue with other social scientists. One implication of the framework is that it provides a natural way for economists to situate the components and questions they may study in the context of broader issues such as agrarian transformations. Another implication of the CIA framework are the possibilities of engaging with the big questions themselves, of power, political economy and agrarian change. This necessitates the use of a wider range of empirical methods within economics, beyond impact evaluations. In particular, it demands moving away from a focus on researching the effects of causes, to explaining the causes of effects, and to textual and qualitative analysis. A third implication of the CIA framework that it offers a way for researchers to design collaborative and coordinated long-term studies by interdisciplinary teams, where economic approaches can complement other approaches.

This is the sense in which it might be possible to negotiate the seemingly polar views on the normative consequences of contract farming, and recognizing that contract farming holds promise but also comes with its perils.

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S. Narayanan, *Contract Farming in Developing Countries*,
Palgrave Studies in Agricultural Economics and Food Policy,
https://doi.org/10.1007/978-3-031-76487-5