



Routledge Frontiers of Political Economy

THE POWER OF RANKINGS IN ECONOMICS AND RESEARCH ORGANIZATIONS

**CONTRIBUTIONS TO THE SOCIAL STUDIES
OF ECONOMICS**

Edited by

Stephan Pühringer, Jens Maesse, and Thierry Rossier



The Power of Rankings in Economics and Research Organizations

Discourses around research excellence and quality are predominant within the economic sciences, with various forms of ranking playing a central role. They make “excellence” in research and teaching visible, but they also create hierarchical orders between researchers, institutions, publication outlets and countries.

The authors of this volume analyse the role of rankings in shaping and transforming economics from different theoretical, methodological and disciplinary perspectives. The various contributions explore the specific situation in different countries as well as global developments within economics and beyond. In addition, the book contributes to an overall debate about the role and function of rankings in academia. The analysis focuses on four aspects: rankings and social hierarchies, rankings and paradigmatic hegemonies, rankings and regulations/policies, as well as rankings and critique/alternatives.

The book addresses scholars in economic sociology, economics, higher education and science studies.

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Economics

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Part I

Introduction



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1 The power of rankings in economics and research organizations

An introduction

*Stephan Pühringer, Jens Maesse, and
Thierry Rossier*

1.1 Rankings in academia

In spite of numerous criticisms and calls for reform within the realm of research evaluation, exemplified by initiatives like the Declaration on Research Assessment (DORA) in 2012, the Leiden Manifesto in 2015, and more recently, the European Commission’s Research and Innovation Agreement CoARA, discussions pertaining to research excellence and quality persist in exerting a formative influence on the structural landscape of contemporary academia and the career trajectories of young scholars (Maesse, 2017). Notably, the escalating reliance on quantitative criteria for research assessment, including metrics and rankings, has fueled a pervasive inclination toward the quantification of scientific endeavors, leading to what has been labeled as the “metric tide” by Wilsdon et al. (2015). Processes of standardization, quantification, and the introduction of competitive dynamics in the realm of academic knowledge production are observable across several dimensions and have impacted on the governance of research organizations in various ways.

At the macro level, the managerial transformation in higher education governance since the 1980s and 1990s has contributed to the self-perception of universities as “entrepreneurial”. Within this context, university administration heavily relies on indicator-based steering instruments, including rankings of individual scholars’ academic output. Furthermore, universities themselves are subject to global rankings, and the allocation of public funding is, in part, contingent upon the positioning of universities in diverse global rankings. Consequently, global university rankings intensify the competitive landscape among institutions seeking elevated status (Brankovic et al., 2018; Münch, 2014; Espeland and Sauder, 2016; Hazelkorn, 2011).

On the micro level, pertaining to individual researchers, quantitative evaluation technologies and methodologies have gained prominence over recent decades. Metrics derived from academic knowledge platforms such as Web of Science, SCOPUS, or Google Scholar not only facilitate interpersonal comparisons—largely through rankings—but are increasingly utilized to “measure” research quality. Despite variations in the extent and nature of this transformation and standardization of research evaluation across different

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research cultures and academic disciplines, diverse forms of quantitative evaluation criteria exert a substantial impact on the trajectories of researchers' careers, the evolution of sub-disciplines, and the allocation of competitively organized research funding. In sum, rankings serve as both influential institutions and mechanisms for power shifts, favoring specific academic environments, paradigms, and strategies. They operate at the intersection of various sectors, making academic fields accessible to broader audiences and facilitating transnational governance processes (Hamann and Schmidt-Wellenburg, 2020).

1.2 The special role of rankings in economics

The discipline of economics has been at the forefront of this development within the social sciences, as evidenced not only by the disproportionate importance of metrics themselves but also by a particularly strong mainstreaming of the discipline and thus a high degree of standardization of methods, theories, and epistemologies (Fourcade, 2009; Tribe, 2022). In economics, various forms of rankings and quantitative evaluation methods and technologies play a central role (Fourcade et al., 2015; Hammarfelt, 2017; Vogel et al., 2017). They form particular conceptions of “excellence” and make it visible in research and teaching. But they also create hierarchical orders between researchers, institutions, publication outlets, and countries (Han, 2003; Maesse, 2018).

This hierarchization is particularly visible in the marginalization of non-mainstream, heterodox research programs in economics (Kapeller et al., 2022). On the one hand, this marginalization is based not only on network effects and path dependencies with respect to citation behavior (Dobusch and Kapeller, 2012; Lee and Elsner, 2011; Aistleitner et al., 2019) but also on a conscious decision with respect to the qualitative categorization of academic journals (e.g. FAPE, 2014, for France, and Stockhammer et al., 2021, for the United Kingdom). Rankings work in different directions: on the one hand, rankings evaluate ex post the results of research, teaching activities, and media visibility in the past—for example, the *Handelsblatt* ranking in Germany or the many rankings of economists in widely circulated newspapers. On the other hand, rankings sketch and anticipate ex ante what “good” research (and teaching) might be by setting standards through journal rankings and teaching evaluations (e.g. the Research Excellence Framework—REF—in British universities or the French Excellence Initiatives IDEX).

Moreover, due to the particularly strong hierarchical order of economics, impact rankings based on publications in a few “top” economics journals also play a decisive role for the career trajectories of young economists (Rossier, this volume; Aistleitner et al., 2019). The particularly strong reliance on a very small number of top journals—the “top five” journals—is not only an idiosyncrasy of economics but also leads to several undesirable outcomes, including various forms of unethical research practices. Therefore, several authors have diagnosed a “tyranny of the top five” (Heckman and Moktan, 2020) or even a “top5itis” (Serrano, 2018).

Within the social sciences, many scholars have analyzed the role and wider implications of rankings (e.g. Brankovic et al., 2018; Espeland and Sauder, 2007; Hammarfelt et al., 2017). Some studies have criticized the validity of existing rankings and proposed more elaborated concepts and criteria on how to better reflect real quality in terms of societal and academic impact, which have been taken up by initiatives such as the DORA declaration or, more recently, by the EU Commission's support for the CoARA agreement on reforming research assessment (Science Europe, 2022). Other studies have argued that rankings do not reflect academic quality, but rather change academic life according to their proposed criteria, performativity of rankings (Espeland and Sauder, 2016; Pühringer and Wolfmayr, 2024; Rijcke et al., 2016). Moreover, critical studies have shown that rankings and bibliometric indices more generally incentivize strategic behavior of researchers and academic institutions alike, thus hindering knowledge developments and paradigmatic pluralism (path dependency, e.g. Aistleitner et al., 2018; Gräbner, 2017). Today, however, there are many other research perspectives on the role of rankings in and for science in general and economics in particular. While several idiosyncrasies of economics make it particularly receptive to quantitative evaluation methods and technologies and "ranking games" (Osterloh and Frey, 2015), economics also partly reflects a general trend toward quantification of research evaluation. Therefore, this volume includes contributions on the role and performative effects of rankings in the current higher education system, but with a particular focus on the role and effects of quantitative evaluation methods and technologies in the field of economics and research organization.

Against this background, our book provides 11 contributions by a diverse group of authors from nine countries, using a wide range of qualitative and quantitative analyses based on, inter alia, interviews, policy documents, archival research, questionnaires, bibliometrics, and biographical datasets, as well as theoretical reflections on the overall issue of rankings and quantitative evaluation methods and technologies. By following this broad interdisciplinary multi-level analytical approach, this volume provides a novel contribution to the evolving field of Social Studies of Economics (SSE) and thus the continuation of our research program launched with the publication of our book "Power and Influence of Economists" (Maesse et al., 2021a). More specifically, we build on the analytical framework of SSE and provide contributions to the three main analytical approaches of SSE, namely, discourse and governmentality studies, network analysis, and field analysis (Maesse et al., 2021b; Benz et al., 2023).

1.3 Analytical perspectives of SSE

Different analytical perspectives enable us to highlight various aspects of rankings as well as the socio-cultural universe surrounding rankings: the logic of hierarchical knowledge, the use of rankings by scientific actors in different contexts, the production and reproduction of social inequalities, the interplay

of power and discourse, the formation of networks through and against rankings, different types of rankings working as categorization tools, the history of rankings, and so forth.

Thus, a first analytical view of power calls for the study of economic expert knowledge, mainly from three perspectives. Economic historians and cultural sociologists mostly study paradigms, as well as hegemonic or marginalized forms of knowledge to understand the influence of power relations on the production of economic truths (Coats, 1993). Following these studies, the influence of economic expert knowledge on society has gained major importance as a research area. In this framework, performativity studies (Callon, 1998) have shown how economics as a form of discourse impacts the formation of markets and firms, while other studies rather focus on the formation of legitimacy, argumentation strategies, and speaker positions by economic expert discourses (Pühringer and Griesser, 2020; Maesse, 2015). The forms of circulation of knowledge as well as the various types of interpretative adoption by experts, professionals, politicians, and the media are central issues for these approaches, which consider economic expertise as a mean of exercising power in different social contexts. A third form of discourse analytical perspective focuses on informal social rules in organizations, the tacit knowledge in professional fields and the informal knowledge that is needed to control access to certain institutions and power positions (Schmidt-Wellenburg and Lebaron, 2018; Maesse, 2018). This approach of economics and economic expertise as a form of “soft power” is deepened even further by scholarship focusing on Foucault’s groundbreaking concepts of governmentality and nonlinearization. The economy is approached through the production of subjectivities, that is the role neoliberal ideologies and economic theories play in the production of political perceptions and interpretative frames. This analysis of the governmentality of neoliberalism can be applied to various contexts, and the main contribution of governmentality approaches can be seen in their ability to connect critical view of knowledge in relation to new approaches to power and domination, especially when analyzing how discourses underpinning neoliberalism are embodied in identities and subjectivities.

The second analytical perspective examines the power dynamics within economic networks, emphasizing interpersonal relationships as sources of influence. This approach explores the transmission of economic knowledge in politics and academic economics through social network structures (Mirowski and Plehwe, 2009; Salas-Porras and Murray, 2017). It sheds light on economists’ connections to influential elites, their participation in policymaking, and the dissemination of economic ideas. The analysis considers both personal networks (e.g. co-authorships, collaborations) and institutional networks (e.g. memberships, positions) to underscore their role in conveying economic knowledge to policymaking (Pühringer, 2020; Flickenschild and Afonso, 2019; Kapeller et al., 2022). Intra-academic networks are investigated to understand the stratification logics leading to hierarchies within academia. Social network analysis is often combined with bibliometric and biographical analyses for a

comprehensive examination. Recent studies delve into “citation cartels” among economic journals and authors (Önder and Terwiö, 2015; Aistleitner et al., 2023), as well as the impact of academic networks on successful careers (Rossier and Bühlmann, 2018; Rossier, 2020). These network analytical approaches contribute valuable empirical insights to the discourse on the public and political influence of economics, both within and outside academia.

A third approach is centered on economics as a social *field* (Bourdieu, 2005), where economists compete to define “good” or “sound” economics (Lebaron, 2000). In this struggle, the resources are not equally distributed among economists and the ones with the largest decisional power are the most endowed in powerful resources within the field. Every professional position held by economists in this stratified space defines their scientific and political position-takings (Lebaron, 2001; Schmidt-Wellenburg and Lebaron, 2018; Rossier and Benz, 2021). At the top of this hierarchy lie a few top economics departments in the US and the UK, and the “Nobel” prize, which shape academic careers and citations (Korom, 2020). Resources acquired in those departments provide economists with advantageous positions in their home country all over the world (Dezalay and Garth, 2002; Gautier Morin and Rossier, 2021). Economists as an object of research are the more relevant as they occupy a very central position in the field of power, i.e. the field of the dominant individuals from all the other fields (Bourdieu, 1996), and contribute to spreading an “economic belief” reflecting the interests of the economic fractions of the upper classes (Denord, 2016).

With this in mind, the volume is divided into the following three parts:

Part I, “*Rankings and the formation of social hierarchies*”, includes contributions on the general role of rankings in economics and also aims to develop a better understanding of how specific forms of knowledge production and research practices in economics impact on the social structure of the discipline, not least the severe underrepresentation of women in economics. Furthermore, the authors aim to highlight the ambivalent performative power of evaluation criteria within and beyond the discipline. More specifically, *Anders Hylmö*, *Björn Hammarfelt*, and *Ingvild Reymert* in their chapter “Why are economists obsessed with rankings? An empirical and theoretical exploration of a field-specific preoccupation” aim to provide some explanations for the ubiquity of rankings in economics and the particularly strong reliance of economists on rankings as a qualitative assessment tool. They present theoretical explanations of the “ranking syndrome” in economics, provide several empirical examples for it, and also suggest three possible strategies for dealing with the ranking obsession in economics.

Then, *Jens Maesse* and *Simon Peters* in their chapter “Varieties of truth games: How economists produce different forms of true knowledge between ranking evaluations and political expertise” show how economists receive high social recognition in media, politics, and business discourses where they often obtain a status as “star economists” and “financial prophets”. The authors investigate the social conditions that make the formation of top positions in the

economic sciences possible. A top position in “economics as science” is achieved when academics take a privileged scientific discourse position via publications, presentations, and various evaluation reports for journals, funds, and other academic institutions. To understand the formation of privileged academic discourse positions, they investigate the entire construction processes that start already at the earlier phases of the professional biography. Based on narrative-biographical interviews with economists in the United Kingdom and Germany, they focus on four sorts of resources that are analyzed as “biographical discourse capital”. In a second step, the paper analyses narrative-biographical interviews with economists from political institutions and think tanks. Here, the results differ significantly from the interviews with academic economists. Rankings disappear from these professional contexts and other relevant (e)valuation tools become important. Thus, the “economic expert dispositif” appears as a much more complex social world than “economics as science”.

Thierry Rossier in his chapter “The network determinants of publishing in top 5 journals. Evidence from the Swiss field of economics professors (1991–2020)” studies the case of top five publications in the Swiss field of economics in order to debunk ideas of merit through “hard work” or “talent” wherein publishing in such journals would be a result of individual efforts and achievements. Utilizing data on economics and finance professors in Swiss universities from 1991 to 2020, it demonstrates that affiliations with the top ten departments or connections with PhD supervisors with top five publications and, especially, with an editorial position in a top five journal significantly increase the likelihood of publishing in these prestigious journals, reducing the scope for meritocracy in the field of economics.

Finally, *Theresa Hager* and *Stephan Pühringer* in their chapter “Gendered competitive practices in economics. A multi-layer model of women’s underrepresentation” aim to provide an explanation for the exceptionally low number of female economists, especially among professors. On the one hand, they aim to systematize the existing literature on the subject and propose a multi-layered model of male dominance in economics. On the other hand, they reflect on the competitization of academic knowledge production and argue that the specific role of individualistic competition in economic theorizing makes economics particularly susceptible to competitive research practices and unequal treatment of economists of different genders.

In Part II, entitled “*Rankings and their impact on paradigmatic hegemony*”, the authors contribute to debates on marginalization, path dependencies, and network effects associated with the strong reliance on rankings and stratification schemes in economics, thus critically reflecting on the elitist structure of the discipline. More specifically, in his chapter “On the relationship between society, metrification, and paradigmatic monism in economics”, *Rouven Reinke* contributes to the discussion on the performative effects of economic knowledge in capitalist societies and aims to show how this mutually reinforces paradigmatic monism in economics. Rooted in the social studies of economics, he uses empirical examples from German economics to show that the

marginalization of heterodox economic approaches has gone hand in hand with the concentration of economic power in capitalist societies. Finally, he argues that the contemporary polycrisis of capitalism already suggests some possibilities for paradigmatic change in economics.

In the chapter “‘Cream of the crop’: A prosopographical analysis of the top 150 economists in the RePEc ranking”, *Pierre Fray* and *Arthur Jatteau* use an original prosopographical database of the 150 economists with the highest RePEc rankings in 2022 using multiple correspondence analysis (MCA), from a Bourdieusian sociology of science and intellectuals’ perspective. The aim of this analysis is to investigate the structuring of a scientific elite whose scientific recognition and domination are sanctioned (and in part produced) by a ranking that enjoys relative consensus within a large part of the discipline. However, far from the unambiguous hierarchical claims to which rankings are, by their very nature, intended to give rise, the chapter shows, on the contrary, the diversity of ways in which excellence is embodied and the professional, academic, and scientific paths by which it is achieved. MCA nuances the idea of a very strong injunction to scientific conformity, and also reveals the range of possibilities in terms of scientific practices. It thus reveals several “poles” of economists, distinguished and contrasted according to the volume and structure of the different forms of capital of the economists who make them up.

Eventually, *Rodrigo Lopez-Orellana* and *Bralind Kiri* in their chapter “Rankings in relation to mathematical modeling and scientific understanding in economics” stress that the allocation of public funds for economics education and research relies heavily on rankings, which also influence the evolution of economic knowledge and policy. A flawed ranking system could result in inadequate economic expertise and unfair policies. They further argue that since the Marginal Revolution, mathematical models have been a significant source of economic knowledge, dominating the discipline. They propose adopting a novel perspective on mathematical models, grounded in scientific understanding, to reduce the fragmentation caused by rankings and provide more sensible interpretations of quality signaling in economic sciences.

Part III, “*Excellence policies and regulations through rankings: Critical Approaches*”, includes contributions on the institutional structure and organization of rankings and the way different cultures of expertise manage, co-constitute, and perform quantitative evaluation criteria and rankings. The authors provide case studies of national examples of excellence initiatives as well as academic social networks and platforms as actors in the quantification of science. In doing so they expand their focus from economics to the field of research organizations in general. More specifically, in their chapter “Evaluating research organisations: Public policy and the search for excellence in the trajectory of the Portuguese Science and Technology system” *Lúisa Veloso* and *Helena Carvalho* highlight the significance of the Associate Laboratory (AL) statute in Portugal, created in 1999, to elevate select science and technology institutions. Between 2000 and 2011, 26 institutions achieved AL status, marking them as elite with greater autonomy and increased public funding. Utilizing

a mixed methods approach, combining quantitative data analysis and qualitative content analysis of interviews with AL leaders, they show that this policy measure contributed to the distinction of these institutions, impacting their research activities and internationalization.

In their chapter “Organizers and promoters of academic competition? The role of (academic) social networks and platforms in the competitization of science”, *Stephan Pühringer* and *Georg Wolfmayr* diagnose the emergence of a “competition ecology” in academia and specifically in economics, which is particularly responsive to competitive research organization. Using an analytical framework rooted in critical competition studies, they highlight the proliferation of new forms of competition at very different ontological levels. In particular, they focus on the role of academic social networks and platforms such as ResearchGate and Google Scholar in further intensifying the competitive organization of research and highlight the economic, social, and epistemological “costs” associated with competition.

In the chapter “What are the disciplines of excellence? The case of the French Excellence Initiatives”, *Audrey Harrouche* focuses on the French Initiatives of Excellence (I dex) aiming at putting universities in competition with each other to create “world-class” institutions through calls for projects and concentrating €7.7 billion on nine universities. In doing so, the I dex increases inequalities between French higher education institutions, but also within universities, since those funds are also concentrated among the “best” researchers and teaching programs, increasing the competition between academics and laboratories from the same institutions. Based on a case study of one of the nine I dex universities, involving 89 interviews and written sources, this chapter explores the disciplinary dimension of these inequalities. It demonstrates how this policy results in a stratification of disciplines within the I dex universities, particularly favoring the natural sciences.

Eventually, *Pablo Antonio Lillo Cea* in his chapter “A field theory approach to the critical study of global university rankings” employs a field theory perspective to scrutinize the impact of global university rankings on the competitive dynamics and hierarchical structuring among higher education institutions worldwide. Based on a critical examination of the available literature, the chapter traces the emergence of a global sub-field of universities, characterized by distinct discourses, institutions, and evaluation systems. In this context, rankings act as crucial instances of consecration, and the concept of a world-class university emerges as a key indicator of a field-specific form of symbolic capital. This chapter goes beyond mere critique, integrating rankings into the broader narrative of academic globalization and analyzing their effect on institutional strategies and power relations. This theoretical lens reveals the power dynamics and strategies driven by the ambition for higher rankings, offering a critical perspective on the commodification of knowledge and the competitive pressures that compromise academic integrity and diversity. Ultimately, the chapter calls for a more profound investigation into the legitimacy of rankings and their wider implications for policy and academic practice.

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Part II

Rankings and the formation of social hierarchies



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2 Why are economists obsessed with rankings?

An empirical and theoretical exploration of a field-specific preoccupation

Anders Hylmö, Ingvild Reymert, and Björn Hammarfelt

2.1 Introduction

Rankings have a central place in economics. In their professional life, academic economists engage in producing and using rankings of all sorts and in different circumstances. They rank their schools, departments, each other, and most importantly, their economics journals. Rankings are utilized in evaluative moments ranging from the formal and very consequential evaluation involved in academic hiring to informal moments, like literature search or celebration of publications. Rankings not only serve as evaluative devices for quality judgement but also possess an anticipatory and prospective dimension. As a tool for efficiently identifying what constitutes good research, they assist research and career strategies and consequently influence the development of the discipline.

Economists' preference for rankings is evidenced both in recent debates among economists and by a range of recent empirical studies, including the contributions to this volume. While the use of rankings is by no means unique to economics – they are also used both in other fields of science and in everyday life – comparative empirical studies show that rankings seem to play a more prominent role in economics than in other research fields (Hammarfelt and Rushforth, 2017; Reymert, 2020). The significance of rankings in economics is indeed of such magnitude that it has recently been referred to as an “obsession” both within economics (Serrano, 2018, 2022) and by sociologists of science (Fourcade and Healy, 2013). Even the disciplinary elite has become increasingly aware of this obsession, issuing warnings of the “Tyranny of the Top 5” – and the detrimental impact of the power wielded by journal rankings on the profession. Indeed, it has been suggested that researchers, when embarking on a new project, reason primarily in terms of publishing in highly ranked outlets. Such an instrumental approach is evident in a quote cited in Heckman and Moktan's influential study on the influence of the top journals in economics where a young researcher laconically states: “That is a great idea, but it will not lead to a top five” (2020: 462).

In this chapter, we want to move beyond the mere observation of the ubiquity of rankings in economics. If economists are so preoccupied with rankings, then why is that the case? This preoccupation or obsession with rankings has been metaphorically referred to as a “disease” that affects the discipline (Serrano, 2018, 2022) and threatens the healthy development of the field through risks of an inbreeding of narrow elite circles (Heckman and Moktan, 2020), insularity of the discipline (Fourcade et al., 2015), suppression of novel ideas (Akerlof, 2020), and lack of policy relevance, a worry raised by a recent global survey of economists (Andre and Falk, 2021). We therefore propose that this preoccupation with rankings may be seen as a “syndrome” in need of investigation. In the medical literature, a syndrome is defined as “a recognizable complex of symptoms” for which the direct cause is not yet known, and where the physical findings indicate a specific condition for which the causes are not fully understood (Calvo et al., 2003). In more concrete social science terms, economists’ preoccupation with rankings is a field-specific social practice lacking an established theoretical explanation. Our aim in this chapter is thus to examine empirical evidence of the ranking syndrome, assess theoretical perspectives that shed light on different potential underlying causes, and discuss potential routes towards an eventual remedy.

The first part of this chapter investigates the empirical examples of the ranking syndrome. Following a brief background account of the increasing awareness of the detrimental effects of ranking, we proceed to investigate three aspects of the syndrome. We draw on empirical examples from recent studies on evaluative practices in economics across multiple departments in three Scandinavian countries. Our examples highlight the use of rankings in academic recruitment, which is arguably one of the most impactful applications of rankings. This context holds the greatest potential for the utilization of ranking in economics. First, we turn to the historical dimension to investigate the relatively recent emergence of the ranking syndrome. Second, we take a broader comparative perspective and explore whether the syndrome is evenly spread across research fields, or if economics is indeed more severely affected. We highlight this aspect with comparative data on academic recruitment across disciplines in the Nordic context. Third, we address the use and understanding of rankings by focusing on how economists perceive rankings as a prognostic and prospective tool to envision researcher’s future potentials.

In the second part of the chapter, we build on this firm empirical ground as we move to the theoretical literature to find clues towards explaining the preoccupation with rankings. We discuss several theoretical approaches, each providing a potential partial explanation of the ranking syndrome/utilization of ranking, and highlight their different assumptions, scope, and explanatory mechanisms. Our purpose with this discussion is to uncover available approaches and their assumptions, thereby paving the way for further theoretically informed empirical examinations and interventions. Finally, we conclude by suggesting different routes towards possible remedies.

2.2 A growing awareness of the ranking syndrome

To contemporary economists, the most powerful and important ranking is the ranking of economics journals. The journal hierarchy with its quality tiers, and particularly its top five journals, exerts great power over the careers and research trajectories of economists. The influence of journal rankings and the disproportionate focus on top journals have long been a concern among heterodox economists. To these scholars, who struggle to promote more intellectual pluralism by expanding the range of accepted theories, methods, and approaches, journal rankings are regarded as a mechanism that narrows the disciplinary boundaries and excludes research outside what is understood as a neoclassical mainstream (Dobusch and Kapeller, 2012; Hylmö, 2018; Kapeller, 2010; Lee, 2008; Lee et al., 2013). These concerns are supported by empirical studies by sociologists and other scholars of science (Kapeller and Meyer, 2019). For example, Fourcade et al. (2015) illustrated how citation patterns in economics with its top journal focus are more insular and draw less on neighbouring social science disciplines compared to the practices in those disciplines, a pattern confirmed by bibliometric studies (Aistleitner et al., 2019). While raising important issues of epistemic pluralism and the development of economics, such claims from the heterodox margin have been left mostly unheard, with limited influence on the discipline.

More recently, the detrimental effects of the excessive significance of the journal hierarchy have become subject of debates also among influential economists. A roundtable at the annual American Economic Association conference on “The Curse of the Top Five” in 2017 reflected the new awareness of the negative effects of the journal rankings among the elites within the field. Most influential for this growing awareness was the paper on the “Tyranny of the Top 5” that came out of the roundtable session (Heckman and Moktan, 2020). The fact that these concerns were raised by the top five journal editor and Nobel (Bank of Sweden Price in Economic Sciences) Laureate James Heckman was certainly significant. Their concern of an abnormal condition is introduced with the observation that:

Talking with young economists entering academia and with their peers about their career prospects, one cannot fail to note their obsession with publication in the top five journals, henceforth T5. Faculty meetings about hiring, promotion, tenure, and prize committee discussions assess candidates by the number of T5 articles they have published or have in the pipeline and the rapidity with which they were generated. Research proposals are often appraised by their potential to generate T5 publications.
(Heckman and Moktan, 2020: 419–420)

Heckman and Moktan (2020: 462) warn of the adverse effects of outsized career incentives created by the top five journals. Their concerns include the potential risk of consolidating power within a small group of editors, which

may incentivize “professional incest” and clientele effects. The heavy reliance on the top five furthermore discourages creative and pioneering research. Similarly, another Nobel Laureate, George Akerlof (2020), warns in a concurrently published paper of the risk aversion and hampering creativity, following the extensive reliance on journal rankings within the field. In a recent interview study with economists in three Scandinavian countries (Hylmö et al., 2024), it becomes evident that an increasing awareness of the ranking syndrome has primarily been driven by concerns expressed by the disciplinary elite, and particularly the tyranny paper (Heckman and Moktan, 2020), rather than by the critiques from heterodox economists. Today’s Scandinavian economists are very aware of the influence and career incentives of journal hierarchy and use it in various ways to navigate research careers (Hylmö, 2018; Hylmö et al., 2024). While many interviewees highlighted multiple adverse effects of this ranking obsession, journal rankings are used as an established and productive tool for making sense of and judging research quality. Many economists perceive the journal hierarchy and journal rankings as the least flawed imaginable system.

2.3 Investigating the ranking syndrome

Economists have become increasingly aware of the problematic aspects of the ranking obsession. Although economists employ rankings in a wide range of contexts, we align ourselves with Heckman and Moktan (2020) that the use of rankings in promotion and recruitment is most consequential. Hence, we focus on the use of rankings in academic recruitment. We illustrate three aspects of the syndrome, drawing on recent empirical studies from Scandinavian economics. Scandinavian countries possess small yet globally connected economies. Despite their semi-peripheral status, their academic systems are well-integrated to the academic world market. The three countries all have economics departments that are competitive in at least the European context, although not being considered on par with leading US departments. Recent studies have revealed minor country variations in the utilization of different quality dimensions in academic recruitment, and Scandinavian countries do not significantly differ from other countries, at least in respect to their Northern European counterparts (Reymert et al., 2021). Moreover, an advantage of focusing on a Scandinavian context is also the degree of openness in recruitment process – in Norway and Sweden – which allows us to analyse how rankings are used when making hiring decisions¹. But before discussing the present use of rankings we will examine how ranking came to play such an important role in economics.

2.3.1 *The historical development of the ranking syndrome*

While economists’ obsession with rankings and the top journals is widespread today, this has not always been the case. To the contrary, it is a rather recent development, well-illustrated by an analysis of expert evaluation reports from

professorial recruitment at leading Swedish economics departments from 1989 to 2014 (Hylmö, 2018). At the beginning of this period, a diverse array of applicants' publications were evaluated, ranging from international journal articles to books written in Scandinavian languages. Evaluators extensively read the submitted material and formulated long and detailed qualitative judgments of the candidates' research production. The reviewers themselves were primarily recruited from Scandinavia and mainly composed their evaluation reports in Swedish or another Scandinavian language. Publications in what was described as "good", "important" or "leading international journals" were reported as a merit among others (Hylmö, 2018: 283). Until around the millennial turn, these evaluations relied on trusted reviewer's qualitative expert judgement, with few mentions of journal rankings.

Around 2005, a notable shift in evaluative practices becomes apparent. With an increasing number of both applicants and reviewers from outside Scandinavia, English language journal articles become the only form of work which is properly evaluated. Although Swedish economists had previously published a good amount of international journal articles, this development can partly be attributed to the further internationalization of the discipline in terms of recruitment and reviewing. However, what is most striking is the increasing role of journal rankings. Around 2005, reviewers begin assessing work in relation to journals ranked into tiers, such as first and second tier, or top five, top ten, or top 20. Particularly, the concept of "top five" journals becomes a concept increasingly used in evaluations at this time. Instead of relying on a qualitative judgement, journal rankings, especially top journals, begin to function as a judgement device (Hammarfelt and Rushforth, 2017) by this time. Evaluation reports become shorter and more efficiently written. In the extreme cases, evaluators create tables that categorize applicants' publications into journal tiers, combined with a simple system for calculating points, heavily weighted towards the top tier journals.

More generally, the top five journals serve as an evaluative argument in themselves, implying evidence of publication quality simply by the virtue of belonging to this specific outlet category. Evaluators often refer to the journal hierarchy slots without considering other underlying metrics. For instance, one expert reviewer explained that a particular paper is published in a journal "generally regarded by economists to be one of the top 5 economics journals" (Hylmö, 2018: 285). Such arguments highlight both that the "top five" of the journal hierarchy has become an established concept without need for further justification, and "generally regarded" points to this category being a shared social convention, rather than anchored in metric evidence. By the 2010s, the journal hierarchy slots have become an established convention among economists, with a general consensus on the importance of the journal hierarchy and its top five. The use of rankings as judgement devices can be understood partly as a way of streamlining evaluation processes in response to the growing number of applicants per position and the internationalization of recruitment.

The understanding of the top five and the journal hierarchy seems to have followed an international disciplinary development. For example, recruitment of economists at Norwegian universities reflects similar trends (Reymert, 2020). Scandinavian economics have today converged and is well integrated into the international discipline and its ways of making sense of quality through rankings, shaping quality conceptions, career trajectories, and choices of projects to pursue (Hylmö et al., 2024). As the economics journal hierarchy is by nature disciplinary, since only economics journals count, its use in recruitment reinforced the disciplinary boundaries of economics and facilitated a less multifaceted and more unidimensional quality conception (Hylmö, 2018; Hylmö et al., 2024).

One potential conclusion is that Scandinavian economics has been infected by a ranking obsession imported from American economics, as internationalization has largely meant Americanization (Sandelin and Ranki, 1997). US economics has a longer history of journal rankings. Already in 1973, a ranking of economics journals was conducted based on a comprehensive survey, followed by other rankings based on citations received from key journals, institutional affiliations of authors, or appearance in graduate course readings (Diamond, 1989). The importance of journal rankings for economists' optimization strategies was a concern at least as early as Oster's (1980) paper (Diamond, 1989, Oster, 1980: 444), aiming to "derive the optimal strategy for submitting manuscripts to economics journals", using a formal optimization-under-constraints model.

Later, two influential papers attempted to identify the "core journals" of economics using various citation measures (Diamond, 1989; Stigler et al., 1995). It is noteworthy that Stigler et al. (1995) did not aim to, nor result in, a final, definite ranking of a set of "top five" journals. Nor did their rankings identically align with the set of journals considered as the "T5" today. However, the legitimacy of ranking journals and the notion of a journal hierarchy were taken for granted. In 2003, a well cited paper by Kalaitzidakis et al. (2003) set out to rank journals and institutions of economics, and although it did not aim to produce a "top five", the current set of top five journals were indeed ranked top five. By the early 2010s, the concept of "top five" had become an established concept with its current meaning in the economics profession. It was now possible to open a paper on "top journals" in economics through equating these with the "top five", as a natural thing in no need of explanation (Card and DellaVigna, 2013). From this, we can conclude that while journal rankings have a long history at least in US economics, the current obsession with the top journals is a relatively recent phenomenon in historical terms. Likewise, the use of journal rankings as judgement device in Scandinavian professor recruitment is also a recent development (Hylmö, 2018).

2.3.2 Comparing the ranking syndrome across fields

Research on professorial recruitment has demonstrated that economics places a stronger emphasis on metrics than other fields when evaluating candidates

(Langfeldt et al., 2021; Reymert, 2020; Reymert et al., 2021). One example is a study of professorial recruitment at a Norwegian university between 2000 and 2017, which investigated professorial recruitment in economics, sociology, informatics, and physics (Reymert, 2020). The study examined confidential peer review reports of candidates who applied for professorial positions in these fields and found that evaluators in economics placed significantly greater emphasis on the candidates' number of publication in highly ranked journals – such as T5 – than evaluators in the other disciplines (as shown in Figure 2.1) (Reymert, 2020). The number of publications in highly ranked journals, including T5, is constituting 56% of the most important evaluation criteria in these reports (as shown in Figure 2.1). Typically, an expert committee described a candidate as having “seven published papers in good journals (but none in top 5 journals)”.²

In contrast, the candidates' number of publications in highly ranked journals played a less prominent role in the evaluation of candidates in the other fields. In sociology, for example, the qualitative evaluation of candidate's work was more important than the number of publications in highly ranked and recognized journals. In the natural sciences, the specialization of the candidates was the most important evaluation criterion (Matching Research Profile).

The study also found that while economics considered only five journals as “top”, sociology evaluators recognized a wider range of journals as being of high quality. In a similar way, the natural sciences lacked a strong consensus of which journals were “top” journals, but rather focused on the number of citations their publications had attracted (Reymert, 2020). In contrast, the economics selection committee initially categorized candidates according to their number of top publications where one committee specified that “Top economics journals included *American Economic Review*, *Econometrica*, *Journal of Political Economy*, *Quarterly Journal of Economics* and *Review of Economic Studies*”, in other words, the established list of the “top five”.³

Furthermore, economics committees emphasized future potential in hiring processes, explicitly tied to the anticipation of publications in top journals. For instance, an expert committee once characterized a young candidate with “a strong signal of the potential for future top 5 publications [Figure 2.1]”.⁴

As observed in the Swedish recruitment of economist (Hylmö, 2018), the evaluation reports of the candidates in economics were also much shorter than in the other fields, as they primarily described the macro nature of the publications than their content. This finding reflects the strong emphasis on the top five journals in economics and the belief that the review process of these journals reflects scientific quality.

The study of Norwegian professorial recruitment clearly demonstrates that economics places a greater emphasis on publications in highly ranked journals when evaluating researchers for academic recruitment. This finding is echoed by similar cross-country studies where economists also place more emphasis on number of publications when evaluating both candidates for open position

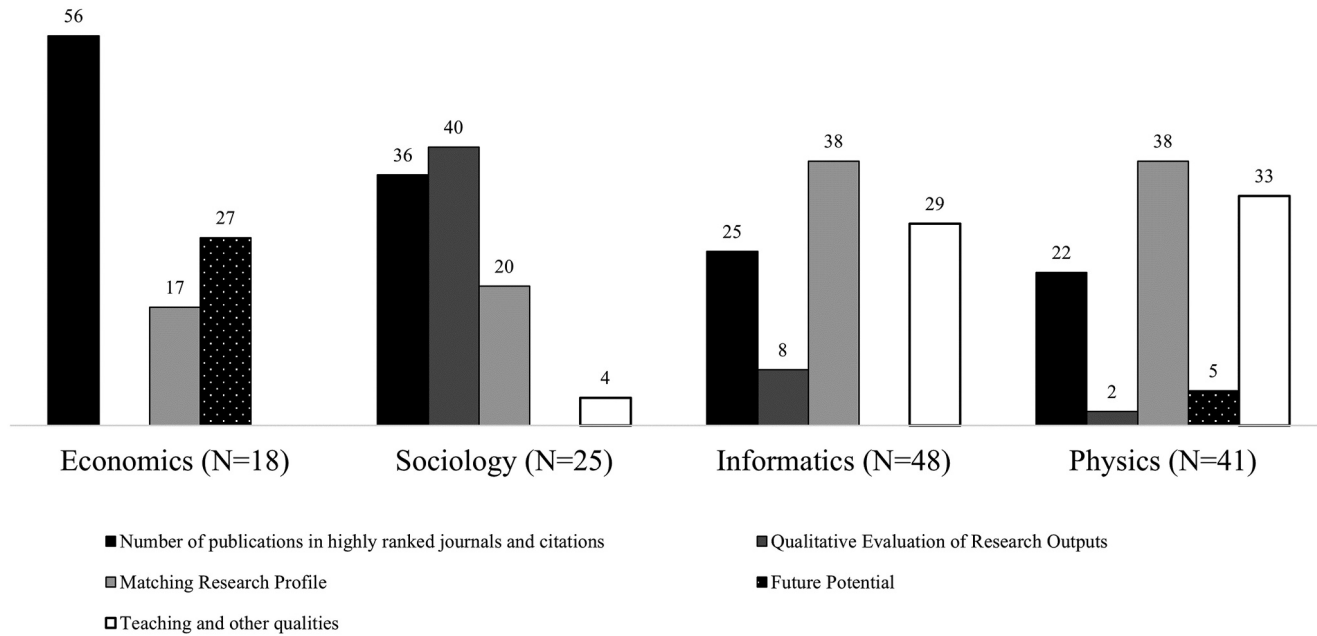


Figure 2.1 Most important assessment criteria (in percentages) among the expert committees in four academic disciplines at the University of Oslo from 2000 to 2017. N refers to the number of important assessment criteria detected in the expert committee (Reymert, 2020).

and applications in grant reviews. These studies do not explicitly address publication in top five journals, but the economics emphasis on number of publications is significantly larger than their counterparts in other fields such as physics and cardiology (Reymert et al., 2021, Langfeldt et al., 2021). These studies found that the economists' focus on number of publications was consistent in all countries (Reymert et al., 2021), suggesting that the economics field's focus on metrics transcends national borders.

2.3.3 *Rankings and the “culture of prognosis”*

When revisiting empirical examples of how candidates for professorships are evaluated in a Scandinavian context, it becomes evident that “future potential” is an important criterion when evaluating researchers in economics. This is also demonstrated in Figure 2.1 where “future potential” is a much more prominent criterion in recruitment of economist than in the other disciplines, where 27% of economists, in stark contrast to only 5% of physicists and 0% in sociology and informatics, considered it to be the most important criterion.

Of particular interest in this context is the forward-looking perspective that regards “economists” as investments with potential for future returns. Such observations regarding the forward-looking culture of economists have also been identified in the literature, often accompanied by suggestions that the field of economics aspires to be not only a descriptive but also a predictive science. The sociologist Andrew Abbott suggests that economists are concerned by the future, and not by the past, they “...look ahead for potential rewards, not back at sunk costs” (Abbott, 2005: 406). Similarly, as elaborated by Fourcade et al. (2015: 109), economists “‘live in the now’, and ‘see trajectories from the present forward’, while sociologists have the reverse intellectual attitude, looking at the present as the outcome of a set of past processes”. Such dispositions may also be described in terms of “trajectorial thinking” in the valuation of research (Appadurai, 2013; Felt, 2017). Hence, we argue that a “culture of prognosis” is a characteristic that often is associated with an obsession with rankings.

That future potential is an important criterion when evaluating researchers becomes evident when studying the referee reports in which peers assess the merits of candidates for academic positions. In such assessments, in which the future potential of applicants is described, statements like “...his current research agenda looks particularly promising” or descriptions of a candidate being “...on a clear upward path” are common.⁵ The prognosis regarding future work comes into play also when comparing candidates of different academic age:

As they have different expertise, it is hard to rank them. xxx and yyy have a richer publication record, but zzz is at an earlier stage in his career and on very positive trajectory⁶

Similarly, we find accounts of stagnating or even declining career trajectories:

...his papers published before 2000 hold a higher quality than the later papers. Based on the work done over the last decade, which we believe is representative for his future work, we have ranked xxxx as number four.⁷

It could be argued that decisions made by committees and external referees in hiring decisions always have a future potential as a key criterion, and similar patterns have also been identified in, for example, the field of biomedicine (Hammarfelt et al., 2020). Still, we suggest that economists are especially geared towards a view of potential professorial candidates as investments where past achievements are mainly of interest if they can predict future performance. Indicative of this forward-looking approach is the emphasis laid on research which has not been formally published yet. Working papers, as well as articles currently in the review process, are assessed and sometimes assigned with considerable value when final decisions are made. These publications in the making become especially important when assessing younger researchers, where for example a description of publication activity can be formulated as follows:

He has already published 3 papers in very good international journals and had 2 revise and resubmit and 5 working papers. This is very impressive.⁸

The generous incorporation of publications which has not yet been through the formal process of peer review is striking when compared to other fields (Hammarfelt, 2017). The tradition of disseminating “working papers”, necessitated by the very long time to publication when aiming high in the journal hierarchy (Hylmö et al., 2024), is part of the explanation to why publications in the making have such a high status. At the same time, the significance of projected publications aligns well with a field that is oriented towards future outcomes, rather than merits from the past.

Rankings play an important role in this culture of prognosis, as the ability to publish in “highly ranked journals” is indicative of a “high flying career trajectory” in the field. Hence, a career in economics is still possible without “top journal” publications but without such markers of excellence will it be difficult to attain a position at a more renowned department. This hierarchical (and tiered) structure is echoed in several referee reports, and a telling example is this explanation for why a particular candidate would not qualify for a professorship at a more renowned university but could well be accepted in a lower ranked one:

[A] university that aims to compete at the first or second tiers in Europe should expect its full professors to show the ability to publish at least a few articles in the best journals in the field. Publishing a paper in a top finance journal requires a degree of effort, awareness of the latest

thinking in the field, and excellence, which any number of articles in journals below second tier could not match. But for a university with lower aspirations, combined with the case of a broader definition of the area for the position, xxxx's research record should be well above the threshold for a professorship.⁹

This quote illustrates how the ranking obsession is not limited to journal rankings, but spills over into other forms of rankings. The preference for rankings permeates the field as it feeds on a set of interrelated rankings which support and strengthen their influence. This is one reason, we argue, why the influence of rankings becomes so persuasive.

2.4 Why rankings? Why economics? Towards theoretical explanations of the extensive ranking use

We are far from the first to take an interest in the ranking syndrome in economics, and a central issue in the literature has been to explain the underlying reasons for this obsession with rankings. Part of the explanation can be found in economics being a prestigious field with strong ties to political and economic power (Maesse et al., 2021). Hence, the “elitism dispositif” in economics (Maesse, 2017) is related to the position of the economics field in its larger social and political context. Economists are however not alone in laying emphasis on rankings, and it has been claimed that rankings are deeply embedded in the “epistemic fabric of higher education” (Wilbers and Brankovic, 2021).

Neighbouring fields, such as business and management, demonstrate a significant interest in rankings such as influential business school rankings (Wedlin, 2006). Similarly, rankings play a pivotal role in US law schools (Espeland and Sauder, 2016). However, in these fields, the significance of rankings primarily stems from competitive educational markets, where rankings serve as instruments for attracting students. What makes economics stand out is its obsession with the *field-specific rankings* that produces hierarchies of academics, journals, and institutions based on research merits within the field, rather than outside perception and reputation.

Our investigations of the ranking syndrome highlighted several key findings. Firstly, that the ranking syndrome has evolved quite recently, as semi-peripheral Scandinavian economics have become more fully integrated into the international and US-oriented field's way of working and thinking with rankings. Secondly, compared to other disciplines, economists rely more heavily on rankings. Thirdly, the ranking syndrome involves institutionalized practices and infrastructures that guide economists in performing evaluations. Influential rankings have become increasingly available together with readily available author and journal level metrics. Lastly, the ranking syndrome involves a symbolic and cognitive dimension of shared meanings attached to rankings. For example, referencing to journal rank or journal tiers has become a legitimate argument of quality without the need for further justification,

and there is a prevalent culture of using rankings as a prognostic tool for determining future potential.

Much of the allure of rankings lies in their potential for reducing uncertainty and facilitating effective evaluative judgements. Consequently, the aforementioned preoccupation with rankings also offers benefits for the field. The existence of a relatively strong agreement on what counts as valuable is considered as an advantage by economists, compared to other social science fields (Hylmö, 2018). It reinforces a strong disciplinary identity that may enhance status beyond the field. Thus, we argue that the ranking syndrome reinforces and strengthens particular characteristics of the field. However, whether this is inherently advantageous depends on the onlooker's own position and views. Given that all research fields involve evaluative practices, and that digitalization has made different forms of research metrics available and used to various extents across fields, the question at hand is why the economics field use rankings as the primary mode of evaluative judgement? The central issue is then why economics, in comparison to other fields, are so obsessed with rankings? In other words, what is special about rankings, and what is it with economics that has made it more susceptible to this particular syndrome? There are different possible routes towards an explanation.

In the following, we set out to search for theoretical clues that may serve as partial explanations of this complex condition, rather than to conclusively diagnose the causes of the ranking obsession. We search for clues by assessing theoretical approaches in the intersection between sociology of knowledge, science and technology studies, and research policy studies.

2.4.1 *Sociology of (e)valuation: Heterogeneity and contingency*

During the last two decades, the literature in the sociology of valuation and evaluation has converged theoretically on an understanding of (e)valuation as a general cultural and social process through a range of empirical instances ranging from culture, markets, organizations, and status orders (Helgesson and Muniesa, 2013; Lamont, 2012). Inspired by pragmatism, much of the literature delves into the subprocesses of evaluation, such as categorization and legitimation, enacted by actors using techniques and infrastructures within specific settings. Numerous in-depth case studies on different academic research fields, research groups, and evaluative practices have highlighted the messy and heterogeneous reality of evaluative processes, the roles of actors' evaluative practices, and the contingencies that appear on the micro level.

A central theme in this literature has been the notion of heterogeneity and heterarchy (Lamont, 2012; Stark, 2009), highlighting how actors invoke multiple orders of worth (Boltanski and Thévenot, 2006) or evaluative regimes or criteria (Fochler et al., 2016), supported by heterogeneous evaluative techniques and devices. The notion of *heterarchy* has been employed to highlight an important non-hierarchical organizational principle, where multiple ambivalent principles of valuation coexist, as opposed to a neat hierarchical principle of organization.

Work within this literature often tends to focus empirically on micro-level cases and processes and relatively local instances of evaluative processes. While such fine-grained foci have been important for uncovering the contingency and heterogeneity involved in many evaluative processes, broader institutional and macro contexts have often faded outside of an explanatory role. This is a drawback when addressing a broader apparently structural phenomenon such as the institutionalization of rankings as evaluative practices within the global economics field. While this micro-level focus is particularly pronounced in the European strand of (e)valuation studies, an American strand originating in organization theory and institutional theorizing focusing on organizational evaluation takes a somewhat different perspective (Lamont, 2012; Paradeise and Thoenig, 2015).

2.4.2 *Organizational evaluation literature: Reactivity of rankings*

From a neo-institutional perspective within organizational theory, the obsession with rankings in economics can be explained as a result of influence both from tendencies in science and societal development outside academia since institutions and organizations adapt to institutional myths in their surroundings (Meyer and Rowan, 1977) through isomorphic behaviours (DiMaggio and Powell, 1983). Increased utilization of metrics for quality evaluations is not an isolated phenomenon in economics but has become an integral part of the steering of both private and public organizations (Power, 1999; DiMaggio and Powell, 1983). The escalation in the use of rankings in economics could thus have spread through *mimicking* other sectors, spurred by how this way of steering has become more acceptable in all parts of society or even as a taken-as-granted practice (Lee et al., 2013; Sivertsen, 2017). Simultaneously, the proliferation of rankings and metrics in science has been attributed to the field of economics as a catalyst for this diffusion. In her work “How Professors Think”, Lamont (2009) highlights an economist informant who acknowledges the influence of his field and remarks: “[Political Science] is the field where the cancer of economics has spread the most” (Lamont, 2009: 97). However, the recognition that economics likely contribute to the dissemination of rankings and metrics in science does not negate the fact that these practices are also influenced by broader societal trends, where decision-making based on quantitative measures become increasingly prevalent (Power, 1999; Hood, 1991).

The isomorphic argument can face criticism for assuming that a single evaluative process, such as an organization evaluation, is assumed to have far-reaching effects in driving institutional isomorphism (DiMaggio and Powell, 1983). The use of rankings is not uniform but exhibits significant variation across different societal domains (Reymert, 2020). Furthermore, translation theory (Czarniawska and Sevón, 1996; Wedlin and Sahlin, 2017) argues that this diverse adoption is due to how institutions translate and incorporate trends in their institutional environment to align their own specific institutional context (Czarniawska and Sevón, 1996). We can thus not expect (Wedlin and Sahlin, 2017) economics to adopt some general way of using metrics in

society, but instead to translate the use of metrics to align with their own already established evaluation practices. Economists' widespread use of rankings can thus be understood as a convenient way of structuring research quality, as it aligns effortlessly with the field's high level of agreement on pre-established hierarchical quality notions. In more heterogeneous disciplines with more uncertainty or conflict about quality notions and what journals are considered well-renowned, establishing such a consensus will be much harder.

In a similar vein, Brandtner (2017) argues that isomorphic effects are mediated by the heterogeneity of evaluative processes that combine into an organization's *evaluative landscape*. This concept helps us shift analytical focus to the institutional contexts' specific setup and its influence, as a totality, on organizational behaviour. Extending this argument, Hylmö et al. (2024) suggest that research fields differ from organizations in that the switch-role nature of peer review makes evaluative processes internal to and integrated into their *modus operandi*. A field's interconnected evaluative practices and quality notions give rise to characteristic *quality landscapes*. The quality landscape concept is thus a way to theorize the different institutionalized evaluative context facing research fields, and specifically the relatively homogenous landscape of economics, in which journal rankings play a central role. These perspectives then allow us to focus on meso-level, field-specific, socio-epistemic conditions.

The diffusion of rankings could also have been prompted by more *coercive* measures; whereby governmental reforms mandated the adoption of rankings as a means of steering research. One example is how the Research Excellence Framework (REF) in the United Kingdom linked funding directly to metrics, which spurred the British elites within the field of economics to implement the T5 as an important quality standard (Lee et al., 2013). Similarly, but not as intense, university funding has been linked to publications in recognized journals in the Norwegian system (Sivertsen, 2017).

2.4.3 *Classification situations and performativity of economics*

Drawing on the sociology of knowledge and focusing on institutionalized modes of social classification, Fourcade and Healy (Fourcade, 2016; Fourcade and Healy, 2013, 2017) have provided an intriguing conceptual toolkit that can help us understand what is special about rankings. They suggest that we think of nominal categorization, ordinal rankings, and cardinal scores as basic types of social classifications and processes of ordering our world. Moreover, they treat the production of rank-ordering, or *ordinalization*, as a special case among general modes of social classification that may shape the classification situations that actors find themselves in. The notion of classification situation insists that social class is not just a common situation in which individuals find themselves, as in Max Weber's classical conception. Instead, social stratification is at least partially reproduced by distributed evaluative infrastructures that shape the situations into which social actors find themselves navigating in (Fourcade and Healy, 2013). Their case is the widespread use of algorithmic credit scores in the US, but the concept of a classification situation can be

thought of as a more general model of the interrelation between institutionalized evaluation and actors' self-conceptions and practices (Jürgenmeyer and Krenn, 2016). This approach highlights the macro–micro link in the form of the calculative meso/macro infrastructures of valuation within which actors act. While Fourcade has analysed academic economics extensively (Fourcade, 2009; Fourcade et al., 2015), this strand of their work does not focus on academia. Still, the approach is a promising tool both for understanding the particular function of rankings (as opposed to other evaluative metrics) and particularly the institutionalized use of rankings on the level of a research field.

This conceptual lens allows us to understand the ranking obsession in economics as a rational and strategic adaption of economists to an institutionalized evaluative system resting on generally acknowledged economics journal rankings that renders research quality and career incentives clear and intelligible. The focus here lies on the structural context, in terms of evaluative infrastructures and disciplinary standards that economists find themselves in.

The performativity of economics literature instead focuses more precisely on the generative role of knowledge, and famously argues that knowledge should not just be seen as representing the world, like a camera. Instead, it is more like an engine that participates in generating or performing social reality, like financial markets (MacKenzie, 2006). Approaches to the performativity of economics exist in a well-known strong form (Callon, 1998, 2007) and a lesser-known weak form (Steiner, 2001). The core notion of the former is that economic knowledge performatively shapes some aspects of the world through theory-based constructions of economic institutions and promotes particular behaviour due to actors' adherence to economic theory and its model of rational action. The weak form suggests that economic education merely tends to lead to behaviour that is more aligned with the behaviour proposed by economic modelling of rational action, as social actors adopt representations of the social world from economic theory, informing their actions (Steiner, 2001, 2010). If this is true of economics students as shown in experimental studies (Hellmich, 2019), we can assume it to also be true for the virtuosos – their teachers. This perspective could perhaps provide a missing link in the search for causes of the ranking obsession. Could the epistemic content of the economics field, for example the core role of the concept of competition, or the modern microeconomic theory of ordinal utility, that assumes that economic agents' preferences can only be meaningfully represented in the form of an ordinal scale, influence the preoccupation with rankings?

2.5 Concluding remarks

Economists are indeed, as we have shown, obsessed with rankings although the increasing use of rankings is by no means exclusive to economics, where it is outstandingly pronounced. But the use of rankings as a particular form of metrics is the product of a wider societal tendency to evaluate and measure (Dahler-Larsen, 2011) as well as an increasing accessibility of research metrics, driven by growth of digital infrastructures in the last few decades.

Institutionalist perspectives suggest that this is merely part of the spread of institutional forms through isomorphism. Translation theory provides a more fine-grained lens, asking us to pay attention to how such diffusion is translated into the particular practices – the heavy focus on journal rankings and top journals – in economics. However, to explain the specific link between rankings and economics, other conceptual tools are needed that address the specific socio-epistemic conditions or quality landscapes of research fields. The performativity of economics approach suggests that economic theory itself may provide an explanatory clue, that there is a certain fit between economists’ models and mode of thinking on the one hand, and the use of rankings on the other.

The performativity approach furthermore cautions us to reconsider the link between society and economics. It is perhaps not only the case that the tendencies of what could be called the “evaluation society” influence economics in a translated form, but also that economists’ style of reasoning (Hirschman and Berman, 2014) has also influenced the general societal spread of evaluative metrics, for example, through disciplinary elites influencing research policy and other governmental reforms. With our inventory of partial explanations, we have not aimed nor arrived at any final conclusions. Instead, our hope is to provide directions for further theoretically informed empirical research.

The empirical examples utilized in this chapter are drawn from a Scandinavian context. This may raise questions about its representativeness on a European or global scale. However, several observations underpin that Scandinavian economics is not so much a special case. First, studies have demonstrated that Scandinavian economics notion of research quality and emphasis on publications does not significantly deviate from their colleagues in other Northern European countries, such as the Netherlands and the United Kingdom (Reymert et al., 2021). Second, interview studies with Scandinavian economists similarly show that they are oriented towards the international research field and its practices much more than any national academic cultures, with most tenure-track researchers recruited on the international junior job market (Hylmö et al., 2024). At the same time, it is plausible that this internationalization or Americanization of Northern European academe (Sandelin and Ranki, 1997) has contributed to the emphasis on rankings and top five journals within Economics in Scandinavia, as it has accelerated during the last few decades, just as the current ranking obsession also took form. Conducting similar studies in European countries like Germany or France, with stronger national publications practices, may yield different results. Therefore, there is a compelling need to explore these dynamics in a broader range of countries.

Having presented empirical evidence of the obsession with ranking, and discussed possible clues towards theoretical explanation of the “ranking syndrome”, we now proceed by asking: How could the influence of rankings on the field of economics be diminished? Below, we propose three hypothetical strategies for the treatment of preoccupation with rankings.

The first strategy may be called “*the absolutist stance*”. This strategy suggests that forbidding the use of rankings (and metrics) in, for example, hiring or grant allocation may lessen their influence over time. The logic is that the disappearance of rankings in such high-stake situations would eventually lessen their influence in more informal settings, through breaking up the classification situation. Though this may effectively hide some of the more visible symptoms while not getting to the root of the problem. For example, a reviewer can base their judgement on an implicit and informal ranking without ever mentioning this as an argument in the official account of how a decision was made. Using rankings could also in some situations be the least undesired way of evaluation, for example, in hirings or grant calls with hundreds of candidates or proposals. Such large-scale evaluations are nearly impossible to perform without some sort of judgement tools like rankings or bibliometric indicators to increase the evaluative labour productivity. In other words, a moderate use of rankings is probably desirable in some circumstances.

The second strategy is to “*turn rankings against rankings*”. This treatment uses the power of rankings against rankings themselves. Two approaches can be used here: (1) introducing rankings using similar methods but resulting in different results to reduce the trustworthiness and authority of any single ranking or (2) rivalling rankings – which consider other values like societal impact – could be useful for lessening the obsession with an established ranking. This strategy will probably only be effective when initiated by high status, highly legitimate actors, although a seed may have already been planted (Heckman and Moktan, 2020). Such an approach has similarities with Ergen and Kohl’s (2022) distinction between *critique ad concurrentia* and *critique in concurrentia* in the context of competition studies. Hence, either you critique the institution of rankings as such, or you accept it, but critique the shortcomings of particular rankings in order to improve them by adding additional criteria (social impact, sustainability, teaching).

A third option is however the most likely one, and this scenario suggests that economics as a field might have to learn to live with its infatuation with rankings, with its pros and cons. In such a perspective, the observations made here, and in many other contributions to this volume, may help in understanding what the obsession with rankings means for the field. Ideally, it would be stimulated by a broad disciplinary debate among economists, where also heterodox economists’ concerns would have a role to play. Ultimately it may also inform and support a reflexive stance which may help to lessen the undesirable effects of the ranking syndrome in economics.

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Notes

- 1 Far-reaching Freedom of information acts allows researchers to access the documentation, including expert evaluation reports, from academic recruitment processes in both Norway and Sweden (see Hylmö, 2018; Reymert, 2020).
- 2 Direct quotes from an Norwegian expert committee report in Economics between 2006 and 2012.
- 3 Direct quotes from a Norwegian selection committee report in Economics between 2013 and 2017.
- 4 Direct quotes from a Norwegian expert committee report between 2013 and 2017.
- 5 Direct quotes from assessment committees in Economics (Sweden) 2012 and 2014.
- 6 Direct quote from assessment committee in Economics (Sweden) 2014.
- 7 Direct quote from assessment committee in Economics (Sweden) 2014.
- 8 Direct quote from assessment committee in Economics (Sweden) 2013.
- 9 Direct quote from assessment committee in Economics (Sweden) 2006.

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3 Varieties of truth games

How economists produce different forms of true knowledge between ranking evaluations and political expertise

Jens Maesse and Simon Peters

3.1 Introduction

Knowledge exists in different modalities. For instance, knowledge of scholastic discourses was related to traditional books, and scholastic scholars had to learn and repeat dogmas. In contrast, knowledge of and about the state and the economy is often related to the future, offering optimal solutions for existing problems, helping to promote societal welfare and maintaining the civil rights of citizens. In the fields and discourses of modern sciences, knowledge is expected to be “true”, guaranteed by quality assurance practices. But what is “true knowledge”?

The philosophy of science has discussed this special status of knowledge for a long time. Finally, Popper defined the criterion of “falsifiability” as the gold standard of scientific truth. Yet, the late Wittgenstein of “Philosophical Investigations” questioned the implicit universality of this principle by pointing to heterogeneous “language games” and the contextuality of knowledge production. With this in mind, we can ask how one single principle (falsifiability) can be applied when the circumstances change from case to case? In line with Wittgenstein’s philosophical pragmatism, the sociology of science pointed to the constructive (Latour, 1987), socially influenced (Bloor, 1976) and conflictual (Lyotard, 1989) character of scientific knowledge. Accordingly, the production of true knowledge cannot be detached from the social contexts where it is produced, transformed and recognised.

Starting from this debate, our chapter analyses two types of “true knowledge” produced by economists in two different professional contexts. Drawing on Foucault’s dispositif theory, we analyse how rankings make scientific knowledge relevant to the academic community. Rankings do not simply “measure” the quality of knowledge, they also prescribe what kind of research is recognised as “excellent” and, therefore, in a particular way “true” (Espeland & Sauder, 2007). We will show that this “reactivity” function of rankings cannot be understood without a special social context of academic knowledge production in economics, namely, the “career trajectory”. In a second step, we will contrast this truth game with another truth game. Here, economists in economic policy organisations also produce true knowledge. But the regime that

makes this knowledge true is not the “academic career trajectory” but “expert networks embedded within epistemic supply chains” designed to provide expert knowledge for non-experts such as politicians, officials and functionaries. In this context, the quality of knowledge is not measured by rankings and double-blind peer reviews, but via internal and informal evaluations by the organisation, as well as external visibility within the expert community, politicians and journalists. With Foucault as the theoretical background, we argue that many elements of each dispositif arranged around two different but central structural characteristics (career vs expert network) construct two different forms of truth games that cannot be played off against each other. In the economic sciences, truth and high-quality research exists in two different modalities. Thus, universal principles such as “validity” and “reliability” are not sufficient to evaluate a scientific statement as “true”. The various socio-professional contexts of knowledge production must be considered as well.

In a first step, we will reflect on the main debates about the status of truth in the philosophy of science in order to explain the role of contextuality. Chapter 2 explains our analytical view and the methodological approach of our empirical study. In Chapter 3, we analyse two different truth games in order to show how and why different institutional contexts lead to different understandings of truth and scientific quality. Chapter 4 summarises the main results of our study.

3.2 Theory of scientific truth and social contextuality

One of the most influential figures in the development of modern philosophy of science was Immanuel Kant. Kant called on the individual human’s capacity to reason and take responsibility for truths. He undertook the Copernican turn in a human-centred system of knowledge justification, an “all-destroying” (Mendelssohn) medieval metaphysics, while at the same time developing the “critical system” to establish empirically grounded reasoning as a primary way towards true knowledge. His most influential works concern the logical and perceptive conditions of true knowledge and the laws and limits of humanly accessible truths, as well as their implications for practical reason.

Like many others, Johann Gottlieb Fichte took on the task and tried to create a scientific system made of universal, empirical-logical truths. He would become known for publishing more than a dozen reformulations of the fundamental basis of science without ever really arriving at solid ground, but the challenging task of creating such a system, leaning not on the organisation of old but on the discovery of new truths (Stichweh, 2003), inspired generations of scientific theorists in continental Europe.

But it was not until the use of “experiments” that the first original scientific tool for truth production emerged and revolutionised the way in which knowledge had to be justified “scientifically”. Especially Einstein’s re-conception of time and space, and the possibility to scientifically prove it right, led to a new spirit that broke with the apparently “ideological” philosophy of science and heralded a new age of scientific reasoning and theorisation.

Thinkers of the Vienna circle in the 1920s reinforced the idea of a unified system of truths backed by value-neutral reproducible observation and logical theorisation, making it universally true in that sense. But this early dream of the logical empiricists/ positivists fell into crisis in the 1960s, when it became apparent how strongly sciences are socio-culturally influenced by the norms and values of their disciplinary contexts and epistemic communities. But as an ideal, the universal truth-claim promoted by traditional philosophy of science still exerts a regulatory function that is essential to legitimising scientific statements to themselves and to the public.

The failed quest to implement an overarching scientific theory weakened the theoretical claim to universal truths of science. Its justification then shifted from theory to method. Karl Popper, being a critic of all-explaining theories of all kinds himself, famously defended the scientific method as the golden way to universal truths. When research is narrowed down to as few as possible falsifiable implications, it can be verified objectively and thus be made scientific (Popper, 1963). From a sociology of science perspective, methodologically grounded truth claims can be seen as a basic quality standard of scientific statements. But standards and methods can shift between different social contexts, especially between different disciplines.

Disciplines as large communication units emerged (Stichweh, 2003) from a set of scientific journals. As central arenas of scientific communication journals can exert disciplinary influence that integrates disciplines as social systems. They develop specific laws and practices (e.g. quality management, peer review, etc.) that aim to ensure the validity of new scientific (publication) products. Especially for academic careers (PhD+), research publication in these journals is central to the organisation of knowledge production.

Our field of research covers two logics of truth production. One is related to the academic career trajectory, the other is backed up by expert networks organised along the epistemic supply chain in a system of distribution of scientific labour. In both systems, disciplinary truths have to be transformed, adjusted and integrated into other social logics (Lentsch & Weingart, 2013). As they also follow certain rules in which knowledge is recognised and presented as “true”, we will use the term “truth games” in order to better understand how Popper’s dictum is realised in differing empirical realities and social contexts of truth production. Scientific truth is not just based on epistemic criteria of verification and falsifiability. In addition, truth production is embedded in different socio-institutional contexts of scientific discourse formation.

3.3 Analytical approach: Dispositif theory and narrative-biographical interviews

In order to better understand the interaction between truth as based on Popper’s theory of falsifiability and different socio-institutional contexts of discourse formation, our chapter applies an analytical design based on Foucault’s theory of power/ knowledge regimes (Foucault, 1990). Knowledge does not simply

emerge from human capabilities of reasoning and social interaction, it is, rather, based on different systems of power. According to Foucault, power is not only seen as a system of domination and suppression. On the contrary, power produces social life in many different ways. It makes the production of institutions, classification systems, the modern state, the economy and many other aspects (jails, schools, scientific disciplines etc.) possible. Power/ knowledge regimes are biopolitical machines (Foucault, 2008). They exert disciplinary power over individual career choices, expert networks and define what truth claims are and how they relate to the wider socio-discursive context.

In order to grasp this aspect, Foucault introduces the idea of the *dispositif* (Foucault, 1980). A *dispositif* consists of various aspects such as institutions, texts and statements, social networks and roles, architecture, economies and historical traditions. A *dispositif* is not a universal system where truth claims are made according to pure and abstract epistemic-evaluative criteria. In this sense, *dispositifs* as power/ knowledge regimes can make discursive statements true – but only under certain circumstances. According to Foucault, the idea of truth emerged – long before the birth of modern science – as part of the medieval pastoral regime in order to control people, people’s bodies and people’s sexuality (Foucault, 1990). Today, truth became a universal value reaching far beyond science and pastoral control. It reaches into different contexts of discourse production, such as law, the police system, arts and politics. The main criterion that qualifies a discursive statement as true is no longer a universal epistemic dictum. It is, rather, the contexts in which the statement emerges, circulates and is recognised by institutionally embedded communities of professionals (Foucault, 1972).

Our analysis of truth games in different socio-institutional contexts of economic expert discourses starts from the idea of heterogeneous *dispositifs*. The notion of truth games has much in common with Kuhn’s “paradigms” as long as different theories are incommensurable. But in contrast to Kuhn’s “paradigms”, which focus mainly on theories, methods and scientific contents, truth games highlight the non-scientific factors, namely the socio-discursive contexts of truth production.

Based on narrative biographical interviews (Schütze, 1987) with economists from universities in the UK and Germany as well as think tanks and political organisations in Germany and the EU, we identified two systems of truth production: the academic career trajectory of individual researchers and expert networks within epistemic supply chains of scientific organisations (Economic Research Institutes and economic policy organisations). 44 interviews with university economists of different career stations and 17 interviews with economic experts from six organisations were conducted between 2020 and 2022. The interview questions were relatively open (semi-structured narrative biographical interviews) and related explicitly to the actor’s professional biography (manly starting with the moment when the first job decision was made). The interview material was analysed with an enunciative discourse methodology. This method follows interview sequences step-by-step and analyses how

discursive markers (such as deixis, polyphony and boosters/ hedges), indicating the actor, create a relationship to the actor's environment (institutions, networks, other colleagues, special events and experiences, see in detail (Maesse, 2018; Maesse, 2021a).

3.4 Mechanisms of truth production

Relevance and truth-claims of scientific knowledge can be constructed in different ways. According to our Foucauldian perspective, different dispositifs as systems of truth production are the main driver of these processes. Truth is not a universal object disconnected from social contexts; rather, truth is constructed in different games of truth as dispositifs. As we explained in the previous chapter, the notion of dispositif helps us to understand the forms and mechanisms of those systems. Accordingly, if truth is the product of a particular dispositif, even scientific dispositifs construct different modalities of truth. In the following chapter, we will analyse two different modalities of truth production or games of truth: the “career trajectory” and “expert networks within epistemic supply chains”. Based on narrative-biographical interviews with economists from universities and political consultancies (research institutes, employer organisations and workers' unions), we will sketch out how the “career trajectory” and “expert networks within epistemic supply chains” make economic expert knowledge in different ways relevant as “true knowledge”.

- a The “Career Trajectory” as reference frame for the academic relevance of scientific knowledge

Academic knowledge as one form of scientific knowledge is constructed in particular social contexts that are built around the “career trajectory” (Angermuller, 2013, see also Thierry Rossier's contribution in this volume). The career trajectory makes scientific knowledge, as produced by doctoral students, postdocs and professors in the economic sciences (such as economics, finance, marketing, management, accounting), relevant by and for the academic community. In order to understand how this dispositif makes scientific knowledge relevant as true knowledge, we will focus on three important aspects constituting career options for economists in different sub-disciplines: first, the role of “journal impact rankings” (JIRs) for the hierarchical ascription of excellence and quality; second, the elements constituting different career trajectories (such as “dominant norms and values”, “publication strategies”); and finally, the interaction between two different but interrelated career trajectories (“academic excellence” and “academic standard”). All of these aspects are illustrated in Table 3.1.¹

Table 3.1 summarises the results of our interview analysis with academics. Based in sequential analysis of transcribed interviews, we identified main categories (left column, and first row), sub-categories (all other boxes) and sub-sub-categories (not illustrated here). Due to lack of space, we will only look at

Table 3.1 Different career trajectories within the economic sciences

<i>Career trajectories</i>	<i>Academic excellence</i>	<i>Academic standard</i>	<i>Economic profession</i>	<i>Economic consultancy</i>	<i>Critique</i>
<i>Dominant norms and values</i>	Institutional success	Personal motivation	Business innovation	Political expertise	Realist theory of truth
<i>Publication strategies</i>	Journals: A++, A+, Four* Editors, gatekeepers, reviewers, “big shots”	Journals: A, B, Four, Three Local colleagues, students, academic friends	All types of publications Business world/ companies, scientists, other professionals	C, B, A; Policy paper Expert colleagues, politicians, journalists, academic colleagues	Books, journals, volumes Other academic “outsiders”, interdisciplinary colleagues
<i>Professional networks</i>	Research frontier, American English, models, journals	Everyday institutional knowledge, standard professional knowledge	Depends on the business field, academic colleagues	Statistics, data banks, political context, “up-to-date” topics, non-jargon language, competitors	Alternative methodologies and theories, interdisciplinary approaches, different languages
<i>Forms of knowledge</i>	Graduate school, high-ranked department, CEPR	Small-, medium-sized university, national organisations, local everyday life connections	University and business world	Research institutes, political organisations, media, universities	University, different disciplines, alternative networks and organisations
<i>Institutional embeddings</i>	Authentic	Reflexive	Strategic	Pragmatic	Sceptical
<i>How rankings as evaluation tools of scientific relevance are adopted by economists</i>					

two ideal typical trajectories and their interaction in the course of young researchers' career biographies: "academic excellence" and "academic standard". We can neither discuss all the other trajectories nor the periods constituting an entire professional biography from the beginning as a young researcher until the final position occupied before retirement (Maesse, 2021b). Nevertheless, we will be able to show that truth does not follow universal standards. On the contrary, the different use of JIR by different actors on different career tracks is directly related to the way elements such as "publication strategy", "forms of knowledge" or "institutional embeddings" are selected and assigned by the academic *dispositif* (Maesse, 2021a).

In a first step, we will briefly summarise the main elements constituting both career trajectories in order to better see how the interaction between both types plays out. According to our interviews, four elements constitute the "academic excellence" trajectory. First, "institutional success" is the dominant value and framework guiding professional action and the decision-making of economists. Second, a publication and research strategy with an exclusive orientation towards journals located at the top of the "journal-hierarchy". This has the effect that people only publish in journals listed at the A+, A++ or Four* levels in JIRs (Journal Impact Rankings). Third, exclusive professional networks and academic clubs play a major role in that context because they bring people with an "institutional success" orientation together into small-world-communities. In addition, scholars on that career track jointly engage in particular topics known as the so-called "research frontier". The research frontier defines legitimate topics, models, methods and other research related aspects that make a specific paper/ research design, in a couple of years, relevant for getting published in a "top journal". This informal knowledge is exclusively accessible in specific networks. Without access to these knowledge-networks it is difficult – if not impossible – to regularly publish in journals rated at the top of the journal-ranking hierarchy. Furthermore, access to specific forms of knowledge (informal and formal, conceptual and strategic, social and institutional) is required in order to know which publication strategies, networks and other aspects can guarantee "institutional success" in terms of "top-publications". And, finally, specific institutional embeddings are required to keep everything together, especially access to proper professional networks, specific knowledge and skills, as well as meritocratic success orientation. Here, a particular type of department (located in universities with a high reputation such as the LSE or UCL in the United Kingdom and Mannheim or Frankfurt in Germany) including professional graduate schools and programmes is of central importance. They provide the necessary resources, access to specific networks and regulate the relationship between "norms and values", "publication strategies" and "knowledge" (Maesse, 2018).

The constitution of this sort of career trajectory is unthinkable without the role of JIRs. JIRs define what "excellence" means before a paper is written and even before specific research is done. They constitute a "reactivity effect" (Espeland & Sauder, 2007) by structuring and restructuring the field and

discourse of academia in the economic sciences (much stronger in finance and economics, less rigorous in marketing and management). JIRs are the “nodal point” (Lacan, 1991) that brings together specific forms of elite orientation among academics and institutional hierarchies (Maesse, 2017).

Five technologies play a central role here, influencing academic knowledge production (Osterloh & Frey, 2015). First, rankings help people to construct superiority images of “top research”, “top department”, “top university”, “big shots” and so forth (Fourcade et al., 2014). These images affect how other people conceive their professional environment, the professional field and discourse as such. Second, the idea of “top” (“top university”, “top journal”, etc.) helps actors to construct specific entrances into academic discourse while erecting barriers for others. At this point, the meritocratic attitude that categorises academic actors as “talented”, “good” or even “brilliant” becomes materialised. Furthermore, through these technologies, the idea of an “academic elite” becomes institutionalised which, on the other hand, creates the possibility of excluding the majority of other academics as “non-elite” (Münch, 2007). Third, a couple of academic practices are established and institutionalised such as “journal-paper-writing”, “American English” as a lingua franca, selecting the “right” references, or thinking in terms of models (and not theories) (Morgan, 2012). Fourth, the existence of rankings influences academic citation behaviour (Angermüller & Hamann, 2019). And, finally, they help to define something as a “research frontier” serving as a guiding framework for designing future research projects and, thereby, closing the door to external young researchers on their way towards academic “excellence”.

The following interview excerpts will illustrate how rankings intervene in the academic practice of young researchers and (re-)structure a field and discourse within the economic sciences. A young economist told us how s/he managed to write a paper that would take him/her to a professor position in his/her mid-thirties.

Well, as a doctoral student, you must write a good paper ... And, well, I already had a strong paper, not properly ‘polished’, because [...] my style of writing was a bit too ‘sociological’, ‘continental-European’....

Here, our interview partner explains to us that a certain type of American English as well as an “economics” style of writing is needed to get the paper finally published because most upper-class journals as well as the most influential editors and reviewers are located in and/or connected to elite American universities (Heckman & Moktan, 2020). As we can see here, the economic sciences are significantly structured along vertical differentiations (Lee et al., 2013). This would be different in a less hierarchical world of publishing characterised by a higher degree of horizontal differentiation, such as sociology or psychology (Han, 2003). Hence, in a world dominated and structured by Journal Impact Rankings, one single style of writing and presenting rules and is therefore required in order to obtain a respectable discourse and field

position. Thus, this example shows how JIRs establish a discourse position that makes people believe in and prioritise a specific linguistic style of writing, talking and thinking.

The following excerpt shows how particular social networks as well as elite institutions dominated by an American style of economics influence the research process.

And what I realised is, well, and that is underestimated by many colleagues who have not grown up in top universities, is, well, this ‘market orientation’ in research [...] how I efficiently communicate [...] in order to get the paper successfully published. [...] And, well, the reviewer [from good journals with a rejection rate of more than 90%, J.M.], if they don’t understand the paper immediately, then, they have a negative attitude towards the paper, well, right at the beginning, and then they probably think “this will be rejected”.

Two aspects are illustrated by this example. First, the role of academic networks in order to know how the “right” people think. Only young researchers located in departments known within the field and discourse as “top departments” hosting Graduate Schools and MA/PhD programmes have access to people representing a specific style of economics. In addition, the power of a very few editors (not primarily the commission!) in the professor-recruitment process is obviously related to the journal hierarchy constructed by rankings (Aistleitner et al., 2023). Thus, a kind of global “academic aristocracy” is formed, an invisible “council of the wise” pre-structuring many professor-recruitment processes worldwide and therefore influencing careers. Therefore, what we see here is how JIRs establish researcher-making, de facto job decisions, and produce a more or less global cultural homogeneity (Meyer & Schofer, 2007).

Finally, let’s look at the role of literature selection and citation practices. The following interview excerpt is from a young professor (m/f/d) in economics:

But, what I need to say is, so, my personal impression, that we (group of “economics”-economists) deal very superficially with the literature because we have no time for reading. Well, and then there are some standard references, so, there is some literature, and then we say: “Just cite only this and these two great works”.

In a personal conversation, an economics professor told me how the literature is related to JIR. “If you want to publish in a top journal, you have to cite papers published in top journals, otherwise, your paper cannot be on a top level, because a potential top paper must relate to existing top papers”. This can be seen as another definition of what we have discussed above as the “research frontier”. The research frontier does not define the relevance of scientific knowledge in a universal way. On the contrary, it is restricted to social

contextual particularity, and JIRs are one modality to “particularise” the universal claim of scientific truth (Hamermesh, 2013). Therefore, the category of “relevant literature” or “standard references” helps to establish other papers and professional actors from specific institutions, and this in turn will help in building boundaries around elitist networks and academic groups (Aistleitner & Puehringer, 2023).

Individuals are never moving straight away, forward, on one trajectory; on the contrary, they constantly switch between different ideal types, both mentally, within each period, and institutionally, while moving from one period to another within the academic dispositif (or leaving it). Thus, the career trajectory as the main modality of the academic dispositif is marked by a synchronic differentiation between different ideal types (Table 3.1) and a diachronic chronology between different periods on each career track (Maesse, 2021b). When moving from career track “excellence” to career track “standard”, specific discursive links are constructed working as a “bridge” between both types. One typical link is the shift from “research frontier” to “risky research”. The following statement is from a young professor in a permanent position.

Well, there is always a pool of docs and postdocs who have already passed through and are now looking for a new job. Their new projects could be very promising. But when it is, today, unclear if the project will be successful in the end, people tend to switch to more ‘little things’ with a lower degree of possible innovation.

As this interview excerpt illustrates, there can be a trade-off between publication success in terms of top publications and the innovativeness of a research project already, before(!) the research project starts. In this context, “innovativeness” or “risky research” is not immediately defined by the research frontier; it is, rather, determined by the researcher’s personal professional evaluation of a possible project, guided by personal research interests and motivations. Hence, when economists move to a permanent position and are thereby entering a new period in their professional biography, it can happen that they end up in a “standard position”, no longer guided by the idea of “institutional success” but rather by values of “personal motivation” – choosing “risky” topics via personal interest – or by “political expertise” – taking up research of societal relevance. This switching back and forth between different career tracks, starting from the “excellence” track and moving later to another one, also implies a rejection of the “JIR nodal point” and going on distance to the idea of rankings hegemonising the dispositif of the economic sciences within academia. Rankings and top publications are no longer seen as “authentic” evaluation regimes; they are, rather, regarded in a more “reflexive” way (i.e. “Is a top publication useful at the current moment of my research?”). At this point, a different “game of truth” already becomes visible because, at this point, different elements constitute a different career track as a social context of truth production.

- b “Expert Networks within Epistemic Supply Chains” as hybrid contexts for struggles over true knowledge

When the discursive images of “risky research” and “research frontier” already establish two economic “games of truth” within the dispositif of academia, things are changing entirely when we leave academia and enter another dispositif of economic truth production: “expert networks within epistemic supply chains” in the world of political consultancy and advice. Here, truth takes on a different form, as we will see. Based on interviews with economists from German workers’ unions, industrialists and research institutions, we observed a different social context of economic knowledge production, a different economic expert dispositif that makes “true” scientific knowledge in a new way relevant to the professional actors in this game of truth. Two observations are of particular importance to understand how truth is produced and recognised here.

First, whereas, in academia, the main difference between professional actors is their position on the career track(s) in a diachronic (doc, postdoc, professor, etc.) as well as a synchronic way (excellence track, standard track, etc.), now, different expert roles become important where scientific professionals make a job for an organisation. Expert roles are located on a career trajectory leading from one step (PhD) to the next (Postdoc). Rather, expert roles are knowledge production spots, like an “office”, connected to other roles in order to provide true knowledge for non-experts as clients. Based on our interviews, nine different roles could be identified (see Table 3.2).

Based on a division of knowledge labour, each expert role is related to a particular organisation and placed at particular positions within an expert network. The expert network can be analysed as a knowledge production system, an “epistemic supply chain”, where different epistemic pre-products (data → in-depth analysis → policy conclusions → media statements) circulate in order to produce a final statement (policy advice, media image), supported and backed up by academic reputation and scientific solidity. Figure 3.1 shows how such an epistemic supply chain works, where the different expert roles are placed at different points of the production process.

In order to better understand this system of truth production, we will first illustrate a couple of expert roles with interview excerpts and then go on to describe what “truth” means within this dispositif. The following excerpt illustrates the role of data experts.

Where do I stand? Well, basically, I see myself as a “data truffle pig”. I “rummage” in data and sometimes I find something where I think: “This is interesting!”

Data experts usually work in research institutes. They have experience of and special knowledge about different data banks and statistics offices and they know how to “read” specific types of data. These experts typically cooperate in the epistemic supply chain with technical experts but also with organisational

Table 3.2 Expert roles, their function within the epistemic supply chain and related type of organisation

<i>Expert role</i>	<i>Function with the epistemic supply chain</i>	<i>Type of organisation</i>
Technical expertise	Providing in-depth studies for other experts	Research institute
Translational/ transfer expertise	Translating expertise for politicians, organisation members and journalists	Political organisation
Organisational expertise	Representing the organisation's view on different policy fields	Political organisation
Data expertise	Providing data and managing data banks	Research institute
Media expertise	“Performing” in media settings (talk shows, newspapers, etc.)	Research institute and political organisation
Advisory expertise	Explaining certain data for OE (i.e. macroeconomist)	Research institute and political organisation
Project expertise	Managing expertise on all levels of the supply chain for temporary activities (Brexit)	Political organisation
Borderline expert	Switching between academic excellence and (mostly) technical expertise	Research institute and university
Academic expert	Producing scientific legitimacy via academic publications (“Top journals”) and consecrations (Prof., Director, “Star economist”) especially for media discourse	University

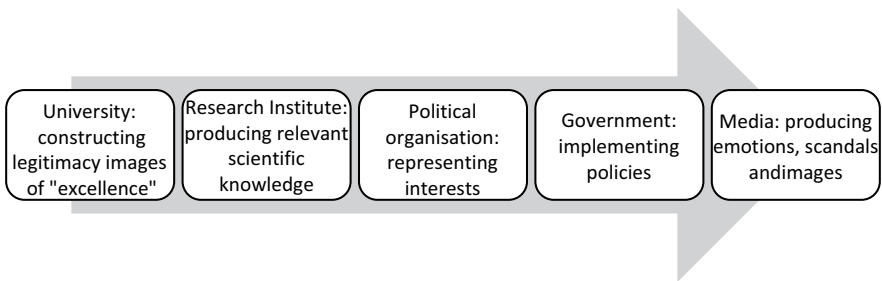


Figure 3.1 Epistemic supply chain of expert networks.

experts or translational experts. Technical experts typically need support from data experts, for example, in order to analyse the macroeconomic effect of the minimum wage. Here, specific employment and unemployment data are needed in order to exclude external factors and isolate the macroeconomic effect of the minimum wage on demand, GDP and employment. Another interrelationship exists between technical experts, translational experts and other experts such as organisational experts or media experts. The following excerpt is a statement by a macroeconomic forecasting expert.

“Well, we publish quarterly an economic forecasting report and half-yearly a report on industrial development worldwide, in the big industrial countries.”

For this report, the forecasting expert draws on standard numbers pre-framed by data experts from databanks and statistical offices, as well as other reports from research institutes. The expert takes these data and transforms them into a macroeconomic-forecasting frame that can be adapted to the needs of the organisation. This helps translational experts, organisational experts and media experts to switch into their role. But people often take up different expert roles simultaneously, as the next excerpt from the same interview partner illustrates.

Another point is, of course, a sort of “economic weather reporting”. This means I present and organise different information for commissions working in our organisation, describe quickly the general economic situation, and so, deliver these things.

At this point, the technical expert acts simultaneously as a translational expert. Translational experts transmit expertise to organisational experts, who in turn combine technical expertise – explained by translational experts – with the democratically negotiated interests of the political organisation. The main task of organisational experts is to make the organisation “speakable” in economic policy discourse. The following excerpt describes this role pretty clearly.

My work is diverse because we are, in a way, generalists in our department, but also specialists with respect to our topics, in my case the minimum wage and wage policy. Nevertheless, we must also be speakable in other areas of economic policy. And for this reason, the form of daily work can be very diverse, for example: preparing a position paper, a speech, some background reports, media articles, coordinating work with others, giving interviews, so, it is very varied.

Another aspect is how to form a position that will later be represented in commissions, the media and in other expert discussions. Here, political interests enter the expert network.

Well, [next to internal organisational coordination], we also talk to “outsiders”, and, well, we are the umbrella organisation and we have our members. [...] And here, we develop positions around the statutory minimum wage, wage policy, of course, with our members.

These political positions cannot be reduced to economic truth; rather, they represent the democratic will of the organisation’s members. But economic truth and expertise are needed in order to underline the legitimacy and feasibility of implementing political claims. Thus, organisational interests do not

conflict with scientific truth claims. Furthermore, organisational experts also work together with and switch into the role of media experts. At different points, when entering the media, talking to organisational members and political decision-makers, the epistemic supply chain leaves the internal world of the expert network and enters other areas of expertise, namely, the business world, politics, journalism and the interested public sphere via media and other public events. These are the arenas where the truth of economic expertise becomes politically relevant within the *dispositif* of expert networks. At this point, the role and status of “scientific truth” produced by the expert network within the epistemic supply chain is defined. As we can see in these cases, the relationship between “science” and society” is, first, not reducible to “academia” and “media”; and, second, it is a complex interrelationship based on expert networks, translations, interactions, divisions of labour and organisations.

At this point, the question arises of how truth is made in this *dispositif*. In the academic world, constituted by the career trajectory system, a statement becomes “true” when it is sound, reliable, grounded in models and firm against the background of the research frontier, as defined by Journal Impact Rankings. But when does an economic statement become “true” in the expert network system? The following interview excerpt with a translational expert/project expert problematises the relationship between economic expertise, economic theory, organisational epistemic needs and the media.

If you ask me for a macroeconomist, I could name many people where I would say: “They are useless”. The worst people are those economists speaking through the media and presenting some extreme statements. Well, I think so: “If you do solid and sound professional work, for example Mr Habeck [the Green German Minister of Economics, author’s comment], who deals with questions around energy security, the social consequences, how do we distribute the costs, or how do we compensate the burdens in extreme cases of suffering, and so on”, here one could offer really good expertise. But nobody is interested in these issues in the media. And then, a sort of vicious cycle develops, meaning that those economists presenting in the media all the time receive, of course, phone calls from the government. Hans-Werner Sinn [a prominent German economist, author’s comment], you wouldn’t believe how many people in the German Ministry of Finance read Sinn! And you wouldn’t believe how many people abroad call you insane when you start arguing with Sinn. That’s it!

This statement evokes a couple of complex socio-discursive relationships typical of the *dispositif* of expert networks. On the one hand, the role of “professors” with a precise academic-theoretical standing (Hans-Werner Sinn, “many people”). On the other hand, the role of media discourses where people like H.-W. Sinn perform in a populist manner (Maesse, 2010). Finally, the role of a sort of expertise that is seen as relevant (“Mr Habeck”) in the context of organisational experts involved in networks with other expert figures. In this world,

the media represent the possibility of ideological manipulation via economic expertise. Interestingly, academic professors are seen as the main ideological manipulators of scientific truth, not politicians! Furthermore, the statement operates with a specific understanding of economic truth that is related to “reality”, as the following excerpt illustrates.

Well, when I suspect – independent of the economic topic – that I talk to somebody who operates with a theoretical world view and seeks to implement the practice/ reality into this edifice, then, well ... In my view, science works the other way round: We look at reality, trying to understand what is going on, and draw conclusions from it, not the other way round.

Within the expert network *dispositif*, a statement becomes “true” when it is sound, reliable, grounded in data and firm against the background of the ongoing economic reality, defined by specific economic policy measures. Scientific truth is used to change reality, not to model it in a passive way according to certain Journal Ranking standards. In addition, the quality of a scientific statement is not related to the single author(s) of a paper, it is rather ratified by the organisation consisting of different expert roles working together in a system of divisions of labour. A true statement should not be published in a certain prestige-oriented genre (Journal), it must be invested into a democratic political game in order to select certain economic policy options, convince other experts and create pressure from a certain scientific standpoint. The frame of reference is the “reality”, not the “research frontier”, and the context that makes a true statement relevant is the expert network and not the academic career trajectory. An indicator of success is not publication output but public and political attention. The system of quality evaluation is not the level of a publication within the journal hierarchy but visibility within and informal acceptance by the expert network. Here, economic scientific truth is an investment in the discursive struggle over the change of reality. Thus, whereas the discourse field in academia is organised according to competing career aspirants and different career periods (PhD, postdoc, prof.), the discourse field in scientific economic policy advice is structured by cooperation and divisions of labour, organisational competition over visibility in a heterogeneous field between different expert roles ranging from data experts to media experts and informal recognition of scientific quality. Generally speaking, there is no universal scientific truth. It is rather the social system, namely the particular economic expert *dispositif*, where a scientific economic statement is recognised as “true”: the career and the network.

3.5 Conclusion

In this chapter, we have investigated two modalities for evaluating scientific quality – conceptualised as “true scientific statements” – within academia and policy advice. Starting with a critical reflection on the notion of “universal

truth” based on Popper’s philosophy of science, the “academic career trajectory” and the “expert networks within epistemic supply chains” are conceptualised from a Foucauldian perspective as two different dispositifs exerting regulatory power over what is produced and perceived as true knowledge.

It is argued that scientific truth does not simply result from the application of universal criteria such as “validity and reliability”. It is, rather, an effect of a journal-impact-ranking-related dispositif shaping career trajectories of economists within academia. As we have shown, the mechanisms of academic quality evaluation in economics revolve strongly around the “research frontier” that is exclusively accessible to small academic networks located at the top of the hierarchy within academia, promoting a narrow US-style economics put forward by “top-journals” closely related to American elite universities. According to that, only a combination of scientific evaluation practices and career trajectories can initiate a truth game that allows scientific statements in economics to become “true”.

In the context of economic policy advice, the truth game of academic excellence loses much of its relevance, although higher academic qualifications are critical for employment in economic research institutes and economic political organisations. Instead, the truth game of expert networks takes over with diverse role- and context-related conditions for truth production and visualisation, putting “socio-political relevance” and “reference to reality” in place of the “research frontier” as field of reference and the “expert network” in place of the “academic career trajectory” as the primary truth maker. The evaluation of professional success shifts from scientific publications in highly ranked journals to public, political and professional attention within the expert network.

Furthermore, we have demonstrated how scientific truth claims achieve political relevance in a division of knowledge labour constituting an epistemic supply chain of economic scientific knowledge for policy advice. While some roles described in Chapter 3 still use basic economic methods and rely on scientific analysis, they no longer do research in a purely academic way and often steer away from most of their education for more practical orientations. In addition to

Table 3.3 Two economic expert cultures and their truth game factors

<i>Economic dispositif</i>	<i>Academic economists</i>	<i>Policy advice economists</i>
<i>Defining quality</i>	Research frontier	Socio-political relevance and reference to reality
<i>Socio-discursive context as “truth maker”</i>	Career trajectory	Expert network embedded in epistemic supply chains
<i>Tool for control</i>	Journal impact rankings	Internal review within the organisation and external control within the network of other organisations as well as discursive competition with other experts

scientific analysis, they typically combine economic analyses with organisational and media work and produce knowledge for their associates, and not for the purposes of the academic community. The relationship to truth here can be described as the competence to attain the best possible degrees of objectivity for interest-driven institutions of political consulting, qualitatively ensured mostly by internal review and communication with related experts in the network.

Note

- 1 The categories such as A++, A+, A and B are typical for American JIR. The categories Four*, Four, Three, etc., are used by the British REF.

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4 The network determinants of publishing in Top five journals

Evidence from the Swiss field of economics professors (1991–2020)

Thierry Rossier

4.1 Introduction¹

Academic economists are passionate about rankings (Laband 2013). They rank their work according to bibliometric standards, their impact in the (social) media, or their academic department. Individual and institutional positions in rankings participate very centrally to the *illusio* of the discipline. The belief in rankings is so strong that the work of economists who situate high in said rankings is intricately considered as “good” or “sound” economics (Lebaron 1997, 2000, 2001; Maesse 2022). This belief is often associated with a second tenet: in economics, being located in a high position in the ranking is usually associated with “merit” through “hard work” or “talent”. Indeed, economists who sit on the top often argue that this achievement took them a lot of time, efforts and exchanges with colleagues, as well as the necessary individual flair for finding the “right” topic to work on (Maesse 2018). Despite such a strong belief in meritocracy, literature has shown that people who do well in those rankings do not come from random departments or research teams, having managed to achieve top positions thanks to their own work efforts and individual aptitude alone. Rather they teach or have obtained their PhD from economics departments from a small number of US or UK universities, and are involved in closed academic and scientific networks (Korom 2020). Within this context, they acquired and consolidated a large number of personal and organisational relations.

One of the most significant types of rankings in economics concerns scientific journals. At the helm of this hierarchy is situated what it is commonly known as the *Top five* (the *American Economic Review*, *Econometrica*, *The Quarterly Journal of Economics*, the *Journal of Political Economy* and *The Review of Economic Studies*), which have been the most important journals for the last 30 years (Ductor et al. 2020). Publishing an article in a Top five outlet implies huge and immediate advantages in terms of career advancement and symbolic capital. Those journals also are associated with top academic departments and a personal proximity to top-rated economists, who publish the most in them (Korom 2021). Rather than thinking in terms of merit through hard work or talent, I investigate the possibility to publish in these journals as determined by personal and organisational social capital (i.e. networks), where the

acquisition of such network resources could not be understood by the sole conception of meritocracy (Friedman et al. 2024). Some studies already have explored how critical Top five publications are in terms of bibliometric advantages and career outcomes in the US (Heckman and Moktan 2020), but little is known about how influential the Top five is outside of the North American academic centre.

In this study, I explore the network determinants of publishing in the Top five by focusing on a relevant national case outside the US: Switzerland. As the Swiss academic field of economics is very internationalised, publishing in the Top five is considered as a critical move during the academic career. The Swiss institutional context provides many funding opportunities for Swiss economists to move abroad (especially in top departments), while Swiss universities also recruit a large number of non-Swiss scholars, therefore the share of economics professors having been able to publish in these five journals is relatively high.

To study this topic, I use data collected in a large collaborative prosopographical dataset, the *Swiss Elite Database*, containing biographical information on all economics and finance professors in the twelve Swiss universities. I focus on the period where publishing in the Top five has been the most critical, i.e. between 1991 and 2020 ($n=437$ professors). First, to investigate how Top five publications are as relevant in terms of career outcomes in Switzerland as in the US, I perform linear regressions assessing the relation between the number of years between the PhD and the first professorship, on the one hand, and Top five publications, on the other. I show that there is a negative relation between the number of years between doctorate and tenure and the number of publications in the Top five, since each time we increase this number by one, the number of years is expected to decrease by 22%. This is evidence that in the context of the transnational field of economics, US-based forms of distinctions also have an impact in other countries, such as Switzerland. Then, in a second time, in order to understand if publishing in the Top five can be explained by hard work and talent alone, or if personal and organisational relations have a significant effect on these dynamics, I run logistic regression models on the network determinants of Top five publications. I show that a stay at a top ten department increases the odds to publish in the Top five by 2.91, while having a supervisor who has also published in the Top five increases these same odds by 2.62 and having a supervisor who has occupied an editorial position in one of these journals increases these odds by 8.63. In this approach, the room for meritocracy is very small.

The outline of the chapter is the following. In a first part, I develop a conceptualisation of economics as a transnational scientific field and locate the Top five and the case of Switzerland within this context, and then insist on personal and organisational social capital in economics. In a follow-up methodological part, I present my data, research strategy and variables. In a first empirical part I cross career outcomes and Top five publications, and in a second part, I focus on the network determinants of publishing in the Top five in

the Swiss context. Finally, I conclude on my research findings, by stressing the importance of organisational and personal networks in the discipline of economics, where publishing in important outlets is often associated with merit through hard work or talent, and open on new and promising research avenues.

4.2 Theory

4.2.1 Economics as a transnational field: *Top five* journals and the Swiss case

Economics is one among many fields of (scientific) cultural production. A field is a more or less autonomous social space with its own specific capital (i.e. the main group of resources people involved in the field compete for, and which provides them with advantages within the field), its borders and its specific cognitive dispositions (Bourdieu 1996a; Bourdieu and Wacquant 1992; Maesse et al. 2021a, 2021b). In the field of economics, economists compete for the (re)definition of the field's boundaries, but also for what "good" or "sound" economics is (Lebaron 2000). Economists' positions in relation to the distribution of resources in the field of economics shape their scientific (conceptual, methodological, empirical and mathematical) and political position-takings. One specific feature of economics relates to its degree of hierarchisation at the transnational level. It obviously follows national forms of recognition, especially in relation to economic expertise in the state, the private sector or the media (Maesse 2015). However, economics is very internationalised regarding its scientific aspects and strongly follows, more than other social science disciplines, global forms of recognition in terms of scientific publications, awards, debates and controversies (Fourcade 2006; Fourcade, Ollion, and Algan 2015). In that sense, economics functions as a transnational scientific field (Schmidt-Wellenburg and Bernhard 2020; Schmidt-Wellenburg 2024), subjugating national fields of economics to transnational logics. Moreover, the global hierarchy of economics is very clear: at the top of the hierarchy lies a small group of departments, journals and awards, which are very often geographically and nationally located in Western European and Northern American countries, especially in the US, and sometimes the UK (Korom 2020, 2021). In that sense, we can argue that transnational forms of recognition in economics often follow national US-based standards, norms and practices (Rossier and Bühlmann 2018).

Rankings in economics play an important role for the distribution of resources at the transnational level (Hamann and Schmidt-Wellenburg 2020). Journal rankings are especially ingrained in the disciplinary culture (Maesse 2017). For the past 30 years, five journals, the so-called *Top five*, have been recognised as the "top" outlets (Ductor et al. 2020). Those reviews are quite old and were all created in connection to the US. *The Quarterly Journal of Economics* was first published in 1886 and is hosted at the Department of Economics from Harvard University. The *Journal of Political Economy*, published for the first time in 1892, is hosted at the Department of Economics and the Booth School of Business from the University of Chicago. In the case of those two journals, the ties with top economics departments are obvious:

Harvard and other departments in Boston – especially MIT – for the first, and Chicago for the second. The *American Economic Review* (1911) is published by the American Economic Association (created in 1885) and has its headquarters in Pittsburgh, Pennsylvania. *Econometrica* was founded in 1933 on behalf of the Econometric Society (created in 1930) and has its headquarters in New Haven, Connecticut. Finally, *The Review of Economic Studies* was also created in 1933 by US and UK economists at London School of Economics. It is the most European journal of the five, with currently mostly European scholars managing the review and its headquarters in the UK.

While, at the beginning, other topic-specific and general economics journals were equally important, in the 1990s those five journals had become the most important in the whole profession (Ductor et al. 2020). The annual submission to those journals doubled between 1990 and 2012, while the acceptance rate fell dramatically (Card and DellaVigna 2013). These five journals garner a very high amount of citations, as they currently account for 28.5% of all citations in economics (Glötzl and Aigner 2019). They also encourage self-reference, as in these journals each one citation out of four stems from one of these five journals (Aistleitner, Kapeller, and Steinerberger 2019). Within the disciplines, they have become a powerful proxy for scientific quality and reputation (Aistleitner and Puehringer 2020, 2023). However, the distribution of authorship is very biased in terms of geography: during the 2012–2016 period, 84.5% of all papers have a contributor based in the US, and 13.7% in England (Wei 2019). More impressively, three US zip-codes, in Cambridge (Massachusetts), Chicago and Palo Alto (California), concentrated 30.1% of the share of author affiliations, 42.4% of the share of articles and 49.9% of the share of citations in the Top five during the 2000–2015 period (Gibson 2021). Given the prominence of these five outlets, they have a significant impact on promotions and tenure decisions at top economics departments in the US (Heckman and Moktan 2020).² As the regularity, rhythm and, especially, *rapidity* of the transitions from one position to another lead to the recognition of academic “excellence” in economics (Maesse 2017; Rossier 2020; Rossier and Benz 2022), a good proxy for “excellent” careers would be to measure the shortness of the period between the PhD and the first tenured position, and put it in relation to Top five publications.

One way to assess the level of globalisation of, and diffusion of US-based norms in, the economics discipline would be to evaluate the influence of these five journals *outside* the US. *Switzerland* presents a relevant case-study to investigate the influence of Top five journals. When the economics discipline developed during the second part of the 19th century, the country’s newly founded universities appointed German (and to some extent French) economists as professors. While the two world wars led to a process of “nationalisation” of universities, which then hired their own PhD graduates, since the 1970s, university staff became increasingly international again. In the most recent period, a vast majority of economics professors in the ten cantonal universities and the two federal institutes of technology were not born with the Swiss citizenship or in Switzerland (Rossier et al. 2015; Rossier 2017). This very international context with mobile staff forms a very relevant case-study. While mobile non-Swiss

scholars tend to follow international norms of the discipline, the more local economists have strong incentives to travel towards global centres of scientific power, especially in the US (Rossier and Bühlmann 2018; Rossier, Bühlmann, and Mach 2017). This mobility for local economists has been facilitated by the massive financial contribution of the Swiss National Science Foundation (SNSF; the main public funding agency for research) to support mobility practices outside Switzerland in the forms of postdoctoral grants (which have recently become a mandatory requirement to access more advanced assistant professor-like types of grants; Sautier 2021). In economics, this means the possibility to undertake an academic stay in one of the most prestigious US economics departments (as, if the stay is funded, the SNSF “only” requires a letter of invitation from a host professor from such department). Within this very internationalised and US-leaning context of Swiss economics, I therefore hypothesise that publications in the Top five are part of the process of symbolic recognition in the Swiss field³ and that they have an influence on career outcomes of professors at Swiss universities (e.g. in terms of the shortness of the time between the PhD and the first tenured position).

4.2.2 The network determinants of publishing in the *Top five*

Economists often state how time-consuming it is to publish in top journals, but at the same time that it also requires the aptitude to find the proper subject that has not been treated adequately in one of these journals so far (Maesse 2018). Behind this assertion lies the idea that publishing in such outlets implies great “efforts” and “hard work”, through constant exchanges with colleagues, but also the necessary “talent” to find a topic important enough to be publishable in such journals. In this view, publishing in a Top five journal can be associated with great merit. Belief in meritocracy is a feature often observed in top societal occupations and allows the elites to justify their dominant societal position with, again, the idea that people who sit at the top of their field do so because they have worked hard to get there (Friedman and Laurison 2019). This conception tends to blur the influence of other genuine reasons dominant individuals have become so, such as gender, ethnicity or class background (Friedman et al. 2024; Castilla 2008). Often, in their discourse, privileged individuals emphasise how “hard” they have worked to get in a dominant position, making invisible all the structural factors they have been able to rely on to attain it (Khan and Jerolmack 2013; Friedman, O’Brien, and McDonald 2021). Research has shown that the more unequal a society, a social space or a field is, the more individuals tend to explain success in meritocratic terms (Mijs 2021). In this sense, the appeal to meritocracy appears to promote equality of opportunity, but is often also a deeply elitist project (Mijs and Savage 2020). So far, research on meritocracy and privilege in academia and more precisely in the economics profession has been scarce.

Network connections are critical in social fields to acquire symbolic capital. Those connections, themselves often related to ascribed characteristics, cannot be acquired by the sole individual “merit”, but need to be conceptualised in a

structural system of relations organised through habitus in social fields (Bourdieu 1996b). Social capital, understood as resources linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance or recognition (Bourdieu 1986), works as a consolidator and multiplier of other forms of resources (Denord et al. 2011; Klüger 2018; Gautier Morin and Rossier 2021; Serino, D'Ambrosio, and Ragozini 2017; Éloire 2014). Social capital has two major forms: one *collective* form, which relates to the resources of a whole group, institution or organisation; and one *individual* form, which relies on interpersonal relations within a field (Godechot and Mariot 2004). In economics, social capital is a particularly powerful asset to be able to garner advantages (Rossier and Benz 2021).

At the *organisational level*, social capital can be acquired through positions within powerful institutions, where economists can both be linked to influential individuals and to the prestige of the organisation. In economics, there is a disproportionate importance of a small number of top economics departments which are, for the overwhelming majority, based in the US (Athey et al. 2007; Conley and Önder 2014; Amir and Knauff 2008; Hodgson and Rothman 1999). The economists who stay in those departments at different stages of their career (doctorate, postdoc, tenure) accumulate symbolic and social capital that can be converted in other national fields. In these departments, scholars acquire practical dispositions to publish in top scientific outlets and/or connections with individuals more or less directly related to these, while the only name of prestigious institutions can help to open the gates to particularly closed top journals. In the case of the Top five, I hypothesise that, given their intricate ties to a small number of US departments, an academic stay at any stage of the career in the highest ranked organisations will facilitate publishing in such outlets.

At the *personal level*, social capital can be acquired thanks to more or less intricate relations with (dominant) actors engaged in the field of economics. One type of relation is particularly important for economists: between a PhD student and their PhD supervisor(s). PhD supervision networks create powerful mutual relations of interdependence and intellectual affinity. A PhD student can learn and take advantage of the characteristics and connections of their PhD supervisor(s). It represents without any doubt one of the strongest bonds in academia (Bühlmann, Rossier, and Benz 2018). The PhD student of a dominant economist can be guided into relevant research topics, which could later result into top publications (Maesse 2018). A mentor can also transmit their *savoir faire* to their students, so that they know how to publish in top outlets, while a student can also benefit from the personal and organisational connections of their supervisor. In the case of Top five publications, I first hypothesise that if their supervisor has published in such journals, their students are much more likely to publish in them. Moreover, a PhD student can also benefit from the organisational positions of powerful supervisors. In the case of the Top five, I hypothesise that scholars with a PhD supervisor who has been at some point an editor of one of these five journals will have a huge comparative advantage.

4.3 Methodology

4.3.1 Data and research strategy

My data stem from the *Swiss Elite Database*, a collaborative project developed by the *Swiss Elite Observatory* (OBELIS), aimed at the collection of biographical data on Swiss elites from several sectors hosted at the University of Lausanne.⁴ I collected biographical data on all associate and full professors of economics (including financial economics, who also sometimes publish in Top five journals) at the ten cantonal universities (Zurich, Basel, Bern, St. Gallen, Lucerne, Lugano, Geneva, Lausanne, Neuchâtel and Fribourg), the two federal institutes of technology (Zurich and Lausanne) and the Graduate Institute Geneva, starting from the beginning of the 20th century. To focus on the time where Top five journals have been hegemonic, I only centred on Swiss professors during the 1991–2020 period ($n=437$). The names of the professors were collected using Swiss university directories (*Annuaire des universités suisses*) and annual reports of the universities.

Biographical information on the professors' gender, nationality, year of doctorate (or end of the studies if they did not obtain a doctorate) and of the first tenured position (not necessarily in Switzerland), and all institutions where the professors stayed for at least a year during the doctoral, postdoctoral and professorial periods, was collected based on several sources, such as university anniversary monographs, databases and archival material, newspaper archives and the professors' personal webpages and CVs. In the case of one professor, I did not find any information on the year he graduated and imputed a year based on the average for all the other professors from his age cohort. I retrieved the *number of Top five publications* for each of these professors on jstor.org (of which I included only research articles/essays and excluded book review notes). Then, I collected the *name of their supervisor* in the physical or digital copy of their PhD dissertation, in their CV or thanks to doctoral genealogical databases. When a professor had more than one PhD supervisor or defended two dissertations,⁵ I collected the name of all supervisors. Three professors did not get any PhD (and therefore did not have any PhD supervisor). After that, I still missed the supervisors for a few professors and sent 33 emails to ask them for this information, to which most of them kindly responded. In the end, I missed the PhD supervisor of six professors who did not answer my email (I sent a second round of emails to those who had not answered yet) or had passed away before my data collection. Afterwards, I collected again the *number of Top five publications from the supervisors* on jstor.org. Finally, I collected *Top five editorial positions from the supervisors* (only editor in chief and co-editors – current or past positions) retrieved from the websites of the five journals. For the six professors who missed a supervisor, since their PhD was obtained between 1955 and 1991 at a German, French, Portuguese or Swiss university, i.e. at a period and a geographical location where it is very unlikely that their supervisor published in or was an editor of a Top five journal, I imputed the values of “0 Top five publications”/“Editor of a Top five journal: No”.

In a *first analytical step*, I proceed to linear regression models on the relationship between publishing in a Top five journal and the length in years between the doctorate and the first tenured position. This allows me to investigate the link between academic “excellence” in Switzerland and Top five publications. Then, in a *second analytical step*, I use logistic regression models to focus on the network determinants of publishing in the Top five for Swiss professors. The idea behind this methodology is to assess causal processes and explain certain phenomena (e.g. publishing in Top five journals) by others (e.g. network relations) while controlling for other factors (e.g. gender, etc.). However, the overall aim is not really causal, but rather to understand and describe inequality and power processes (Savage 2009, 2020) in the field of economics.

4.3.2 Indicators

First, for the linear regression models, I use the *number of years between the PhD defence and the first tenured position* (not necessarily in Switzerland) as dependent variable. I consider a shorter period of time between the two as implying a more “excellent” academic career. Figure 4.1 displays the distribution of this

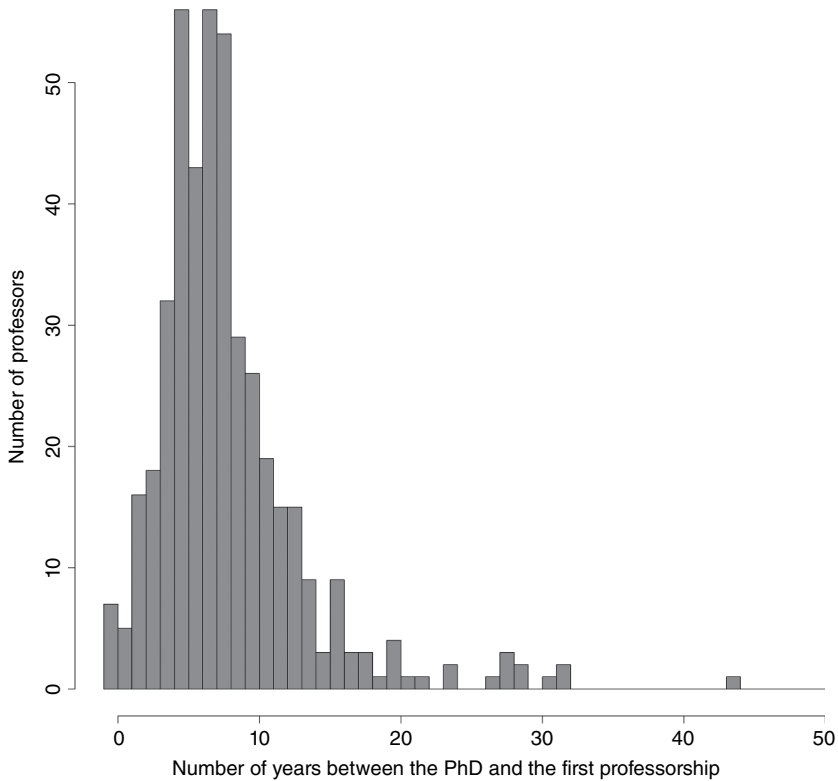


Figure 4.1 Number of years between the doctorate and the first tenured position of Swiss economics professors.

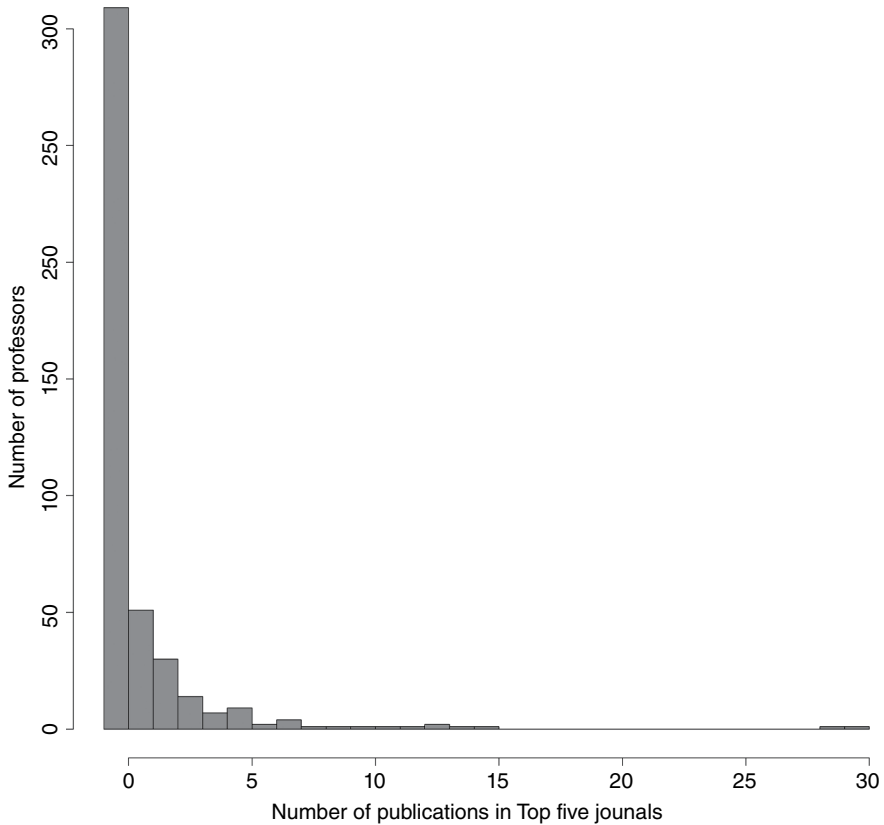


Figure 4.2 Number of publications in Top five journals of Swiss economics professors.

variable. Then, I use the *number of publications in the Top five* as dependent variable (see Figure 4.2 for the distribution of this variable). If the relation between the two is both negative and significant, it means that the more Top five publications, the shorter the period between PhD and tenure. In that case, Top five publications will have an impact on academic “excellence” also in Switzerland.

Second, for the logistic regression models, I use the fact of *having published in Top five journals* as dependent variable. To measure the influence of organisational networks on top publications, I use the *rank of the highest ranked department where the professor has stayed for at least a year at any time during their career* (having looked at the doctoral, postdoctoral and professorial periods separately, the differences between the three proved to be non-significant). To rank the departments, I used Amir and Knauff’s (2008) ranking of the Top 50 departments in terms of academic placement of their PhD graduates based on their current employment. The prestige of top departments used in this ranking proved to be extremely significant in terms of producing Nobel laureates in economics (Korom 2020, 2021).⁶ Then to measure the influence of

Table 4.1 Distribution of the variables for the logistic regression

Category	N	%
Top five publication: Yes	128	29.3%
Department: Top 01–10	121	27.7%
Department: Top 11–20	51	11.7%
Department: Top 21–30	32	7.3%
Department: Top 31–50	25	5.7%
Department: Not ranked	208	47.6%
Supervisor has not published in Top five	166	38.0%
Supervisor has published in Top five	218	49.9%
Supervisor editor of Top five	53	12.1%
Gender: Woman	44	10.1%
Year PhD: 1951–1960	20	4.6%
Year PhD: 1961–1970	46	10.5%
Year PhD: 1971–1980	67	15.3%
Year PhD: 1981–1990	59	13.5%
Year PhD: 1991–2000	111	25.4%
Year PhD: 2001–2010	116	26.5%
Year PhD: 2011–2020	18	4.1%
Nationality: Swiss	158	36.2%
Nationality: US, UK, Canada	23	5.3%
Nationality: Other European	236	54.0%
Nationality: Other	20	4.6%
Total	437	100.0%

personal networks, I use the fact that the *PhD supervisor of the professor has published in the Top five* and has been an *editor* (i.e. editor-in-chief or co-editor) of a *Top five journal*.

For both regression analyses, I first control for *gender*. Then, to account for the historical time period, I control for the *year of the PhD* (as the year of birth was not always available for the most recent professors). Finally, I control for the *nationality at birth*, to account for the closeness to Switzerland or English-speaking countries. Table 4.1 displays the frequencies for the dependent and independent variables for the logistic regression, as well as for the control variables.

4.4 The Top five and excellence of the careers at Swiss universities

In this first empirical part, I evaluate the impact of Top five publications on the careers of Swiss economics professors. Among the individuals who had a tenured position at a Swiss university between 1991 and 2020, a vast majority of the 437 individuals did not publish in one of the Top five journals. Nevertheless, 128 (29.3%) of them published in such outlets, which is still a high figure for scholars outside top US or UK universities. It is to be noted that the majority of professors published a small number of articles in the Top five (between one and five), but a few outliers published up to 30 papers in these journals. I proceed to linear regression models with the number of years between the PhD

Table 4.2 Linear models on number of years between the PhD and the first tenured positions

Category	Model 1			Model 2		
	Estimate	S.E.	Sig.	Estimate	S.E.	Sig.
(Intercept)	8.50	0.27	***	11.95	1.42	***
Number Top five	-0.26	0.09	**	-0.22	0.09	*
Gender: Man				-1.46	0.83	
Year PhD: 1961–1970				-0.97	1.36	
Year PhD: 1971–1980				0.57	1.30	
Year PhD: 1981–1990				-2.47	1.34	
Year PhD: 1991–2000				-2.94	1.26	*
Year PhD: 2001–2010				-2.97	1.26	*
Year PhD: 2011–2020				-4.72	1.67	**
Nationality: US, UK, Canada				2.39	1.15	*
Nationality: Other European				-0.61	0.55	
Nationality: Other				2.36	1.25	
R-2	0.02			0.12		
Adj. R-2	0.02			0.10		
Num. obs.	437			437		
RMSE	5.30			5.07		

Notes: Reference categories: Gender = Woman; Year of PhD = 1951–1960; Nationality = Swiss.

and the first tenured position as dependent variable, and the number of Top five publications as independent variable. I control for gender, the year of PhD and the citizenship. Table 4.2 gives the two regression models, with and without the control variables, to see if the model changes.

The regression coefficients (estimates) tell us how much the dependent variable is expected to increase (or decrease) when the independent variable increases by 1. We see that the coefficients for the independent variable do not change much and stay significant with or without the control variables. There is a negative relation between the number of publications in the Top five and the number of years between the PhD and tenure: each time we increase the number of Top five publications by 1, the number of years is expected to decrease by 26% (22% with the controls; i.e. about a quarter of a year less for each article in the Top five). We also notice that Model 2, with the control variables has a higher explanatory power. For the control variables, we see that younger professors (who have obtained their PhD since the 1990s) who follow the more standardised US model of academic careers have shorter paths to tenure. Another feature of the group is that professors from the US, the UK and Canada follow longer (i.e. less “excellent”) careers. This could be interpreted by the fact that if they had had a more “excellent” academic profile, they would probably have stayed to work at the dominant universities of their home country.

In summary, having published in the Top five implies more “excellent” (i.e. shorter) careers also for professors who occupy a position at a Swiss university. An example of a quick path to tenure can be Nick Netzer, who obtained

his doctorate in 2008 at the University of Konstanz in Germany. In 2009, he published an article titled “Evolution of time preferences and attitudes toward risk” in *American Economic Review*. He became associate professor in micro-economics in 2010 at the University of Zurich, and full professor there in 2015. He has also published two papers in the *Journal in Political Economy* (in 2018 and 2021). It only took 2 years to Netzer to be tenured in Zurich, and we can assume that his 2009 *AER* paper played some role in this appointment shortly after getting his PhD. As economics is a transnational scientific field, publishing in the Top five does not only impact researchers in the US, but has implications for scholars in other countries, such as the very internationalised case of Switzerland.

4.5 The network determinants of Top five publications in the Swiss context

To see if we can go beyond the idea of merit through hard work or talent, I look at the network determinants of Top five publications in the case of Swiss economics professors. I proceed to logistic regression models with having published in the Top five at least once as the dependent variable. The rank of the universities where the professors have stayed for at least a year during their careers is an independent variable for organisational networks. The fact that the supervisor has published in/been an editor of a Top five journal is the second independent variable related to personal networks. I control for gender, the year of PhD and the nationality. Table 4.3 summarises the two logit models (with and without control variables).

We see that for these two models, adding the control variables does not change much on the independent variable results and that the controls have no effect on the dependent variable. The two independent variables have a strong impact. In logistic models, the coefficients (estimates) are not easily interpretable, so I use an exponential function on them to get odd ratios. I also use average marginal effects, which are standardised between 0 and 1, and can be interpreted the same as linear regression coefficients (they represent the average contribution of the independent variable on the dependent variable). For *organisational networks*, first, we could have imagined that the higher a department is in the ranking, the more it would have an effect on publishing in the Top five, starting from a small effect from top 31–50 departments to a larger effect for the top one to ten. Surprisingly, the results show quite a less nuanced picture: only ten departments in the whole world have an impact on Top five publications: MIT, Harvard, Stanford, Princeton, Chicago, Yale, Berkeley, Oxford, Minnesota and Northwestern. Having stayed at one of these 10 departments for at least a year at any point of one’s career (no matter the position, including visiting fellowships or paid researcher or teacher functions) increases the odds to publish in the Top five by 2.91 (or 191%) with the controls. Economics is so closed than a stay at any other department in the world, even in top US or UK economics departments, would have no effect whatsoever on publishing in the Top five. Regarding *personal networks*, the effect is

Table 4.3 Logit models on publishing in a Top five journal

Category	Model 1					Model 2				
	Estimate	S.E.	Sig.	exp(beta)	AME	Estimate	S.E.	Sig.	exp(beta)	AME
(Intercept)	-2.14	0.23	***	0.12		-3.55	1.12	**	0.03	
Department: Top 01–10	1.07	0.28	***	2.92	0.20	1.07	0.30	***	2.91	0.19
Department: Top 11–20	0.65	0.37		1.91	0.11	0.55	0.38		1.73	0.09
Department: Top 21–30	0.19	0.46		1.21	0.03	0.03	0.48		1.03	0.00
Department: Top 31–50	0.44	0.52		1.55	0.07	0.34	0.54		1.40	0.05
Supervisor: Has published in Top five	1.07	0.26	***	2.90	0.19	0.96	0.27	***	2.62	0.16
Supervisor: Editor of Top five	2.23	0.38	***	9.29	0.46	2.16	0.41	***	8.63	0.42
Gender: Man						-0.02	0.40		0.98	0.00
Year PhD: 1961–1970						0.62	1.14		1.86	0.07
Year PhD: 1971–1980						1.30	1.09		3.66	0.17
Year PhD: 1981–1990						1.65	1.09		5.20	0.23
Year PhD: 1991–2000						1.54	1.07		4.67	0.21
Year PhD: 2001–2010						1.15	1.07		3.17	0.15
Year PhD: 2011–2020						0.22	1.28		1.25	0.02
Nationality: US, UK, Canada						-0.05	0.54		0.96	-0.01
Nationality: Other European						0.54	0.28		1.71	0.09
Nationality: Other						-0.82	0.71		0.44	-0.10
AIC	459.31					459.77				
BIC	487.87					529.13				
Log Likelihood	-222.66					-212.89				
Deviance	445.31					425.77				
Num. obs.	437					437				

Notes: Reference categories: Department = Not ranked; Supervisor: Has not published in Top five; Gender = Woman; Year of PhD = 1951–1960; Nationality = Swiss.

even stronger. Indeed, having a PhD supervisor who has published in the Top five themselves increases the odds to publish in these journals by 2.62 (or 162%) with the controls, while having a supervisor who has been an editor of a Top five journal increases *ceteris paribus* those same odds by 8.63 (or 763%) for Swiss professors.

In summary, not only organisational networks at a very small amount of economics departments in the US (or at Oxford) are critical to publish in the Top five, but personal networks within a small pool of top journal editors are even more important to publish in these outlets. David Dorn obtained a PhD at the University of St. Gallen in 2009. His PhD advisors (Alfonso Sousa-Poza and Monika Büttler) did not publish a paper in the Top five themselves. Among other stays, he was a visiting researcher at Harvard in 2013 (and, during his PhD, at Chicago in 2007 and MIT in 2007–2008). Dorn has published several times in the *American Economic Review* and in the *Quarterly Journal of Economics* (starting with a 2009 *AER* paper titled “This Job is ‘Getting Old:’ Measuring Changes in Job Opportunities Using Occupational Age Structure” co-authored with David Autor). Between 2013 and 2016 he became a professor at the Center for Monetary and Financial Studies in Madrid. In 2014, he started to be a full professor of international trade and labour markets in Zurich, and, since 2019, he has been a UBS Foundation Professor of Globalization and Labor Markets at the same institution. Dorn is the perfect example of someone who relied upon stays at top departments without the help of the network of his PhD supervisor to be able to publish in Top five journals. Reiner Eichenberger is another example. He obtained a PhD at the University of Zurich in 1991 with Bruno S. Frey (who published for the first time in the *The Review of Economic Studies* in 1976). Eichenberger published twice in the Top five, the two times with his supervisor (first in the *American Economic Review* in 1992, and then in the *Journal of Political Economy* in 1996). He became an associate professor in Fribourg in 1998 (full professor in 2002). He never stayed at a ranked department, but benefited from the literal help from his advisor to publish in top journals. Finally, Dirk Niepelt obtained a PhD at the MIT in 2000, where his supervisors were none others than Daron Acemoglu and Olivier Blanchard. The first (who was also awarded the “Nobel” prize in economic sciences in 2024) has been an editor at the *Quarterly Journal of Economics* (co-editor 1999–2002) and at *Econometrica* (co-editor 2007–2011, editor-in-chief 2011–2015), while the second has been an editor at the *Quarterly Journal of Economics* (co-editor 1978–1983, joint editor-in-chief 1985–1998). In 2004, he published a paper titled “The fiscal myth of the price level” in the *Quarterly Journal of Economics*. Niepelt has become an associate professor in Bern in 2007 (full professor in 2022). He is an example of someone who could benefit from a stay at a top department (MIT), where his PhD supervisors were among the most dominant actors of the profession. Thanks to my analysis, I have been able to show that Top five publications of Swiss economics professors can be explained by organisational and personal networks. In this conception, the room for meritocracy is very small: it is all about who you know and where you go (and who you know there as well).

4.6 Conclusions

In the *first empirical part* of this chapter, I investigated the impact of publishing in the Top five economics journals for the careers of Swiss economics professors. Despite a majority of the 437 individuals never publishing in these prestigious outlets, a notable 29.3% achieved such a feat, indicating substantial success for scholars outside elite US or UK institutions. Thanks to linear regression models, I was able to show that publishing in the Top five *does* have a negative effect on the length of the period between the PhD and the first tenured position, as each time we increase the number of Top five papers by one, the number of years is expected to decrease by 22%. Consequently, publishing in the Top five journals not only influences academic careers in the US, but also holds implications for the Swiss landscape of economics scholarship. In the *second empirical part*, I delved into the organisational and personal network determinants of Top five publications, going beyond the conventional notions of merit, hard work and talent. Thanks to logistic regression models, I showed that a stay at a top ten department (and a top ten department only) increases the odds to publish in the Top five by 2.91. At the same time, having a doctoral supervisor who also has published in the Top five increases these same odds by 2.62, while a supervisor who has occupied an editorial position in one of these five journals increases them by 8.63. Consequently, the study underscored that the pursuit of Top five publications among Swiss economics professors is intricately intertwined with both organisational and personal networks, highlighting the limited role of meritocracy and emphasising the significance of organisational affiliations and personal connections.

I now emphasise the conceptual, empirical and methodological contributions of this study. At the *conceptual level*, I first provided a discussion of economics as a transnational scientific field with transnational modes of scientific recognition and distinction. My contribution stressed the importance of English-speaking national spaces, and especially the US, in the transnational hierarchy of economics. Top US departments and top US journals are the producers of the global elite of the economics profession. This is why I focused on the Top five journals and hypothesised their placement power in professorial chairs, with a great impact on “excellence” careers of scholars not only in the US, but also at a more global level. Moreover, I also conceptualised social capital in economics as a way to go beyond the preconceived ideas that publishing in the Top five is associated with great merits. In my theorisation, I did not leave much room for an idea of meritocracy, but rather emphasised the personal and organisational network determinants of symbolic capital. In this sense, I stressed the influence of top US (and UK) economics departments and strong personal connections, such as the bond between a PhD student and their supervisor(s), in the making of transnational symbolic capital. My research has gone in the same direction as the flourishing literature on meritocratic discourses to legitimise privilege, wealth and elite power (Friedman et al. 2024; Mijs 2021; Mijs and Savage 2020). However, so far, this topic has not

been tackled extensively in academic professions. More research should be undertaken on the meritocratic legitimation of academic privilege in economics and other disciplines.

At the *empirical level*, I used the specific case of the very internationalised academic context of Switzerland to test for the influence of Top five publications on the careers of economics professors and for the network determinants of a publication in such journals, contributing empirically to the study of the influence of US-based models of distinction. In a first part, I put in relation the number of years between the doctorate and the first tenured position, and showed that economists who published during their career in the Top five had a shorter pre-tenure period, and that the more papers they published in the Top five, the shorter this period was. In a second part, I showed that organisational networks in one of the ten top economics department at the global level had a great impact on the chances for (future) Swiss professors to publish in such journals. Very interestingly, a stay in any other department in the ranking had no influence on such publications. I also showed that personal connections were critical to publish in the Top five, as having a supervisor who published in these journals increased the professors' chances to publish in them as well. However, the most important determinant for publishing in the Top five related by far to the particular positions of the supervisor: if they had had an editorial position in one of the five journals, then the chances for their students to publish in these outlets were extremely high.

Finally, at the *methodological level*, I took advantage of a large biographical data collection on economics and finance professors from all the twelve Swiss universities during the period 1991–2020, when the power of the Top five had become extremely important and concentrated. I completed this biographical collection by a dataset on their publication list, their PhD supervisors and the publications and editorial positions of these supervisors. Thanks to linear and logistic regression models, I could link Swiss professors' publication profile to both their careers and network relations. The aim of the use of regression models was, however, more descriptive rather than causal. In this sense, a more thorough field-analytical study is still needed, with the help other statistical techniques. First, multiple correspondence analysis could be used to map the Swiss field of economics, according to internal and external, as well as national and international, forms of distinction, and to locate Top five publications in a multidimensional space structured by the specific capital of the field. Then, sequence analysis could be used to map the form of their trajectories, especially according to the order, timing and duration of their many career steps, and look at how Top five publications shape professors' careers. Finally, social network analysis could be used to build networks of PhD supervision and of co-authorship to understand more in detail the network determinants of publications in top journals. All in all, the impact of the Top five worldwide still needs to be investigated in a comparative perspective, looking at multiple national case studies in order to contribute more broadly to the field of Social Studies of Economics.

Appendix 4.1**Amir and Knauff's (2008) ranking of top economics departments**

<i>Rank</i>	<i>University</i>	<i>Country</i>
<i>Top 1–10</i>		
1	MIT	US
2	Harvard U	US
3	Stanford U	US
4	Princeton U	US
5	U Chicago	US
6	Yale U	US
7	UC-Berkeley	US
8	Oxford U	UK
9	U Minnesota	US
10	Northwestern U	US
<i>Top 11–20</i>		
11	LSE	UK
12	U Pennsylvania	US
13	Carnegie Mellon U	US
14	U Rochester	US
15	UC-Los Angeles	US
16	U Wisconsin	US
17	U Michigan	US
18	Duke U	US
19	Cambridge U	UK
20	Columbia U	US
<i>Top 21–30</i>		
21	CalTech	US
22	UC-San Diego	US
23	Penn State U	US
24	U Maryland	US
25	Johns Hopkins U	US
26	Brown U	US
27	U College London	UK
28	New York U	US
29	U Toulouse	France
30	Stockholm School Econ	Sweden
<i>Top 31–40</i>		
31	Purdue U	US
32	Cornell U	US
33	U Virginia	US
34	Boston U	US
35	The Hebrew U	Israel
36	U Illinois-Urbana	US
37	U Brussels/ECARES	Belgium
38	Queen's U	Canada
39	U Aarhus	Denmark
40	U Pittsburg	US

(Continued)

Rank	University	Country
Top 41–50		
41	EHESS, Paris	France
42	Pompeu Fabra U	Spain
43	U Iowa	US
44	SUNY-Stony Brook	US
45	U Western Ontario	Canada
46	U British Columbia	Canada
47	U Paris I	France
48	ANU-Canberra	Australia
49	U Louvain/CORE	Belgium
50	U Toronto	Canada

Notes

- 1 I thank Matthias Aistleitner and Stephan Pühringer for their help at the beginning of this project, as well as the participants to the “Rankings and the structure of the economic sciences: promoting excellence, preserving academic quality, or constructing hierarchies and exclusions?” workshop at Johannes Kepler University Linz on July 21–22, 2022 for their helpful comments. Finally, I thank Jens Maesse, Arthur Jatteau and Pierre Fray for their thorough comments on a previous version of this chapter.
- 2 On the mainstream side of the discipline, a series of critique on these five journals as the main proxy for excellence has risen (Kaplan 2019; Serrano 2018; Frey and Briviba 2023). About the under-representation, and uneven distribution by sub-fields and topics, of women in the Top five, see Conde-Ruiz et al. (2022).
- 3 During the 2012–2016 period, Switzerland ranked 8th in terms of the number of Top five papers with an affiliation in the country (2.9%), behind a series of much larger academic fields: the US (84.5%), England (13.7%), Canada (6.4%), Germany (5.5%), France (4.7%), Italy (3.5%) and Spain (3.2%) (Gibson 2021). This is evidence of the financial means and influence of the very internationalised Swiss universities at the global level.
- 4 See OBELIS’ website here: <https://www.unil.ch/obelis/en/home.html>.
- 5 Twenty-one professors obtained two doctoral titles. Most of the time, it resulted from an internationalisation strategy: after a PhD in their home country, they got a second one in another country (very often in the US or the UK). A few times, it was due to a disciplinary change: after obtaining one doctoral title in e.g. physics, they got a second one in economics.
- 6 See the ranking of those departments in Appendix 1.

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5 Gendered competitive practices in economics

A multi-layer model of women's underrepresentation

Theresa Hager and Stephan Pühringer

5.1 Introduction: Still the dis(male) science

Feminist theory raises questions about the adequacy of economic practice not because economics is in general too objective, but because it is not objective enough. Various value-laden and partial – and, in particular, masculine-gendered – perspectives on subject, model, method, and pedagogy have heretofore been mistakenly perceived as value free and impartial in economics, as in other scientific disciplines.

(Nelson 1995, p. 132)

The male-centricity of economics attested to in the quote not only distorts the scientific knowledge produced by the discipline and thus its economic policy advice, but also exacerbates the problem of women's underrepresentation. Looking at current statistics on the proportion of female economists in academia, Julie Nelson's lament still seems valid. Quite tellingly, in a recent report by the Committee on the Status of Women in the Economics Profession (2020), part of the American Economic Association (AEA), the authors claim that "in 2019, the proportion of full professors in Ph.D.-granting economics departments who are women reached an all-time high of 14.5 percent" (CSWEP 2020, p. 728). While there has been some success in efforts to increase the proportion of female economists, from students to faculty, since the CSWEP was found in 1971, the data show that women (and other minority groups) are still severely underrepresented at all levels of the academic ladder in economics. Women make up just over a third of PhD students, about 30% of assistant professors, and about a quarter of associate professors. And despite an increase in the share of female economists, economics is now one of the most male-dominated disciplines, even compared to STEM (science, technology, engineering, mathematics) fields (Ceci et al. 2014). Similarly, a recent study by Ginther and Kahn (2021) reports that female economists are 15% less likely to receive tenure than their male counterparts, after controlling for several forms of academic performance indicators. Moreover, this form of direct sexist discrimination was found only in economics and not in any other discipline, from the natural sciences to the social sciences and humanities. So why is this the

case and what could lead to more (gender) diversity¹ in economics? These questions have been at the center of a large and growing number of studies in different academic fields, and are particularly puzzling given the general trend of educational expansion that is bringing more women scientists into universities and, by implication, into economics. Against the background of these discussions, the contribution of this paper is twofold: On the one hand, we aim to provide a structured overview of recent debates by distinguishing three main channels of women's underrepresentation in economics. On the other hand, we argue that the persistence of this underrepresentation in academic economics is also related to the specific importance of gendered competitive research practices. More specifically, we argue that the interrelated processes of quantification and metrification of research performance indicators have led to a far-reaching competitization, i.e. the expansion of competitive formats of academic knowledge production in general. While these trends can be observed in several disciplines, economics is particularly sensitive to competition with an exceptional relevance of quantitative evaluation methods and technologies, especially rankings, compared to most other scientific disciplines (Heckman and Moktan 2020; Reymert 2020; Hylmö et al. 2024). Therefore, a gendered difference in how competitive situations are perceived, acted upon, and made sense of has a detrimental impact on the underrepresentation of women in the field.

Therefore, before introducing what we mean by gendered competitive practices in section 5.3, we first describe the developments in academia of competitization and metrification mentioned above, that is, the background against which the impact of these practices must be understood. We then sketch our model of the underrepresentation of women in economics and discuss the various channels and their interaction with our concept of gendered competitive practices and competitization therefor. Finally, we conclude and discuss the implications of our model for science policy as well as the importance of selection and indoctrination.

5.2 Balancing acts: gender dynamics and competitization

In the landscape of academia, the progress of gender equality, especially in economics, has witnessed two particular trends over the years, which we would argue are at odds with each other. These divergent dynamics play a role in the persistent underrepresentation of women in the field. On the one hand, universities have experienced a general increase in the number of women. Despite notable improvements since the establishment of the CSWEP in 1971, which saw a marked increase in the share of female economics professors and recipients of PhDs – the proportion of female economics professors was only 2.4% and the proportion of new PhDs awarded to women was 7.6% – the field remains significantly distant from achieving gender parity. This is underscored by a comparative look that reveals a more sluggish advancement in economics compared to other disciplines. The share of female students and researchers in STEM fields is now at par or above the average in economics (Bayer and Wilcox

2019; Singh 2020; Lundberg and Stearns 2019). In the social sciences and humanities, the share of female students and researchers on all levels has always been higher than in economics, however, also the absolute rise in the number of female scholars was higher than in economics. In a much debated comparative study Ceci et al. (2014, fig. 4) show that for instance the share of female tenured assistant professors in economics has risen from about 7% in 1973 to about 28% in 2009, compared to a rise from about 16% to about 48% in the social sciences. Similar studies for the EU have shown that along the academic career path, the share of female economists declines from about 40% of students to about 20% of professors (Auriol et al. 2019) – a phenomenon termed the “leaky pipeline”. Yet, the increasing trend of women entering economics, driven by a general increase in the share of women in academia, has leveled off in the last decade. There are several indications that the leaky pipeline for women’s academic careers is becoming even leakier (CSWEP 2020).

Simultaneously, the last decades have seen a far-reaching quantification of research evaluation in academia, which has consequently led to an intensification of competition between regional and national knowledge centers, research institutions and, last but not least, individual researchers. Several studies in recent years have documented the rise of competitive formats from the macro to the micro level of knowledge production and the increasing relevance of research performance indicators such as the journal impact factor, citation scores, research output indicators, etc. (Hammarfelt et al. 2017; Musselin 2018; Krücken 2021). More specifically, these trends include (i) the growing importance of journal impact factors in the distribution of academic prestige and as a quality criterion for individual research; (ii) the regular publication and use of academic rankings, both at the level of individual researchers and at the level of institutions, and the resulting competition among scholars and institutions; and (iii) the use of bibliometric indices in the academic job market and the resulting competition among (especially young) researchers. This rise of the “metric tide” and the negative consequences associated with it have raised several concerns: Critics have emphasized that the focus on purely quantitative metrics in a “publish or perish” research environment has exacerbated the projectification of science or the replication crisis (Felt 2009; Musselin 2018; Krücken 2021; Schweiger 2023). Furthermore, it has been criticized that rankings, in particular, incentivize strategic behavior on the part of researchers and academic institutions alike, thus hampering knowledge development, interdisciplinarity, and innovative research paths beyond the mainstream.

While quantitative performance indicators and competitive rankings of research output are again a general development in academic organization rather than a specific phenomenon in economics, rankings and competitive formats are particularly important for stratification mechanisms in economics (e.g. Hammarfelt 2017, Hylmö et al. 2024 in this book). The very fact that economics is assigned to the group of GEEMP (geoscience, engineering, economics, mathematics/computer science, and the physical sciences, including chemistry

and physics) disciplines by Ceci et al. (2014) indicates that the organizational structure of knowledge production in economics differs from all other social sciences. In other words, although economics, by its very subject, is concerned with how the economy and the social provisioning process work, the epistemological and methodological approaches shared by contemporary mainstream economists are fundamentally different from those of other social sciences, as evidenced not least by the low level of interdisciplinary interaction, or even ignorance, of empirical findings and methodological advances in other social sciences (e.g. Fourcade et al. 2015; Aistleitner et al. 2019). Discourses on research excellence and quality dominate in economics. Here, various forms of rankings play a central role. They make “excellence” in research and teaching visible, but they also create hierarchical orders among researchers, institutions, publication outlets, and countries, which are particularly strong in economics (Fourcade et al. 2015; Maesse 2017). Rankings work in different directions: on the one hand, rankings evaluate *ex post* the results of research, teaching and media visibility in the past – for example, the *Handelsblatt* ranking in Germany or the various rankings of economists in widely circulated newspapers; on the other hand, rankings sketch and anticipate *ex ante* what “good research” (and teaching) might be by setting standards based on journal rankings (e.g. the Research Excellence Framework (REF) in British universities). Moreover, impact rankings based on publications in a few “top economics journals” – especially the TOP5 – also play a crucial role in the career trajectories of young economists (Aistleitner et al. 2018; Heckman and Moktan 2020; Rossier 2025). Furthermore, we argue that economics is particularly sensitive to processes and discourses of competition and the relevance of competitive formats in academic knowledge production because competition serves as a core concept for the ontology, epistemology, and methodology of mainstream economics. Thus, competition and competitiveness and discourses evolving around competition not only influence the way economic knowledge production is organized, but also play an important role in the research culture and practices of economics shaping the self-perception of economists as “competitive selves” (Pühringer and Wolfmayr 2024). This self-perception is further reinforced by the disciplines’ theoretical focus on individuals and rational individual behavior, with reliance on self-responsibility and efficiency and without social ties. This way, a positive heuristic of competition and competitiveness, i.e. the belief that competitive interactions provide an overall efficient outcome, is widely shared among economists. Consequently, an increase in competitive relations on an individual and an institutional level is seen beneficial and the allocation resulting from competitive interaction and competitive practices is indicating a qualitative difference of the competing entities involved. This belief in competition contributes to the predominance of a meritocratic narrative and an “elitism dispositif” (Maesse 2017) in mainstream economic knowledge production, which manifests in a strong hierarchical order and a mainstream orientation in economics (Fourcade et al. 2015; Aistleitner et al. 2019).

We argue that the dominance of a highly competitive research culture and practice in economics has some far-reaching consequences for gender relations in the discipline. Notwithstanding several well-researched channels that perpetuate the underrepresentation of women in economics, the particularly strong influence of quantitative performance indicators, and thus the competitive nature of academic knowledge production in economics, has eroded the overarching inclination toward increased female participation in this field. In other words, institutional policies aimed at closing the gender gap in economics are counteracted by the effects of certain norms, practices and structures that are particularly relevant in the discipline.

5.3 Gendered competitive practices

What we propose is to add another channel to the literature on the underrepresentation of women in economics. However, while this channel also has a direct impact on the underrepresentation, it enters the discussion by feeding into the phenomenon of competitization, which, as discussed above, is particularly prevalent in economics. Because competition and competitive formats, including rankings, impact factors and generally quantitative evaluation methods, play such an important role in economics, it is particularly important for scholars in the field to be engaged in these competitions and, at the same time, to be able to compete successfully. Simultaneously, due to the quantitative dominance of men in the field, the positive heuristic associated with competition plays a really important role not only formally, but also informally as a structuring element of social interaction. In what follows, we argue that because of a gendered socialization of men and women, they differ in how they perceive, act in and make sense of competition; that is, how they percept competitive situations; how they behave in competitive formats; whether they think of themselves as competitive; what strategies they choose and how successful they are. In short, not only is socialization gendered, but so are competitive practices.

There is a large body of research on gendered socialization in the social sciences, which involves cultural, psychological, and societal dimensions. Gendered socialization not only affects the self-conception and behavior of individuals but also contributes to the broader dynamics of gender relations within different social context and the structure of institutions and norms shaping individual interactions. In an early review article, Block (1983, 1343f.) reports that the “sex-differentiated socialization and parental “shaping” behaviors may be seen as affecting boys and girls in ways importantly influencing the deep structure of their cognitive development”. Socialization can be interpreted as a form of habit-building, in which skills, norms and values are incorporated (Grusec and Hastings 2015). While male-stereotyped activities are more inclined toward conflict and competition, feminine-stereotyped ones are more affiliative and assertive. Not least as a consequence of gendered socialization competitive behavior of boys and girls/men and women differs in various aspects. Rather recently, the topic of gender differences was also picked up in economics, particularly in behavioral and experimental economics, yet mainly focused on

individual behavior. Originating in the highly cited work of Gneezy and others (Croson and Gneezy 2009; Gneezy et al. 2009; Charness and Gneezy 2012), the seemingly stronger competitive orientation of males (in patriarchal societies), is often interpreted as one major cause of gender wage differentials and the overrepresentation of males in leading positions. Several experimental studies in mainstream economics report differences in risk-taking, willingness to enter interpersonal competition and competitive exposure (Niederle and Vesterlund 2008, 2011; Carpenter et al. 2018; Balafoutas and Sutter 2019).

However, as already Nelson (1995) pointed out, this strand of literature suffers from two fundamental problems. First, gender differences are more interesting than similarities, leading to confirmation bias and publication bias (Nelson 2014, 2016). Second, and perhaps more importantly, this whole strand of mostly behavioral economic literature referenced above repeatedly makes explicit or implicit essentialist claims about gender differences by neglecting context and causal mechanisms (e.g. societal pressures to conform to gender roles) (Nelson 2014; Sent and van Staveren 2019), masking competitive behavior as inherently masculine. We do not wish to subscribe to this notion and would like to emphasize that economization, and thus competitization, is experienced not only in academia, but also in society at large. Thus, men and women are equally confronted with various competitive formats and have to develop practices for dealing with these formats. To make sense of gendered competitive practices and to avoid the fallacy of essentialist claims, we refer to Sent and van Staveren (2019) and their feminist economics extension of Wood and Eagly's (2012) biosocial constructionist framework. This framework for making sense of gender differences distinguishes between vertical "gender division of labor from biological differences that historically mattered" (Sent and van Staveren 2019, p. 5) and horizontal gendered processes (where gender roles resulting from the vertical dimension are located). However, while Wood and Eagly (2012) do not distinguish between gender roles and gender beliefs, Sent and van Staveren (2019) do; roles concern behavior and beliefs concern expectations about behavior (how "real men" or "real women" should behave), an important distinction as expectations shape economic decisions. This interplay between roles and beliefs is further reinforced by Sent and van Staveren's emphasis on asymmetric institutions that affect men and women differently as a group, with the understanding that these institutions typically favor men on average (Folbre 1995; van Staveren 2013):

Men's agency is likely to include not only an individual benefit from gendered institutions that favor men over women, but also actions that protect and sustain gendered institutions that work to their benefit. Such institutions interact with agency through the internalization of gender norms through men's and women's respective socialization. [...] In other words, gendered institutions are not only constraints on behavior but also affect agency itself through attitudes and decisions in a stereotypical way, affirming communal behavior by women and agentic behavior by men.

(Sent and van Staveren 2019, pp. 5–6)

We would argue that competition is such an asymmetric institution that benefits men as a group more than women as a group. And that this institution is essentially shaped by socialization.

The literature on socialization (see Grusec and Hastings (2015) for an overview) takes a more nuanced view, aware of the influence of social norms and broader social constraints on gender (thus incorporating a feminist interpretation of the mechanisms), and adopts the common distinction between agentic (stereotypically masculine, such as risk-taking) and communal (stereotypically feminine, such as trust) behavior. The literature asserts that these behavioral traits are associated with competitive practices (Lee et al. 2016)². Agentic behavior is more conducive to hierarchical ranking because male culture values competition, as opposed to the harmony and appearance of equality valued by female peer culture (Maccoby 1990; Schneider et al. 2011). As women are expected to behave in a more communal manner, “competitiveness is prescribed as part of the masculine gender role” (Lee et al. 2016, p. 5). The socialization process begins in early childhood, where boys’ activities often emphasize competition and the pursuit of personal success and recognition, and girls’ activities typically prioritize collaboration and mutual support, focusing on communal goals such as helping and encouraging each other (Rose and Asher 2004). As Goodwin (2000, p. 44) observed:

Girls differ from boys not only in terms of the criteria they employ for making comparisons, but also in their attitudes towards the activity of ranking itself. Boys seem to openly encourage statements about relative rank in pastimes (although they of course may argue about them). However, a girl who positively assesses herself or explicitly compares herself with others may be seen as showing character and attitudes that the other girls find offensive.

The differences in peer group structures (hierarchical vs. egalitarian), activities (competitive vs. cooperative) and relational orientation (agentic vs. communal) between the sexes have an impact on how women and men perceive competition and thus on its acceptability. As competition creates ranking hierarchies and thus disregards any equality considerations in its outcomes, it is less accepted by the female peer culture, whereas the opposite is true for the male peer culture, where competitive activities are viewed more positively. Thus, for women, engaging in competitive activities violates normative expectations and is seen as a violation of relational norms – at least in the case of same-sex relationships (Lee et al. 2016, p. 876).

The existence and consideration of gendered competitive practices can contribute significantly to the discussion on the under-representation of women in economics: if competitive practices are gendered, as the literature reviewed above shows, and if competition is particularly pronounced in economics, then this has far-reaching implications for the persistence of female representation and for gender discrimination in economics. As mentioned above, economics

has been at the forefront of processes of quantification and competition in science in recent decades. The introduction and increasing importance of quantitative evaluation methods and technologies, such as journal impact factors, citation indices, but also individual and institutional rankings and metrics of academic performance, have shaped and individualized competitive pressures in economics. Finally, the development of academic social networks and platforms and the gamification of individual self-presentation have further intensified this process. While this competitive process has been shown to affect different academic disciplines to varying degrees (e.g. Hammarfelt 2017; Pühringer and Wolfmayr 2024), there is hardly any systematic research on how the competitive nature of academia affects the research performance of men and women (but see: van den Besselaar and Sandström 2016). However, several questionnaire studies suggest that there are strong differences in the perception of research practices as competitive (Utz and Muscanell 2018; Francke and Hammarfelt 2023; Pühringer and Wolfmayr 2024). Pühringer and Wolfmayr (2024) for instance study the subjectification of a full sample of Austrian researchers as competitive selves through their interaction and active engagement in academic platforms and networks. Their results indicate gendered competitive practices in the case of the social sciences at least concerning the self-evaluation of their behavior as “competitive”. Table 5.1 shows that women are considerably less likely to report that using Google Scholar makes them perceive other researchers as competitors, see their work more in a competitive context, and compare themselves more often with other researchers (Table 5.2).

5.3.1 A multi-layer model of female underrepresentation

In this section, we present our model of the underrepresentation of women, which provides a condensed overview of the mechanisms and their interplay that contribute to the low representation of women in economics. The purpose of our model is not to provide an exhaustive review of the extensive literature on the mechanisms of women’s underrepresentation in economics, but rather to serve as a blueprint for an analytical understanding of the problem at hand. This exercise has two important advantages: First, by disentangling the different layers and mechanisms of women’s under-representation in the field, it becomes easier to implement and evaluate policies and anti-discrimination measures aimed at reducing gender inequalities. Considering the interaction of different channels can explain and predict countervailing tendencies that need to be duly considered. In this respect, it is useful to return to the notion of asymmetric institutions. As van Staveren and Ode Bode (2007) point out, symmetric and asymmetric institutions can operate simultaneously and do not necessarily cancel each other out, but can also legitimize each other; thus, gender equality in one area does not necessarily support gender equality in a context where other mechanisms or institutions continue to support discrimination against women. Most importantly, in an environment marked by competition, which we argue is an essentially asymmetric institution, policies that seek to

Table 5.1 Summary of statistics in the text concerning the underrepresentation and discrimination of women in economics

<i>Author(s)</i>	<i>Context</i>	<i>Timeframe</i>	<i>Underrepresentation</i>
CSWEP 2020	US academic institutions	1972	Share of females: 2.4% of professors, 7.6% of PhDs awarded
CSWEP 2020	American PhD-granting economics departments	2019	Share of female full professors: 14.5%
CSWEP 2020	American PhD-granting economics departments	2019	Share of females: 1/3 of PhD students, 30% of assistant professors, 25% of associate professors
Auriol et al. (2019)	European academic institutions	2019	Share of females: 40% of students, 20% of professors
Bayer and Wilcox (2019), Singh (2020), Lundberg and Stearns (2019)	US academic institutions	2019/2020	Share of female students and researchers in STEM fields now at par or above the average in economics
Ceci et al. (2014)	US academic institutions	1973–2009	Share of female tenured assistant professors has risen from 7% to 28%; compared to social sciences: from 16% to 48%
Ginther and Kahn (2021))	US academic institutions	2009–2018	Female economists 15% less likely to receive tenure, after controlling for academic performance indicators; this gap only in economics

Table 5.2 Questionnaire responses to the question “Because of my use of Google Scholar ...”. Figures indicate the percentage of positive responses (Pühringer and Wolfmayr 2024)

<i>“Because of my use of Google Scholar ...”</i>	<i>Male</i>	<i>Female</i>
I increase my own visibility	71%	55%
I perceive other researchers as competitors	20%	17%
it seems more important to me to be cited	63%	50%
I see my work more in a competitive context	44%	34%
I compare myself more often with other researchers	52%	37%

counteract underrepresentation by creating a level playing field may be fruitless. The second merit of our model, then, is that it allows us to examine the impact of competition and competitization, as mediated by gendered competitive practices, on the various channels already at play. In doing so, we offer an explanation for why economics is so unique in terms of the persistence of the low share of women in the discipline as well as discrimination against women.

Figure 5.1 illustrates our model of the underrepresentation of women in economics, where we distinguish three different channels: the male-dominated environment, the disciplinary ontology/epistemology, and societal expectations regarding the division of labor. In general, most of the existing literature on women’s underrepresentation focuses on one of these three channels and can thus be categorized accordingly. In addition, as shown by the dotted circle between the three channels, they affect each other and are not completely separate. Of course, not all of these channels are exclusive to economics (STEM fields, e.g., are also characterized by a male-dominated environment, and arguments relating to the societal expectations channel apply equally to all of science), but they do contribute to the low proportion of women in the field, as indicated by the arrows. At the same time, the low representation of women can reinforce the tendencies present in the channels; in the case of the male-dominated environment, this feedback is quite obvious. What makes economics unique is the degree of competitization, which is the trend or phenomenon that underlies everything else. The arrows within the feedback of channels and underrepresentation indicate that competitization creates or exacerbates existing escalation tendencies by emphasizing the asymmetrical institution of competition. The detrimental effects are mediated by gendered competitive practices that are part of the different socialization of men and women, which, by influencing men’s and women’s gender roles and beliefs, influences all other channels and mechanisms³.

What follows is an explanation of what we mean by the different channels, which should serve as categories into which the existing literature can be sorted. It is important to note that this is not yet an exhaustive review of the existing literature, but rather a selective literature review that should facilitate the main task: at the end of the description of each channel, we provide our intuition on how gendered competitive practices and competitization interact with the evidence provided.

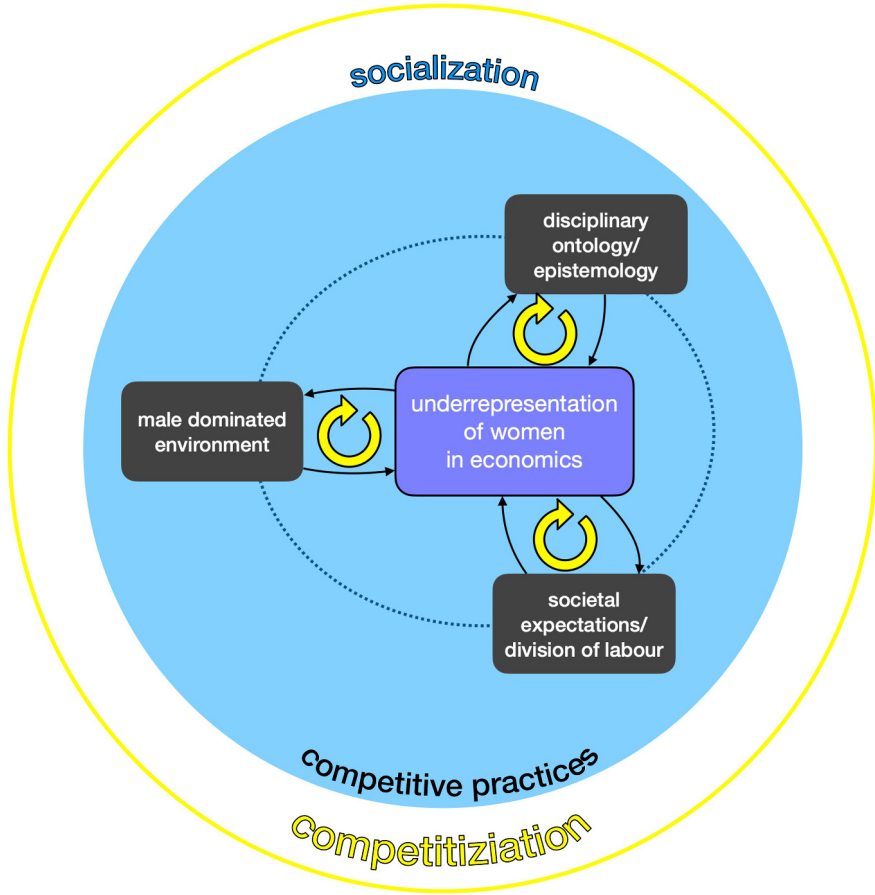


Figure 5.1 Channels of female underrepresentation in economics.

5.3.2 1st channel: Male-dominated environment

The first channel describes the self-reinforcing mechanisms of the low share of female economists. As already shown above, despite several attempts to attract more women into studying and advancing their careers in economics, the discipline is still strongly dominated by men and thus male stereotypes. This dominance, however, manifests and perpetuates the male-centeredness of economics. Avilova and Goldin (2018) as well as Porter and Serra (2020) stress that particularly the lack of female role models as teachers, supervisors and faculty members prevents younger female economists from applying for academic positions or graduate programs in economics. Similarly, Stevenson and Zlotnick (2018) report that female economists are also severely underrepresented in textbooks. Yet, this lack of female economists leads to several forms of explicit and implicit discrimination against women in economics. First, several studies have reported

the persistence of male or “old-boys” networks, irrespective of affirmative actions, Byrne (2021) for instance provides some examples for the different treatment between male and female applicants for a faculty position based on what one respondent called “sponsorship”:

... we were shortlisting for a faculty member once and actually I was the observer. And I noticed that all of the female candidates did not have what I called sponsorship, whereas many of the male candidates would have sponsorship. What is sponsorship? Sponsorship is where we would say be talking about a particular resume, and one of my colleagues would say something like, “well, I’ve had a phone call about this candidate from his ex supervisor, his ex-postdoc advisor and this is a really good guy.” And men would receive those informal sponsorships and women wouldn’t.

(Byrne 2021)

While these observations are not only true for the field of economics, Williams and Ceci (2015) showed that contrary to many other disciplines male economists tend to favor male over female colleagues when hiring. Similar forms of male networks on the one hand and associated explicit forms of sexist discrimination against female economists on the other hand have been reported in several studies (e.g. Backhouse and Cherrier (2019) on Samuelson). Most notably Wu (2017) showed that particularly in the case of job interviews women in economics are much more regularly confronted with sexual harassments, toxic attitudes and comments relating to physical characteristics than their male colleagues. Her study focused on the popular website Job Market Rumors and has led to the release of a new code of conduct for economists by the American Economic Association.

While these forms of explicit discrimination against women in economics still exist and male networks are still used to prevail in the harsh competitive environment, female economists are also confronted with several forms of implicit discrimination, resulting from the male-dominated environment in economics. First, Boring (2017) has shown severe gender biases in student evaluations, resulting in women receiving worse evaluations for their teaching efforts, which quite often reflect gender stereotypes. Collaborative and discursive teaching formats for instance are associated with lower scientific performance compared to typically male, confidently delivered frontal lectures. Second, the work and contribution of female economists as co-authors is valued less, particularly in group works (Sarsons 2017). She finds that the number of co-authorships does not correlate with the probability of getting tenure for male economists, but is crucial for female economists, especially when publishing with male colleagues. Similarly, Lundberg and Stearns (2019) as well as Hengel (2022) report that female economists are generally held to a higher standard in publications and must adhere to higher writing standards in order to receive equal recognition. Third, the male-dominated environment also

leads to discriminatory practices in the workplace. Several studies found that female economists are confronted with more and harsher questions in job interviews and during presentations (Dupas et al. 2021; Sarsons et al. 2021). Particularly, this form of harsh and confrontational discussion culture in economics may well be reinforced by the strong influence of competitive research organization and the prevalence of an individualistic epistemology in economics. Thus, male-centered environments in economics are not only self-reinforcing the male dominance in economics, but also provide a supportive atmosphere for the impact of gendered competitive practices. More precisely, the particularly strong presence of formal and informal competitive formats perpetuates a male-centered environment and aggravates initiatives to fight the underrepresentation of women in economics. Not least as a consequence of gendered socialization with respect to competitive behavior and as argued above, female economists either feel uncomfortable or are sanctioned when they act according to these masculine competitive practices.

The male habitus is constructed and completed only in connection with the space reserved for men, a space in which the serious games of competition are played among men (...) real honor can only make the recognition, which is paid by a man (in contrast to a woman)

(Bourdieu 1998, p. 203, own translation)

5.3.3 *2nd channel: Economic ontology and epistemology*

The second channel in our model is related to gendered ontological and epistemological differences within the discipline, i.e. how economic processes are viewed and analyzed and which may not appeal to women or simply do not reflect their perspectives of and experiences in life. It is still a prominent stereotype that women perform worse in math and thus shy away from math-intense subjects. In a comprehensive overview Ceci et al. (2014) have shown that differences concerning spatial abilities between boys and girls have been narrowing over the last decades and are now hardly significant any more. Hence, seemingly sex differences are much more caused by gendered stereotypes, for instance, in play behavior (e.g. playing video games or building Legos, etc.) or gendered socialization in general. Ceci et al. (2009) have shown that various interventions to increase spatial processing, even for as little as one semester, have narrowed the sex gap in spatial abilities. Moreover, most of the studies claiming the superiority of males at math-related abilities were based on differences in mean scores but not on the right tail of the distribution within genders. However, since students in math-intensive subjects, such as economics, mostly also have over proportional math-related abilities, comparing mean scores does not explain the male dominance in economics.

To sum up, the evidence is quite clear that differences in math-related abilities are caused by gendered socialization rather than biological sex differences.

However, referring to biosocial constructionist theory (Sent and van Staveren 2019), the still widespread belief in male superiority in mathematics combined with gendered competitive practices in a male-dominated environment helps explain female underrepresentation in economics. This prejudice against women may for instance lead to a higher grade sensitivity for women (Arnold 2020) or the comparably better writing skills of women in economics (Hengel 2022), but also to a higher math discomfort of women (CSWEP 2013).

Yet, the math-prejudice potentially also contributes to the unequal distribution of female economists over sub-disciplines in economics. Women have been shown to be more strongly represented in fields such as health, education, social security, and aging (Chari and Goldsmith-Pinkham 2017) – often referred to as “soft fields” – in both graduate program major choices and research specializations. Conversely, women are even less represented in finance and macroeconomics, the “hard fields” of economics. The latter are typically more math-intense and also commonly perceived as the more powerful core fields within the economic mainstream. Additionally, Chari and Goldsmith-Pinkham (2017) show that submissions of female economists for the prestigious NBER Summer Institute are higher, if there are female economists among the panel organizers. In all, women tend to choose subjects and fields in economics, which are seemingly closer to their real-world lived experiences and are less abstract and math-intense.⁴ It is still difficult to disentangle whether this choice is driven primarily by the self-selection of female economists into softer fields or by the particularly male competitive environment in the harder fields (see also channel 1). Nevertheless, first, it leads to a lack of female perspectives, views and ontologies, which differ substantially from those of their male colleagues (e.g. May et al. 2018). Second, the female underrepresentation, particularly in fields ranked higher in the internal hierarchy in economics, perpetuates the self-reinforcing male dominance, but also the overall male worldview in abstract economic models and epistemologies. Here, conceptions of human beings as omniscient, self-serving, completely independent homo oeconomici dominate:

Traditionally, male activities have taken center stage as subject matter, while models and methods have reflected a historically and psychologically masculine pattern of valuing autonomy and detachment over dependence and connection.

(Nelson 1995, p. 132)

Similarly, Meyer et al. (2015) have found that women are particularly underrepresented in fields where it is believed that one needs raw brilliance and women are stereotypically believed to possess less of that.

This way, gendered competitive practices particularly in the male-dominated “hard fields” in economics not only reinforce the persistence of female underrepresentation but also the lack of diverse ontologies and epistemologies therein.

5.3.4 *3rd channel: Societal expectations with respect to the division of labor*

The third channel describes the influence of societal expectations about the division of labor between the sexes on the under-representation of women in economics. This channel is, of course, relevant not only to economics, but to science in general and applies to almost all professions in society. It describes the gendered expectation that women are the ones who should take care of activities related to (a) the private sphere, i.e. caring responsibilities, either for young children or elderly people and doing household chores, and (b) communal behavior in general, i.e. women are expected to fulfill caring activities at their universities, such as mentoring and teaching, but also administrative tasks; those, however, prevent them from doing research and, more precisely, from producing the form of quantifiable academic output that then determines their later career trajectories.

The most illustrative evidence in this regard are the findings on publication output during the recent Covid pandemic, when care had to be provided at home rather than by public facilities, and was almost entirely carried out by women. Squazzoni et al. (2021) report that women submitted proportionately fewer papers than men during the first wave of the pandemic; male researchers even increased their productivity in absolute terms, especially compared to female researchers who lost productivity due to caring activities. And although parents display a slightly higher productivity than nonparents, the gender productivity gap in terms of publications, the gender productivity gap is primarily attributed to parenthood, wherein the average short-term productivity of mothers is diminished (Ceci et al. 2014, fig. 16, Morgan et al. 2021) also show evidence that assistant professors in economics publish significantly less than assistant professors who are fathers. Thus, even in the absence of a global pandemic, women are expected to be the primary care-givers and thus in a permanent dual role (Byrne 2021); since the caring role is usually a subordinate one this has implications for how and whether women can achieve leadership in science (Blackmore et al. 2015). Their caring responsibilities also prevent them from attending meetings or seemingly voluntary seminars in the evenings; their working hours tend to be more restricted than those of men; and female economists tend to concentrate their research efforts mainly in the summer months (Manchester and Barbezat 2013). In fields where the proportion of female faculty is low, the burden on women is even greater. Ward and Wolf-Wendel (2012) observed that faculty members “were very aware of the extra work that comes with being the only woman, the only scientist, the only mother, and the only one for people to turn to for myriad activities” (p. 93). In STEM faculties, men spent almost twice as much time on research as women, and their investment in mentoring and service was significantly lower (Misra et al. 2011).

Female scientists experience significantly more family/work conflict than their male counterparts, which affects their work-life balance (Fox et al. 2011). This is also consistent with the findings of Drago et al. (2006) that workplace norms in academia do not support or facilitate family commitments. Due to

societal expectations, women are also believed and expected to be less mobile than men, which naturally hampers careers in science, where international mobility is said to be crucial (Zippel 2017; Ulnicane 2020; Sautier 2021).

For example, among academics in the life sciences, married women and women with children face a significant disadvantage in transitioning to tenure-track positions compared to single, childless women (Ginther and Kahn 2009). At the same time, women with PhDs, no children and no plans to have children achieved similar outcomes to men in seeking and securing tenure-track positions in STEM fields, while women with family plans chose not to pursue tenure-track careers (Wolfinger et al. 2008, 2009). This led to twice the rate of attrition among female postdocs with child plans compared to male postdocs with child plans (28% vs. 16%) or existing children (31% vs. 19%). In addition, professional women are often in relationships with professional men that allow them to “opt out” of academia and afford to stay at home (Belkin 2003).

With the rise of quantitative evaluation methods, however, productivity is measured almost exclusively in terms of countable research output, i.e. in most cases publications. If women spend less time on output-relevant research, this puts them at a disadvantage; by devaluing women’s efforts, competitization automatically reduces women’s competitiveness, making a career in economics less likely. At the same time, caring responsibilities, either at home or at university, and thus collaborative behavior, stand in contrast to academic output orientation and competitive behavior. Behaving cooperatively in one context and competitively in the other, when the latter is inconsistent with women’s gender beliefs, makes the implementation of successful competitive strategies even more difficult. In addition, well-intentioned policies such as quotas and affirmative action in general can backfire when unintended effects and consequences further increase women’s nonperformance-related workloads in male-dominated fields such as economics.

5.4 Conclusion

In the face of the anti-discrimination measures taken by the Committee on the Status of Women in the Economics Profession, one of the leading figures in mainstream economics, Milton Friedman, affirmed that “the pendulum has probably swung too far so that men are the ones currently being discriminated against” (Friedman 1998, p. 198). Given what we have just presented about the proportion of female economists, and the abundant evidence that if there is a group being discriminated against, it is certainly not men, this quote is still representative of the attitude and climate of a not-so-small group of influential economists whose members seem unable to recognize their own privileges even when they are dangled in front of them. However, these influential scientists act as gatekeepers, without whose willingness it will be difficult to change the discriminatory structure of the discipline. This attitude is problematic not only because of gender equity, but also because science produced exclusively by male, white, cis-men can only incorporate so much diversity and critique,

making it biased at best (Stansbury and Schultz 2023). In feminist standpoint theory as advocated for example by Harding (2004) and Nelson (1995), what is needed for objectively produced scientific knowledge to flourish – and thus provide more than lopsided policy advice – is a diversity of perspectives as well as methodological and epistemological approaches and standpoints. Diversity is enhanced by the inclusion of women. Although, of course, as emphasized in footnote 1, gender is not the only dimension of discrimination; equally important are discrimination based on class, race, ethnicity, socioeconomic background, sexual orientation, etc. Thus, an intersectional perspective on experiences of discrimination in economics is essential (Moore et al. 2018; Stansbury and Schultz 2023).

Our model provides an opportunity to reflect on the dimensions of discrimination present in economics and helps to disentangle the different layers and channels. This systematization contributes to provide better targeted anti-discrimination policies and also helps to explore the intersection of gender and other dimensions of discrimination in future work.⁵ Moreover, the channel of gendered competitive practices and gendered beliefs and roles certainly affects not only women but also social groups in general that do not identify as much with the masculine peer culture. In light of the biosocial constructionist framework and its implications for competitive practices, the common notion that competition can help promote diversity by evaluating all participants equally can be refuted. Competition may initially help by supposedly making all participants equal, but ultimately the rules of competition are made by those who are currently in power – which in the case of economics is again the stereotypical male researcher. As such, competition becomes an instrument of domination by being an asymmetric institution that again favors men as a group. Not only because it is an explicit instrument of structuring but also because it is an implicit one. Thus, competition as an asymmetric institution becomes more and more powerful and perpetuates male dominance, as Bourdieu emphasizes with his “serious games of competition”. This inequality-enhancing effect of competition is reinforced by the general trend toward competitization in academia, which entails social, economic and epistemological costs (Felt 2009; Krücken 2021; Park et al. 2023) and is thus a major problem. In all, the trend of competitization of academia, which is particularly pronounced in the very ranking-affine discipline of economics, counteracts several attempts to fight the underrepresentation of women. Our contribution thus points to the need to differentiate between measures directed against the harmful implications of an intensified competitization of knowledge production (the outer border in our channel model of female underrepresentation (fig. 1)) and of different forms of gendered competitive research practices in economics. Concerning the former, recent initiatives such as the DORA declaration in 2012, the Leiden manifesto in 2015 and the CoARA initiative of the EU in 2022 are aiming at a more socially responsible research assessment culture, which would also help to cushion the negative effects of competitization of academia. However, in addition to policies that seek to mitigate the effects of competition by reducing its explicit power, there is a need to counteract its implicit use; concrete and

direct measures such as bans and quotas are needed to ameliorate the blatant under-representation. Policymakers should take both dimensions into account.

Of course, one central point of criticism remains, namely the role of self-selection into the discipline and the indoctrination experienced during the study and practice of economics. What if only those individuals who are already inclined to be competitive choose to study and pursue a career in economics (see for instance Pereda et al. 2023). Then, we argue, gendered competitive practices are still relevant because of gender beliefs; even if particular women are inclined to behave competitively, they are likely to be sanctioned because their behavior does not conform to expectations of female gender roles. Thus, engaging in competitive behavior may still be something that women have to work very hard at because of the potential negative consequences. The same would be true if women and men were indoctrinated to behave more competitively through the study of economics. An effect that certainly exists, given the strong doctrinaire nature of mainstream economic theory and the prominence of the concepts of competition and individualism therein (Bauman and Rose 2011; Pühringer and Bäuerle 2019). However, the study of the selection and indoctrination effects and their interaction with our channels is central, and unfortunately due to lack of space we could not deal with it here. We certainly intend to investigate these relationships in the future. Our research also did not establish a causal relationship between gendered competitive practices and the underrepresentation of women. Rather, the task was to provide another powerful explanatory channel and thus an additional starting point for anti-discrimination policy, which should be based on the fact that the continued promotion of extensive competitive formats may well have gendered effects (see e.g. Harroche 2022). Future research should therefore focus on providing empirical validation of our argument – both quantitatively and qualitatively.

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Notes

- 1 This paper focuses on the underrepresentation of women. However, at least since Krenshaw, it has been clear that women’s concerns are closely linked to other non-gendered experiences of discrimination. Therefore, intersectionality plays an important role here and should be considered.

That the representation of minorities is also an issue has been demonstrated by the Committee on the Status of Minority Groups in the Economics Profession, established in 1968 as part of the AEA. Tellingly, Hoover and Washington (2021) as well as Bayer and Wilcox (2019) point to a significant gender imbalance affecting women within underrepresented minority groups. Similarly, Stansbury and Schultz (2023) report a lack of socioeconomic diversity in terms of highest parental educational attainment among economics PhDs compared to other disciplines. Kvangraven and Kesar (2023) examine the potential for decolonizing economics and attest that the Eurocentrism of economics and its scholars complicates the task.

- 2 However, agentic and communal behavior are not dichotomous categories regarding the behavior of men and women. Carothers and Reis (2013) found that psychological variables (such as science inclination for example) are continuous rather than taxonic (“either...or...”) dimensions.
- 3 It is important to note here that it is not only competitive practices that are gendered but of course also other areas of socialization that influence the underrepresentation of women. For example, the stereotype that women are less able than men in mathematics is materialized through the expectation that women will perform poorly (e.g. Spencer et al. (1999), Correll (2004)) and thus leads to actual lower performance. This “stereotype threat” Spencer et al. (1999) is also generally true for men’s and women’s interest in STEM jobs or careers (Ceci et al. (2014)).
- 4 This also suggests that the proportion of women is higher in non-mainstream economics, since the epistemologies and ontologies of other schools of thought are different from the mainstream and, at the same time, further from the core of disciplinary power in economics. The limited ontological, epistemological, and methodological perspectives in the teaching of economics have been recognized as a structural obstacle to the underrepresentation of women in the discipline, see Gartner and Schneebaum (2023).
- 5 In this respect, notably, Gartner and Schneebaum (2023) recently contributed an overview of mechanism with respect to the underrepresentation of female undergraduate students.

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Part III

Rankings and their impact on paradigmatic hegemony



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6 On the relationship between society, metrification, and paradigmatic monism in economics

Rouven Reinke

6.1 Introduction

Economics is frequently characterized as the leading science of globalization (Fourcade 2006), the discipline of market fundamentalism (Ötsch 2019) or the ideological legitimization instance of capitalism (Elsner and Lee 2010), signifying a special role of economics within the political economy. Moreover, the disciplinary structure of economics is marked by institutional and discursive elitism (Maeße 2016, 2017), along with an epistemological orientation toward the mathematical modeling of the interplay between markets and the state and its empirical investigation (Heise 2017). In Germany, a paradigmatic dominance of mainstream economics with significant tendencies of monism has been developed, resulting in the marginalization and exclusion of heterodox and other non-mainstream approaches within the discipline (Beckenbach 2019; Kapeller et al. 2022; Reinke 2024). Nevertheless, the interdependent connection between societal structures and the special role of economics in capitalistic societies, and the philosophy of modern economics – specifically, the epistemology, methodology, and ontology of economics, remains largely unexplored.¹ Within the realm of social studies of economics, numerous investigations often concentrate on the level of academic institutions and practices in the social construction of economics. For instance, Fourcade (2006) and Rossier and Bühlmann (2018) underscore the internationalization and globalization of economics, exerting a profound influence on the structure of national fields. Additionally, Schmidt-Wellenburg (2018) and Beyer and Pühringer (2022) illuminate the political engagement of economists in Germany and in the United States. Similarly, Plehwe et al. (2018) and Flickenschild and Afonso (2019) emphasize the institutional integration of economists into policymaking. These examples compellingly unveil the complex relationships between (economic) science and society. However, the analysis of *philosophical* issues in economics, such as paradigm shifts (Kuhn 1962) or the empirical/applied turn (Backhouse and Cherrier 2017) remains unexplored in social studies of economics. Rather, existing analyses tend to lean toward positivistic approaches rooted in traditional philosophy of science. By neglecting the influence of economics and economists on politics, the economy, and civil society, there has

been a failure to comprehensively capture the paradigmatic state of economics and articulate a proper explanation for it.

Thus, in alignment with the overarching concept of social studies of economics (Maeße et al. 2021), this article analyzes the paradigmatic state of economics in Germany, incorporating diverse methodological, theoretical and interdisciplinary approaches. Within this context, the discipline economics is viewed as a battlefield of competing paradigms (Heise 2014). Despite adhering to discipline-specific laws and determinants in the form of epistemic principles and social classification mechanisms, economics is intricately interwoven with the globalized capitalist world system. It grapples with economic and political structures and is enmeshed in power relations, discourses, and institutions. Thus, the production of knowledge is an ongoing interplay between society and science (cf. Weingart 2001), with the understanding that science is not entirely distinct from its societal context.

Examining the current paradigmatic monism of economics in Germany, the present article draws on a combination of the Discursive Political Economy of Economics (Maeße 2015) and critical sociology of economic knowledge. While the former focuses on the social construction of the *economist* as a special academic figure in contemporary society, the latter underscores the political content of economic theory and its role in the societal reproduction and the regulation of contradictory social relations and crisis tendencies of capitalism. The Discursive Political Economy of Economics employs a combination of discourse analysis and capital theory. Unlike a purely discourse theoretical perspective, the present article highlights the unique nature of economic knowledge in a capitalistic society and its constitutive influence on the political economy. Consequently, understanding the disciplinary structure of economics necessitates considering the ontological foundation and political significance of economic ideas and paradigms outside academic realms. This conceptualization acknowledges the dialectic relationship between society and economics, shaping the production of economic knowledge. Paradigmatic conditions, therefore, arise from the field-specific adaptation to societal demands, reflecting power relations in the political economy and the ongoing need to regulate capitalist societies through economic knowledge. Moreover, the performative influence of economics continually transforms the societal basis of these demands, rendering them dynamic rather than fixed and resulting in the constant emergence of new economic knowledge.

The article analyzes how German economics has paradigmatically responded to evolving societal demands over the past four decades. It outlines a nexus between the rise of neoliberalism, the metrification of scientific evaluation and the ontology of mainstream economics will be sketched out. The structure of the article unfolds as follows: Section 2 provides a comprehensive definition of the underlying understanding of economic paradigms. Section 3 explores the general relationship between capitalist society and the discipline of economics. Subsequently, in section 4, the impact of structural changes within society on the discipline since the 1980s is discussed, considering the

institutional and discursive adaptation to societal demands. Section 5 offers an outlook on paradigmatic monism.

6.2 What is an economic paradigm?

Pluralism in economics claims for the epistemological incommensurability of different paradigms in economic research (Dow 2023; Heise 2017). The term paradigm encompasses “universally recognized scientific achievements that, for a time, provide model problems and solutions for a community of practitioners” (Kuhn 1962: 10). A paradigm is constitutive of the worldview of scientists and shapes their perception of the object of observation. In the context of Lakatos’ research programs, three classification dimensions emerge: ontological, axiomatic, and methodological. On the ontological level, scholars consider the essence of reality and its fundamental conditions. Pre-analytical visions lead to postulates that should not be fundamentally questioned, forming a negative heuristic. The axiomatic level involves core axioms forming a hard core, complemented by a protective belt of auxiliary hypotheses. On the methodological level, a specific meta-methodic approach is considered acceptable and scientific (Heise 2017, 2020; Reinke 2024).

While axiomatics allows for diverse theoretical approaches within a paradigm (e.g., behavioral economics in mainstream economics), the claim for incommensurability in economic research relates to the ontological and methodological levels. Theories represent axiomatic systems of deductive logic, shaping the analytical structure of a paradigm. Ontology and methodology constrain the range of theoretical specifications. With regard to the ontological level, Heise (2020: 177) emphasizes that “there are three different pre-analytical visions in economic theorizing: mainstream or standard economics is based [...] on intertemporal exchange, post-Keynesianism on nominal obligations (creditor-debtor-relationships) and Marxism on power relations as basic constituents.” Differing ontologically from mainstream economics, *heterodox paradigms* like post-Keynesianism or Marxism offer alternative explanatory approaches with divergent visions of economic reality.

The second crucial aspect of pluralism is the methodological dimension, not to be confused with the methodic dimension. Methodology concerns the overall approach to scientific questions, defining criteria for suitable methods and addressing the epistemic interest of economic research. For instance, methodology deals with the demarcation of (objective) truth, for example, testing of falsifiable hypotheses. According to Pickbourn and Ramnarain (2016: 74), methodology “refer[s] to the ontological base and epistemological assumptions guiding the preference for a particular set of methods.” These methods, on the other hand, focus on instruments for this demarcation, for example, regressions or mathematical modelling. Modern economics has developed positivistic fallibilism, combining deduction and induction, to establish general economic laws (Heise 2017: 28). Methodological approaches beyond this, such as historicism or phenomenism, aligning with *Verstehen* and advocacy, are found mainly in

other social sciences, providing a methodological alternative to mainstream economics, collectively termed *transdisciplinary non-mainstream* (Reinke 2024: 309). It comprises, for example, socioeconomics, Political Economy, or the social studies of economics (Maeße et al. 2021; Stilwell 2016, 2023).

A radical interpretation of pluralism views economics as a discipline that can differ ontologically from Walras's law and the idea of harmonious interaction in a market economy, as well as methodologically from positivistic fallibilism. Therefore, the theoretical differentiation in microeconomics (neoclassical market and price theory, behavioral economics, game theory), and in macroeconomics (New Classical Macroeconomics, New Keynesian Economics, New Neoclassical Synthesis), combined with a wide range of formalistic and quantitative methods, underscores intraparadigmatic variety within mainstream economics, rather than interparadigmatic pluralism.

6.3 The connection between capitalistic society and economics

The internal dynamics and paradigmatic structures of economics can be understood as responses to shifts within the capitalistic world system. The formation of the discipline, often referred to as “the invention of a discipline” (Tribe 2021), during the 19th and early 20th centuries was influenced by various societal factors. For instance, the growing interest in public and commercial education during industrialization and urbanization played a pivotal role in shaping the discipline. Post–World War II, economic knowledge became a crucial factor in public policy processes (Fourcade 2009), illustrating the dependence of the emergence and institutionalization of economics on societal developments. In this regard, economics and a capitalistic society are (ontologically) interconnected. As mentioned earlier, economic paradigms present diverse and incommensurable pre-analytic visions of economic reality. Mainstream approaches depict the capitalist economy as a harmonious interaction of utility-maximizing, atomized individuals on markets. In contrast, heterodox approaches, as the dialectical antithesis, emphasize conflicts in the political economy, such as those in the creditor-debtor relationship (post-Keynesianism) or between capital and labor (Marxism). The distinctions between economic paradigms stem from divergent interpretations of political-economic structures.²

Despite mainstream economics negating the significance of social relations and the conflictual character of society, the discipline is integrated into these antagonistic conflicts. According to Theine (2021) and Gautier Morin (2021), mainstream economists can be seen as scientific representatives of the capitalist class, aligning with liberalism in economic policy (neoliberalism, liberal Keynesianism). In contrast, heterodox economists represent the interests of the working class, supporting state-interventionist and (radical) left positions on the political level. Therefore, actors and institutions of the political economy have specific ideological demands or interest-driven expectations (e.g., knowledge about the advantages of tax cuts or higher wages) that are directed

at economics, leading to a special role in the political economy. These demands depend on the balance of power between different actors in the political economy. Despite the link between economic paradigms and political-economic antagonism, changes in power relations and the related societal demands do not necessarily correlate with the rise or decline of heterodox paradigms. The marginalization of heterodoxy is not a natural result of a decline in labor power; instead, field-specific reactions depend on how non-academic impulses are incorporated through institutional settings, discursive classifications, and capital distribution by economics. Nevertheless, the political economy and its power relationships can be viewed as the societal background for paradigmatic structures within the discipline. Changes within the actual paradigmatic structure are, however, outcomes of institutional and discursive adaptations to social changes.

Since the 1980s, profound transformations within the economic and cultural structure of capitalism, triggered by the oil crisis, led to the erosion of traditional macroeconomic Keynesianism and a crisis of legitimacy for nation-states and their institutions, such as the welfare state, trade unions, religion, and police. Stagflation, declining growth rates, and the dissolution of Bretton-Woods marked a profound crisis for nation-states in the Global North and their economic policies. Traditional Keynesianism, described as “the established ideologies of class compromise, under which different groups could conflict within the confines of a capitalist and democratic system” (Przeworski 1985: 210), came to an end. On the political-economic front, this shift was accompanied by a move from wage income toward capital income. Moreover, the dominance of state-centered, democratically legitimated party politics yielded to a financial-market-driven, globalized economy. The focus of economic policy shifted toward the liberalization and deregulation of markets in the post-Fordist era. These developments of neoliberalism and globalization were not confined to altering the capitalist economy but were more profoundly linked to a social expansion of globally shared cultural practices and institutional settings (Robertson 1992). This led to the homogenization of knowledge and meaning (Berger and Luckmann 1966). In this context, science, education, and expertise assumed crucial social roles, while social democratic, Keynesian macro policies became unviable (Beck et al. 1996), and traditional authorities experienced a decline in importance (Münch 2009). Academic experts replaced these old authorities and acted as the new legitimizing force, earning the label of epistemic authorities given their methodologically and intersubjectively generated knowledge and social status (Kessler and Wilhelm 2014).

Within the relationship between society and economics, these changes brought forth two societal demands: *ideological knowledge* and *academic legitimacy*. The ideological facet of economic expertise played a significant role post-WWII, particularly with figures like John Maynard Keynes and his macroeconomic policy implications on prosperity and employment crucial to the golden years of capitalism. Furthermore, the German concept of the “Soziale Marktwirtschaft” has its theoretical roots in ordoliberalism, which dominated

economics in Germany during that period (Nützenadel 2005; Ötsch et al. 2017). In general, since the end of WWII, economics has been integrated into the policymaking process of federal politics in Germany through economic research institutes, the German Council of Economic Experts or scientific advisory boards in the German Federal Ministry of Finance, and the German Federal Ministry of Economic Affairs (Plehwe and Neujeffski 2021). Despite the crisis of Fordism and a shift in demand-driven economic policies, the importance of economics did not diminish. Instead, there was a marked shift in the ideological orientation of economic policy. In the context of labor power reduction (unions) leading to decreased demand for Marxist or post-Keynesian macro policies, the societal demand for economic knowledge until the late 2000s was dominated by an ideology of free markets. Additionally, there is a societal demand for academic legitimacy. Scientific expertise and various forms of academic justification serve as foundations for decisions and negotiation processes in politics, business, and civil society (Maeße 2017: 924).

Consequently, political, and economic developments and decisions cannot be solely attributed to “the economy” as a closed subsystem of society. Or to put it differently, the political economy cannot be abstracted from its cultural constitution (Best and Paterson 2009; Sum and Jessop 2013). Due to its object of observation (“the economy”), explanatory power (positivistic fallibilism), ontological fundament (harmony vs. conflict in the political economy), and institutional structure, economics contributes to regulating contradictory social relations and crisis tendencies in capitalism. Therefore, economics occupies a prominent position within the political economy, which differs from other (social) sciences, as economics connects the production and transmission of knowledge and ideology with the discursive legitimizing function in capitalist societies. This underscores the role of economics in the political economy from 1980s to the early 2010s. The next section will discuss the paradigmatic effects within economics as a result of field-specific adaptations of these social processes.

6.4 Paradigmatic and institutional structures in economics

In the late 1970s, the landscape of economics in Germany underwent a significant transformation, influenced by social currents from the 1968 generation and the economic and scientific policies of the social democrats. This period, marked by Keynesian class compromise, witnessed pluralization processes driven by the establishment of new universities, known as “reform” universities (Reformuniversitäten). These institutions aimed to foster critical research and democratic participation within academia. While universities like Oldenburg and Flensburg sought reforms emphasizing social openness and practical relevance, a select few, including the University of Bremen and the Hochschule für Wirtschaft und Politik (HWP) in Hamburg, aspired to socio-political changes. Concurrently, reform-oriented student and research assistant representatives at some traditional universities advocated for a pluralization of economic content and a critical reflection of economics, exerting significant influence on

university governance (Heise and Thieme 2016: 1114f.). During this time, the scientific landscape exhibited a horizontal structure with relatively low power differentials, allowing for heterogeneous research foci and publications. The absence of a universally accepted standard for research quality precluded the classification of research and researchers. Despite the inclusion of status groups in university decision-making processes, professors remained at the center of power. As the neoliberal era approached, the field of economics in Germany maintained a horizontal structure with regional variations.

“In the founding phase of new universities [...], a paradigmatic opening-up of economics coincided with the organizational opening-up of universities that created space for consolidating the process of pluralization by appointing professors” (Heise and Thieme 2016: 1114). However, this pluralization was limited to certain universities and faculties, and a nationwide paradigmatic heterogenization of economics did not materialize. Heterodox appointments were primarily concentrated at “reform” universities with a socio-political focus and traditional universities with strong status groups, with 25 percent originating from the University of Bremen and the HWP. Overall, Heise et al. (2017: 92) observed 22 out of 57 appointments of heterodox economists in Germany during the 1970s. In Bremen, the quota of heterodox appointments was around 80 percent during that time. The transition from Keynesian to financial-market-driven capitalism in Germany resulted in the establishment of heterodox paradigms at universities, but this shift remained regionally circumscribed.

Adhering to the idea of Max Planck (1967) that new scientific insights gain acceptance as proponents of the old paradigm fade away, a more pronounced paradigmatic pluralization might have been possible. From a critical sociology of economic knowledge perspective, the structural changes of neoliberalism indicated a marginalization of emerging market-critical paradigms. According to (Latour 1998), the prevailing theories are not necessarily the epistemically best but rather those that resonate more influentially with other spheres of society. The mainstream paradigm with its ontology and quantitative methodology exhibited a clear resonance with the emerging neoliberalism (Hübenbecker 2020).

6.4.1 *The homogenization of modern economics*

Since the mid-1980s, the academic landscape has witnessed the establishment of a competitive ethos, grounded in the pursuit of a university of excellence that strives to produce objectively measurable research, unequivocally labeled as excellent (Readings 1996). This metrification, driven by the imperative to promote research performance, introduced technologies to measure scientific quality and output-oriented management through rankings and evaluations. These tools are deemed appropriate for representing academic quality, particularly in the context of reduced basic funding and the increasing influence of new public management approaches within the neoliberalization of science. Consequently, a numerocracy (Angermüller 2012) has taken root, emphasizing metric numbers and quantitative argumentation patterns.

This evolution has given rise to a vertically differentiated scientific landscape, significantly departing from the professorially dominated university setting of the past. From a critical perspective, standardized measures such as rankings may create the illusion of scientific comparability, perpetuating or even reinforcing existing power structures within a discipline (Münch 2014). Under these circumstances, it can be contended that outstanding research findings do not necessarily result from an open competition with equal opportunities; rather, they can be attributed to accumulated power and political objectives within the scientific realm. Thus, meritocratic labels like elite or excellence do not necessarily correspond to superior performance. Instead, they serve as both preconditions and outcomes of power dynamics, rooted in an unequal distribution of resources combined with hierarchical classification mechanisms. The definition of evaluation goals, determination of subsequent rules, and derivation of measures following the outcome are crucial in this context. Rankings are no passive tool for quality assessment. On the contrary, from a constructive perspective, rankings actively contribute to shaping academic reality (Espeland and Sauder 2007).

According to the German Wissenschaftsrat (1985), the scientific community – represented by the self-governing science organizations, scientific associations, and editors and reviewers of journals – determines the criteria of research and teaching. To what extent these criteria for good research are associated with monopolizing tendencies in the field of science depends on the historical structure of a discipline's paradigmatic and epistemic conditions. When the scientific community is homogeneous in its paradigmatic orientation (monism vs. pluralism), the general acceptance of such conventional determination can be easily established. Conversely, in a heterogeneous structure where the pendulum between pluralistic and monistic orientations is still in motion, the introduction of rankings and evaluations that demarcate good vs. bad or right vs. wrong research may lead to the marginalization of approaches and paradigms whose representatives do not participate in defining the evaluation criteria for formerly diverse research approaches (Heise et al. 2017: 86).

6.4.2 The systematic marginalization of the heterodox economics

The institutional and discursive shifts within the field of economics have given rise to several parallel developments, leading to a more direct conflict between different paradigms. Firstly, regional pluralization tendencies find themselves in epistemological conflict with the fully emerging positivistic conception of economics and a formalist, model-oriented understanding of (economic) science. Additionally, German economics have uncritically embraced non-academic developments in the globalizing world society through the implementation of evaluation mechanisms, rankings, and a pyramidal hierarchy of publications, often referred to as “self-Americanization” (Hesse 2010: 128f.). In addition, the approaches and theories of the mainstream paradigm have resonated more strongly with the political trends of privatization, marketization, and deregulation compared to the market-critical paradigms of the heterodoxy.

In economics, a hierarchical publication system has emerged, depreciating monographs and edited books while emphasizing a monopoly and systematic appreciation of (international) journals. These journals are not only ordered based on content but also hierarchically structured. The number of general interest journals, especially field journals, increased fivefold between 1959 and 1993 (Fourcade 2006: 162). Simultaneously, the introduction of rankings has further entrenched the hierarchization of journals. In Germany, for example, the *Handelsblatt* ranking classifies around 1250 journals based on impact factors. Consequently, every published article can be categorized (Elsner and Lee 2008) incentivizing researchers to strategically align their work with the currently dominant or leading paradigms and simultaneously disadvantaging all other paradigmatic, methodological, or content-related orientations.

While the incorporation of metric criteria into research evaluation is observable in various disciplines, economics has notably and persistently met the expectations of a knowledge-based society. Rooted in the pursuit of a singular truth and a belief in the superiority of markets, derived from mainstream ontology, a “culture of economics” (Klamer 2014: 13) with metric and meritocratic structures has solidified within the discipline. Devine (2003) characterizes this as a “top-down organization,” revealing a clear hierarchy among professors, universities, associations, and journals. In economics, particularly within mainstream economics, meritocratic valuation standards intersect with an epistemic and ontological breeding ground. This alignment has led to evaluation criteria, designed by mainstream representatives, resulting in an “institutional isomorphism” (Heise et al. 2017: 68) and, consequently, a re-homogenization of the discipline. Meritocratic valuation standards have structurally, discursively, and institutionally anchored the marginalization of all approaches beyond mainstream economics.

The marginalization of heterodox economics is discernible through three key developments. Firstly, since the 1980s, a *publicist invisibility* can be observed. Generally, heterodox economists have faced challenges publishing in prestigious journals such as the *American Economic Review*, prompting the establishment of their own journals, like the *Journal of Post Keynesian Economics* or *Cambridge Journal of Economics* (King 2002). However, these journals have been largely ignored by mainstream economists (Kapeller 2010a).³ In these circumstances, Dobusch and Kapeller (2009: 884) contend that citations from top ten heterodox journals in top ten mainstream journals between 1989 and 2008 are only around 5 percent, while the reverse share is approximately 40 percent. In this regard, Aigner (2020: 140) shows that this citation practice is even more one-sided if all heterodox journals are taken into account. In 2017, only 1.8 percent of the citations in mainstream journals are from heterodox journals.⁴ Thus, Lee (2004: 753) concludes that “papers whose heterodox topics were not of interest to neoclassical economists or whose style was literary also stood little chance of being accepted by mainstream journals”. Glötzl and Aigner (2018) demonstrate that this heterodox exclusion is evident even at the organizational level of university departments. In a vertically differentiated scientific landscape, the institutional exclusion of heterodox publications has relegated heterodoxy

to a peripheral position. While the coexistence of diverse research approaches was feasible in an academically horizontal landscape, the shift toward a competition-oriented transformation of science demands continual visibility through outstanding research contributions in reputable journals.

The second aspect of heterodox marginalization is the decline in the number of heterodox appointments at universities since the 1980s. While the 1970s saw a peak of 22 appointments of heterodox economists, the subsequent four decades witnessed only 22 such appointments. The relative share of heterodox appointments in certain universities declined from 0.54 in the 1970s to 0.15 in the 2010s. The ongoing transformation is evident even in the traditionally heterodox stronghold of Bremen, where the composition of the economics faculty underwent a significant shift. There was a substantial decrease, from 15 economics professors in 1985 to six in 2014, with three of them still retaining the heterodox label (Heise et al. 2017: 91ff.). The share of heterodox economics professorships at public universities in Germany is currently at 3.04 percent (Kapeller et al. 2022). The reasons behind the non-appointments of heterodox economists, while not conclusively addressed in this study, may be linked to the emphasis on candidates' publications in the appointment process, possibly disadvantaging heterodox economists structurally, given that they may not align with supposedly excellent and objective science criteria.

Thirdly, the perpetuation of heterodox marginalization is associated with the non-accumulation of academic capital. Heterodox economists are notably absent from the economic research institutes of the Leibniz-Gemeinschaft and have limited representation in research funding from institutions like the *Deutsche Forschungsgemeinschaft* (DFG) or the *European Research Council* (ERC). This extends to social and symbolic capital, where heterodoxy is under-represented in scientific advisory boards, editorial boards of journals, and rankings published by the *Handelsblatt*, which are largely dominated by mainstream economists (Reinke 2024: 314ff.).

In a dialectical understanding of society and science, the marginalization of heterodox economics can be seen as a response to the societal demand for economic knowledge that aligns with the presumed efficiency of markets. The transformative power shifts in the political economy during the 1980s notably favored the capital side, reshaping the societal preference for economic theories in line with mainstream economic thought. The nature of societal demand evolved from a macroeconomic-oriented Keynesianism (1950s–1970s) to an era of free-market liberalism (1980s to early 2010s). The primary objective transitioned from actively managing macroeconomic processes through demand-driven policies to passively framing entrepreneurial processes, guided by profit interests and economic calculations centered on maximization and rationality. Paradigms offering a critical examination of capitalism, such as post-Keynesianism or Marxism, lost relevance in political and economic discourse, leading to what has been termed the “long fall of heterodox economics” (Heise and Thieme 2016) and a prevailing paradigmatic monism in Germany. In essence, the demise of the Keynesian class compromise marked the end of the “short rise” of heterodox economics.

6.4.3 The social hierarchization of mainstream economics and its division of labor

The marginalization of heterodoxy is intertwined with the dissolution of the antagonistic dualism between mainstream and alternative paradigms, deeply rooted in the ontological foundations of the discipline (Sections 2 and 3). Systematically, all paradigms that are incompatible and incommensurable with the mainstream have been replaced in economics. One could argue that this shift represents a depoliticization of economics, narrowing the scope of economic knowledge to various forms of liberalism. This doesn't necessarily imply a diminishing importance of the ideological component in economic research and theory. Instead, political economy is only described from a singular pre-analytic vision of economic reality. During the class compromise until the late 1970s, economics operated as an ideological force stabilizing capitalism through macro policies, encompassing both mainstream and heterodox economic policy approaches. However, in the period from 1980 to 2010, economics transformed into an ideology supporting capitalism through free-market policies, exclusively involving mainstream economic policy approaches. Moreover, in the neoliberal era, the institution of science served a legitimizing role, now acting as a post-modern authority. While the recruitment of economic expertise was previously justified by the added value it brought to increase economic and social prosperity post-WWII, the current prominent position of economic experts in policy advisory and discourse is explained by the added value associated with their academic status.

This academic status operates as a legitimizing vehicle within a process of elitism that has emerged in economics, creating an academic "excellence myth." The concept of elitism, seen as a result of the legitimacy demand within the broader political economy, is mediated through the process of academization (Maeße 2016: 6). Institutional rearrangements, such as transitioning from individual chairs to network-oriented department structures, coupled with extensive evaluation mechanisms for measuring research quality, contribute to the concentration of academic capital at a handful of universities and research institutes, namely Bonn, Frankfurt, Mannheim, Munich, *ifo Institut – Leibniz-Institut für Wirtschaftsforschung* (ifo) and *Deutsches Institut für Wirtschaftsforschung* (DIW).

The field of economics is marked by a pronounced vertical differentiation among universities. Capital in its various forms is disproportionately concentrated in mega faculties such as Bonn, Frankfurt, Mannheim, and Munich in relation to their size within the university landscape. While universities of the higher middle class also accumulate capital at a disproportionate level, albeit not to the same extent as mega faculties, those in the semi-periphery and periphery face challenges in accumulating academic capital (Table 6.1). The gain of the large and medium-sized come at the expense of peripheral institutions, resulting in the development of powerful centers atop the vertically stratified field. These centers play a pivotal role in determining the definition of "good research" within a hierarchized discourse. Consequently, mega faculties tend to have a lower representation of heterodox economists compared to universities in peripheral locations (Figure 6.1). The implementation of

Table 6.1 Distribution of capital on universities in Germany. Source (Reinke 2024)

		<i>Mega faculties (≥ 20 professorships)</i>	<i>Higher middle class (10–19)</i>	<i>Semi-periphery (5–9)</i>	<i>Periphery (≤ 4)</i>
Economic capital	Professorships	16.5 %	38 %	37.4 %	8.1 %
	Research institutes	26 %	36 %	20 %	2 %
	DFG projects	30.26 %	38.75 %	28.41 %	2.58 %
	ERC projects	91.67 %	8.33 %	-	-
Social capital	Scientific advisory boards	44.44 %	33.33 %	16.67 %	2.78 %
	Editorial boards	57.14 %	26.71 %	14.29 %	2.86 %
Symbolic capital	Handelsblatt ranking	39.42 %	38.46 %	19.23 %	2.88 %
	FAZ ranking	37.5 %	40 %	17.5 %	5 %
Magnitude	Share locations	5.56 %	25 %	44.44 %	25 %

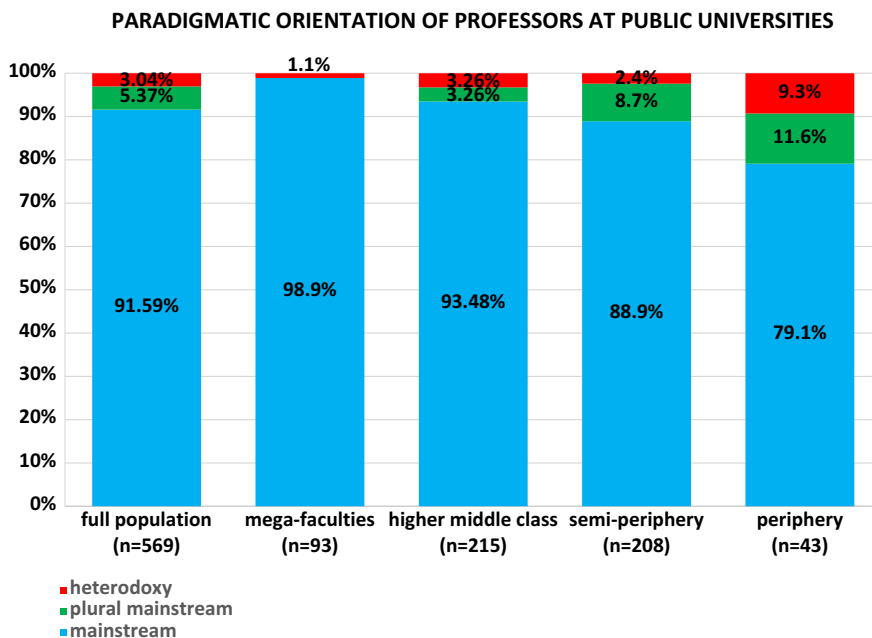


Figure 6.1 Paradigmatic orientation of full professors at public universities.

Source: (Reinke 2024: 314)

metric criteria, primarily through the lens of a positivistic scientific landscape, often categorizes heterodox approaches as secondary or unscientific. The apparent publicist invisibility of heterodox economics serves as evidence of its perceived non-scientific nature and a presumed rationale for its structural displacement within the field of economics. While the former horizontally structured field allowed for the coexistence of the dominant mainstream and a critical, multi-paradigmatic heterodoxy, the current landscape sees non-mainstream approaches heavily reliant on the symbolic recognition provided by the mainstream. For example, achieving excellence in research and securing publication in top-tier journals has become a crucial aspect of elitism within the field. In this context, top-tier journal editors act as gatekeepers, impacting the publicist visibility of alternative paradigms. According to Colussi (2018), authors with connections to editors have a higher likelihood of publication in journals like the *American Economic Review*, the *Journal of Political Economy*, *Econometrica* or the *Quarterly Journal of Economics*. Heterodox economists are notably absent from the editorial boards of these influential journals, resulting in relatively low incentives for young scholars to align themselves with heterodox affiliations.

At the individual level, a clear distinction emerges between *academic economists*, who prioritize research excellence, and *public economists*, who play a dual role engaging in both research as professors and predominantly in policy

advisory as economic experts. For instance, the share of public economists in the ranking published by the *Handelsblatt* (13 percent) or in the editorial boards of top-tier journals (6 percent) is relatively low (Reinke 2024: 323). Nevertheless, the influential role of public economists in policymaking stems from their affiliation with elitism in economic research. Public economists either personally accumulate academic capital or are institutionally linked to academic excellence, highlighting a division of labor between research excellence and policy advisory (Haucap and Mödl 2013). Without the reputation (research excellence) within the academic domain, economists cannot occupy a powerful (discursive) position within the wider political economy (policy advisory). Much like at the university level, the representation of heterodox economists in economic policy advisory remains scarce. Notably, the six economic research institutes affiliated with the Leibniz-Gemeinschaft lack heterodox representation (see Figure 6.2). The sole exception is the *Institut für Makroökonomie und Konjunkturforschung* (IMK), associated with trade unions, where heterodox economists hold a share of 23.1 percent. This underlines the marginalization of heterodox economics in the realm of economic policy advisory as well.⁵

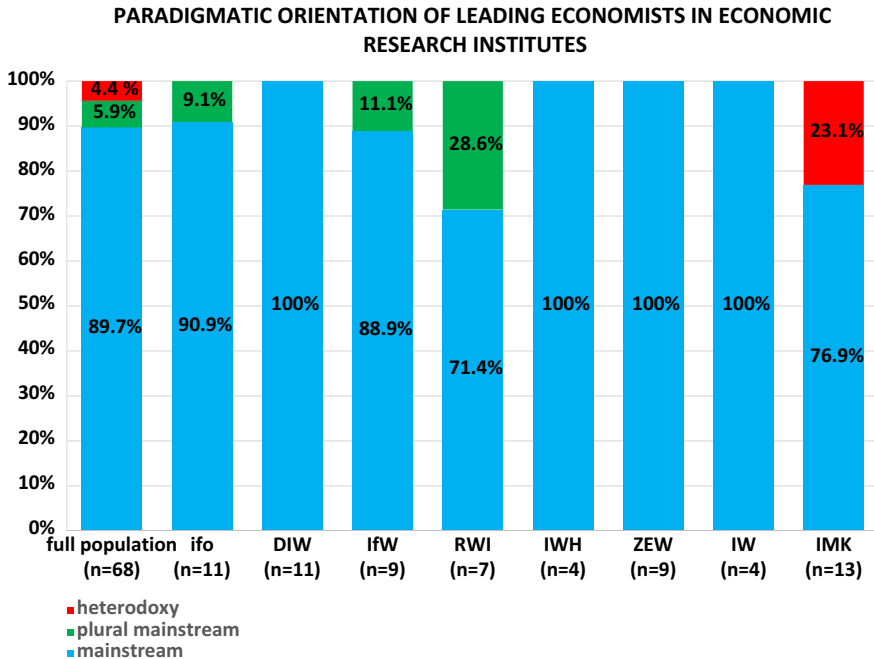


Figure 6.2 Paradigmatic orientation of leading economists in economic research institutes.

Source: (Reinke 2024: 315)

6.5 Outlook on the paradigmatic monism

Over the past four decades, economics has experienced significant transformations, leading to the emergence of a standardized, affirmative, and hierarchical discipline dominated by the mainstream. This dominance has marginalized heterodox economics and excluded trans-disciplinary approaches (*Methodenstreits*), reflecting an epistemic declassification of non-mainstream research. The stability of paradigmatic relations in economics hinges on the persistence of power dynamics in the political economy, the interplay between society and economics, and the associated demands for ideological knowledge and legitimacy. Changes within these paradigmatic relations are contingent upon potential developments in their societal background.

The financial crisis of 2008 serves as a potential turning point, signaling the possible demise of neoliberalism and introducing shifts in macroeconomic structures. Moreover, during the 2010s and early 2020s, multiple non-economic crises, including climate change, the Covid-19 pandemic, and the Ukrainian war, challenged the prevailing dominance of capital accumulation, while other principles such as national security and public health became primacy. At the same time, the fundamental dominance of capital is largely unassailed in the era of post-neoliberalism. Economic policies continue to be directed toward ensuring the functionality of markets and facilitating the provision of essential infrastructure to address ecological challenges, ultimately aligning with the interests of private-sector market players. According to Jessop and Sum (2006: 286),

[e]ven when conditions do favour the long-term ecological dominance of the capitalist economy, other systems may gain short-term primacy in response to crises elsewhere. [...] Even an ecologically dominant system depends on the socially adequate performance of other systems and a normally subordinate system may become dominant in exceptional circumstances. This would occur to the extent that solving a non-economic crisis become the most pressing problem for the successful reproduction for all systems – including the capitalist economy.

In the ongoing crisis scenario, ensuring the reproduction of capital accumulation necessitates a transient prioritization of politics to stabilize non-economic domains. This involves the regulation of markets through the implementation of new economic policies. Scholars like Gabor (2021) and Smith (2021) highlight these shifts, emphasizing a transition toward a de-risking state and a resurgence of Keynesian policies.

These developments also affect economics. Therefore, a *political economy of economics in times of crises* must evaluate the (potentially new) role of the discipline in post-neoliberalism. Despite facing criticism from both political circles and civil society following the financial crisis, economics has retained its influential position in policymaking. Notably, the previously predominant interplay between ideological knowledge and academic legitimacy from the 1980s to the

early 2010s is now complemented by an emerging demand for *tailor-made policy instruments*. These instruments are crafted to address specific challenges, encompassing both economic and non-economic dimensions. For instance, the gas price brake has been developed by an expert commission of the federal government in Germany headed by Veronika Grimm, a member in the German Council of Economic Experts. This initiative aims to mitigate the energy price impacts resulting from the Ukrainian war. This evolving dynamic in the intersection of society and economics has implications for the entrenched processes of elitism and paradigmatic monism within the discipline: First, times of crises allow formerly unknown economists exemplified by figures like Isabella Weber, can emerge as influential contributors to crucial economic policy debates, as witnessed in her role in the discussion of the gas price brake. However, in a broader context, economic knowledge is experiencing a decline in its legitimizing influence on policymaking and public discourses, especially when it lacks a connection to academic excellence. Other expert commissions and advisory boards remain largely unaffected, persisting in their reliance on the “excellence myth” associated with economists of established academic stature. Consequently, Isabella Weber’s ascendancy can be perceived as an exception within the context of a crisis. Moreover, during periods of crisis, economists tend to adopt a less dogmatic stance toward evaluating economic policies, displaying a shift toward more pragmatic and evidence-based policy recommendations. This shift reflects a broader transformation in societal demand, transitioning from a stance rooted in free-market liberalism to a new technocracy characterized by moderate Keynesianism and liberal market design policies. This change signifies a flexible pragmatism in economic policy advisory (Reinke and Porak 2024).

This shift in policy indicates the general potential for significant changes within mainstream economics. The theoretical variety inherent in mainstream economics, coupled with the empirical turn, allows for the integration of non-economic concerns and the formulation of flexible policy recommendations during crises. Consequently, post-neoliberalism is not poised to challenge the hegemony of the mainstream paradigm. Instead, it will augment the ongoing intraparadigmatic variety within mainstream economics, altering the orientation within the prevailing paradigm without fundamentally reshaping the paradigm itself. The emerging societal demand for customized policy instruments will pivot the focus toward more “progressive” themes, such as climate change, gender, inequality, and applied econometrics. However, it is crucial to note that while there may be topical pluralism, a paradigmatic pluralism is not necessarily realized in this transformation.

Notes

- 1 On the level of economic theory, however, Nelson (1995) highlights that the construction of homo economicus is associated with a masculine understanding of economic behavior, exemplified by traits such as self-interest and autonomy.
- 2 Adopting a (post-)Marxist perspective, society is characterized by “relations which human beings enter into during the process of social life, in the creation of their

social life” (Marx 1998: 878). In this view, (capitalistic) societies can be described by their antagonistic momentum, such as the ongoing struggle between rival groups with different opinions on societal issues and their own hegemonic strategies (Laclau and Mouffe 2014).

- 3 Aligned with the central assertion of this article, it is crucial not to misconstrue this ignorance as a deliberate action by mainstream representatives. As noted by Kapeller (2010b: 331) “citation metrics evolved accidentally and have survived partially because of their usefulness with regard to specific dominant interests and elites.”
- 4 Interestingly, this share increased in last twenty years from 0.9 to 1.8 percent. However, Aigner (2020: 140) argues that the most cited heterodox journals are explicitly opened for mainstream submissions (e.g., *Ecological Economics*). Thus, it can be assumed that rather mainstream articles in heterodox journals are cited by mainstream journals.
- 5 Nevertheless, the antagonistic dimension of capitalism and its agonistic containment through social partnership represents another aspect of policy advisory. Specifically, within the German Council of Economic Experts, both unions and employers’ organizations are represented by a single economist each. This involvement in the selection of economists for institutionalized policy advisory creates an avenue for scholars with comparatively lower academic prestige to engage in public discourses.

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7 “Cream of the crop”

A prosopographical analysis of the top 150 economists in the RePEc ranking

Pierre Fray and Arthur Jatteau

Economics has acquired a prominent and dominant position in several social arenas. Through complex socio-historical processes, which include the academic and intellectual origins of the discipline, the redefinition of the economic role of the state, the transformation of economics into an instrument of forecasting and government during the First and Second World Wars (Fourcade, 2009), and the multiplication of uses to which it has subsequently been put, economics has come to serve as an instrument for legitimizing and guiding public policies, corporate economic strategies, market regulation methods and more.

The economic sciences are thus characterized by their very strong heteronomy (Lebaron, 1997, 2000) and the multiple areas of intervention and allegiances of economists to public, semi-public, and private players (Lebaron, 2001). In particular, Fourcade et al. (2015) highlight the taste and propensity of economists to act as “advisors to the Prince” and to participate, in various ways, in public debates relating to the definition and implementation of public policies. From an institutional point of view, this has led to a proliferation of public, semi-public, and private bodies at the frontier of the scientific, political, and administrative fields, where economists can provide political advice. In the United States, this includes the *Congressional Budget Office* and the *Council of Economic Advisers*, which in France inspired the “Conseil d’Analyse économique”, created by Lionel Jospin in 1997 to advise the Prime Minister (Angeletti, 2009).

Similarly, numerous scientific networks, research centers (NBER, CEPR, IZA, etc.) and *think tanks* (foremost among them the eminent and highly influential Brookings Institutions, etc.) help to organize and institutionalize encounters between researchers, academics, and demands of various kinds (Reinke, 2023): political, administrative, trade union, economic, media, and so on. In addition to the privileged relationships that some economists have with the political and administrative world, in many countries¹, economists also have particularly strong links with the economic and banking sectors (central banks and commercial banks), and international organizations (IMF, World Bank, WTO, OECD, etc.), for which they are regularly called upon as consultants, *chief economists*, etc. They frequently move back and forth between different social spaces (and participate in several of them

simultaneously), contributing to the accumulation of various types of capital and their high convertibility.

Economists are thus characterized by the strength of the ties that bind them to several worlds and make them privileged, respected, and regularly sought-after interlocutors. As a result of this strong heteronomy and their participation in several spaces, economists embody a wide variety of ways of practicing and mobilizing economic knowledge.

The diversity of ways of being an economist also stems from the coexistence, within a field characterized by its strong transnationality (Sapiro et al., 2018), of economists from several national spaces, each marked by a certain history and definition of the role and the way of being an economist, their functions, their corporate names, etc. (Heilbron, 2008). The singular histories of these different national fields also reveal specific national intellectual traditions, sometimes vivid, which continue to irrigate the practices of the economists who come from them (Carrier and Jean, 1994). This differentiation of the transnational field according to geographical origins seems, however, to be contradicted by the powerful movement of scientific homogenization to which the discipline has been subjected under the hegemony of the American field.

The RePEc ranking, one of the most authoritative in the discipline, has the major advantage of being a resolutely transnational object for investigating this tension. It thus offers the opportunity to test and consider the modalities of the discipline's particularly vivid internationalization (Coats, 1997; Fourcade, 2006; Rossier and Bühlmann, 2018; Maesse, 2018, etc.) and the strategies for playing with it. Against methodological nationalism, we intend to address this issue by drawing inspiration from the Bourdieusian research program on the transnationalization of the social sciences (Sapiro, 2009; Sapiro, 2013; Sapiro et al., 2018; Heilbron et al., 2009).

This diversity of ways of being an economist – due both to the diversity of the demand for economic knowledge and to the highly transnational nature of the discipline – is nevertheless paradoxically combined with a very strong “epistemological cohesion” (Lamont, 2009), as if to guarantee that, beyond the multiplicity of ways of being an economist, they could find and communicate in the belief in a “hard” theoretical core (to use Imre Lakatos' formula) made up of a set of postulates, theories and methods. Michèle Lamont's survey (Lamont, 2009), based on a comparative analysis of the workings of disciplinary and interdisciplinary panels responsible for awarding grants and prizes in various disciplines, shows that economists differ from their counterparts in other social sciences in their high level of consensus on the criteria for recognizing what constitutes quality research. Beyond this consensus, economists also agree that these criteria are easily identifiable and not subject to social “construction”².

The discipline's form of “epistemological cohesion” thus stems not only from communion in the value of certain knowledge, but also from the sharing of a set of scientific practices and beliefs (Fourcade et al., 2015): disciplinary insularism and the feeling of superiority vis-à-vis other social sciences

(Leijonhufvud, 1973; Fourcade et al., 2015), the very strong hierarchy within the discipline itself of the different specialties, the abundant use of mathematical modeling, writing in English (Fray et Lebaron, 2022), the use of the same *textbooks*, the sharing of the same *curricula* (organized around the holy macro–micro–econometrics triptych), the homogenized and unified presentation of results (notably in theses, organized into three articles, whose titles ritually begin with “*Three essays in...*”), etc.

The diversity of ways of being an economist, and the strong legitimacy that the discipline has acquired among a wide range of audiences, stems from its scientific unity and the high degree of consensus reached by (a large proportion of) its practitioners on the most essential scientific practices, axioms, and scientific–political issues. This “epistemological cohesion” is the product of a socio-historical construction and the combination of numerous factors, which vary from country to country (Fourcade, 2009) and which is beyond the scope of this text to enumerate. We would, however, highlight the role played by the imposition of a certain form of mathematization (Weintraub, 2002), the internationalization of the discipline under the hegemonic aegis of the US field (Fourcade, 2006), and the professionalization and homogenization of *curricula* and *syllabi* (Fourcade, 2009; Orozco-Espinel, 2018).

The unity, epistemological cohesion, and consensus reached on the criteria for recognizing quality research in economics accompanied and facilitated the transformation of research governance at the turn of the 2000s (Bruno, 2008a). One of the key features of the new research governance system is the transformation of the way in which researchers and research are evaluated. Evaluation based on impersonal, quantitative indicators is replacing personalized, qualitative evaluation (Bruno, 2008c; Gingras, 2014). The implementation of this evaluation policy is reflected in the multiplication of rankings of various kinds, supposed to facilitate a better allocation of resources, which are becoming increasingly scarce, toward the most promising and productive researchers. The economic sciences were pioneers, particularly in France, in the revolution in evaluation systems. This enthusiasm can be explained in part by the proximity of their “evaluation culture” (Lamont, 2009) to the system of governance of researchers resulting from the implementation of the Bologna Protocol (Bruno, 2008a, 2008b, 2008c).

While the growing use of bibliometrics and scientometrics, which enable easy translation into rankings of various orders, is common to all scientific disciplines (Karpik, 2012; Gingras, 2014), economics stands out for its particularly lively “passion for rankings” (cf. chapter in this book; Aistleitner et al., 2018). This is evidenced by the proliferation of rankings of various kinds (journals, departments, authors) over the past few decades. Several of these rankings have come to occupy an essential place in the organization of the discipline. The organization and structuring of the discipline are largely based on these rankings, which dictate, at least indirectly, the recruitment strategies of institutions, the publication strategies of researchers (in terms of the choice of subjects covered³, the methods used, etc.), and the editorial choices of

journals. The “tyrannical” and univocal nature of rankings has been widely criticized, sometimes even by the most established and recognized economists (Heckman and Moktan, 2020).

Economists’ “passion for rankings” seems to be rooted in several aspects of their scientific *habitus*: a taste for quantification and hierarchization (Leijonhufvud, 1973; Fourcade et al., 2015); and the particularly marked competitiveness that characterizes the life of the profession, made possible by the consensus reached on the criteria for recognizing quality research. The existence of this consensus lends itself perfectly to the organization of a clear competition accepted by all participants in the field – unlike other, less “fixed” disciplines, where everyone can always *ultimately* relate to a value system such that it preserves their pride and corresponds to what they are and what they do⁴.

In addition to the use of bibliometric and scientometric indicators, the hierarchization of economists is facilitated by the profusion of awards and marks of recognition that make it easier to objectify and measure the quality of an economist or their work. Prizes and awards, like rankings, are thus explicitly envisaged as indicators which, like prices in neoclassical theory, are supposed to compensate for the lack of information and give an idea of the quality of researchers or their research.

There are many studies on the groups of recipients of the most eminent awards and marks of recognition. They generally investigate the determinants of these awards and the social, educational, professional, and scientific characteristics of their recipients (on the *John Bates Clark medalists*: Cherrier and Svorencik, 2020). They may also focus on the ideological-political trends that the awards accompany, sanction, or promote (Offer and Söderberg, 2016), or reveal the evolution of scientific trends in the discipline (Cherrier and Svorencik, 2020). By necessity, these studies tend to reveal the common characteristics of the members of the sample studied, which is often relatively small. In this way, they reveal the most traditional and frequently used pathways to consecration, sanctioned by the award of a medal (on the *JBCM*; Cherrier and Svorencik, 2020), election to the *Econometric Society* (Hamermesh and Schmidt, 2003) or to a management position within the AEA (Hoover and Svorenčík, 2023). On the other hand, these studies also almost exclusively attract academic economists (or those who have at least spent most of their careers there).

From this point of view, we are seeking to understand and show the extent to which a population, hyper-consecrated by a relatively consensual ranking within the discipline, admits a diversity of ways of achieving and embodying excellence and disciplinary recognition. Our population, the top 150 in a ranking based on a number of criteria (which we shall present below), enables us to show that the group of the most established economists is more diverse and heterogeneous than the commonplaces suggest.

Our study focuses on economists ranked in the top 150 of the RePEc rankings, based on their publications over the last ten years. Choosing such a ranking enables us to capture a more heterogeneous population, one that is undoubtedly more representative of the different ways of being an economist,

than the ones that are revealed by surveys focusing on awarded economists. Our survey for example shows that some of the economists ranked in the top 150 have spent all or a very large part of their careers outside university departments. In this way, our article aims to reveal the diversity of ways in which scientific “excellence” (as it is at least enshrined) is embodied and attained. To this end, we have deliberately chosen a subject that focuses on the most consecrated economists, those closest to the scientific canon as defined in the major US journals, notably the famous “top five” (Heckman and Moktan, 2020), and the most prestigious Anglo-Saxon departments.

Following the example of T. Warczok and S. Beyer’s (2021) study of the most cited American sociologists, we hypothesized that the discipline’s most consecrated pole is subdivided into sub-poles, themselves determined and characterized by the volume and structure of capital owned by economists, the strength of their links with other social universes, the diversity of their professional attachments, etc. We questioned the existence of a plurality of ways to exist as a recognized economist, and a plurality of paths to recognition. We also investigated the essential steps involved in gaining recognition (in particular, passing through a prestigious US department for a PhD).

We will begin by presenting the RePEc ranking from which we drew the population studied. We will justify the choice of this object of study. We will present the history of the ranking and the criteria on which it is based. We will also present the data analysis method used: multiple correspondence analysis (MCA). We will explain the philosophy behind this method and how it fits in with our research question, which is to reveal the diversity of ways of being an established and recognized economist. We will finally present the main results of our MCA and their originality compared with other studies of groups of economists who have been highly acclaimed, in particular through prizes and awards.

7.1 Methodology

7.1.1 Database aim

The decision to focus our study on the world’s “best” economists necessarily called for the use of a criterion aimed precisely at qualifying certain economists as “better” than others. As such a criterion is necessarily subjective, we felt it appropriate to refer to the RePEc ranking. Without underestimating its limitations, as with any ranking, we feel that it is sufficiently recognized in the field for us to refer to it. This choice necessarily involves an element of arbitrariness, and we could have investigated rankings based on other criteria (number of books sold, media visibility, etc.).

Our investigations are based on the classification of authors registered in the RePEc database⁵. RePEc is a data centralization database with several undeniable advantages for those interested in the organization of the disciplinary elite. Its first quality is its scope: 66,000 authors and nearly 8,700 institutions from all over the world are currently registered on the database. In 2014, the database

included over 592,000 *working papers*, 1,016,000 published articles and more than 18,000 referenced books. The RePEc rankings are also ideal objects of study – particularly when looking at the discipline’s most established pole – due to the high level of recognition they have achieved among a major part of the profession. Authors, institutions, and journals are strongly encouraged to register on the site in order to be credited with the authorship of their scientific productions and to be included in the various rankings. These rankings are keenly scrutinized by the various players in the profession, and the information they convey can be used, more or less explicitly, in recruitment strategies, career choices and so on. Many economists even include their RePEc ranking on the first page of their CV, and the scientific strategies of several of them seem, at least in part, to be influenced by their potential impact on their RePEc ranking.

What sets RePEc apart from other databases and ranking production tools is its great flexibility of use (Pontille and Torny, 2017). The database enables users to create their own rankings of various types of objects (authors, institutions, journals, articles, *working papers*) using a wide range of criteria (which can be combined), several sampling modes and several algorithms. From this point of view, RePEc offers invaluable tools for capturing the group of economists through a variety of means, for example, by retaining only the youngest economists, women, specialists in a given subject, etc. (Seiler and Wohlrabe, 2012; Linnemer, 2023). Another of RePEc’s strengths is that, from the outset, it has included *working papers* (which play a central role in the discipline) in its databases, and are sometimes the most cited scientific productions (ahead of articles).

David Pontille and Didier Torny, in their chapter (2017) on the evolution of bibliometric data infrastructures and the scientific evaluation market, reinstate RePEc in the history of institutions dedicated to scientometrics and bibliometrics. They highlight its specific features (2017: 115):

“RePEc’s bibliometric tools thus articulate a very open data set with a multiplicity of algorithms. The latter may come from the pioneering institutions in the two configurations described above, or be relatively specific, such as the number of RePEc authors citing a given economist. However, the RePEc infrastructure does not rank criteria in relation to one another. On the contrary, its presentation and ergonomics assume a pluralism of tools, each being available in the same way as the others. The undifferentiated treatment of measures is matched by an absence of data pre-selection: like Google Scholar, any document deposited on a server feeds the dataset, even if it is never published in a journal or downloaded by RePEc users. What’s more, as IDEAS or RePEc are totally open access, viewers or downloaders, while counted, can be non-academic users.”

However, the rankings established from the database suffer from a certain *mainstream* and English-speaking bias, which nuances their truly panoramic character. They exclude, *de facto*, a whole section of the economics community, either because of their methodological and/or theoretical orientation

(the journals in which they mainly publish are not listed by RePEc) or their language of publication (they publish in languages whose journals are not or poorly considered by RePEc.⁶

A brief history of RePEc

The RePEc project launched by Thomas Krichel dates back to 1997 and follows on from NeTEc (launched in 1993) and WoPEc, which was founded in 1993, before the advent of the World Wide Web, and listed *working papers* that had previously been ignored by most databases. The dataset was subsequently expanded to include articles, notably through partnerships with major scientific publishers (Elsevier is now the main contributor to RePEc). Christian Zimmermann, an economist attached to the Saint-Louis FED – which hosts RePEc and all its ancillary projects (Citec, EDIRC, etc.) – takes over management of the database.

From 2004 onwards, RePEc's promoters relied on algorithms developed by computer scientists on CiteSeer (an open archive) to construct a measure of inter citations on the entire dataset (Pontille and Torny, 2017). In this way, they can measure the *Journal Impact Factor* or *weight influence* for all the items identified by the database (journals, book collections, *working paper* series, etc.).

More specifically, the ranking used in our study is based on the aggregation of 33 criteria, each of which is ranked. The most favorable and most unfavorable rankings are excluded for each author.

Without going into the details of each of the 33 criteria: they cover the number of distinct works published (with certain criteria weighted according to the number of co-authors, date of publication, impact factor, impact factor weighted by the place where the citation took place, etc.), the number of citations (with the same weighting system according to date, impact factor, weighted impact factor, etc.), h-index, number of views of abstracts, number of downloads, centrality in the discipline, measured either (1) by the average number of degrees of separation through co-authorship with all other registered authors or (2) by the frequency the author appears on the shortest path through co-authorship between any two other registered authors; ranks of economists' PhD students (for a more detailed presentation of how the criteria for authors, institutions, etc. are established and aggregated, see Zimmermann, 2013 and Linnemer, 2023).

Once we had decided on such a ranking, we had to define the precise scope of the economists selected. Should we focus solely on the top ten, the top hundred, or the top thousand? Each of these choices would have had a certain legitimacy. We chose to focus on the top 150. This figure seemed to us to be sufficiently high to hope, on the one hand, to bring out a certain diversity, and

on the other hand, sufficiently narrow to also bring out the homogeneity of the group of the world's "best" economists – at least according to the ranking.

The group studied – the top 150 economists (0.23% of all the authors registered) in the RePEc ranking according to the papers published during the last decade – is not the product of sampling (statistically, the group of economists selected can be considered a population, not a sample), but exists as such in the eyes of the economists themselves. Belonging to this elite produces consequences (on the professional, scientific, symbolic levels) from the point of view of those who belong to it. The RePEc classification produces effects on the organization of the field and the strategies of the players.

Once the object of study had been determined, we were forced to make several essential methodological choices. First of all, since the ranking is published monthly, it is entirely possible to include only individuals from a given month. The risk, however, is to retain individuals whose presence in the ranking is episodic and quite exceptional. What we're interested in, however, is the 150 best economists in the world on a relatively permanent basis, and not an "accidental best". In fact, some of them can vary considerably from one month to the next, like Harald Uhlig, 304th in May 2022... then 34th in June of the same year. Manuel Areno never did better than 149th between January and July 2022, before suddenly climbing to 23rd in August and then ending the year in 39th. These meteoric rises can be explained by a number of factors, and have to do with the way in which the RePEc rankings are compiled, and in particular with the weight that certain indicators can take on.

For this reason, we felt it preferable to use all the rankings for the year 2022 (i.e., the 12 monthly rankings), selecting the 150 economists who, on average, are best positioned. This compilation shows a degree of stability over the year, with 84% of the population of economists appearing in the top 150 every month. More precisely, the 122 top-ranked economists in our ranking are all in the top 150 every month of the year, demonstrating a high degree of stability. In other words, the "best" economists in our study are sufficiently "best" to be identified as such for an entire year, according to the RePEc ranking methodology. It should be noted that four economists who were among the top 150 for at least one month do not appear in all the monthly rankings (presumably because they were not previously registered on RePEc), so it was not possible to assign them a year-long ranking.

7.1.2 Data collection

Once the list of 150 economists had been selected to form the individuals in our database, it was necessary to collect data on them. Given the highly international nature of the group, to which we will return later, and the surprisingly low online presence of some of them, it was sometimes rather difficult to define *ex ante* variables with any certainty. Although we had some ideas on the subject, we had to go back and forth with the materials at our disposal to refine these variables.

The main material on which we based our database is the CV. Although not very standardized, they generally contain interesting information for a prosopographical study such as the one we intend to conduct. Yet, as surprising as it may seem, 18.8% of our population has no on-line CV to speak of (i.e. a document, generally in PDF format, displaying a certain amount of information relating to educational, professional, and scientific backgrounds). This information may be available on the Internet, but scattered among several sources. This relatively high rate of absence of online CVs is a first sign of the originality of certain researchers, in contradiction with the common sense according to which a “top economist” would have a real document stamped “CV” and, more generally, would be highly visible online.

Information could also be found on the website of the economist’s employer, generally a university (91.7% of economists for whom this information was provided work in a higher education institution). We also consulted the websites of professional associations, journals, etc., to complete our data where necessary.

7.1.3 Variables selection

Our main source of information, CVs, generally contain a large variety of information about the people who write them.

In terms of civil status, we have entered the country of birth, as well as the nationality(ies), both of which were missing for 10.1% and 8.7% of the population respectively. Year of birth remains a poorly documented variable (43.6% missing data). As this information seemed essential to us, we calculated an estimated age for the individuals in our population who had not provided their year of birth, reusing the method implemented by Arthur Jatteau (2018). To calculate this, we used the year in which the PhD was obtained, which is very often provided. We also calculated the average age at the time of PhD thesis defense of those who provided their year of birth. The estimated age is calculated using the following formula:

[Average age at PhD defense of those who entered their year of birth and year of defense] + [Number of years separating us from the year of PhD defense].

The average age of those who entered their year of birth and year of thesis defense is 28.53. Rangan Gupta, 4^e of the ranking, did not enter his date of birth. However, he defended his PhD in 2005. We therefore assume that he was 28.53 years old in that year: as we are in 2023, we therefore need to add 2023–2005, i.e. 18 years to this age, to obtain his age today (47 years, rounding to the unit). It should be noted that 6.7% of individuals give neither their date of birth nor the year in which they obtained their PhD, which makes it impossible, at this stage at least, to assume their age. Finally, as the last civil status variable, we have entered gender.

Schooling trajectories were also recorded fairly exhaustively. On this point, as on others, the choice of variables and their coding were complicated by the highly international nature of the population studied. While levels of study are relatively standardized on a global scale (based on the 3/5/8 model), enabling us to capture information on bachelor's, master's, and PhD levels, national higher education systems harbor specific features that are sometimes difficult to identify, as in the case of France's "grandes écoles", attended by 9 of the 10 French students in the "top 150". The intertwining of the master's degree and the PhD in the United States poses a particular difficulty: the former is not well documented for economists who completed their entire education in the United States. Thus, for more than a quarter of our population, we were unable to find any information about the master's degree, whereas this percentage is only 13.5% for bachelor's degrees and 2% for PhD (as surprising as it may seem, we were unable to find any information about whether or not 3 economists in our group had completed a PhD).

As far as career paths are concerned, we have chosen to indicate the first position held after the PhD and the last known position. Here too, it was not easy to harmonize the variables. For example, in France, there are essentially two grades of professor: "maître de conférences" and "professeur des universités", whereas in the English-speaking world, there are generally three ("assistant professor", "associate professor", and "(full) professor"), not to mention the existence of positions devoted exclusively to research, with their own typology.

We also used award variables, among those that seemed to us to be the most prestigious, as they play a major role in organizing the field, guiding scientific strategies and marking careers. For example, we took into account the Bank of Sweden's prize in memory of Alfred Nobel (Lindbeck, 1985; Lebaron, 2002, 2006; Offer and Söderberg, 2016), the *John Bates Clark Medal* for the most promising young (but not necessarily American) economists working in the United States (Cherrier and Svorencik, 2020), the *Yrjö Jahnsson Award*, the European equivalent of the Clark Medal, and the Fischer Black Prize (for the most promising young researchers in Finance).

We have created a number of variables for membership of the major learned societies in economics, insofar as the titles of "fellow" and director within the most recognized learned societies (*Econometric Society*, *American Economic Association*, *European Economic Association*) also contribute to the objectification and "showcasing" of economists. We have also taken into account affiliation with prestigious research centers (NBER, CEPR, IZA, CEA), which are valuable indicators of economists' social scientific capital and their degree of integration into scientific networks. The presence or absence on the editorial boards of the discipline's leading journals, and their leadership, were also given a high profile.

Finally, we looked at membership of certain major international organizations where economists hold a special place, such as the World Bank, the IMF or the European Central Bank.

7.1.4 Missing data

A major problem we encountered was missing data. While this is traditionally a problem in prosopographical studies, it was particularly recurrent in our research. Contrary to what we thought when we began this survey, presence in the top 150 global economists does not necessarily imply a strong online presence, and CVs are not systematically available. For example, we were unable to determine the precise professional activity of 4 economists in our population. This is admittedly low, but particularly astonishing considering the supposed notoriety of the individuals in our population.

We have adopted the following strategy when faced with missing information. Since we are working on a population rather than a sample, and a statistically small one at that, it's not reasonable to remove individuals for whom some data is missing, as may be acceptable for large databases. We have differentiated our strategy according to whether we are producing descriptive statistics or using factor analysis.

When it comes to descriptive statistics (see the next section), we have produced results on variables where there were not too many missing values. The issue was more difficult for multiple correspondence analysis (MCA). This method seeks to graphically represent a large table of data (Blasius et al., 2019; Le Roux and Rouanet, 2010). To do this, we try to reduce the table's dimensionality, by constructing new variables that "summarize" the table's initial variables as best we can. This makes it possible to see the link that may exist between variables (e.g., between having a PhD from a prestigious university and having a position at a prestigious university), the link that may exist between individuals, and also the link between modalities and individuals (by showing whether certain individuals with modalities in common can be grouped together). The multiple correspondence analysis method thus offers the possibility of highlighting axes of opposition between modalities and between individuals that would not necessarily be visible in the data table without this tool.

Indeed, in an MCA, missing data for a variable is considered as a new modality. The risk is then that the missing modalities play an important role in the construction of the axes. This is not necessarily a problem, insofar as the absence of data is informative in itself (e.g., in the case of missing responses to a questionnaire). As we will see, missing data reveals some interesting information about a subpart of our population. However, we are not dealing here with a questionnaire, but with the collection of information, meaning that the information (the missing modality of a variable) should exist, but we don't have it. Axes determined too much by missing values would be of little interest to our research object. This is why we have chosen the imputation method (Josse and Husson, 2012) which aims to assign the most probable modality for each variable not filled in for an individual, based on a comparison of the other modalities filled in for this individual with the modalities filled in for the other

individuals. This imputation method is designed in such a way that it has no direct influence on the MCA axes, since the latter are constructed solely on the basis of the modalities filled in (and not imputed). This allows us to visualize only the information provided by the modalities (actually) observed. Of course, imputation is all the more precise the fewer the modalities: it's trickier to impute a country of birth than a continent of birth, and trickier to impute an institution of a PhD than a binary variable of whether or not this institution belongs to the most highly-rated institutions in economics.

7.2 Some descriptive data on the top 150

In this section, when we refer to percentages, they are calculated excluding missing data.

7.2.1 *Civil status: Nationalities, gender, and age*

While the United States is the modal value of the country of birth, with 31 economists, it represents less than a quarter of the population. Europe leads the way, with 44.8% of economists in the top 150 (Germany ranks first in this continent, with 12 economists, followed by France, with 10). Results vary little by nationality: only 7 economists have a nationality other than their country of birth, rising to 27 if we look at the second nationality declared. In 85.2% of cases, the second nationality is American. This testifies to the power of attraction of the United States in the field of economics, since these are economists who have acquired American nationality by working for many years at an American university, like the French Emmanuel Saez and Esther Duflo.

In terms of gender, the ranking is (unsurprisingly) dominated by men, who account for 91.9% of the world's 150 "best" economists. The first woman (Valerie Ann Ramey) ranks 36^e. These initial results confirm the unequal access of men and women to scientific recognition (the Mathilda effect), and the fact that gender inequalities become more pronounced as one progresses toward the most consecrated positions. The very low proportion of women in this "top 150" should be seen in the context of the proportion of women economists worldwide. While such a statistic is difficult to obtain, in August 2023, women accounted for 26.3% of the economists registered on RePEc.

Finally, the median age of the group is 52 and the average age 53.52. 9.4% of the population is under 40 and 9.4% over 70. The best-represented age category is 40–50, accounting for 34.8% of economists.

7.2.2 *Studies*

With regard to the studies carried out, the data at our disposal enable us to compare their beginning (with the bachelor's degree) and their end (with the PhD). The vast majority of bachelor's degrees were obtained in Europe (43%) or the United States (36.7%). France and the United Kingdom are the main

countries where bachelor's degrees are obtained in Europe. Beyond the geography of studies, it's interesting to look at the institutions themselves. It's not easy to categorize them internationally, as we have said. To this end, we have constructed two variables intended to reflect, if not the quality, at least the prestige of the establishments in question. To judge the latter, we first considered American "Ivy League Plus" universities, as well as France's *Grandes Écoles*⁷ and the "Golden Triangle" institutions in the United Kingdom: Cambridge, Oxford, and the LSE, to be among the elite. According to this criterion, 28.9% of the economists in our population began their higher education studies at an elite institution. As Ivy League Plus universities are not necessarily the most prestigious in economics, we also looked at the share of those who had earned their bachelor's degrees in the top ten economics departments in the RePEc rankings.

This categorization is partly arbitrary, but it also refers to the official or unofficial existence of strictly national categories that objectify the prestige of an establishment. Moreover, the "elite" category we have created is based on the very robustness of these categories at national level. While they are well established in the United States (where the Ivy League is widely known and recognized) and France (even if the definition of what constitutes a "grande école" is debatable), and maybe in the United Kingdom (with the Golden Triangle), they are probably less so in other countries. That's why we've developed a second category for judging recognition, based not on the RePEc ranking of economists, but on the RePEc ranking of economics departments. If we take the 10 "best" economics departments according to the RePEc ranking, we see that only 18% of economists obtained their bachelor's degree there.

The two variables we have developed point in the same direction: only a minority of the world's top-ranked economists come from the top-ranked economics departments themselves.

If we now look at PhDs, we can see that there have been significant geographical changes, with the United States becoming the dominant country, accounting for 67.6% of all PhDs. Add to this the significant proportion of economists who have acquired American nationality, and you have a clear idea of the importance of the United States in the field of economics. Our study thus corroborates, from another angle, research showing the hegemonic influence of American economics (Babb, 2002; Fourcade, 2006). While having begun one's studies in the United States is not a prerequisite for ranking among the world's top 150 economists, obtaining a PhD in the country seems to be a criterion that greatly facilitates consecration. The second most popular country for awarding PhDs is the United Kingdom (9%), reinforcing the importance of English-speaking countries (including Australia and Canada, the figure rises to 78.7%). The mastery of the English language conferred by these countries is undoubtedly no stranger to the success of economists who were born there and/or studied all or part of their studies there (Amano et al., 2023). Where the geographical origin was more fragmented for Bachelors, it is much narrower for PhDs: given that 25.5% of them were defended in Europe, we

understand that only 5.5% of the economists in the top 150 defended a thesis outside North America or Europe.

In terms of the institutions themselves, MIT (14.4% of PhDs) and Harvard (10.3%) stand out, bringing together almost a quarter of the world's top 150 economists⁸. This confirms the dominance of these two institutions, which is also apparent in studies of recipients of the John Bates Clark Medal (Cherrier and Svorencik, 2020) or the Nobel Prize. Using the elite variable presented above, 51.7% of PhDs were defended there (versus 28.9% for bachelors), and if we restrict ourselves to the top 10 economics departments, we reach 35.2% (versus 18%). So, while defending a PhD at a “good” university is not a *sine qua non* for entry into the top 150, it does make a big difference. Attending an elite university facilitates entry into the most promising scientific networks and access to the best journals (often published by the top universities themselves, such as the *Journal of Political Economy* published by the University of Chicago or the *Quarterly Journal of Economics* published by Harvard). In fact, there is a clear correlation between passing through one of these universities and serving on the editorial board of the “house” journal. Harvard economists are more likely to be on the editorial board of *QJE* than others (same for Chicago economists and *JPE*).

7.2.3 Occupational positions (including magazines and large international organizations)

From the point of view of professional trajectories, it would have been interesting to carry out sequence analyses to assess them in greater detail, but the quality of the data collected did not appear to us to be sufficient to do this. We have therefore concentrated on the first professional position (that was obtained just after the thesis defense) and that was occupied at the time of data collection (during the year 2022).

The vast majority (88.6%) of the top 150 began their careers at universities. When this is not the case, it is mainly for central banks such as the Fed. In line with our PhD results, 62.9% of the top 150 economists obtained their first professional position in the United States, with the United Kingdom (7.9%) in second place. The University of Chicago ranks first (10.6%), Harvard (8.5%) second, and MIT (7.8%) third. A significant proportion of the “best” economists thus began their careers at an institution considered to be among the elite (40.7%) or one of the top 10 economics departments according to the RePEc rankings (39.3%), suggesting that recognition in the RePEc rankings comes early in one's career.

The last known professional position changes little in geographical terms (American domination is at roughly the same level, at 63.4%) if we compare it to the first position, it progresses in terms of the prestige of the employing establishment (45.5% of establishments are classified as “elite” and 44.1% in RePEc's top 10). On the other hand, if we look at the nature of the position held, then we see that the economists in the top 150 have acquired more secure

and prestigious positions. 70.7% of them had an “assistant professor” position as their first post-thesis professional experience (only 2 out of 150 started out directly as “professor”). If we now look at their current professional position, 86.3% are now “professors”.

With regard to journals, we were interested in the membership (past or present) of our group’s economists on the editorial boards of the most prestigious journals. Here too, we selected the 10 most important journals according to RePEc. Nearly half (48.3%) of the world’s top 150 economists are (or have been) involved with a prestigious economics journal. 13.5% are or have been editors-in-chief of these journals.

7.2.4 Awards, grants

Being among the 150 “best” economists in the world according to the RePEc ranking is not, of course, the only distinction they can boast. Many of them have also won awards, starting with the Nobel Prize in Economics (awarded to 7 of them). Ten have received the Clark Medal, 7 the Yrjö-Jahnsson Prize, and 2 the Fisher Black Prize. In all, 14.8% received one of the last four awards.

In addition to these awards of excellence, the receipt of particularly well-recognized and well-endowed research grants provides further information. 44.9% received a grant from the National Science Foundation, a US government agency, and 11% from the European Research Council, confirming that the center of gravity for research is much more in the United States than in Europe. Naturally, this also has consequences for the types of subjects dealt with, and a preference for themes and subjects likely to be of interest to American funders.

These initial descriptive results corroborate a certain amount of information already known. But they also reveal, in a more original way, a certain internal diversity within the group of “top economists”. North American dominance is disputed by Western Europe, and is less important than assumed. The majority of top-ranked economists come from European countries. While the major journals are well represented, more than half of the 150 “best” economists are not members of an editorial board. Nationalities and geographical origins are relatively varied. This diversity deserves to be investigated. This is what we intend to do in the following section.

7.3 Multiple correspondence analysis

7.3.1 Variables in the MCA

We present the variables retained in our MCA in the Table 7.1. We retained active variables related to studies, indices of academic and professional recognition, participation in editorial boards, obtaining funding, professional positions, and links with major international organizations and central banks. We felt it would be interesting to add additional variables relating to place in the RePEc ranking itself, gender, age, and geographical origins.

Table 7.1 MCA variables

No.	Variable name	Variable status	Variable description	Variable categories
1	B_top10_RePEc	Active	Bachelor's degree from a RePEc top 10 economics department	Yes No
2	PhD_top10_RePEc	Active	PhD from a RePEc top 10 economics department	Yes No
3	Top_award	Active	Top awards (Nobel, Clark, Yrjö-Jahnsson, Fisher Black) obtained	Yes No
4	Econometric_society_fellow	Active	Fellow of the Econometric Society	Yes No
5	AEA_fellow	Active	Fellow of the American Economic Association	Yes No
6	AEA_direction	Active	Member of the Board of Directors of the American Economic Association	Yes No
7	NBER	Active	Affiliated with NBER	Yes No
8	CEPR	Active	Affiliated with CEPR	Yes No
9	IZA	Active	Affiliated with IZA	Yes No
10	Top_10_RePEc_Editor_number	Active	Number of RePEc top 10 journals in which the individual is or has been associated	0 1 2 3 4 5
11	Top_10_RePEc_Chef	Active	Current or past position as editor-in-chief of a RePEc top 10 journal	Yes No
12	NSF_grants	Active	NSF grant	Yes No
13	ERC_grants	Active	ERC grant	Yes No
14	Academy	Active	Academy membership (American Academy of Arts and Sciences, National Academy of Science, British Academy)	Yes No
15	First_position_top10_RePEc	Active	First professional post-thesis position in an economics department in the RePEc top 10	Yes No
16	First_position_nature	Active	Type of establishment in which the first post-thesis professional position is held	University Other

(Continued)

Table 7.1 (Continued)

No.	Variable name	Variable status	Variable description	Variable categories
17	Last_position_top10_RePEc	Active	Last professional position in an economics department in the RePEc top 10	Yes No
18	Last_position_nature	Active	Type of establishment where last professional position was held	University Other
19	Advice_gov	Active	Advice to governments	Yes No
20	World_Bank	Active	Member or former member of the World Bank	Yes No
21	IMF	Active	Member or former member of the IMF	Yes No
22	CB_advise	Active	Member or former member of a central bank	Yes No
23	Class_RePEc_mean	Illustrative	Average RePEc rating in 2022	[1,10] [10,20] [20,30] [30,40] [40,50] [50,60] [60,70] [70,80] [80,90] [90,100] [100,110] [110,120] [120,130] [130,140] [140,150]
24	Age_class	Illustrative	Age group selected	[30,40] [40,50] [50,60] [60,70] [70,80]
25	Gender	Illustrative	Gender	Woman Man
26	Country_birth_group	Illustrative	Country of birth group	North America Western Europe Other
27	Other_than_usa	Illustrative	At least some of the studies were conducted outside the United States	Yes No
28	First_position_country_group	Illustrative	Group of countries in the first post-thesis professional position	North America Western Europe Other
29	Last_position_country_group	Illustrative	Country group of last professional position	North America Western Europe Other

For a number of these variables, data are missing for some individuals. As indicated above, we have therefore inputted them. For the majority of variables, we were able to verify that imputation was carried out in accordance with the sociological interpretation. For example, a lack of precision on the place where the bachelor's degree was obtained or on the institution of first affection suggests that, in both cases, it is not an institution belonging to the RePEc top 10. Experience shows that economists who have completed their studies in an institution belonging to the RePEc top 10 mention this on their CVs.

7.3.2 *MCA results*

Examination of the MCA eigenvalues suggests that at least the first two axes should be analyzed (see the Appendix).

The first axis accounts for 17.8% of the dataset's inertia. On the right-hand side of the graph, it contrasts individuals who have accumulated distinctions (receipt of a major award and membership of an academy, the Econometric Society, the American Economic Association), affiliations (NBER, IZA), studies and professional positions in institutions belonging to the RePEc top 10. On this side of the graph, we find economists like Daron Acemoglu, David Autor, Joseph Stiglitz, and Lawrence Summers. The profile of these economists verifies the formula that capital begets capital. It is not surprising to find them on such a graph, as we can legitimately assume that the volume of this capital is correlated with the RePEc ranking itself.

7.3.2.1 *Insertion of modality graphs plan 1–2*

It is therefore more interesting to look at the left-hand side of the first axis. Here we find economists who are not members of the editorial board of a major journal, who are not affiliated with the NBER or the Econometric Society, who do not belong to any academy and who are unlikely to have obtained their PhD at a RePEc top 10 institution. These are economists with little academic capital (Bourdieu, 1984) and less recognition from the legitimating bodies in economics – with the exception of the RePEc rankings. On this side of the graph, we find non-Western economists such as Simplice Asongu, chief economist of the African Development Bank, or Shunsuke Managi, a Japanese economist who practices in his own country.

7.3.2.2 *Individual graph insertion plan 1–2*

The first axis can therefore be described as an axis of academic capital volume. It clearly contrasts the richly endowed (on the right of the graph) and the poorly endowed. Interestingly, this does not prevent the latter from being ranked among the world's top 150 economists (although analysis of the additional variables shows that individuals on the left of the graph tend to be ranked lower). This is a first result that can be put forward: it is not necessary to possess a high volume of academic capital to be among the world's "best"

economists, which implies investigating in greater detail the way in which the RePEc ranking is constructed.

The second axis accounts for 9.63% of inertia. At the top of the factorial plane 1–2, we find individuals whose main characteristic is that they have a non-academic career (whether in their first or last professional position), and who tend to work at the IMF, the World Bank or a central bank. Economists such as Luc Laeven (who began his career at the World Bank before becoming Chief Economist at the European Central Bank), Stijn Claessens (who moved from the World Bank to the Bank for International Settlements), and Carmen Reinhart (who began her career at the IMF before moving to the World Bank in 2022, even though she has also had an extensive academic career) are at the top of the graph. More curiously, at the top of this axis, we also find Dani Rodrik, who is a “pure” academic, having advised both the World Bank and the Turkish Central Bank, which shows his extra-academic ties. The economists at the bottom of axis 2 are essentially the “negatives” of the former, since they are academic economists who have never worked in extra-academic institutions (or who have only had a short career in them).

This second axis is therefore fundamentally about the nature of the institution. It can be interpreted as an axis of capital composition (scientific versus extra-academic). It allows us to distinguish the existence of a pool of “central bank and international organization” economists with an intense and distinguished publication activity. Although they work in central banks, these economists publish intensively in the best journals and are widely recognized by the discipline, including by their academic peers. Economics, a highly heteronomous discipline, thus offers a route to excellence outside academia. In this respect, it stands out from other social sciences.

7.3.3 Uncovering “weird” economists

Remember that, by construction, there are no missing variables in the previous MCA, since we imputed for missing data. While we have reason to believe that this imputation gives a relatively accurate picture, the very absence of data for certain individuals is interesting sociological information that should be studied for its own sake. By retaining the missing data, we obtain quite different graphs, whether for individuals or for modalities, which are drawn by individuals with missing variables (16 individuals alone contribute 64.6% of the inertia of the first factorial plane, most of them due to missing data).

It is therefore surprising that so many of the economists in the top 150 of such a recognized ranking do not disclose on the Internet the place where they obtained their PhD or their current professional position. We therefore assume that the excellent ranking obtained on RePEc may be the product of specific strategies. In fact, this ranking is not technically linked to academic capital (more or less prestigious positions held in major universities, executive positions in leading learned societies, fellowship titles, etc.), since it is essentially based on the production of research work. It is therefore quite possible to achieve a high ranking without having a large volume of academic capital.

Initial investigations show that these economists, represented on the bottom left of the graph, mainly come from African and Asian countries. When we have information on these variables, it appears that they are poorly endowed with academic capital, as defined by our variables. They publish little in the discipline's major journals, and seem to specialize more in energy and development economics. It also appears that they practice a policy of co-publication and co-citation, which further research should clarify.

7.4 Conclusion

Our in-depth study of the world's "best" economists over the last 10 years offers several insights. The first is the least surprising. Some of the "top 150 RePEc" accumulate, at a very high level, all forms of capital: scientific, academic, social, and symbolic. They thus form the dominant pole among the dominant, and they tend to occupy the best places in the ranking. This result shows that the possession of these assets often goes hand in hand with scientific excellence, at least as recognized by the RePEc ranking. Note that the correlation can go either way: it is because you possess a certain number of attributes (institutions where you studied, but also, and above all, professional positions) that you can publish in the most highly rated journals and achieve greater visibility in the academic field. But it is also because you publish *well* and *a lot* that you gain access to prestigious positions.

However, even within this elite group of world economists, we reveal the diversity of the group investigated, essentially along two dimensions, which our multiple correspondence analysis has enabled us to uncover. The first – and most surprising – concerns economists who, despite being ranked among the top 150, show few, if any, signs of recognition, whether in terms of the institutions in which they studied, the positions held, professional affiliations, or awards. Put more simply, their only sign of recognition in the field comes from the RePEc ranking itself. This result suggests that some economists implement publication strategies aimed specifically at moving up the RePEc rankings, independently of obtaining other forms of academic, symbolic, or scientific capital. The second dimension we are uncovering concerns the clear existence of a group of non-academic economists, working in institutions such as central banks or international organizations (IMF, World Bank). Economic research is therefore not the exclusive preserve of universities; some of it is also carried out outside them. And these economists can reach scientific recognition, at least as consecrated by RePEc ranking.

Our study reveals the diversity of the "best" economists. While all of them, by virtue of the construction of our database, are recognized through their publications, not all have the same trajectory or profile. The academic recognition offered by the RePEc ranking reveals several routes to excellence.

This work could be extended to the scope of our database. By broadening the population under investigation, we could deepen our results and refine our update of the diversity of the "top economists" group. We could also take a closer look at economists with "no capital" but who are nonetheless among the

top economists according to the RePEc rankings, adopting a more qualitative approach that would enable us to draw their contours more accurately.

Above all, we need to investigate further the question of scientific orientations (objects studied, methods, and theoretical tools mobilized) in order to determine whether there is a correlation between these scientific orientations and the “chances” of being consecrated by the RePEc ranking. This would make it possible to identify any scientific trends (in terms of fields, methods, and/or theories) that give “privileged” access to recognition in the field. Similarly, the MCA method would make it possible to link these scientific positions to positioning within the field and to certain dispositions (identified and tracked from the rest of the set of variables: age, gender, nationality, academic origins, etc.).

The MCA could also be usefully complemented by a sequence analysis to better identify the different pathways to scientific recognition. MCA already enables us to identify certain regularities (at least for certain poles), such as the places where PhDs are completed (often prestigious departments of major US universities), but sequence analysis enables us to study academic and extra-academic trajectories in greater detail.

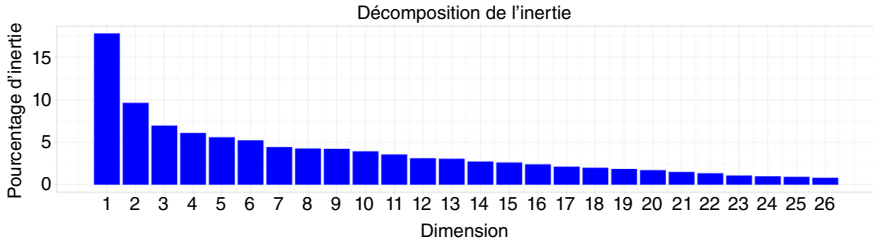
Finally, a more detailed study of the different poles making up our MCA (economists combining all types of capital, economists from Central Banks and international organizations, “weird economists”, etc.) also calls for a network study of publication practices.

This would make it possible to study in greater detail the scientific practices (preferred publication venues, propensity for collective writing, main co-authors, etc.) of economists belonging to the different poles identified by the MCA. While the MCA is a fairly effective way of measuring social capital (in this case, scientific social capital), notably on the basis of indicators, such as membership of learned societies, journal editorial boards, access to funding grants, or the panels that award these grants, network analysis enables us to reveal the way in which this scientific social capital is actually implemented and mobilized (Denord, 2015). This will enable us to better understand, for example, the publication practices of the group of “weird economists” who managed to make it to the top of the RePEc rankings even though, unlike other economists in the rankings, they do not possess the other attributes of consecration. The analysis of networks (co-publications, but also thesis juries (Godechot and Mariot, 2004; Godechot and Louvet, 2010; Godechot, 2011) and the addition of variables (relating to the identity of the thesis director, e.g.) also made it possible to reveal forms of scientific “dynasties”. During data entry, for example, we noticed that the ranking often included an economist and his or her doctoral students or disciples.

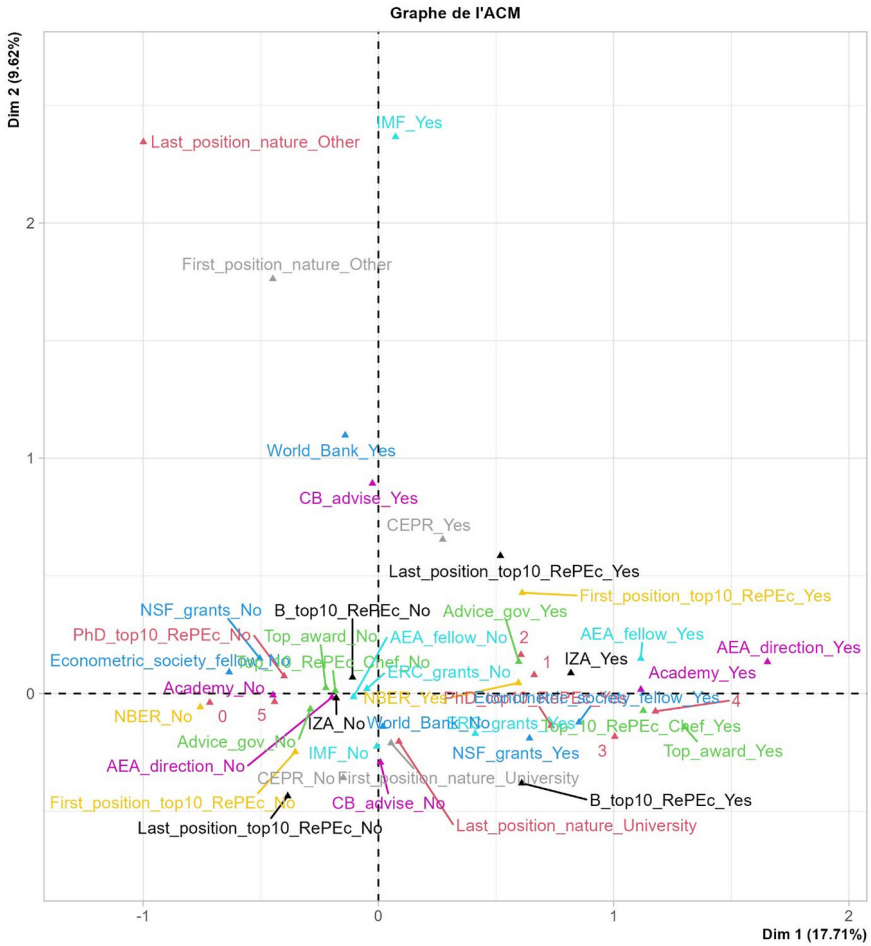
These complementary studies would make it possible to investigate the scientific practices of economists in greater detail and to better understand the definition and implementation of strategies for accessing and gaining recognition. While this initial work, which is exploratory in several respects, reveals the diversity of ways in which economists can be “recognized”, it is now time to study in greater detail the processes and strategies actually devised and implemented by economists.

Appendix**RePEc criteria**

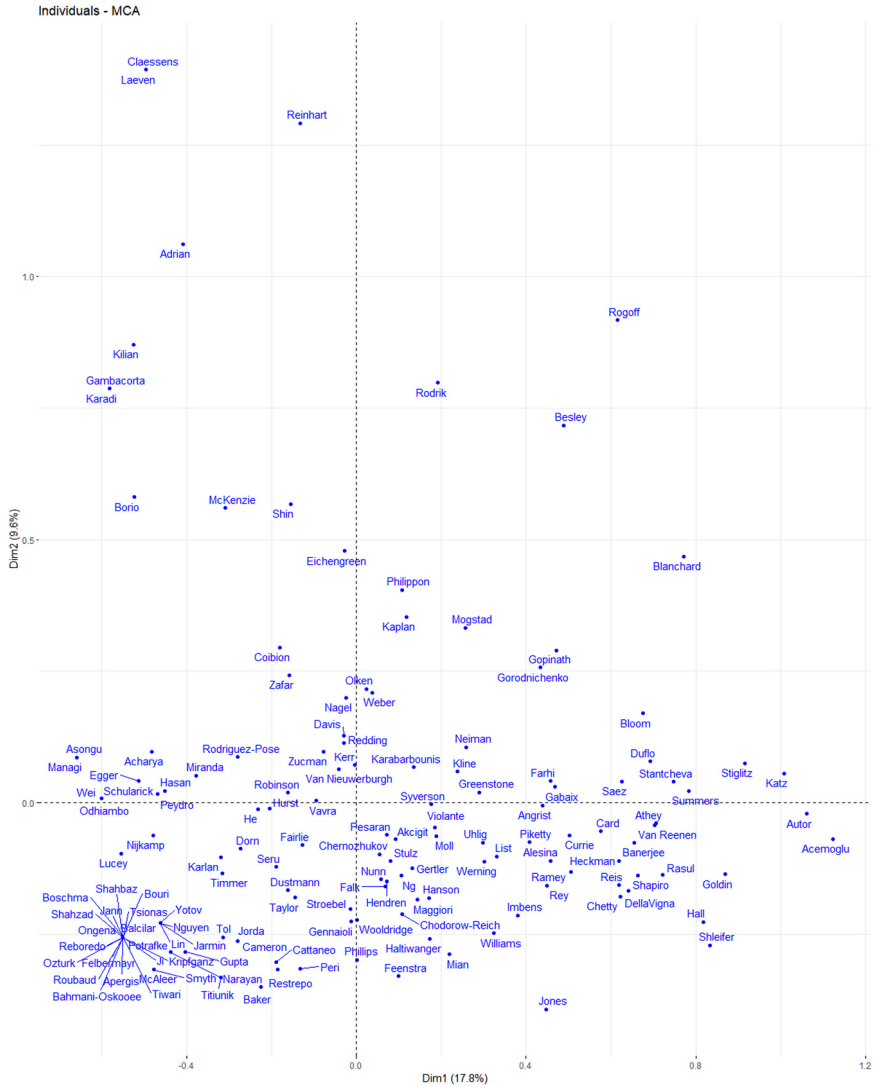
<i>Number of Works</i>	<i>Citation Counts</i>	<i>Journal Pages Count</i>	<i>Popularity on Reporting RePEc Services</i>	<i>Co-authorship-Networks</i>
1. NbWorks: Simple count.	1. NbCites: Simple citation count.	1. NbPages: Simple page count.	1. AbsViews: Total abstract views in the past 12 months.	1. Close: The average number of degrees of separation through co-authorship with all other registered authors.
2. DNbWorks: Count divided by number of authors on each work.	2. ANbCites: Citation count divided by number of authors on each work.	2. ScPages: Page count divided by number of authors on each work.	2. AAbsViews: Total abstract views per author in the past 12 months.	2. Betweenn4: The frequency the author appears on the shortest path through co-authorship between any two other registered authors.
3. ScWorks: Count with simple impact factor weights.	3. ScCites: Citation count with simple impact factor weights.	3. WScPages: Page count with simple impact factor weights.	3. Downloads: Total downloads in the past 12 months.	
4. AScWorks: Count with simple impact factor weights divided by number of authors on each work.	4. AScCites: Citation count with simple impact factor weights divided by number of authors on each work.	4. ANbPages: Page count with simple impact factor weights divided by number of authors on each work.	4. ADownloads: Total downloads per author in the past 12 months	
5. WScWorks: Count with recursive impact factor weights.	5. WScCites: Citation count with recursive impact factor weights.	5. AScPages: Page count with recursive impact factor weights.		
6. AWScWorks: Count with recursive impact factor weights divided by number of authors on each work.	6. AWScCites: Citation count with recursive impact factor weights divided by number of authors on each work.	6. AWScPages: Page count with recursive impact factor weights divided by number of authors on each work.		
	7. DCites: Citation count discounted by age.			
	8. ADCites: Citation count discounted by age and divided by number of authors on each work.			
	9. DScCites: Citation count with discounted impact factor weights.			
	10. ADScCites: Citation count with discounted impact factor weights divided by number of authors on each work.			
	11. WDScCites: Citation count with recursive discounted impact factor weights.			
	12. AWDScCites: Citation count with recursive discounted factor weights divided by number of authors on each work.			
	13. HIndex: h-index.			
	14. NCAuthors: Count of citing registered authors.			
	15. RCAuthors: Rank weighted count of citing registered authors.			



Graph: Inertia.



Graph: Axis 1 and 2 of the MCA.



Graph: Individuals.

Notes

- 1 On the formation of privileged relationships between economists and the politico-administrative world, particularly under the aegis of the United States and in particular the monetarist and neo-classical schools of thought in Mexico, see (Babb, 2001), and in several Latin American countries (Dezalay and Garth, 2002).
- 2 “Economists’ standards of evaluation, too, strike panelists as differing from those used in other disciplines. Historians acknowledge competing standards and often ask, as the feminist historian Joan Scott has, ‘whose standards determine the

standards of the discipline'. Economists, in contrast, are seen as considering evaluation to be a fairly straightforward matter of separating winners from losers. Compared to most other panel members, they seem much less concerned with traditional markers of scholarship – contextual knowledge, linguistic competence and so on. On one panel, for instance, the economist did not understand why an applicant who planned to study three countries, including Greece, would not be funded because she lacked familiarity with the Greek language (...) the economists I interviewed seem to believe that excellence resides in the objects being evaluated – in the proposal and the project themselves – as opposed to resulting from the negotiated interdisciplinary agreement reached by panelists. The sense economists have of a clear line that separates the best from the rest is associated, as well, with a more objectivist view of the value of knowledge.” (Lamont, 2009: 101–2).

- 3 Sometimes with dramatic consequences, including the weakening and decline of research into national or regional economies (especially the smaller ones), unlikely to be of interest to the largest US journals (Rowbotham, 2011).
- 4 On this point, see Pierre Bourdieu’s developments in *Les Règles de l’art* (1992) on the coexistence of several competing tables of values and hierarchies within the fields of production of symbolic goods.
- 5 Several author rankings are available on the site; interested in the current structuring of the economists’ space, we have retained the ranking as at 2022 year of authors on publications from the last ten years - this choice excludes, *de facto*, authors who have died or ceased publishing but who continue to appear on the “all time” ranking due to the inertia movement of citations of “canonical” publications.
- 6 For a more exhaustive presentation of the database itself, and the rankings it produces, we refer you in particular to the articles by the database’s founder, Christian Zimmermann (2013) and Laurent Linnemer (2023). To situate RePEc more precisely in the history of bibliometric data production infrastructures, see the comprehensive chapter by David Pontille and Didier Torny (2017).
- 7 Polytechnique, EHESS, ENS (Paris, Lyon, Saclay), Paris School of Economics, Sciences-Po, HEC, ENSAE.
- 8 After come Princeton and Stanford (8.3 % each). The first non-American university is Oxford 2.7 %).

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8 Rankings in relation to mathematical modeling and scientific understanding in economics

Bralind Kiri and Rodrigo Lopez-Orellana

8.1 Introduction

The idea of ‘more is better’ is a key principle in economics. It is known as the non-satiation assumption on preferences. Along with other principles such as transitivity, completeness, independence, and diminishing marginal utility, it forms the groundwork of mainstream economics. These principles have been formally organized into axiomatic systems¹ following the Marginalist Revolution in the late 19th century. Since then, this foundational axiomatic framework has been seen as crucial standard for rigorous and scientific analysis by leading economists. It is worth noting that William Stanley Jevons, a prominent figure in the development of marginalism, emphasized this viewpoint:

I do not write for the mathematicians, nor as a mathematician, but as an economist wishing to convince other economists that their science can only be treated on an explicitly mathematical basis.

(Jevons 1888, xii–xiii)

Based on the principles of marginalism, the use of mathematical reasoning in economics has accelerated by implementing axiomatic settings. Economists have been able to derive sets of propositions from a closed set of assumptions, leading to theories about economic value. The theory of demand and supply is an evident example of such sets of propositions. In this theory, equilibrium prices are a logical consequence that represents value.

Nowadays, economists use a similar approach to evaluate productivity across all sectors of society, including academia. This trend has not gone unnoticed, as academic rankings now resemble prices in other domains. It means that rankings are often considered a perfect reflection or even a substitute for academic value, analogous to how equilibrium prices reflect the value of private goods. These arguments align with the concept of the ‘commodification of research’ (Radder 2010; Mirowski 2011, 2012; Arboledas-Lérída 2024), which describes the application of market or marginalist principles to scientific production.

University administrators often use rankings to determine how to allocate resources to different academic units such as universities, faculties, and departments (Kalaitzidakis et al. 2003). The rankings are based on the units’

performance and success. The approach resembles the way a rational agent allocates her limited budget to maximize her utility function. However, this method of reasoning is often appropriate in mathematical models built for the rational choice of private goods. The behavioral economics literature² challenges the idea that value formation is a purely rational and mechanistic process even in the private goods domain. Despite the criticism, the mechanistic model that represents, explains, and predicts the value of private goods has become the norm for almost every good and service. In our case of interest, it is exemplified by the modern re-conceptualization of science as a race toward predetermined ends instead of an open-eyed discovery process (see Mody 2011; Mirowski 2011, 2012). It can be argued that this re-conceptualization has allowed the introduction of the logic of the ‘marketplace of ideas’ in the current academic sector.

In the upcoming section, we will conduct a literature review to assess the implications of utilizing the conventional ‘rational choice logic’ in producing economic knowledge. As we will show, applying ‘rational choice logic’ to academic production aligns seamlessly with the quantification process through rankings.

8.2 Literature review

Card and DellaVigna (2013) and Conley et al. (2013) found that publications in top economic journals have a significant impact on research direction, the career prospects of young researchers, and academic rewards. On the same line, Heckman and Moktan (2020) corroborated a strong correlation between the number of T5 publications and the likelihood of promotion and tenure in the top 35 U.S. economics departments. This trend is supported by the fact that top journals have limited publication slots by rejecting most submissions, creating a monopoly that restricts access to excellent articles. Acceptance rates at T5 journals decreased from 15 percent in 1980 to 6 percent in 2012 (Card and DellaVigna 2013). Ellison (2002) also agrees that the publication process slows down as journals move up in the hierarchy. This indicates gatekeeping, which is used to enhance the value of publications and is consistent with the marginalist principle of diminishing marginal productivity. In fact, authors have formed larger teams and treated co-authored papers as equivalent to single-authored ones to mitigate the effects of lower acceptance rates and longer delays (Card and DellaVigna 2013).

We understand that there is a belief that the quality of published articles is tied to the limited number of publication slots available. However, it is a mistake to assume that exclusivity indicates exceptional quality. Journal rankings, which are used to evaluate the quality of papers, are based only on citations of academic journals. The Journal Citation Report (JCR) is a valuable source of information on citations received by economic journals, and it covers 21 categories encompassing all Economics and Business areas. However, categories are often assigned based on unclear criteria or publishing traditions, which do

not necessarily reflect the content of articles. Therefore, it is difficult to assess the quality of a paper based solely on these rankings. The status of academic knowledge appears to be treated as a conventional private good, which is mistaken. This is because the criteria of exclusion and rivalry³ are hard to fulfill in the case of academic knowledge. Additionally, the rigid categorization of knowledge leads to a deterministic view of knowledge production, resulting in an imposed fragmentation⁴. Consequently, it becomes highly difficult to understand research outside of one's field of study, as highlighted by Casadevall and Fang (2014a).

We believe that journal rankings are created and interpreted based on rational choice models. When journals aim to boost their metrics, they artificially limit the number of published articles by rejecting most submissions. This creates a monopoly and limits the market for high-quality articles. This behavior could stem from the belief in diminishing marginal productivity, which assumes that knowledge production works similarly to the production of private goods. However, economic knowledge, like other forms of academic knowledge, is not entirely competitive and exclusive (see Footnote 3).

In addition, we contend that the idea of 'more is better' is reflected in the widespread aspiration of economists to publish in top-tier (T5) journals, with the main goal of enhancing their prospects of achieving tenure and advancement in their field. Thus, there appears to be a prevailing tendency to maximize output to demonstrate excellence. In general, we believe that relying solely on the number of T5 publications to signal talent could encourage careerism at the expense of creativity.

Furthermore, the completeness axiom is reflected in the tendency to evaluate the quality of research papers based solely on their impact factor. This approach emphasizes the publication venue's importance over the paper's content (Casadevall and Fang 2014b). On the contrary, we want to emphasize the role of papers' content, which must mainly include novelty, originality, testability or falsifiability, scientific reach, empirical replicability⁵, and empirical and theoretical information. However, the most important factors are those that contribute to a scientific understanding of the topic, as we will explain below. Quantifying quality with a single number creates the illusion that knowledge quality and quantity can be perfectly ordered. This misconception may lead to the error of applying transitivity, assuming logical coherence when comparing different categories of knowledge as if they were bundles of conventional private goods (see Footnote 1).

Finally, as the evidence suggests, the use of mathematical models in economics is closely related to the reported ranking scores (Heckman and Moktan 2020). The relationship between the two variables is continuous and circular. In other words, an article that adheres to the earlier mathematical precepts is more likely to be published in a T5 journal. On the other hand, a T5 journal, being highly cited, encourages the submission of more articles that employ similar approaches. In this line, Akerlof (2020) argues that assigning value to hardness, measured by mathematical features of quality, has led to biased

reward systems. These arguments suggest that internal factors bolster conservatism in scientific research, which may hinder the exploration of new research questions or problems, as well as the pursuit of daring research directions and risky research methods (see Bedessem 2021).

Previous literature has not explored the power of rankings in relation to mathematical modeling in economics. We want to put forward a new approach concerning the role of mathematical models in economics that can help resolve prior issues. Our proposal will be based on the following:

- 1 A novel conception about using mathematical models in economics can possibly mitigate the biased perception of rankings.
- 2 The new approach to models, based on scientific understanding, could help mitigate the overemphasis on unidimensional rankings outcomes as a measure of academic value.

The rest of the chapter is structured as follows: Section 3 compares static and dynamic mathematical systems. In Section 4, we propose a pragmatic viewpoint on economic models that is based on the concept of scientific understanding. Section 5 delves deeper into the relationship between the pragmatic perspective on modeling and the influence of rankings in economics. Finally, in Section 6, we summarize the key findings from our analysis.

8.3 Static versus dynamic mathematical systems

Generally, mathematical tools used to describe phenomena are axiomatic in economics and other fields. However, whether this mathematical representation is the best approach is rarely debated. Let us reiterate that the economics we are referring to is the highly formalized mainstream approach, which has its roots in the Marginalist Revolution (see Introduction). Criticisms of this approach often focus on unrealistic assumptions and inaccurate predictions. However, our viewpoint differs as we are primarily interested in using models as epistemic tools, and we examine various ways of conceiving mathematical systems.

In logic and mathematics, an axiomatic system is understood as a system of deductive inferences from a set of ‘first principles’ or axioms (Lopez-Orellana 2019, 285–288). The system consists of propositions with a specific vocabulary of symbols, primitive and definite terms, and specific rules of proposition formation and transformation. All propositions deduced from those axioms, their theorems, will belong to the system. The purpose of constructing an axiomatic system is precisely to prove theorems. From a logical-syntactic point of view, the richness of the method of construction of these systems, i.e., axiomatics, lies in the fact that it shows the connection of truths through chains of inference carried out in an argumentation. Looking at it semantically, analyzing the logical notions involved in constructing these systems, such as proposition, truth, axiom, or knowledge, embraces a fundamental philosophical question concerning the relation established between language and the world it speaks of. Various formal logical systems have attempted to capture this relationship.

Some schools of thought in the philosophy of science, such as logical positivism and semanticism, have adopted axiomatic systems to explicate and characterize scientific theories and models. These systems begin with a few simple and fundamental principles and use them to construct a coherent structure of theoretical statements, which philosophers find encouraging. Axiomatic systems of factual theories are believed to represent the structure of reality accurately. However, the use of mathematics in economics highlights the challenge of capturing the complexity and ambiguity of economic reality. Logico-mathematical axiomatic systems are closed and finite structures, meaning that no statement can be valid if it cannot be deduced from the axioms and through a finite number of inferences (Hilbert 1905). This approach raises the question of how theories or models can describe a reality that is neither closed nor determined.

Carlo Cellucci (1993a) provided an interesting critique of using axiomatic systems to characterize formal and empirical sciences. Cellucci argues that since antiquity, the mathematics method was not reduced to the axiomatic one. However, the ancient Greeks also conceived a very suggestive mathematical method, the analytic method, but in the Platonic sense of 'reduction', where theories are considered open systems. According to Cellucci (1993a, 214–215), Aristotle (cf. *An. Post. I 1, 71a 1–10*; 1960) can be identified as the philosopher who gave rise to the error of thinking that most sciences, including mathematics, were closed systems, representing a closed and entirely determined reality. Modern logician-mathematicians identified the axiomatic method with the mathematical method *par excellence* (Cellucci 1993b). So, its application in reconstructing factual theories by philosophers of science followed this path. For Cellucci, the analytical method places the processes of inference and communication at the center of logic, thus returning to Plato's idea that dialectics plays an important role in knowledge as an auxiliary method to the analytical method by which hypotheses are chosen. Dialectics is the process in which two agents dialogue to reach a state of agreement from a starting point that is a state of disagreement or uncertainty. The initial condition represents a state of uncertainty about the problem, while the final condition represents a state of certainty. The passage from the state of uncertainty to the state of certainty corresponds to an advance in knowledge (Cellucci 1993a, 208).

According to Cellucci, the analytical mathematical method is a problem-solving procedure that begins with formulating a hypothesis. If the hypothesis is confirmed, then the problem can be solved (Cellucci 1993a, 207). This means that analysis is an ever-evolving and potentially infinite process of searching for better hypotheses. All science is always 'under construction'. The analytic method involves reducing one problem to another, with the hypotheses serving as conditions for solving a specific problem. Theories cannot be distinguished as open or closed systems, as all theories are open and dynamic. The axiomatic method only considers closed systems. The analytical method views mathematics as a trial-and-error procedure for the search for hypotheses that can be better validated. This means that scientific knowledge, even formal knowledge, is best understood as non-absolute and a continuous search for hypotheses. An axiomatic approach is only possible if knowledge is a closed system based on

principles given once and for all (Cellucci 1993a, 209). However, it is easy to realize that the systems of phenomena that theories and models aim to account for are intrinsically open.

8.4 A new perspective on models

8.4.1 *Scientific understanding: Models as epistemic tools and instruments of mediation*

In this section, we explore the idea of understanding in relation to models, particularly models of explanation. For now, we are not attempting to define understanding in general terms, but only in the context of understanding through mathematical models. There are various perspectives on understanding within the philosophy of science, and the analysis of each will depend on the specific context involved. An attempt to provide a general characterization of understanding in scientific explanations was made by De Regt and Dieks (2005), De Regt et al. (2009), based on a contextual criterion for the intelligibility of scientific theories. However, as Wilkenfeld (2013, 999) argues for biology, in economics, multiple relations between thinkers and phenomena fit under the form of understanding, which makes it difficult to develop a unified clarification of understanding. Nevertheless, the notion of understanding remains epistemically relevant. We argue for restricting its psychological-subjective-individual traits to achieve a more effective or better understanding.

Moreover, we are interested in how models are used in economics to gain scientific understanding. Models serve different purposes to help us understand phenomena. To understand a phenomenon, we use the schema ‘theory T explains phenomenon p through model M ’. We also include the cognitive subject, the scientist. So, ‘subject S understands that theory T explains phenomenon p through model M ’, or simply ‘ S understands p through M ’. This means that understanding is not only a cognitive domain but also belongs to the domain of pragmatics. When we analyze models, we must consider the scientist’s purposes and the resources they use to explain or understand a phenomenon. The analysis of scientific explanations goes beyond the structure and content of theories and models. It also applies to understanding the final product of explanatory activity as the state of a cognitive subject and to understanding the theories and models used in these explanatory activities. Therefore, understanding refers to the usefulness and manipulability of the theories and models evaluated by a specific group of peers⁶ (De Regt et al. 2009, 3).

Catherine Elgin (2009) defines *understanding* as the grasp of a general and broad body of information based on facts and responding appropriately to evidence. This enables us to make nontrivial inferences, arguments, and actions related to the subject matter (Elgin 2009, 327). Her definition captures the psychological and pragmatic aspects of understanding as a cognitive success term. It allows us to say something more precise about a phenomenon and infer new consequences while enabling us to manipulate it. Although

understanding is an internal process, it can be evaluated by a ‘specific peer group’. According to De Regt et al. (2009), understanding is an activity that can be objectified and evaluated:

Subject S understands x when she uses or manipulates x .

Let x represent information related to an economic reality that can be shared within the scientific community. S ’s understanding of x is evaluated based on her ability to manipulate or use x effectively. The success of S ’s communication of x and its acceptance by peers can also indicate cognitive success. This idea suggests that understanding x involves establishing relationships and constructing effective knowledge or meanings about the facts related to x . Only then can we say that one possesses the correct mental representation of x .

Wilkenfeld (2013) proposes that to understand something, one must possess the skill of representation, which enables one to perform intellectual actions relevant to its application. However, defining what a mental representation is can be challenging. Therefore, Wilkenfeld (2013) defines representations as simple computational structures with content susceptible to mental transformations. All judgments regarding understanding refer to the act of representing the comprehended object x (Wilkenfeld 2013, 999). This relates to Elgin’s idea of understanding as grasping general fact-based information. It also highlights the cognitive aspect of understanding. However, an effective understanding of x depends on what one can do with the representation. Therefore, the contextual or application domain of understanding is emphasized. In understanding, the scientist adapts information in instances where she needs to make it more meaningful, thanks to having grasped its content.

To understand something, you need a model or a structure of information that can be interpreted. The model can be a simple or complex structure, depending on the level of abstraction and form. Different types of models are used in scientific modeling. Without a model, there can be no correct representation of x . Therefore, a correct representation of x is already an interpretation of x , which is a model. Philosophers often compare understanding and interpreting because they are closely related.

In summary, we argue that models serve as (i) epistemic tools (Cartwright et al. 1995; Knuuttila 2011) and (ii) mediation instruments (Morrison and Morgan 1999).

It is worth noting that Wilkenfeld’s paper on models in biology contradicts the belief that more complex structures are necessary for understanding. Instead, he advocates for constructing an explanation of understanding from simple mental representations. He argues that when we understand a phenomenon, we reason about the phenomenon itself and not some other similar structure. Thus, he downplays the importance of models. However, the role of models in scientific explanation is well-established in current discussions, as evidenced by the works, among others, of Frigg (2006), Frigg and Nguyen (2016), and Frigg and Nguyen (2017).

In economics, the best approach to understanding a phenomenon is through analyzing the use of models. Therefore, in economics, we can say that having a representation of an economic phenomenon means owning a model of this phenomenon. The subject understands x only when she manipulates a model of x correctly. To limit the psychological aspect of understanding and avoid vagueness, we can establish minimum criteria that models must meet to deliver a correct or genuine understanding, as presented in Lopez-Orellana and Cortés-García's 2019 study.

We also emphasize the importance of understanding by a model better captures the complexity of the explanatory practice in economics. Here, the model is considered the product of research, which can be effectively identified, characterized, and evaluated.

In his article 'A New Biology for a New Century' (2004), Carl Woese introduces an interesting idea about scientific cognition. Woese suggests that science is driven by two main factors: technological advancement and guiding vision. He argues that the balance between these two is crucial for the development of science. Without appropriate technological advances, progress is halted; without a guiding vision, there is no direction.

We propose that the guiding vision for economic problems can be seen as the cognitive subject's understanding and can be considered knowledge based on a model. Woese provides an example of this with the progress of molecular biology, which combines both factors (Woese 2004, 173) and inspires new strategies and perspectives. The systemic conception of living organisms considers them not only as a sum of their parts but also with emergent properties from their interactions and within their environment. This holistic and unifying vision emphasizes complexity, networks, and organizational patterns (Capra and Luisi 2014, xi–xii). We can apply this guiding vision to economics using mathematical models analogous to existing ones.

Economists offer explanations that are often narrow and treat systems as closed and rigidly causal. They do not emphasize functional or other aspects that could enrich the explanations. The economists' goal in constructing, using, manipulating (De Regt et al. 2009), or applying a model is understanding how a given phenomenon or economic system behaves. Only then can they provide a satisfactory explanation. In this sense, economists should constantly revise and experimentally evaluate models and subject them to the scrutiny of peers. Without a system of scientific laws as a guarantee, economists rely on logical-deductive relationships for their analysis. In this sense, they must ensure that the models do not establish a trivial or unjustified relationship with the represented system.

8.4.2 *Models as inferential tools: Directionality and surrogate inferences*

In the study by Lopez-Orellana et al. (2019), the authors argue that models serve an inferential purpose, meaning that they are tools for making surrogate inferences rather than providing an accurate representation of the real

world. Although models may be viewed as abstractions or simplifications of the phenomena, they still allow scientists to generate plausible hypotheses about the target systems they are studying. This perspective is based on the fundamental question of whether models truly help scientists understand the world around them, which is essential prior to assessing the effectiveness of a particular model's representation (homomorphy). This idea is shared by other authors such as Uskali Mäki (2009, 32–33), Robert Sugden (2000), and Mauricio Suárez (2004), who primarily apply their approaches to models of theoretical economics.

As explained by Mäki (2009, 32–33), a model essentially represents a system of phenomena, which means it acts as a surrogate for that system. In other words, a model, say model M , represents a target system TS by being representative of TS . This suggests a better way to define representation if we want to keep using this term to describe this relationship. The main purpose of a model is to enable surrogative reasoning. As Mäki (2009) points out, the epistemic function of models (as surrogates) translates into gaining knowledge not by directly examining TS , but by examining M (indirect knowledge of TS), while M is 'coherent' or 'directed' to the target system in appropriate terms and sufficient degrees.

According to Suárez (2004), a certain function is specified in a representation: a source system A represents a target system B . The challenge is to determine how A can be considered a representation of B . Suárez proposes that the scientific concept of representation can be defined by two necessary conditions and suggests that reviewing these conditions can help identify the general conditions of representation. These two necessary conditions are:

- i Directionality, i.e., representational strength of its source (or the model), which is expressed in the following scheme: ' A represents B only if the representational force of A points to B '; and
- ii inferential capacity, which allows for surrogative reasoning.

The first necessary condition (i) states that agent S (the scientist) uses a model M in her scientific representation of a phenomenon p . Therefore, it is sufficient to analyze the use of M to understand its function and scope. This reduces representation to the use of M and the directionality of M toward p . As for the second condition (ii), it simply points out that M enables the agent to draw specific hypotheses about p . These hypotheses need not be considered 'true' since the models only provide us with an approximation of p . The inferences we draw from p are plausible, and we need not predicate truth to them.⁷

Lopez-Orellana et al. (2019) defined a model with the following pattern based on Suárez and Mäki's approaches:

An agent S uses (successfully) a model M iff: (i) M points to a target system TS (a system of phenomena); and (ii) S generates hypotheses (*surrogate inferences*) about the TS from M .

The first necessary condition (i) refers to the relationship between a source (M) and a competent and informed user (S), which enables the user to consider a target system (TS). This relationship is contextual and depends on the intended uses of the source, which maintains the connection between M and TS . No model can intentionally point to a target system without these intended uses. Therefore, the intentional act of the user (S) establishes the relationship between M and TS . The term ‘use’ is defined based on the representational force of the source (Suárez 2004): ‘ A represents B only if the representational force of A points to B ’.

8.5 Scientific understanding in relation to rankings

In the previous section, we discussed the four uses of mathematical models in economics: (i) epistemic tools, (ii) mediation instruments, (iii) inferential tools, and (iv) indirect representation, all of which contribute to scientific understanding.

We claim that employing the four previous models’ uses could potentially aid in reducing the biased interpretation of rankings in economics. Along this chapter, we assumed that papers published in the leading impact economic journals align with the traditional use of mathematical models (hardness features), where the focus is on their realism and predictive power. We support an alternative use based on the following considerations concerning modeling:

Firstly, if models are used as epistemic tools (in accordance with the ideas of Cartwright et al. 1995), then the content of the articles would be more important than the publication venue. This means that the value of the paper would be measured by the model’s ability: (a) to provide additional knowledge about the world, (b) to generate new hypotheses about the world, and (c) to allow for more experimentation and intervention. As a result, the one-dimensional outcomes of rankings would lose their excessive importance. At the same time, content-related aspects that align with the model’s power to gain knowledge would become more relevant.

Secondly, if mathematical modeling is used as a mediation tool, it would reduce the negative effects of the circular relationship between the current use of models in economics and the reported rankings’ scores (Heckman and Moktan 2020). In other words, the choice of a particular model for a specific domain will be based on its epistemological contribution rather than its ranking score (model’s publication venue). This would help break the feedback loop of a continuous and circular relationship between the two variables over time. It is important to note that the traditional use of models in economics tends to be based on their predictive accuracy without considering the possibility of self-fulfilling prophecies. Therefore, using models as mediation instruments would help to weaken the reflexive relationship⁸ between models’ choice and citation impact.

Thirdly, it is important to understand that when models are used as inferential tools, the way rankings are considered will differ from how they are currently perceived in existing systems. In such a scenario, the content-related aspects of a paper (see section 8.2) will become more important than the publication venue or the methods' predictive precision. This shift in focus toward content-related aspects aligns with models' ability to generate plausible hypotheses about the subject matter. As a result, surrogative reasoning becomes more significant than representation, which logically reinforces the orientation toward quality content. It is precisely this orientation that models aim to serve as inferential tools.

Finally, using models to indirectly represent economic phenomena can have positive implications for knowledge production, public policy quality, and rankings perception. By understanding the limitations and hypothetical nature of the represented target systems and the fact that they are represented indirectly through models, any economic knowledge generated will be interpreted more carefully. Overall, this pragmatic approach will be reflected in a more cautious interpretation of rankings, which currently seem to fully represent the value of economic knowledge.

8.6 Concluding remarks

Since the Marginalist Revolution, mathematical models have been considered a more solid and rigorous way to gain economic knowledge. This has led to economics becoming an academic area that values hardness or the mathematical aspects of quality. As a result, academic articles that use sophisticated mathematical approaches have a higher chance of being published in top economic journals. The overemphasis on rankings can lead to shortcomings like fragmentation, limited knowledge accumulation, conservatism, self-fulfilling prophecies, and other problems discussed in sections 1 and 2. We propose a new approach to mathematical models in economics to tackle these issues. This approach prioritizes scientific understanding through models rather than solely predictive accuracy and axiomatic realism. It emphasizes using models in specific contexts to enhance reasoning and inferential capability. On one hand, this practical method can reduce the overemphasis on rankings in economics; on the other hand, the content of the papers will gain more importance. We have defined the content of papers based on several key characteristics, including novelty, originality, testability or falsifiability, scientific reach, empirical replicability, and empirical and theoretical information. Our analysis is the first step in examining the intricate connections between research metrics (such as rankings), the use of mathematical models, papers' content, and the advancement of knowledge. Subsequent studies should further explore the importance of mathematical modeling in improving our understanding of economic phenomena and ensuring fair distribution of benefits from high-quality economic knowledge.

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Notes

- 1 To illustrate the construction of an axiomatic system using the transitivity assumption, we consider the following example: if an individual prefers one good (x) over another (y) and prefers the second good (y) over a third good (z), then she will prefer the first good (x) over the third good (z). This can be expressed mathematically as $\{x \succ y \wedge y \succ z\} \Leftrightarrow \{x \succ z\}$. Note that \succ denotes a strict preference; thus, $x \succ y$ means the individual strictly prefers x to y . An axiomatic system can be developed when economic assumptions can be expressed in a logical-mathematical language.
- 2 Common critiques include concepts such as bounded rationality, behavioral biases and fallacies, loss aversion, and the use of nudges (Kahneman and Tversky 1979; Selten 1990; Simon 1991; Thaler and Sunstein 2008).
- 3 Economic theory categorizes goods into four types based on exclusion and rivalry criteria: private goods (e.g., food, clothing), public goods (e.g., national defense, air), club goods (e.g., public transport, cinemas), and common-pool resources (e.g., free public transport, fish stocks). Private goods are exclusionary, meaning the buyer/consumer can exclude others from consuming the same good by purchasing it. Private goods are also rivalrous, meaning that two or more individuals cannot consume the same portion of the good at the same time. Food falls under the category of private goods. On the other hand, public goods are non-excludable and non-rivalrous. For instance, national defense cannot be excluded from enjoyment by anyone, and its enjoyment by one person does not prevent others from enjoying it. Club goods are excludable but not rivalrous. Common-pool resources are rivalrous but not excludable.
- 4 It refers to a non-natural fragmentation that opposes the universality of scientific knowledge. We believe that fragmentation is mainly imposed through institutional mechanisms in the academic sphere.
- 5 For deeper insights into the relationship between papers’ metrics and empirical replicability, refer to Serra-Garcia and Gneezy (2021). Their analysis indicates that papers published in top psychology, economics, and general interest journals that fail to replicate are cited more than those that do replicate.
- 6 In economics, there is a well-known example of how revisiting old models can lead to new ones, enhancing our understanding of individual decision-making under risk. Von Neumann and Morgenstern’s theory of expected utility, developed in Von Neumann and Morgenstern (1953), was found to be highly manipulable and testable. This allowed Kahneman and Tversky in 1979 to develop the prospect theory through intervention and experimentation with the models of expected utility theory. The development of the new prospect theory is an example of how mathematical models can be used as problem-solving approaches to generate new hypotheses and construct new theories, as discussed in Section 3.
- 7 For a more in-depth analysis of the ‘scientific truth problem,’ refer to Da Costa and French (2003), Popper (1994), and Verdugo-Serna (2014).

- 8 We have adopted the concept of reflexivity from George Soros (2013) to describe the two-way interaction between beliefs and reality. To illustrate this concept, if academics believe that the number of citations a paper receives is a perfect measure of its quality, they will tend to cite papers with the most citations. Similarly, academics will use models that appear in highly cited papers, hoping to achieve many citations for their own work. This creates a situation that resembles financial bubbles, where a trend and a misconception reinforce each other, leading to a bust process (Soros 2013, 323).

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9 Evaluating research organisations

Public policy and the search for excellence in the trajectory of the Portuguese Science and Technology system¹

Lúisa Veloso and Helena Carvalho

9.1 Introduction

In recent decades, research and higher education have been the subject of intense debate, not only due to the significant advancements in this field but also owing to various public policy measures implemented during this period, particularly in relation to the structure of national higher education and research systems and the global reach of universities. Universities and research organisations have undergone international evaluations and ranking procedures aimed at gauging higher education performance (Hazelkorn, 2009).

The initial phase of performance can be characterised as the national level, where the recognition of a specific set of organisations, defined by both human and material resources and performance, plays a crucial role in understanding higher education systems – initially at the national level and subsequently at the international level. Consequently, public policy has played a crucial role in shaping distinct organisational clusters. One method of facilitating this is by legally providing different conditions to certain organisations, allowing them to conduct their activities and contribute to the formulation of higher education and research policy.

Beginning in the 1990s, and in particular in 1995 with the establishment of the Ministry of Science and Technology, Portugal significantly augmented public investment in research and higher education – encompassing projects, equipment and advanced human resources training. Simultaneously, the country began restructuring institutions within the national higher education and research system. This trajectory mirrors a broader European pattern, particularly conspicuous in the proliferation of research within the higher education sector. This European trend is characterised by the coexistence of institutional and competitive forces (Horta, Huisman, and Heitor, 2008).

Since its establishment in 1999, AL statute, which is the focus of this chapter, has been conferred upon various private non-profit or public research organisations in Portugal.² The objective of this public policy measure is to cultivate a central core of institutions endowed with greater administrative autonomy and a larger allocation of public funds. The intention is to create a more conducive environment for the advancement of research in Portugal,

with a specific emphasis on strategic areas and the promotion of high-quality doctoral education.

This policy aligns with the broader aim of fostering excellence in research, akin to the so-called research excellence initiatives (OECD, 2014). It also corresponds with the international trend of promoting research universities, a phenomenon substantiated by various case studies (Postiglione, 2013).

This consortium of research organisations has demonstrated, through external evaluation procedures conforming to international standards, their capability to “cooperate in a stable, competent and effective manner in the pursuit of the specific objectives of the government’s science and technology policy” (Decree-Law No 125/99 of 4 April of the Ministry of Science and Technology 1999). Additionally, it was stipulated that the AL entities would be “formally consulted by the government on the definition of the programmes and instruments contained in the national science and technology policy” (Decree-Law No 125/99 of 4 April of the Ministry of Science and Technology 1999).

The establishment of this statute represented a significant institutional initiative in advancing research activities in Portugal, complementing the “Legal Regime of Higher Education Institutions” introduced in 2007 (Law No 62/2007 of 10 September). Under this legislation, Portuguese research organisations successfully proposed and secured a 10-year duration for the AL statute. The main attraction for these organisations was the assurance of an additional stream of public funding for 5–10 years, enabling a strategic commitment to scientific employment, albeit infrequently resulting in the provision of tenure positions.

In addition to this prospect, the statute augmented opportunities to participate in project funding competitions, endeavours to secure private funding sources and the promotion of advanced training. From an administrative perspective, the AL statute further bolstered their autonomy, particularly in contrast to the still highly bureaucratic structures of Portuguese universities, from which many of them originated. The majority of the 26 AL contracts were signed between 2000 and 2002 (15), with an additional 11 receiving approval in stages until 2011.³ However, this progression remained significantly contingent on support from public policy, as noted by Simon and Knie (2013) in their analysis of various national evaluation models.

The analysis presented in this chapter illustrates the visible impact of these conditions across various dimensions, including the number and impact of scientific publications, network formation and internationalisation. This has led to the promotion of organisational sustainability and enhancement, thereby augmenting the role and centrality of the ALs in the public higher education and research system. Consequently, public policy has played a crucial role in distinguishing this group of research organisations through the conferment of a specific statute, all within the context of an economic crisis and limited financial resources.

AL assumed a pivotal role in Portugal, directing research efforts towards various strategic scientific domains, spanning from medicine to engineering.

The development of such scientific domains has consequences in the economic structure, by fostering economic sectors based on highly qualified work, technology and knowledge.

Our argument is that their influence did not begin solely with the inception of the AL statute in 1999; rather, this statute amplified the aims and activities and undertakings of AL. In the mid-2010s, amid a specific economic crisis, the circumstances facilitated a considerable number of these institutions to attain the highest classification in the evaluation conducted in 2013–2014 by the Science and Technology Foundation (FCT – Fundação para a Ciência e Tecnologia), which covers all Portuguese research organisations.

The evaluation outcomes affirm their acknowledgment as centres of excellence, aligning with the identification by Bloch and Sorensen (2015), similar to initiatives in other countries such as Canada, which pioneered the concept with “Canada’s Network of Centres of Excellence” (2015: 34). Although “it is not always clear what is meant by excellence, and how it is defined may have implications for funding and design” (2015: 31), it is undeniable that excellence initiatives, in some instances, command a “fairly significant share of the collected public research funds” (2015: 33), as discussed in in this chapter in relation to the Portuguese case.

They also present challenges for political decision-makers grappling with governmental budget cuts since 2011. As in other countries, where the decision was made to support the development of research universities and, particularly, key laboratories in science and technology fields, with access to substantial funds (Postiglione, 2013), in Portugal, one significant measure since the 1990s has been to support, through similar measures, the enhancement of the AL, among other initiatives fostering higher education and research.

The chapter comprises five main sections. We explore the literature on the role played by public policy in the development of distinctive research organisations, as well as the “excellence” classification resulting from evaluation processes. Subsequently, we present the method. The third section is dedicated to the presentation and discussion of the major findings, followed by a discussion thereof. Finally, we end the chapter with some concluding remarks, emphasising contributions to the ongoing discourse on the present scenario.

9.2 Public policy fostering excellence in research organisations

Throughout the twentieth century, there has been an increasingly acknowledged strategic role for public policy in stimulating research and promoting innovation processes with significant economic, social and political impacts (Elzinga, 2012). In the past two decades, many governments have faced financial resource constraints, prompting a heightened focus on accountability and investment efficiency. This includes coordinating research efforts among several governments, universities and companies (Etzkowitz and Leydesdorff, 2000). Analyses highlight the connection between competitive research funding and diversity in higher education and research (Horta et al., 2008).

Within this context, the implementation of research assessment exercises has become more common. These exercises aim to measure the quality of research and development (R&D) activities, institutions and their inputs and outputs. They can take various forms, with a focus on quantitative or qualitative aspects, employing indicator-based or peer review-based models. However, these exercises are almost always associated with the adoption of more competitive forms of funding and selectivity mechanisms, such as performance-based research funding systems (Hicks, 2012; Bucchi and Papponetti, 2007; OECD, 1997), aligned with some trends towards economic competitiveness.

These interventions are also designed to promote outstanding research by providing substantial, long-term funding to designated research organisations (OECD, 2014). Research excellence initiatives may target organisations (by funding high-quality R&D organisations) or individual outstanding researchers and their projects. Both organisation- and individual-based initiatives tend to exhibit the “Matthew Effect” (Merton, 1968, 1988). As Helleström argues, “excellence is a term for the political *and* the scientific community” (Helleström, 2011: 118) but, in reality, “organisational variables are more generally accessible to policy actors than cognitive ones” (Helleström, 2011: 129). On the other hand, evaluation practices based on organisational features offer a broader perspective and framework for understanding research activities.

Simultaneously, there have been cautionary notes urging the consideration of the connection between policies that reward scientific excellence (internally perceived within scientific communities) and those that more directly value the socioeconomic significance of research and institutions (externally viewed). Irrespective of the models adopted, there is a growing demand for these policy guidelines (and consequently the criteria on which the evaluations are based) to be transparent and consistent. Moreover, there are calls for key stakeholders to be engaged in discussions on and potential reformulations of these guidelines (Elzinga, 2012; Bucchi and Papponetti, 2007; OECD, 1997). Consequently, we are observing the emergence of “the scientific market for reputation” (Frederiksen, Hansson, and Wenneberg, 2003: 153).

The literature on the scientific elites precisely highlights, at an individual level, the impact of evaluation and social distinction processes that underlie the creation of excellence, similarly to the normative assumptions pertained about companies.⁴ The works of Merton (1973) and Zuckerman (1977) in the sociology of science has been instrumental in understanding the careers of award-winning scientists. They introduced the discussion within the scientific community about the existence of elites, prestige hierarchies and, consequently, social distinction. Other authors explore excellence and social distinction by looking at individual researchers, such as Laudel (2005) and Wagner (2014) on scientists’ mobility, Parker, Lortie, and Allesina (2010) on the characterisation of the most cited scientists, Chan, Gleeson, and Torgler (2014) on the Nobel Prize laureates and Kwiek (2016) on highly productive academics.

Mulkay’s work (1976) takes a more institutional approach, examining the mediating role of the scientific elite in the relationship between the research

community and society. It investigates the extent to which research funding contributes to the establishment of scientific elites. In the case of AL, it will be shown that this involvement includes the creation of a strategic defence for their statute through the AL Council. They actively assert their distinctiveness from other research organisations, and through funding, they enjoy privileged contracting conditions and differential treatment at the publication level.

An essential argument made by Mulkey (1976) pertains to research funding as a factor facilitating the formation of scientific elites, with a clear demonstration of the role played by public authorities. This argument is applicable to AL and, consequently, to the social process of making a distinction generated by a science policy measure, namely the creation of this statute. Furthermore, echoing Mulkey's observations about scientific elites, the distribution is not entirely a homogeneous, solidary social grouping in practice. It is internally divided and often marked by conflicts of interest (1976: 464).

As Whitley contends, "many accounts have tended to ignore or downplay the role of national and international scientific elites in directing and integrating research projects and the knowledge produced through them" (Whitley, 2011: 361). This is a central aspect for discussing changes in higher education and research systems, their impact on the production of scientific knowledge, and consequently, governance mechanisms (Whitley, Gläser, and Engwall, 2010). These aspects must be analysed at both the supranational (Bleiklie and Kogan, 2007) and national levels (Paradeise et al., 2009). Research institutions, therefore, need to be considered at the organisational level, which has been gaining more significance relevance (Elken and Røsdal, 2017), particularly in evaluations (Helleström, 2011).

As suggested by Whitley et al. (2010), particularly in the context of universities, it is essential to understand how the establishment of the AL statute fosters organisational autonomy and a more sustainable scientific system. Contrary to establishing a corporate model, as the authors clarify, the model is applied to a group of research organisations that have attained the AL statute. This model allows for a more self-managed budget, distinct from the bureaucratic regulations governing other research organisations. Consequently, this approach liberates resources to facilitate the scientific work of these institutions.

To advance and elaborate on our argument, we present empirical evidence related to four key dimensions of research organisations, extensively explored in the literature (e.g. Horta et al., 2008; Kyvik and Asknes, 2015; Laudel, 2005; Postiglione, 2013) and supported by data and interview analysis. These dimensions include funding and its management, employment capacity, publication and collaboration. While the first is a pervasive material condition shared by all research institutions, the second and the third are intrinsic prerequisites for the advancement of their core activity - research. The third and fourth dimensions are vital for the growth and internationalisation of the organisations. All four dimensions play central roles in an evaluation process as they both underpin and propel research activity.

9.3 Method

The research employed a mixed methods strategy. The interaction between quantitative and qualitative methods allowed triangulation and, consequently, supported the reliability of the study (Bryman, 2012; Tashakkori and Teddie, 1998).

9.3.1 Quantitative data

For the quantitative analysis, data were extracted from the reports and websites of the 26 organisations with AL statute. These organisations are distributed across various scientific areas (see Table 9.1) and with a regional distribution (see Table 9.2) showcasing a notable concentration in Lisbon and neighbouring cities.

Specifically, data for the quantitative analysis were sourced from the 2011 activity reports for the AL, the 2011 National Scientific and Technological Potential Survey (IPCTN) – the most recent year accessible, offering a comprehensive set of information structured in a database compared to the data

Table 9.1 AL distribution according to scientific field and main scientific area (2015)

	<i>N</i>	<i>Interviewees</i>
Exact sciences	2	2
Physics	2	2
Natural and environmental sciences	4	3
Marine sciences	2	1
Earth and space sciences	1	1
Biological sciences	1	1
Medical and health sciences	5	4
Engineering science and technology	13	9
Biotechnology and chemical engineering	5	3
Electrical and computer engineering	4	3
Material science and engineering	3	3
Mechanical engineering	1	0
Social sciences	2	1
Total	26	19

Source: FCT.

Table 9.2 AL distribution according to region (2015)

	<i>N</i>
North	7
Lisbon and Tagus Valley	14
Centre	5
Total	26

Source: FCT.

available on the IPCTN website – and the AL and FCT websites. The IPCTN provided anonymised data for the 26 AL established by that date, conducted in accordance with the Frascati Manual.

9.3.2 Qualitative data

The interviews were carried out in two stages in 2013. Initially, two interviews were conducted with the Minister of Science and Technology, who was responsible for creating the legal concept of AL, and with the Secretary of the AL Council. These interviews offered an overview of the establishment of AL, delved into the role of these organisations in the Portuguese higher education and research system and explained the AL social distinction process. Subsequently, 19 out of the 26 AL directors were interviewed,⁵ contributing to a more profound understanding of AL. This qualitative data was then cross-referenced and triangulated with the quantitative data (see Table 9.1).

The interviews conducted during this period were particularly crucial, given the intense contestation of public policies in research. This allowed us to gain privileged access to the perspectives and strategies of some of the leaders, enabling a deeper understanding of how they sought to assert the distinctiveness of their organisations.

9.3.3 Indicators

To underpin the discussion of our argument, we contend that during that period, two primary strategic orientations emerged through which the AL distinguished itself within the higher education research system: organisational sustainability and organisational enhancing. To assess organisational sustainability, two sets of indicators – funding and employment – were used, while organisational enhancement was characterised by publications and institutional relationships. S&T indicators were incorporated into an evaluation domain that underwent considerable discussion (see, e.g. Lepori and Reale, 2012). In our analysis, we focus on indicators at the organisational level, as they contributed to “mapping the structure of scientific fields” (2012: 454) and to the “evaluation debate” (2012: 458). All the indicators were measured using quantitative variables (presented on Tables 9.3–9.7). With the designed indicators, we aim to contribute to an insightful examination of research organisations and the role they play in shaping the trajectory of the S&T system.

The mediating role played by these Institutions in the S&T system becomes evident when examining both the conditions they possess in the two aforementioned dimensions and the narrative they adopt regarding public policy in this domain.

9.3.4 Data analysis

Data screening was undertaken to validate the quantitative data. Descriptive statistics, including mean, standard deviation, minimum and maximum, were calculated. The Pearson’s correlation coefficient was employed to explore

relationships between the indicators. Given the multidimensionality characterising the configuration of the AL, cluster analysis was conducted to define types of AL across two analytical dimensions: funding and collaboration (Hair et al., 2019). First, a hierarchical cluster analysis (HCA) was implemented using two distinct agglomerative methods: Ward and Complete linkage. The convergence of the clustering solution proposed by each method ensured the robustness of our results. Subsequently, the HCA was refined by a k-means algorithm. Data analysis was conducted using SPSS statistical software.

Content analysis was used to analyse the interviews, adopting a thematic approach based on the interview script and the interviewees' narrative and triangulating the analysis with the quantitative results.

9.4 Findings

9.4.1 Funding

We began by comparing AL with another set of higher education research organisations funded by FCT, using three key indicators (see Table 9.3).⁶ Since 2004 there has been an increase in the number of doctoral researchers and a decrease in the number of research organisations. These trends signify a progressive concentration of organisations and resources, reinforcing the role of AL in the higher education and research system. Additionally, the policy commitment to this statute is evident in the rise in the number of AL, from 15 in 2003 to 26 in 2011. These 26 organisations constitute 8% of all FCT-funded research organisations, which confirms the exceptional nature of their statute and reflecting the concentration of funding.

AL employ a substantial proportion of all researchers in Portugal. In recent years, they have further solidified their position as the primary employers in the research field in Portugal. In 2003, they employed 23.4% of FCT sponsored researchers, and by 2012 this figure had risen to 27.5%.

Significant differences were observed concerning state funding of these organisations. The state's commitment to this small group of organisations and the amplification of their role in implementing the public policy measures are evident: in 2013 they received 58.7% of the total public funding allocated to research organisations in the country.

To establish a typology of AL based on the funding structure, a cluster analysis was performed using six distinct funding sources: national government, foreign sources, own revenue, non-profit organisations, companies and higher education. Three distinct types of AL were identified (see Table 9.4), indicating institutional heterogeneity (Horta et al., 2008). The largest type (N = 15AL) was characterised by Portuguese state funding constituting the majority of funds. Another type (N = 7) exhibited a high proportion of foreign funding. The smallest type (N = 2) demonstrated a greater diversification of funding sources, including their own revenue streams or funds from private non-profit organisations.

Table 9.3 Key indicators on the AL and other research organisations directly funded by the national funding agency for Science and Technology (FCT)

Year	Funding ^a					Researchers ^b					Units funded				
	Associate laboratories		Other research organisations		Total	Associate laboratories		Other research organisations		Total	Associate laboratories ^c		Other research organisations		Total
	Euros	%	Euros	%	Euros	FTE	%	FTE	%	FTE	N	%	N	%	N
2003	7,722,609	43.9	9,860,135	56.1	17,582,745	1,882	23.4	6,153	76.6	8,035	15	5.2	274	94.8	289
2004	21,117,097	37.4	35,360,531	62.6	56,477,627	2,033	23.8	6,510	76.2	8,543	15	3.6	400	96.4	415
2005	24,764,176	44.2	31,310,048	55.8	56,074,225	2,223	23.9	7,093	76.1	9,316	21	5.2	383	94.8	404
2006	19,804,070	55.1	16,142,688	44.9	35,946,758	2,443	24.4	7,584	75.6	10,028	21	5.2	384	94.8	405
2007	44,089,587	58.3	31,512,631	41.7	75,602,218	2,651	24.1	8,347	75.9	10,998	25	6.4	364	93.6	389
2008	48,346,022	54.3	40,685,600	45.7	89,031,622	2,884	23.8	9,209	76.2	12,093	25	7.0	334	93.0	359
2009	42,365,061	59.8	28,469,898	40.2	70,834,959	3,064	24.1	9,658	75.9	12,723	25	7.4	312	92.6	337
2010	43,528,142	55.5	34,905,135	44.5	78,433,278	3,283	24.5	10,134	75.5	13,417	25	7.3	319	92.7	344
2011	25,782,814	60.8	16,651,783	39.2	42,434,597	3,848	27.4	10,199	72.6	14,047	26	8.0	299	92.0	325
2012	30,520,488	62.3	18,506,553	37.7	49,027,041	3,974	27.5	10,462	72.5	14,436	25	7.9	291	92.1	316
2013	38,350,590	58.7	26,965,150	41.3	65,315,909	n.a.		n.a.		n.a.	25	7.8	294	92.2	319

Note: Row percentages were reported.

^a Funding transferred in year of reference, irrespective of the year of approval, excluding grants, competition-related project funding, etc.

^b Calculations for researchers solely include full-time equivalents (FTE) for doctoral students.

^c In 2012 and 2013, one of the most recently established AL was not included because it still received financial support through its constituent research organisations.

Source: FCT (fct.pt/apoios/unidades/estatisticas).

Table 9.4 Structure of funding sources

	<i>Origins of funds</i>					
	<i>National government</i>	<i>Foreign sources</i>	<i>Own revenue</i>	<i>Non-profit organisations</i>	<i>Companies</i>	<i>Higher education</i>
AL with most of their funding from national government (Type 1, N = 15)	80.7	9.0	5.8	1.0	1.1	2.4
AL with a comparatively high proportion of foreign funding (Type 2, N = 7)	55.3	29.2	5.2	3.4	5.4	1.5
AL with a more diverse funding structure (proportion of financing by own revenues or other) (Type 3, N = 2)	41.8	13.1	20.2	19.5	2.8	2.5

Note: Mean is reported.

Source: National Scientific and Technological Potential Survey (IPCTN) database, 2011. Own calculations.

The directors of AL all stressed the importance of public funding for organisations, asserting its decisive role not only for institutional success, but also for sustaining various support positions and functions would be challenging to maintain solely through irregular funding from research projects. This perspective is reiterated in each of the dimensions further developed below.

9.5 Employment

A common feature among the AL was the ability to leverage the special funding associated with their statute to attract and cultivate high-quality human capital from Portuguese universities and other research organisations. This was accomplished by providing better working conditions, particularly in terms of medium-term employment stability and the opportunity to engage in full-time research activities, feeding highly-qualified employment directed to knowledge-based economic activities.

It is important to note that not all individuals working in AL have the same employment conditions. Grant holders, including doctoral students, research assistants involved in ongoing R&D projects and postdoctoral fellows, constitute the base of the scientific employment pyramid, representing almost half of the AL workforce ($M = 48.1\%$, $SD = 13.1\%$, see Table 9.5). They are typically not characterised as researchers since their salary is funded directly by the FCT. This also serves as an important indicator of brain circulation (Heitor and Horta, 2014).

Professors constituted another significant, albeit smaller, segment. In 2011, they made up, on average, 22.0% ($SD = 11.1\%$) of the personnel employed at the AL. Their working hours were divided between teaching and research activities. Researchers – i.e. those engaged in research careers or through specialised programmes – comprised, on average, only 13.5% ($SD = 7.5\%$). Nonetheless, this percentage was higher than that observed in most other research organisations in Portugal, underscoring the role played by AL in the development of full-time research careers. This trend is also evident among individuals falling

Table 9.5 R&D professional situation in AL (2011)^a

	Mean	SD	Minimum	Maximum
Grant holders ^b	48.1	13.1	17.1	66.2
Professors	22.0	11.1	3.0	49.1
Researchers	13.5	7.5	3.3	30.5
Others	16.4	8.3	1.9	34.8

Note: Percentages reported. The scale used ranges from 0 to 100 (%).

^a Considering all individuals in research in absolute values (not full-time equivalent FTE).

^b The category “grant holders” encompasses doctoral grant holders, postdoctoral grant holders and research assistants whose work contracts involve a grant awarded for the duration of the project (or a part of it).

Source: National Scientific and Technological Potential Survey (IPCTN) database, 2011. Own calculations.

into the “others” category; primarily those in technical support roles (e.g. project management, laboratory technicians and health professionals), who play a vital role in supporting research activities.

For AL leaders, the employment of full-time researchers, facilitated through public and financial support, is considered a decisive element in advancing AL activities. This is because these researchers can fully commit themselves to coordinating larger-scale projects. Such projects involve a greater number of grant holders, enable the acquisition of more advanced equipment, support the development of advanced training and facilitate the establishment of collaborative networks and international contacts and teams:

[The hiring of full-time researchers] allows the combining of efforts with other researchers in the AL to submit applications for larger projects, international projects. This allows those involved to acquire bigger and more expensive equipment, which they couldn't do on their own and it can even help to develop PhD programmes with a university.

[AL Council Secretary]

There is no doubt at all that financial stability has allowed us to equip the laboratory (...) no other laboratory is so well equipped in the materials field. We cannot participate in networks if we have nothing to give; and, in certain fields, equipment is fundamental

[AL director]

Human and material resources have been central domains to ensure sustainability and were mentioned by all the interviewees in this context. The public funding model for AL has also been viewed as positive because it supports the formulation of a medium-term research strategy. This is manifested in the dedication to longer-term projects that are organisation-based and not solely reliant on the sporadic hiring of “star researchers”.

We started to have something that we did not have: the ability to decide on a certain way forward – a strategy. It was the first time we had had any funding that was not exclusively meant for just holding the lab – photocopying, cleaning – those absolutely essential things you can't operate without. Basically, there are two important things that would have been carried out with great difficulty if the AL hadn't existed. One: we began to have a certain amount of money to reward the people who published the most. Another very important thing for us, the financing of internal projects.

[AL director]

The promotion of organisational or competitive funding was a theme present in the statements of the AL directors, but they are not opposed: the first one allows the creation of conditions for the last.

When asked about the added value of being an AL, they all stressed the opportunity of being able to hire full-time researchers as the key element explaining the progressive consolidation of the position that these research organisations hold in the Portuguese research area.

There was the huge advantage that comes with direct funding: it allowed us to hire researchers. With them, the number of PhDs in the laboratory multiplied by 1.5, the scientific output (for example, in terms of articles) multiplied by three. So, there was a very important dynamic of growth that was created with the people who came.

[AL director]

This ability to provide stable positions in research has been a crucial factor in attracting researchers (brain gain), preventing their departure from the country (brain drain) and promoting mobility (brain circulation) (Laudel, 2005). Additionally, through various initiatives, it has facilitated the establishment of international contacts.

We organise courses for PhD students, and usually invite foreign scientists. As its core, this fosters and strengthens collaborations, and I think it is extremely important, and also opens up prospects for students who are involved in these courses of what is done abroad.

[AL director]

I have to give the guarantee to a person who is going to stay here a while. If not, I do not have motivated people and nor will I attract the best.

[AL director]

The significance extends beyond researchers' employment; it encompasses all institutional conditions. The interviewees criticised what they call the "strategy of the individualisation of science", rooted in the emphasis placed on the individual success of researchers. This approach is deemed incompatible with establishing a stable framework and a research career within the institutions.

No one is against excellence. Nowadays, science is not carried out by people in isolation. Individuals need to be integrated into an organisational context. Furthermore, the European Commission, European money, only finances 5% of all the research carried out in Europe. The other 95% is from the funding agencies of the various countries. There are going to be a lot of young people who will no longer be attracted to science.

[AL Council Secretary]

There is an idea that was tried – it didn't succeed – but the idea is that it is not the organisations that are important; what matters are the people. So, half a dozen very good researchers are combined to form a unit. And

we ask: “Where do they do it? In the street?” They need to negotiate with someone, they need to be somewhere, they need equipment, they need a structure and they need a framework.

[AL director]

Grants such as those from the European Research Council, allow organisations to access a significant amount of funding. However, as mentioned by AL directors, this places excessive emphasis on valuing researchers at the expense of the organisations, and moreover, it is not a source of continuous financing:

I believe that discontinuing funding for teams in favour of relying on star researchers appears to be a measure that will penalise the country because significant projects require this level of funding, and securing financing for major projects is accomplished through teams. It is a team of researchers that develops skills, gains international recognition and can sustain projects: that’s what the AL provided. The current emphasis on individual researchers, it seems to me, will not offer this, and in that sense, I am concerned about what the future may hold.

[AL director]

The need to strengthen organisations rather than solely focusing on individuals – although individuals are also important, as demonstrated by Kwiek (2016) – emerges as a crucial concern in the advancement of higher education institutions. These institutions express significant reservations about budget cuts, as they are detrimental to the consolidation and expansion of scientific employment, a key aspect of any science development strategy.

Our greatest challenges revolve around personnel and their attrition. This is indeed a substantial issue. We have struggled and continue to grapple with its resolution. And that’s what scares me. This year I’ve lost I don’t know how many researchers who would rather stay but leave. I can’t offer a permanent position. At the moment I have no means at all of doing so.

[AL director]

While AL have created more favourable conditions than other institutions to offer stable employment, they still cannot provide tenured positions for all the researchers. Consequently, precarious scientific employment persists, posing a common challenge in various countries. This necessitates a reconsideration of research career structures and the capacity to attract and retain researchers (Laudel, 2005). Research mobility may be perceived as advantageous for creativity and knowledge transfer (OECD, 2014), but it can also mask situations of injustice and wasted resources, as demonstrated by Wagner (2014) in a study on research teams composed of individuals with different cultural origins working in American institutions.

9.5.1 Publishing

This array of advantages is reflected in the AL's scientific enhancement and output and its presence in international networks (Postiglione, 2013), specifically through publications, a central domain of institutional development and internationalisation. Although there is a considerable debate and reflection on publishing and, particularly, citation as an indicator of evaluation (e.g. Lindgren, 2011), the data collected in this domain (not considering it as an isolated indicator) provide interesting evidence of organisational distinction and development, especially when comparing organisations with distinctive resources and statutes. Since the focus is on the organisational level, we chose to consider publications rather than citations, with the aim of evaluating the conditions research organisations provide to their scientists and how this fosters organisational development. Rankings play a key role in this domain, as publishing in top level journals is taken as a central indicator of knowledge dissemination, progressions in the researchers' careers and organisational prestige.

Following an FCT-funded bibliometric study by the Centre for Science and Technology Studies (Leiden University) – based on the total volume of publications referenced on the Web of Science between 2007 and 2010 – the scientific production of the AL, supported by publications per unit or researcher and by citations and international co-authorships, is positively compared with other higher education research organisations (see Table 9.6).

Table 9.6 Publications (co)authored by researchers affiliated with AL and Other Research Organisations funded by the FCT (2007–10)^a

	<i>Type of organisation</i>	
	<i>Associate laboratories (N = 26)</i>	<i>Other research organisations (N = 252)^b</i>
Number of publications	14,460	18,293
Publications per unit (Mean)	556.15	72.59
Publications per researcher FTE (Mean) ^c	4.49	2.29
Citations per publication (excluding self-citations (Mean))	6.34	3.66
Co-authored international publications (%) ^d	49.72	37.95

^a Solely includes articles and reviews found in Web of Science – Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI), Arts & Humanities Citation Index (A&HCI).

^b According with the information provided by the National Funding Agency for Science and Technology (FCT): (i) in 2012, 319 organisations were surveyed to conduct a preliminary inventory of scientific publications; (ii) in 2007–10, 278 organisations were included in the bibliometric study, representing 93% of organisations registered in 2010 (see Table 9.2).

^c This calculation includes the full-time equivalent (FTE) average for researchers in the period 2008–2010 for each organisation.

^d Co-authorship of researcher(s) integrated in Portuguese organisations with one or more researchers in non-Portuguese organisations.

Source: FCT (fct.pt/apoios/unidades/bibliometrico/estudo).

As larger organisations, AL have a higher number of publications per unit. However, the difference persists concerning the number of publications per researcher, citations per publication and international co-authorships. Besides its qualitative evaluation, such data serve as another clear indicator of the leading position of these laboratories in relation to Portuguese scientific productivity, the significant impact of their scientific productivity and their greater capacity to actively participate in international networks (Postiglione, 2013). The higher level of publications cannot be analysed separately from the conditions to publish, as the literature also stresses (Kyvik and Asknes, 2015).

9.5.2 *Collaborating*

The information regarding network collaboration was available for 24 of the 26 ALs, a central dimension for analysing the development and internationalisation of research institutions (Knobel, Simões, and Cruz, 2013). We analysed whether the AL had research projects in cooperation with one of six national or international entities: state, higher education organisations, non-profit organisations, technology centres, companies and others. The AL, in general, maintained a considerable diversity of institutional relationships and, with extensive human resources departments, material and financial structure, they provided key support for other research organisations.

First, the intensity of the institutional relationships was measured using a scale ranging from 0 (non-cooperation) to 6 (maximum of institutional relationships). Most AL maintained cooperative relationships with three or more entities. The diversity of relationships with foreign entities tended to be slightly lower ($M = 3.3$, $SD = 1.7$) than at the national level ($M = 3.7$, $SD = 1.4$). These two variables demonstrated a large positive and significant correlation ($r = 0.814$, $p < .001$) (Cohen, 2016).

The diversity of the institutional relationships in Portugal was also explored, and a cluster analysis was performed to identify its latent structure. Three types of AL were identified: the first ($N = 8$) that collaborated with all organisations; the second ($N = 7$) that is characterised by an absence of relationships with companies and technology centres; and a third ($N = 9$) that demonstrated a variety of collaborations (see Table 9.7).

The testimonies of the AL leaders reinforce the intrinsic nature of networking in their research activities. The express difficulty in articulating an accurate count of such networks due to their heterogeneity and multiplicity.

It's really the only way to produce knowledge today. Through authorship, networks, confrontations, international discourse, a shift in the analysis of problems and greater abstraction.

[AL director]

50% of papers and published articles are published in co-authorship with foreign institutions. Therefore, we worked networked partners, but that often means a bottom-up approach.

[AL director]

Table 9.7 Institutional relationships in Portugal

<i>Typology</i>	<i>AL collaborations</i>					
	<i>Government (N of AL)</i>	<i>Higher education (N of AL)</i>	<i>Non-profit (N of AL)</i>	<i>Companies (N of AL)</i>	<i>Tech centres (N of AL)</i>	<i>Other (N of AL)</i>
Cooperation with all types of organisations (Type 1, N = 8)	8	8	8	8	8	2
Absence of relationships with companies/tech centres (Type 2, N = 7)	6	7	7	2	0	0
Heterogeneous profile with less diversified relations (Type 3, N = 9)	6	9	0	5	4	1

Note: Each line outlines the profile of each type (cluster) of AL based on different collaborations.

Source: National Scientific and Technological Potential Survey (IPCTN) database, 2011. Own calculations.

As our interviewees also affirmed, the distinction achieved by attaining AL statute resulted in an escalation of relationships between organisations, notably fostering competition for resources, such as use of space and determining which projects are most likely to secure funding.

The number of individuals increased by more than 50%, while the quantity of items tripled. Consequently, a dynamic emerged with the significant influx of new people.

[AL director]

[The AL statute] enables collaboration with fellow researchers within the AL, facilitating the pursuit of larger projects, including international initiatives aimed at acquiring more extensive and costly equipment. Such endeavours often require the aggregation of multiple projects in that direction. Additionally, it may lead, as observed in some instances, to the establishment of doctoral programmes focused on specific areas, often in collaboration with a nearby university.

[AL Council Secretary]

9.6 Discussion

The aim of this chapter is to examine how a public policy measure facilitated the distinction of a set of research organisations over a particular period of time through the granting of a specific statute, due to the conditions provided, the role they play in the advancement of higher education and research activities. The results obtained allow for a discussion of various aspects supporting our argument and confirm the potential for the AL to form a set of distinctive organisations, occupying top positions in research organisation evaluations. Public policy and evaluation processes contribute, hence, to the creation and legitimization of organisational rankings.

The analysis also supports an evaluation approach based in organisational indicators, promoting an institutional perspective rather than an individual based assessment, contradicting the belief in scientific success as based solely in the rational behaviour of researchers. Emphasising their important role in defining research agendas, it is worth noting that this influence is primarily due to the fact that AL cover the most prominent and advanced training fields in Portugal, such as health and technologies. Additionally, AL have played a leading role in relationships with the other research organisations.

Regarding organisational sustainability, the privileged access to funding has allowed AL to offer full-time employment in research. This aspect has been central aspect to the development of funded doctoral training, scientific employment and career advancement, providing favourable conditions for hiring researchers and ensuring tenure positions for some. The distinction between AL and other research organisations in Portugal is evident, considering both

have access to public funding and employment. It is important to consider these two conditions together, as a significant portion of the funding covers the cost of human resources.

Organisational enhancement within the AL is underpinned by its capacity to provide access to the international research community, active participation in international networks and the promotion of international publications as a significant research output. This latter aspect also serves as a crucial indicator for fostering collaborative relationships and disseminating scientific knowledge. Collaboration and partnerships are central dimensions for the development and internationalisation of research. In the context of Hong Kong, Postiglione (2013: 364) stresses how “research universities in developing countries can better anchor globalisation in national economies through a cosmopolitan format”.

We argue that the mediation role played by these institutions in the national S&T trajectory, as proposed by Mulkay (1976) is evident. This visibility is not solely attributed to their societal role in the development of scientific research and addressing public policy demands, but also extends to their impact on public discourse. Their mediating role (Mulkay, 1976) is rooted in their privileged position, encompassing the safeguarding of science in Portugal and their position in research rankings as sources of “excellence”. These organisations leverage their privileged positions to challenge certain trends, particularly since 2011, when, with a change of government, they sought to solidify their roles and coordinate the activities of research organisations. This underscores the important function of AL in Portuguese research and advanced higher education, establishing their distinction as organisations. In evaluation exercises, these organisations stand out both due to their access to privileged conditions (enhancement) and to the produced outputs (development), delivering reliable research (Frederiksen et al., 2003) and playing a significant role in society.

9.7 Conclusions

Public policy aimed at higher education and research during the 1990s and early 2000s began in 1999 by conferring the AL statute upon a group of research organisations in the country and, hence, feeding research organisations rankings. By the time the programme was suspended due to the 2008 financial crisis, it had granted AL statute to 26 organisations.

From 1999 to 2011, AL experienced significant growth in various aspects within the scientific community in Portugal, particularly in areas such as employment, networking and publications, thereby promoting the internationalisation of their activities.

As is evident from the evaluations, various indicators illustrate the prominent position of these organisations in the national S&T structure: a position visibly affirmed in the most recent assessments. In 2017, another public

measure – the establishment of Collaborative Laboratories – reinforced the role of the AL central research institution in networking, further emphasising their mediating role (FCT, 2018). Consequently, public policy had a significant impact on the development of research and scientific employment in Portugal, fortifying organisations and integrating them into a network that includes the AL and the other research institutions.

While AL depend on external agencies for funding and accreditation, they exhibit internal diversity, demonstrating the development of unique management structures, encompassing training, hiring and retention policies for researchers.

The robust dynamics characterising cooperation, particularly in research projects, relationships with companies and publications position them as key players in enhancing the broader research community, encompassing both national and international organisations. As highlighted in other research (Kyvik and Asknes, 2015), the focus on academic publication demonstrates that it is the set of organisational conditions, not just the individual ones, that stimulates research. Therefore, these conditions must be taken into account in assessment processes.

AL constitute in a group of organisations strategically supported by public policy, solidifying their top position and role in the system. This was substantiated in a 2013 assessment of FCT-funded research institutions, where the majority of ALs maintained prominent positions in the ranking. Five of them achieved the maximum classification (“exceptional”, out of a total of 11 organisations with this classification), while 11 were assessed as “excellent” and 10 as “very good”. None of the 26 AL was classified at the lower end of the scale (“good” or “fair”). Additionally, a new assessment took place in 2020, and 10 of the 26 ALs were the only ones to receive the maximum evaluation (100 out of 100), from a total of 45 research institutions. It can be concluded that these ALs uphold their “scientific reputation” (Bourdieu, 1976: 93), applied to the organisations rather than to individual researchers.

As a cause and consequence, these institutions have played a central role at the international level by fostering institutional collaboration, disseminating research and promoting scientific employment. They have developed their activities based on the public support, but their leading actions have had international consequences and institutional impacts, as they do not operate in isolation. The perspectives of directors regarding S&T policy also provide strategic indications for public policy, particularly concerning institutional autonomy and highly-qualified employment, which are central dimensions in the discussion of research policy. These key actors of the S&T system also represent organisations with an important role in the creation of knowledge to support certain segments of the economy, which cannot be underestimated.

In 2021, the AL statute was granted to 40 research institutions, augmenting the existing 26 (FCT, 2022). The extension of this statute is certain to be a subject of future discussion. While it alters the configuration of the scientific field

(Bourdieu, 1976) and, consequently, challenges the “monopoly of the scientific skills” (1976: 89), defined as “the capacity to speak and act legitimately (meaning in an authorised and way and with authority) in relation to science, which is socially recognised to one agent” (Bourdieu, 1976: 89), the establishment of a research structure and its impacts on scientific employment, access to funding or the consolidation of a research culture require time.

As the Science Minister said in 2022:

The political objective for the promotion of new horizons of growth and affirmation considers the differentiated and competitive stimulus to the development, promotion and selective reinforcement of Associate Laboratories towards large international R&D laboratories, effectively integrated into European networks and with attractive scientific careers, together with an active role in the support of public policies in Portugal and Europe.

(FCT, 2022)

The realisation of these political aims necessitates a broad set of conditions, which will be confirmed over the following years. The discussion presented in this chapter offers important insights into the pursuit of excellence at the organisational – and not individual – level and raises questions about the consequences of extending this statute to other research institutions. Will the reinforcement of scientific elitism occur, giving rankings a central role, both of organisational and individual nature, or, conversely, will we witness a greater democratisation of research production? And which will be the consequences for public policy, employment and economic structure?

Notes

- 1 We wish to express our gratitude for the contributions made by Cristina Palma Conceição and Joana Lucas to this text, as well as the valuable suggestions provided by the reviewers. The proofreading of this paper was undertaken with the support of the Fundação para a Ciência e a Tecnologia (FCT) through the funding of the R&D Unit UIDB/03126/2020.
- 2 For a comprehensive understanding of public policy on higher education and research in Portugal, please refer to Rodrigues and Heitor (2015).
- 3 In 2021, an additional 14 research organisations achieved this statute (FCT, 2022), bringing the total to 40 ALs. As argued above, and given that these last 14 research organisations lack a history of activity that allows for the development of our argument, our focus remains on the research organisations with AL statute in 2011.
- 4 See, e.g. <https://redbranchmedia.com/blog/why-excellence-vital-the-branch/> Assessed at 25 July 2025. And the interesting critical analysis of the analysis from the famous Weisman and Peterson, “In search of excellence” by Aupperle, Acar, and Booth (1986).
- 5 Seven of the AL directors did not respond our request for an interview.
- 6 We chose 2004 as the starting year for this analysis to establish a timeframe from the initial allocations of the AL statute, enabling an examination of its impact on the selected indicators.

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10 Organizers and promoters of academic competition?

The role of (academic) social networks and platforms in the competitization of science

Stephan Pühringer and Georg Wolfmayr

10.1 Introduction

Academic economics, and the academic system in general, has undergone several severe transformations in recent decades: *internationalization* and *quantification* of research evaluation methods on the one hand and *neoliberal restructuring* and *reorganization* of the academic system following from the expansion of New Public Management (NPM) on the other. Economics has become increasingly international and standardized with respect to knowledge production, research cultures, and teaching (Bäuerle, 2023; Fourcade, 2006; Tribe, 2022). This trend of *internationalization* takes place – and can be empirically illustrated – at several levels, including (i) the increasing importance of English-speaking (mainly Anglo-Saxon) academic journals in academic systems around the world (e.g. Hyland, 2009; Tribe, 2022), (ii) the standardization of economics education and economics textbooks across the globe (e.g. Bäuerle, 2021, Zuidhof, 2014), and (iii) the increased mobility of individual researchers between different countries (e.g. Davies, 2020; Sautier, 2021). In addition to this process of internationalization, economics has also undergone several trends of *quantification*. While there is a long-standing and controversial debate on the quantification and mathematization of economic theories and empirical research design (Debreu, 1991; Hodgson, 2013; Romer, 2015), our diagnosis of the competitive nature of economics rather refers to an expansion of a quantitative logic of the academic evaluation system. More precisely, the trend toward a different kind of quantification, namely the quantification of academic research practices in economics, which is reflected in the increasing use and impact of quantitative evaluation methods and technologies (QEMTs). This kind of quantification is reflected in three interrelated trends: First, the growing importance of quantitative evaluation criteria such as journal impact factors for the distribution of academic prestige and as a quality criterion for individual research. Second, a growing impact of these bibliometric indices on the selection criteria and career trajectories of (young) economists. Third and finally, the more regular publication and application of academic rankings, both at the level of individual researchers and at the level

of institutions, notwithstanding several international initiatives for a more comprehensive research evaluation culture and the open science movement during the last decade.¹ Both internationalization and quantification are closely linked to technological innovation, which has facilitated not only communication but also the availability of research performance metrics, thus triggering the ‘metric tide’ (Wilsdon, Allen, Belfiore, et al., 2015).

Moreover, and crucial to our argument in this chapter, both internationalization and quantification have intensified *competitization* within the academic field, that is, the expansion of competitive formats, competitive practices and competitive subjectivities. Our main claim in this chapter is that this far-reaching competitization of economics and academia in general has recently been further intensified by the increasing impact of academic social networks and platforms (ASNP)s such as ResearchGate, Google Scholar, Academia.edu, Loop, as well as general social networks such as LinkedIn, but also Twitter (now X). Our argument in this chapter is that academic platformization brings together and reinforces the processes mentioned above – internationalization, quantification and competitization. It makes scholars internationally comparable through the establishment and use of universal metrics and facilitates competitive relations between them. Therefore, we will pay specific attention to these ASNP)s, potentially serving as organizers and reinforcers of competition and thus as promoters of competitive practices, and ask: How do ASNP)s construct competition between their users and which role do QEMTs have in this process?

The remainder of this chapter is structured as follows: In the next section, we briefly summarize the process of competitization in academia and describe today’s (economic) academic competition ecology, in which QEMTs and ASNP)s play important roles. In the third section, we lay out our analytical framework for studying ASNP)s and how they construct competition. In the fourth section, we empirically analyze three ASNP)s and show how they construct competition to varying degrees. Finally, in the Conclusion, we summarize our findings and differentiate different ways of criticizing competitization in academia.

10.2 Competitization and the role of ASNP)s and QEMTs in the competition ecology in academic economics

In recent years, several critics have argued that the organization of knowledge production increasingly follows a competitive logic on many different and mutually reinforcing levels. Historically, competition in higher education first gained prominence in the late nineteenth century, when nation states began to recognize that knowledge and research were not only crucial for technological innovation in the military sphere and thus for war, but also contributed to economic development and growth. Christine Musselin (2018), for example, points to several proactive initiatives by French and Russian authorities to close the knowledge and research gap with Germany. The rise of territorial nation states is thus the starting point for increased competition in higher education at the

macro level. The second important trend for the development of a competitive ecology in higher education is closely related to the managerial turn and the shift toward NPM in university administration (Gornitzka & Maassen, 2017; Söderlund, 2020). NPM emerged in the 1980s against the backdrop of a neoliberal critique of the ineffectiveness of state bureaucracy in several areas, and was associated with the introduction of market-based mechanisms and instruments into the higher education system. While NPM was first introduced in the US and the UK, it was soon adopted by all OECD countries, which have implemented several public sector reforms to increase the ‘efficiency’ and ‘productivity’ of academic institutions (see e.g. Broucker, 2017). On a discursive level, buzzwords such as ‘internationalization’, ‘excellence’, and ‘knowledge society’, which paved the way for the managerial turn in higher education, follow the ideological strands of neoliberalism, neo-institutionalism, and managerialism. The managerial turn has also been interpreted as a further economization (Berman, 2014) and marketization of knowledge production and has been accompanied by increased financial and administrative autonomy of universities, also in Europe. With this autonomy and the increased international orientation and comparison of universities and knowledge clusters, universities have been discursively framed as engines of economic growth (Söderlund, 2020), which has further strengthened the competitive conceptual understanding of the higher education system at the meso-level of academic institutions. Much of the literature discussed here takes a rather critical stance toward the competitive organization of the educational system. However, the standardization of evaluation criteria and the expansion of a meritocratic stratification logic associated with this development to a certain extent also contributed to a diversification of academia concerning the inclusion of underrepresented social groups: as, for instance, female researchers and researchers with lower socioeconomic status. Yet, competitization of science has also brought along new and partly more indirect forms of exclusion (see e.g. Chapters 5 and 6 in this volume).

Today competition has become the hegemonic way of organizing interaction, quality assessment, and stratification in (economic) academia – what could be described as an academic competition ecology (Arora-Jonsson, Brunsson, & Hasse, 2021, Altreiter, Gräbner, Pühringer, et al., 2023). While competition for the recognition for one’s originality was already seen as one major driver of scientific progress as early as 1957 by Robert K. Merton (1957), in recent years we witnessed the emergence and expansion of ever-new competitive formats at very different ontological levels, ranging from the micro-level of individual scholars to the macro-level of nation states embedded in the competitive organization of knowledge societies (Krücken, 2021; Musselin, 2018). Figure 10.1 provides a comprehensive visualization of the ecology of competition in the academic system, in which we aim to provide a better understanding of this hegemony of competition in academia. We distinguish between competitive formats in terms of the competitors, the ‘scarce goods’ that are being competed for, the organizers of the competition, and the performance measures that are used in different formats to decide on the allocation of the

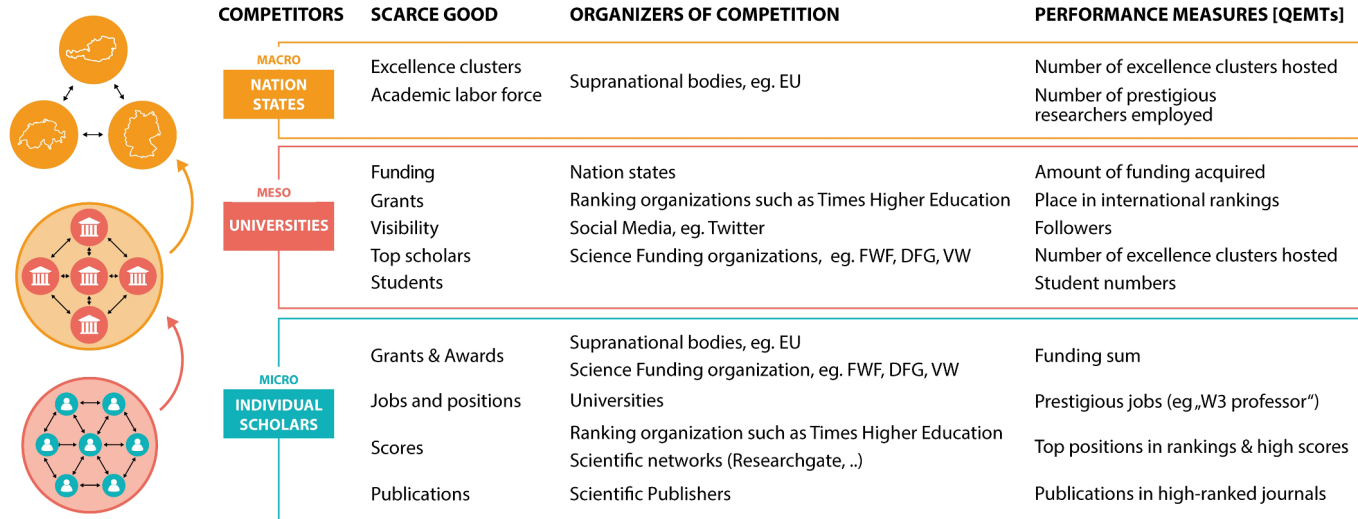


Figure 10.1 Competition ecology in academia.

scarce goods. In this chapter, we focus on ASNPs as organizers of competition between individual scholars and their use of QEMTs as performance measures for this purpose.

10.2.1 ASNPs as organizers and reinforcers of competition

Within academic competition ecology we distinguish between different organizers of competition, including a heterogeneous set of institutions and organizations ranging from supranational bodies and nation states to academic institutions such as universities, but also ranking institutions and scientific publishers. More recently, however, ASNPs have entered the academic arena and introduced a further expansion of competitive formats into the academic system, so much of our work will focus on these more recent actors in the field of competition organizers. Due to the increased metrification of research evaluation and assessment, and the increased visibility and impact of scores and rankings, ASNPs are used as evaluation tools for individuals and institutions in the academic world. While more static platforms such as WoS or Google Scholar played an important role in the metrification of scholarly output, it was the interactive platforms and networks such as ResearchGate, Academia.edu, Loop, etc., that not only provided additional competitive formats but also increased the potential competitive pressure on individual scholars. As we will show in more detail in the next sections, especially these newer interactive forms of ASNPs provide several devices for the subjectivation of their users as ‘quantified academic selves’ (Hammarfelt, Rijcke, & Rushforth, 2016) or ‘competitive selves’ (Pühringer & Wolfmayr, 2024). Thus, competitive logics not only contribute to the organization of academia, but also increasingly affect the self-perception of researchers as competitive subjects.

10.2.2 QEMTs as performance measures within the (economic) academic competition ecology

The increasing use of QEMTs as performance measures, which can be both material (e.g. funding, number of prestigious researchers) and symbolic (e.g. impact scores, top rankings), has been an important accelerator for the establishment of an (economic) academic competition ecology. The introduction of steering tools and performance indicators in NPM in academic institutions has also been rooted in and further promoted by QEMTs (Broucker, 2017). The managerial turn in higher education thus relies heavily on the application of standardized bibliometric evaluation methods developed since the 1960s. In particular, Eugene Garfield’s invention of the Science Citation Index (SCI) and the Journal Impact Factor, as well as the expansion of the Web of Science database, made it possible for the first time to measure scientific output in terms of citation and impact scores, thus gradually giving rise to the ‘metric tide’ (Wilsdon et al., 2015). Although these scores were already formulated in the 1960s and 1970s, it was the digitization of publication outlets and the associated bibliometric information that made QEMTs an easily accessible source

for the competitive organization of quality control and thus the stratification dynamics in academia. In addition, archives and platforms such as Web of Science, Scopus, and Google Scholar, as well as the invention of the Hirsch index (Hirsch, 2005), intensified competitive relations between academic institutions and individual scholars. Despite several critiques of the validity, informative value and (interdisciplinary) comparability of specific QEMTs (Espeland & Sauder, 2007, Brankovic, Ringel, & Werron, 2018), various rankings and ranking institutions, such as the Shanghai Ranking or the CHE in Germany, have emerged since the 2000s and developed performative power in the assessment of scientific quality (Krücken, 2021; Musselin, 2018).

However, compared to other social science disciplines, QEMTs have been particularly influential in economics, as economists seem to be ‘into rankings’ (e.g. Rossier, 2025 and Hylmö, Reymert, & Hammarfelt, 2025 in this book). For example, the distribution of academic prestige (and power) depends heavily on the ability of individual researchers to publish in journals that occupy top positions in journal rankings. These rankings, in turn, are based on the evaluation of (quantitative) impact factors, such as the Journal Impact Factor. Hence, competitization of economics does not only relate to the increased impact of QEMTs but rather to a far-reaching self-understanding of the discipline as being organized and structured by different competitive formats and particularly rankings. The variety of individual and departmental rankings in economics in different national and international contexts illustrates the particularly strong competitive organization of the discipline. There exist several personal rankings of economists (but also departments), such as the RePEc-Ranking, or in the German-speaking area, the prominent ‘Handelsblatt-Ranking’ and the ‘FAZ-Ranking’. Both latter rankings, which are published by German and Austrian Newspapers, gain public attention with labels such as ‘The economists Germany listens to’ (FAZ) and are also frequently referred to by economists – particularly those, who lead the rankings. Consequently, several recent studies diagnose an ‘obsession’ with rankings within economics (Fourcade et al., 2015; Maesse, 2017; Hylmö et al., 2025). Economics stands out in terms of the importance of publications in ‘top journals’, particularly the ‘top 5’. The ‘top 5’ represent the upper tail of the hierarchical order of economics and thus also serve as a gatekeeper for the reproduction of the economic discipline (Aistleitner, Kapeller, & Kronberger, 2023; Heckman & Moktan, 2020). Therefore, the ability of an economist to publish in the top 5 signals excellence within the discipline and is crucial for future career trajectories, especially for younger economists. It is against this backdrop that we are interested in the role of the ASNPs as organizers and promoters of competition.

10.3 Analytical framework

The theoretical starting point for the conception of competition in this chapter is the emerging field of – broadly speaking – constructivist competition research, which starts from the assumption that competition is neither universal nor necessary, but rather constructed (Tauschek, 2013, Wetzel, 2013,

Werron, 2015, Stark, 2020, Arora-Jonsson et al., 2021, Wolfmayr, 2024). In order to systematically analyze how competition is constructed through ASNPs, we start from an understanding of competition as consisting of four basic elements (Arora-Jonsson et al., 2021; Simmel, [1903] 1995; Altreiter et al., 2023; Wolfmayr, 2024): First, without scarcity, there is no rival good to compete for. Second, there must be a competitive allocation mechanism that rewards the party that best meets certain criteria. Third, without at least two competitors who perceive the situation as a competition and who also see themselves as competitors, there is no motivation for them to enact the competition. Finally, without the ability to perform, such as a lack of control and decision-making power, active competition is impossible. Thus, competitors must have competitive agency for competition to exist.

Over the past decade, there has been increasing scholarly interest in how and by whom ASNPs are used and what effects they have on their users (Kapidzic, 2020; Muscanell & Utz, 2017; Utz & Muscanell, 2018). However, there are few studies explicitly interested in the competitive aspects of ASNPs, including Utz and Muscanell's (2018) work on feelings of envy and pride when using the platforms. In another study, Hammarfelt, Rijcke, and Rushforth (2016) examine how neoliberal ideas about markets and competition shape the conception and enactment of research as a game on ASNPs and how profiles are technologies of the professional self. They show how ASNPs transform academic sociality and identity formation. In addition, Jana Komljenovic (2019) studied how metrics on ASNP increase competition, and Duffy and Pooley (2017) examined how these networks lead to the self-branding of academics.

However, in this chapter, we are particularly interested in the user interface of ASNPs and their competitive structural elements. Thus, we ask, from the perspective of constructivist competition research, what competitive elements ASNPs use to construct competitive relations among their users, particularly how the four basic elements of competition are constructed.

10.4 Competitive platforms as embedded in competition ecology

10.4.1 ResearchGate, Google Scholar, and Twitter

The emergence of specialized ASNPs, such as Google Scholar (2004), Academia.edu (2008), and ResearchGate (2008), as well as more general networks and platforms, also for academic use, such as LinkedIn (2002), Xing (2003), Twitter (2006), or Loop (2015), was a further step in the dissemination of metrics, in making scientific work comparable, and – as we will show in the next subsection – in the diffusion of competitive relations between scholars. In this chapter, we look at three ASNPs in particular: While we focus on ResearchGate because the competitive elements are most pronounced there, we provide a comparative and contrastive perspective with two quite different platforms, Google Scholar and Twitter.

ResearchGate was founded and launched in 2008 as one of the first academic social networks by German scholars Ijad Madisch, Sören Hofmayer, and Horst Fickenscher. Similar to platforms such as academia.edu and

Mendeley, ResearchGate combines the features of more static academic databases such as Google Scholar, Scopus, or Web of Science with interactive communication tools. ResearchGate allows the uploading of various forms of research output and provides tools for communication and interaction with other researchers, as well as a job market tool. According to its own statements, money is made in particular with personalized advertising and subscription-based services as well as the selling of user data (Goldenfein & Griffin, 2022; Keusch & Kreuter, 2022). It has received funding from several venture capital firms. Since 2023, ResearchGate has been cooperating with the scientific publisher De Gruyter, which means that content from 437 journals is included in ResearchGate. According to its own data, today ResearchGate has 20 million users in over 190 countries.

Google Scholar was released in 2004 and, like the rest of Google's services, is now part of Alphabet Inc., the world's third-largest technology company by revenue. Google Scholar is a search engine and bibliographic database for scholarly literature. In 2011, *Google Scholar Citations profiles* were introduced, making it possible to compare individual scholars without regard to their disciplinary or geographic context. In contrast to similar services such as Scopus and Web of Science that gained prominence in the 1990s and early 2000s, Google Scholar is not fee-based, and unlike ResearchGate, it does not display advertisements. However, it is not entirely clear to what extent Alphabet can extract commercial value from Google Scholar (Goldenfein & Griffin, 2022). It is also not transparent as to which documents are included in its database, and according to which criteria the results of searching are ranked (Goldenfein & Griffin, 2022).

Twitter (recently renamed X) was launched in 2006 by Odeo, a podcasting service and is today one of the most prominent social media platforms. It is primarily used to facilitate communication and allow users to share news and thoughts. Although Twitter is not primarily aimed at an academic audience, the platform is increasingly used to share research results, call for publications, or discuss the latest scientific findings, and offers features for active sharing (i.e. following and tweeting). Recent studies have also found a correlation between active participation on Twitter (number of tweets) and scientific influence as measured by citations (Luc, Archer, Arora, et al., 2021; Ortega, 2016). Thus, a Twitter account could serve researchers both as a tool for academic exchange and as a strategic option for improving their own scientific metrics. Today Twitter has about 450 million active users and makes money via advertising (most of the company's revenue) the selling of data licenses and, since 2021, the subscription-service Twitter Blue.

10.4.2 Competitive elements on ResearchGate, Google Scholar, and Twitter

In order to elaborate how and to what extent these ASNPs promote competition between their users, we will now look in detail at the central competitive elements of the three platforms. We distinguish three elements of the platforms that contribute in different ways to how they propose competitive relations between their users: profiles, statistics/metrics, and requests/notifications.

10.4.2.1 Profiles

The three platforms allow users to shape their own profiles to very different degrees. On ResearchGate, the profile page allows the user to present their own work. Users can add a profile picture and describe their research in their own words. Often these descriptions resemble short CVs, including current research projects, institutional affiliation and research interests. In addition, users' activities on ResearchGate are summarized, and they can use predefined forms to provide information on education, institutional affiliations, journal positions, grants and awards, and memberships. A summary of the user's attributes in the form of a 'business card' can be found at the top of the profile page, along with an indication of how many times it has been viewed in the last week. In contrast, there is limited control over profiles on Google Scholar and Twitter. On both platforms, a photo can be added, a website can be linked, institutional affiliation(s) can be provided, and a few keywords about research interests can be given. However, the profiles are less about self-presentation, which on Twitter is more the result of the tweets posted, the sum of which gives an impression of the user.

In general, profile pages in academic social networks serve as a means of presenting oneself to an academic public. Through text and photos, the user's image can be promoted and the perception of the user's research activities can be affected. However, this also raises the question of how the user wants to appear, how the researcher avatar should be designed. Thus, users are addressed as active subjects who have to shape their own presentation and communicate themselves to a scientific public. Thus, to return to the four elements of competition, profiles co-produce users' competitive agency in the scholarly community by enhancing their options for self-presentation. Beyond these possibilities for shaping one's own profile, the logic of the individual profile also fundamentally reproduces the conception of scholarship that can also be found on university websites, in CVs, and in the idea of individual authorship, namely that scholarship and knowledge production is an individual matter – a central requirement for understanding oneself and others as competitors, thus the third element of competition.

10.4.2.2 QEMTs, metrics, and statistics

Another key competitive element of ASNPs is the QEMTs used to measure scientific output and impact, which appear in many different places on the platforms. On visiting the ResearchGate homepage, users are immediately confronted with their own metrics: A text box titled 'Stats on your research' at the top right of the page shows the changes from last week and links to the statistics page, which goes into more detail. Publication metrics such as reads, citations, recommendations, mentions, and research interest are displayed. These values can be displayed in different ways: What reads does the number refer to, full texts or answers? Which aspects of my research interest score have changed? The metric and visual representation that most strongly establishes a comparative relationship with other researchers can also be found here: the

comparison of the user's own research interest with that of other researchers and the user's competitive position in this comparison. Again, the data can be viewed in different ways. The user's research interest score can be compared with all other users on ResearchGate, with all users on ResearchGate who published their first paper in the same year as the user (to control for academic age), or with users in the same research fields (see Figure 10.2).

In each case, the page shows what percentage of other scientists have a lower research interest, implicitly promoting a hierarchical order of science. A separate page is dedicated to these comparisons: 'How your research interest compares. See how much interest your XX research topics are getting compared to the work of other researchers on ResearchGate'. In addition, similar to platforms such as Facebook or Instagram, and particularly similar to the targeting logic in marketing, detailed information about readers can be displayed and broken down by country, discipline, academic position, or institution. A statistics history graphically displays the evolution of the user's scores. This makes it possible to identify patterns and directions of development over the course of weeks, months and years, to assign them to individual publications and to differentiate divergent developments, for example when a rising curve of research interest is not reflected in a rising curve of citations. While these metrics on the stats page can only be viewed by yourself, the metrics on the scores page and the profile page (i.e. research interest, h-index, and citations) are also accessible to other users, who can thus check the scholarly impact and 'value' of other scholars. Metrics such as RG score, h-index, research interest and citations are listed. On the pages of the individual publications, it is again possible to view statistics on them, such as research interest, citations, reads and

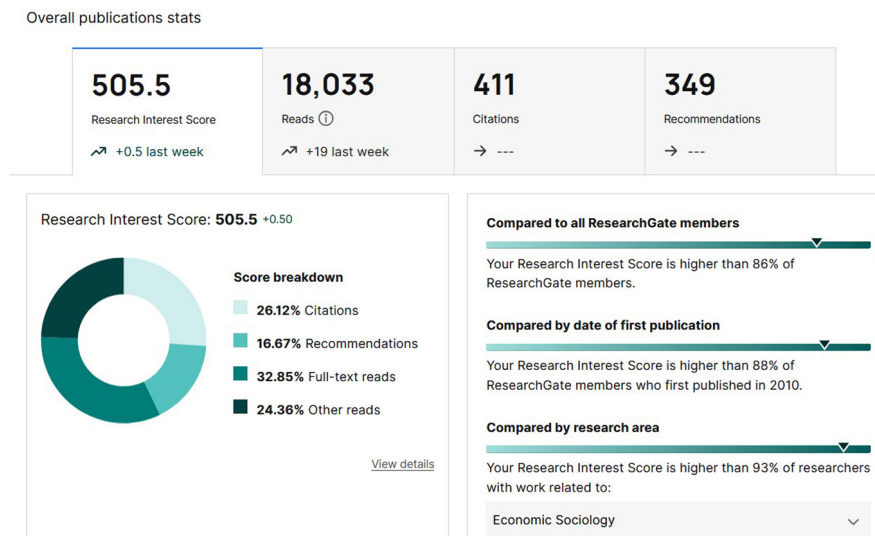


Figure 10.2 Visual representation of QEMT at ResearchGate.

also recommendations. It is also possible to see how the publication compares with other researchers' publications.

While the metrics are not as immediately and prominently visible on Google Scholar, which is more akin to Google's search engine, many of the metrics described can be found here, especially on the individual profile pages, where the h-index and citations of scholars can be viewed over time (see Figure 10.3).

This is also the case for individual publications, for which the number of citations over time can be viewed and which are sorted by number of citations on the profile pages. Twitter, on the other hand, which is not a genuine academic social network, displays no academic metrics at all, but rather the number of followers, retweets and 'likes' familiar from other social platforms. In addition, detailed pages allow users to view statistics on their own posts, such as the number of impressions, interactions, profile visits and new followers as a result of the post. As with ResearchGate, this allows users to track their own performance.

In summary, a variety of QEMTs, metrics, and statistics appear on ASNPs that allow, to varying degrees, both self-tracking and statistical categorization of other scholars. Crucially, this enables and encourages comparison between oneself and the scholarly community. Unlike profiles, then, metrics level out personal differences and replace them with comparable, universal, and context-free scores. The massive visibility of metrics and rankings on these platforms co-constructs competitive relations between its users by creating universal comparability and equivalence of scholarly work, situating the user's values in relation to all other users. Metrics and the way they are presented on ASNPs,

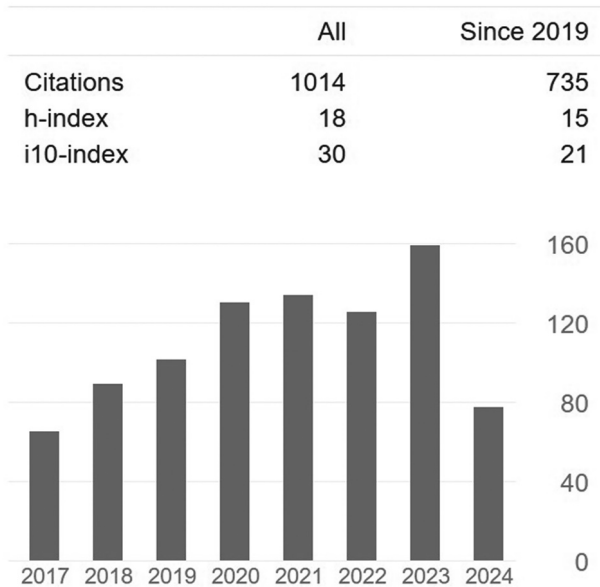


Figure 10.3 Visual representation of QEMT at Google Scholar.

especially ResearchGate, thus simultaneously reinforce all four elements of competition. First, the evaluation and metrication of research output can be interpreted similarly to rankings as an important driver of scarcity by defining and enhancing the desirability of exclusive high positions such as being in the top percentiles of researchers (see Figure 10.2). Secondly, this invites users to compare and compete with each other, turning them into subjects who see themselves and others as competitors. Third, the ability to monitor the development of one's own metrics and values strengthens self-reflection as an essential prerequisite for competitive agency and, thus, the ability and awareness to also influence this development. Fourth, also similarly to rankings, ResearchGate's competitive positioning of users can be interpreted as a mechanism allocating desirable high ranks to the users who achieve the highest scores.²

10.4.2.3 Requests and notifications

The first two competitive elements of ASNPs are reinforced by a third element, the requests and notifications that appear on various pages of the platforms. Again, this is particularly true of ResearchGate. The first thing that stands out is the large number of emails with requests and notifications that this platform sends to its users, for example about achievements, publications by other researchers, new research from one's own network and, above all, the weekly statistical reports mentioned above. This weekly report allows users to track the weekly changes in their metrics. The growth of their scores – reads, citations, recommendations, research interest – is thus regularly made visible. Users are also encouraged to contribute to the growth of their scores: 'Increase your impact'. Suggestions include adding full-text, linking to one's own ResearchGate profile from an external site but also inviting co-authors to join the platform and thus gaining visibility. The possibility of increasing visibility is specifically addressed in the platform's help center under the title 'How to use SEO [Search Engine Optimization] to improve the visibility of your research'. Noting that 'it is becoming increasingly important for researchers to improve the visibility of their work' because 'the easier it is for other researchers to find and access your research, the more likely it is that your work will be read, cited and used in future research', the site recommends linking from other websites, which 'can get you up to 5 times more publication views', adding a profile photo because 'publications on profiles with photos get 50% more reads', completing the profile because 'publications on profiles with complete About sections get up to 150% more reads', confirming authorship of one's publications and adding full texts, abstracts and other data to one's research. Notifications are also part of the platform itself with a notification feed. On the notifications page, the user is continuously informed about news, such as the new 'report of the week', when a milestone in reads or citations is reached ('Your research items reached 1,500 reads') or when other scientists follow the user's own updates. But outstanding 'achievements' are also mentioned: 'With 22 new reads, your research items were the most read research items in your department'. For these achievements, the user receives

a graphical medal with the words ‘Great job, XX’ and can also share these achievements on social media.

Notifications are also offered by Google Scholar, but to a much lesser extent. ‘Alerts’ can be activated here, i.e. notifications about new publications and citations of individual scholars or about certain topics and keywords. However, these need to be actively set up. There are no notifications about new followers or reads, one can only activate a notification, when one’s own research has been cited. There are also no requests to increase visibility or profile, although scholars can use search engine optimization to make themselves more discoverable on Google Scholar. On Twitter, however, notifications about interactions with your posts, mentions and new followers are an integral part of the platform. But again, there is no invitation to improve one’s profile or gain more visibility.

In sum, again to varying degrees, these requests and notifications from ASNPs promote an active subject by constantly reminding users how they can increase their visibility. Thus, by making quantitative relations between users a constant theme, the platform further encourages – as an essential element of competition – a competitive imaginary in which users understand themselves and others as competitors.

Thus, in sum, at least ResearchGate can be understood as organizing a specific new format of competition. While the three competitive elements of the platform (profiles, QEMTs, and requests/notifications) promote pre-existing competitive relations among scholars, they also organize them: by defining and enhancing the desirability of scarce high ranks in the academic community; by encouraging self-presenting, active, and individual subjects who constantly compare themselves with other scholars and strive for greater visibility, i.e. competitive subjects; by strengthening users’ competitive agency through the possibility of self-presentation and self-monitoring; and finally, by allocating desirable high ranks in a competitive positioning of users. As shown, the two other platforms exhibit the elements to a lesser degree.

10.5 Conclusion

10.5.1 A competition ecology in academia

This chapter focuses on the increasing importance of competitive formats in the organization of science. We distinguish between various processes that lead to and mutually reinforce competition in this area, such as the digitization of publication formats, the internationalization of academic knowledge production, and the quantification of various research evaluation tools, or what we call QEMTs. Each of these trends further reinforces the competitive organization of academia by co-constructing and further strengthening individual competitive agency, increasing comparability among actors and institutions, and providing new forms of competitive organization of knowledge production. In sum, scholars and academic institutions are confronted with a competitive ecology in contemporary academia, which has also been argued

in recent studies in the field of critical competition studies (e.g. Arora-Jonsson et al., 2021; Musselin, 2018; Wolfmayr, 2024). In this chapter, however, we focus on a rather new specific institution that organizes and promotes academic competition: ASNPs.

More specifically, we have shown how and with what devices and tools ASNPs (co)create academic competition among individual scholars. Although ASNPs are only one element in the current ecology of academic competition, they provide a fruitful example to highlight recent trends in academic competition, as they transfer the trend of individual exceptionalism and the quest for visibility and attention that originated in social media to the academy. While we have not specifically focused on the performativity and efficacy of ASNP in this chapter, we empirically show that ResearchGate, Google Scholar, and Twitter(X) at least provide their users with different formats and tools of competitive subjectivation. First, ASNP organize competition by creating individual researcher agencies in the first place. They provide different tools for personalized researcher profiles and offer different ways to develop one's profile, gain visibility, or build connections in specific communities. Second, ASNPs either create their own evaluation scores and metrics (e.g. the RGScore) or proactively make existing metrics more visible. In this way, the profiles and thus the academic identities of scholars are explicitly linked to QEMTs. Third, these scores artificially create a scarcity of top positions, either by informing individual and institutional rankings or by offering their own ranking tools, i.e. by organizing the allocation in specific competitive formats. While the visibility of scores and QEMTs does not represent competition as such, from the perspective of competition research, they become as scarce good that can be used in job applications or research grant proposals.

For some empirical illustration we focus on the discipline of economics for several reasons. The strong hierarchical order and stratification dynamics and the associated tendencies to marginalize non-mainstream approaches are at the center of criticism both from within (Gloetzel & Aigner, 2019; Heckman & Moktan, 2020) and from outside the discipline (Hammarfelt, 2017; Maesse, 2017)³. It seems plausible that the importance of competition as an analytical concept and the individualistic focus of the discipline ('methodological individualism') contribute to the central role of rankings and QEMTs in economics (see also Hylmö et al., 2025 well as Hager & Pühringer, 2025 in this book). Thus, economics is not only particularly sensitive to the processes of competition in the organization of science and academic knowledge production, but is also strongly affected by the negative implications of a competitive ecology in many respects.

10.5.2 Criticism of a competitive organization of academic work

The critique against the competitization of academia and the role of ASNPs in this process is twofold and can be separated into a critique of a particular competitive format (*in concurrentia*) and a critique of competition as a central

allocation mechanism in academia as such (*ad concurrentia*) (Ergen & Kohl, 2022). First, one could argue from a critical position *in concurrentia* that research is still not organized enough competitively. For example, it could be criticized that aspects such as social or institutional status, personal relationships, etc., still have a decisive influence on academic positions, prestigious prizes or the acceptance of publications. For the particular field of economics, for example, Aistleitner et al. (2023), Gloetzel and Aigner (2019) and Ductor and Visser (2023) have shown that the institutional affiliations of authors and editors or their paradigmatic orientation still play a decisive role for academic careers. Thus, to a certain extent, the competitive nature of academia leads to the selection of the best (connected and endowed) rather than the most innovative or original (best) researchers. A competitive, merit-based organization of the hiring process of academic institutions, in turn, would potentially eliminate explicit forms of discrimination (e.g. based on gender, class, ethnicity). In this context, for example, Wilsdon et al. (2015) note that ‘peer review is not perfect, but it is the least worst form of academic governance we have’. The claim would therefore be for ‘better’ or ‘fairer’ competition.

Second, from a second critical position *in concurrentia*, in recent years several critics have raised empirically grounded concerns about the implications of a competitive organization of academic work and thus suggested alternative QEMTs. Accordingly, the expanded use of Altmetrics or PlumX can be interpreted as a critique of QEMTs. In particular critique was formulated concerning the exclusive focus of QEMTs on the academic field and their failure to capture other forms of impact, for example, political or societal impacts of research. While Altmetrics and PlumX aim at a broader organization of competition, including social, political, and media impacts of research, they still support the competitive organization of research. Similarly, at the institutional level, initiatives such as the DORA Declaration on More Responsible Research Assessment in 2012, the Leiden Manifesto in 2015, and most recently the Coalifcation on Advancement of Research Assessment (CoARA), supported by the European Commission in 2022, indicate that scholars as well as administrative and funding institutions in the higher education sector are similarly concerned about the strong focus on QEMTs and their direct and indirect effects on research, teaching, and science communication. While these initiatives can be seen as a critique of the over-reliance on specific forms of standardized metrics, they are also related to a broader critique of the quantification of science and academic knowledge production as such. On both a more theoretical and a more empirical level, several studies report a problematic increase in metrics and quantification in science (e.g. Wilsdon et al., 2015; Muller, 2018). Economics is particularly responsive to quantitative indicators, metrics, and particularly journal rankings, and thus economic knowledge production is heavily structured by QEMTs.

Third, from a critical position *ad concurrentia*, the competitive organization of science and academic knowledge production generally has some problematic implications. In this respect, ASNPs, while not the only source of competitive processes, play an important role as a further accelerator and promoter of competition and competitive relations between scholars, i.e. by staging researchers

as ‘quantified selves’ (Hammarfelt et al., 2016) or ‘competitive selves’ (Pühringer & Wolfmayr, 2024). According to this fundamental critique of competition in science, the organization of competitive research entails several direct and indirect economic, social, and psychological ‘costs’. For example, in the area of competitive research funding, economic costs refer to administrative and governance costs. These include the costs of non-acceptance, which include the value of the effort put into planning and writing proposals for unapproved, but often highly rated, projects. Implementation costs include the costs of managing the process at different bureaucratic levels in different institutions. The European University Association estimates that 30–50% of the funding received by countries from Horizon 2020 is used to cover the costs of all applications (EUA, 2017), which is an alarming proportion in itself. The social cost of competition refers to the fact that individuals are unequally affected by (unattractive) temporary employment conditions. Relevant socio-demographic factors include gender (and related gender norms), race, socioeconomic status, and educational attainment (and the economic security it provides). In this way, the projectification and short-term employment induced by competitive research organization may foster a form of social stratification among scientists, thereby generating social costs through the inefficient use of research capacities and the lack of diversity of perspectives in knowledge production. Recently, several reports have also highlighted the alarmingly high psychological pressure among young scientists (e.g. Woolston, 2020) but also the decreasing quality of research (Rahal, Fiedler, & Adetula, 2023). Finally, the ‘innovation’ costs of competition include the potential costs of the projectification of research activities in terms of reduced knowledge development and exploitation: project-based research has a relatively shorter planning horizon and thus limits the average tenure of individual project members. Even more, competitive knowledge production also discourages interdisciplinary or risky research programs and leads to a decrease of ‘disruptive innovations’ in science (e.g. Park, Leahey, & Funk, 2023; Wu, Wang, & Evans, 2019). Contrary it tends to support mainstream and incremental research, which in turn corresponds to a general trend of marginalization of non-mainstream heterodox approaches in economics.

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Notes

- 1 These initiatives include the DORA declaration in 2012, the Leiden Manifesto in 2015 and the CoARA initiative of the EU-Commission in 2022.
- 2 This would be the even more case if, for example, the top 5% of users with the highest metrics were given special visibility on the platform or some other “reward”.

- 3 For an illustrative critique against the high level of concentration within economics, even by core proponents of the economic mainstream see this quote by George Akerlof, Nobelprize laureate in economics, at the annual meeting of the American Economic Association in 2017: ‘What I am worried about most of all, is what we don’t see. So, I am worried about the analysis that is never seen, that never becomes a paper and it doesn’t become a paper, because it can’t become a paper. And it can’t become a paper, because that’s not what a paper in economics is all about. I am quite worried about that and we know such vacuums exist’. (Akerlof cited in HEN, 2017).

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11 What are the disciplines of excellence?

The case of the French Excellence Initiatives

Audrey Harroche

11.1 Introduction

The rhetoric of excellence has taken hold in higher education and research globally, and with it, a series of reforms known as “Excellence Initiatives” have been introduced to change the systems of symbolic and financial resource distribution. The aim is to increase the concentration of funds and their competitive allocation. By 2014, more than two-thirds of OECD countries had already adopted such schemes, which resulted in “significant changes in the structure of the research systems” (OECD, 2014, p.17).

France was one of the first countries to adopt the Excellence Initiatives providing substantial additional funding to a sector grappling with significant financial challenges. In 2009, a large investment program (Investment for the Future Program¹) was launched with a primary focus on promoting excellence in higher education and research. This program concentrates funds by issuing calls for projects targeted at laboratories, research structures, hospitals, and universities. The cornerstone of this program is the Excellence Initiatives (I dex), which were launched in 2010 with the objective of equipping France with “world-class” universities. It is the most endowed call for projects and is highly selective. Through the I dex, €7.7 billion was attributed to nine university sites (see Annex 11.1)². This represents an endowment of between €750 million and €1 billion for each I dex university for four years. After an evaluation conducted by international experts to determine whether the performance goals described in the I dex projects are achieved, the universities will permanently obtain the I dex label and capital that generates interests on a yearly basis, securing those additional resources. In doing so, the I dex increases inequalities between French higher education institutions, but it also deepens inequalities within these nine universities. These funds have to be concentrated at the local level, i.e. inside those nine universities, among what are considered to be the best researchers and the best teaching programs, thereby increasing the competition between academics and laboratories from the same institutions. In other words, this policy transforms a few selected universities into new scientific policy-making bodies by concentrating additional resources on them, which they must then reallocate in a concentrated and competitive manner. Hence,

university leaders must develop a new circulation of resources within their organisations. To do this, Idex projects focus, to a large extent, on the introduction of evaluation and hierarchisation tools within those Idex universities. Most decided to use internal application calls in order to disseminate the Idex funds at the local level, however, this instrument, more than others, creates winners and losers. Among the various stratifications that project funding and the evaluation and ranking techniques underlying them produce, disciplines are especially affected (Nowotny, Scott, and Gibbons 2001).

Through a longitudinal analysis of one of the nine successful Idex projects, this chapter questions the disciplinary aspects of the inequalities produced by the Idex. It aims to document the evolving configurations that disciplines, including economics, must navigate within universities in their pursuit of excellence. The second section will focus on the literature regarding the increasing pressure that academic disciplines are experiencing to face the evolutions in higher education and research systems. The third section will present the material and the methodology on which this analysis is based. The fourth section will show that the Idex instrument is not neutral towards disciplines. The changes that the Idex project implemented in the studied university are in favour of practices and norms that are particularly institutionalised within natural sciences. Finally, in the Conclusion section, the effects of this prioritisation of some disciplines over others will be addressed.

11.2 Literature review: Studying the stratification of academic disciplines: moving beyond dissolution or stability.

Under the influence of rankings (Hazelkorn, 2015) and in the context of internationalisation, the production of knowledge has undergone a rationalisation effort with converging neo-liberal inspired reforms (Brunsson and Sahlin-Andersson, 2000). As a result, universities are under pressure to implement change at both the global and local levels (Popp Berman and Paradeise, 2016). This includes, among other things, adopting evaluation processes, performance-based management, and competition mechanisms (Musselin, 2017). These transformations have deeply affected academia from the institutional (Sauder and Espeland, 2009) to the individual levels (Gonzales, and Núñez, 2021).

The academic disciplines are, of course, no exception. However, the literature tends to be divided into two different camps regarding the effects of these dynamics, with some authors describing disciplines as particularly stable institutions, while others sound their death knell. For the latter, Michael Gibbons, Helga Nowotny, and their co-authors consider that the relationship between science and society has evolved to the extent of modifying the production of knowledge from Mode 1, characterised by the dominance of disciplines and academic autonomy, to Mode 2, where academics are held accountable, and the social impact of scientific knowledge is more prevalent (Gibbons et al., 1994). In Mode 2, disciplines appear considerably weakened and unable to address current social challenges while systematic transdisciplinary approaches

are more suitable for producing ‘contextualised science’ (Nowotny, Scott, and Gibbons, 2001, p.6). Authors from the other camp have highlighted the permanence of disciplines and their ability to adapt to evolutions in various higher education systems without changing their core values, norms, and practices. Still focusing on interdisciplinarity, a growing body of literature demonstrates that collaborations among researchers from different scientific fields not only depend on disciplines’ frameworks (Benz and Rossier, 2022; Jacobs, 2017; Prud’homme, and Gingras, 2015) but, in some instances, even reinforce disciplinary practices (Merz, 2015). Regarding evaluations of scientific activities, disciplines also seem resilient. In the French context, for instance, an agency was created in 2006³ to evaluate research and homogenise practices; however, the disciplines’ idiosyncrasies persisted. Even though, on the surface, new classification and assessment tools seemed to be imposed on academics, Clementine Gozlan showed how the professionals in this agency, themselves academics, made these processes their own to some extent in order to maintain the judgement practices within the disciplines (Gozlan, 2020). In a special issue of the *Quaderni* journal directed by Séverine Louvel, the examination of scientific policies in multiple countries reveals that the assessment of scientists by other academics does not reinforce states’ central power at the expense of sectoral regulations. Instead, it highlights the continuation of values and methods within the different scientific communities (Louvel, 2012). To summarise, disciplines continue to play a central role in terms of the organisation of scientific labour, while their disappearance seems to stay at the level of discourse rather than practice (Weingart, 2000; Heilbron, and Gingras, 2015; Merz, 2015; Abbott, 2001).

Considering that disciplinary logics are not systematically incompatible with those of the rankings, nor with those of the evaluation techniques to which they are subjected, this does not necessarily diminish the effects generated by the latter on the disciplines. With this in mind, this chapter aims to contribute to the second body of literature evoked above by paying attention to the recomposition of scientific fields under the effect of the French IDEX. By compelling the executive teams of IDEX universities to concentrate funds on those considered the best researchers, this instrument carries implications for disciplines that warrant consideration. To delve into this, I draw upon the insights of the New Political Sociology of Science, which underscores the significance of the uneven distribution of resources in knowledge production systems (Frickel and Moore, 2006). This results in some research being prioritised and placed at the forefront of the political agenda, while others are left “undone” (Hess, 2016). In other words, analysing the distribution of funding is indicative of the kind of knowledge that is accorded value, especially when, as in the case of the IDEX, it involves the concentration of additional resources in the pursuit of excellence. Consequently, I will explore the disciplinary aspects of the projects labelled excellent within one of the nine IDEX universities in order to answer the following questions: Do the IDEX generate disciplinary inequalities? If so, how? And what are the disciplines of excellence?

Furthermore, when it comes to inequalities in knowledge production, the level of disciplines tends to not be the primary focus of attention. Many studies have demonstrated how performance-based evaluation, management, and funding systems impact the hierarchisation of universities and power relationships in academic professional groups – from the strengthening of academic elites (Hicks, 2012) to the increasing prevalence of precarious and gendered employment (Ivancheva, Lynch, and Keating, 2019), as well as the emergence of third space professionals (Whitchurch, 2012). By examining how the implementation of an Idex project impacts disciplines at the university site level, this chapter aims to enhance the understanding of the stratification process that permeates academia.

11.3 Material and methodology

The data used in this chapter is derived from my PhD thesis where I conducted a longitudinal analysis, incorporating both written and oral sources from an Idex project. The analysis spans from the inception of this project to its mid-term evaluation, covering a period of 25 years. The project under study is one of the Idex projects selected in the second wave of calls for proposals in 2012. It concerns a university formed through the merger of three universities that were discipline-oriented. As a result of this merger, this large and multidisciplinary university gathers social sciences and humanities, languages, natural sciences, medicine, and law. A foundation has also been created aside from the university to manage the endowment received within the Framework of the Idex. This Idex foundation is dedicated to the management of those additional resources organising the application calls internal to the university. To maintain confidentiality and respect the wishes of interviewees, the site and the names of the individuals studied will remain anonymous.

In my PhD, my objective was to comprehend the successful implementation of a public policy intended to deepen inequalities and to investigate the specific inequalities that arose at the university site level. I opted for a monograph instead of comparing different Idex universities to avoid being confined by the temporal boundaries of this instrument and to better consider the local configuration in which it has been implemented. While changes generated by the Idex, such as university mergers, may seem rapid, this approach enabled me to analyse a more incremental mode of change. Additionally, concentrating on a university site, rather than solely on the Idex project, provided me access to both those involved in and benefiting from this policy and those who did not receive these funds and were not involved in the project. In doing so, I gathered narratives from the winners and also the losers of this policy, which was necessary given the focus of my research.

From November 2015 to September 2019, I conducted 89 interviews. These interviews involved members of the university executive teams and administrative staff from the previous universities, as well as those from the current merged university and the Idex foundation. I also conducted interviews with scientists

associated with Labex (Laboratories of Excellence) and other application calls from the Investment for the Future Program, those involved in internal university calls for proposals, and members of the Idex jury. Additionally, staff and student union representatives were interviewed, along with academics who did not receive funding from the Idex Foundation or the Investment for the Future program. For the latter, I focused on natural sciences, as these disciplines were more closely associated with the Idex project than others. The rationale was to focus on the parts of the university that were on the front lines of the Idex project and understand the effects generated. The questions posed during the interviews essentially varied depending on whether individuals were involved in the Idex project or other excellent application calls from the Investment for the Future Program. In the first scenario, I conducted the interview chronologically, asking participants to describe the genesis of the project, how the decision to apply was made, how the project was assembled, the application process, implementation details, challenges faced, the impact on working conditions, and future plans. In the second scenario, I refrained from framing the questions around the Idex or other application calls from the Future Program, as I quickly understood that approaching the interviewees to discuss a scheme from which they were excluded could be potentially distressing. Instead, I directed my questions towards project-based research funding, particularly practices related to bidding. If the Idex project or the Idex foundation were not brought up organically, I inquired whether participants were familiar with this scheme and solicited their views on it. In addition to the interviews, I compiled a collection of written sources, including archives from various university councils of the merged university and those produced before the merger from the three universities. These written sources relate to the Investment for the Future Program, responses to the Idex call for proposals, and the universities' merger. The corpus also comprises working documents related to the preparation of the merger. Furthermore, I gathered archives from the Idex foundation and communication documents produced by the merged university. The site's evaluations by various national and local public institutions, including the Court of Auditors, the National Evaluation Committee, and regional audit chambers, were also used. Finally, I gathered correspondence, emails and letters, exchanged between the Idex Foundation and the laureates of the internal application calls. I also had access to email exchanges among scientific teams discussing the Idex Foundation and the Investment for the Future Program.

11.4 Findings: The Idex, fostering natural sciences through organisational changes

One of the goals of the Idex is to reform the French higher education and research system, making it more comparable to other systems. Consequently, a significant emphasis is placed on the governance criterion. To become laureates of the Idex application call, demonstrating excellent scientific performance is necessary but not sufficient; what truly matters is the organisational changes

that the universities' executive team plan to implement during the four years before the evaluation of their project by the Idex jury (Gally, 2018). For the Idex jury members, university mergers seem to be the most effective approach to address the shortcomings of the French system in the face of international competition by establishing institutions of significant size. The objective is to create larger multidisciplinary institutions in order to achieve critical mass and greater international visibility, especially in rankings:

The question that was being asked is: why aren't French universities there [in the rankings]? It's not a matter of quality, but a matter of structure, of model. It's very difficult for École Normale Supérieure alone, which is quite small, to compare itself to Harvard. So, even if it's excellent, it still doesn't have the scale of a university like Harvard or Cambridge. So, the problem isn't about ranking among the top 100 or something, it's more that they don't rank at all, and that's due to this fragmentation. They will never rank if they remain fragmented because they lack the critical mass to make comparisons. You know, this is important: in the United States, the important, very, very important universities are actually universities of very small sizes. Not as small as the École Normale Supérieure, of course, but still. Caltech, Stanford, they have 50,000 or 100,000 people, but it doesn't prevent them from having critical mass. On the other hand, the École des Ponts et Chaussées, well, it doesn't have critical mass, so even if we're the best in the world, if we don't have critical mass...

Excerpt from an interview with an Idex jury member

This interview shows how rationalising myths are mobilised within the context of university mergers as identified by Christine Musselin and Mael Dif-Pradalier (Musselin, 2017, Musselin and Dif-Pradalier, 2014). According to these authors, the central goal of mergers is to establish large organisations that are comprehensive in terms of disciplines and possess strong executive power. These elements are viewed by the authors as rationalising myths, in line with John Meyer and Brian Rowan's framework (1977), because "these legitimate rules and structures are not based on their actual effectiveness but on the fact that they are considered rational by the actors and their environment" (Musselin and Dif-Pradalier, 2014, p. 292). Similar to the university mergers studied by Christine Musselin and Mael Dif-Pradalier, these myths are disconnected from their empirical effectiveness. The Idex jury members cite the performance of small institutions at the top of rankings without challenging the critical mass criterion and the endorsement of mergers as a solution. This orientation toward mergers is not just a matter of discourse but is reflected in the outcomes of this call for projects: all nine Idex universities have been established through the merger of former universities, leading to the creation of multidisciplinary clusters.

The promotion of mergers as one of the key aspects of the Idex is highly aligned with the ongoing local dynamics at the university site I studied. The executive teams of the three universities had been working on a merger project

since 2007, five years prior to the launch of the Idex⁴. While other university sites had to develop a consortium and plan a merger in a year, this particular university site was already ahead. Given the variety of disciplines within each university, the heads of the universities were alternately elected from the faculties of natural sciences, social sciences, and law. With this rotation system, the three current university leaders were not from closely related scientific fields. However, due to the shortened mandate of one of the leaders in the mid-2000s, new elections had to be organised in one of the universities, resulting in all three university leaders being from the natural sciences. Even though the merger was already in discussion, it was these three executive teams, grounded in the natural sciences, that actively initiated the realisation of this project. This merger was primarily conceived to address what was perceived as a challenge: the dispersion of natural sciences across the three universities. While other disciplines were concentrated within each university, the natural sciences were spread across all three, leading to competition in these fields at the local level. Merging was a strategy to pool resources and shift the focus towards international competition rather than local rivalry:

So, why did we decide to merge? Let's take one or two specific examples. You had the sciences that were present in all the universities, so you've just graduated high school, you want to enrol in physics, and you have the choice between three universities. Then, in terms of research, all the research units, there were many research units that were between a university and a research institution like CNRS (National Centre for Scientific Research) or Inserm (National Institute of Health and Medical Research), and most of these research units were shared by two universities, so there was already a certain practice, at least in the field of science and technology, of being in units where ultimately, whether you're at CNRS or not, you were in the same research project. It became somewhat theoretical to depend on one university or another. Additionally, when you put three living beings in a jar, they try to establish their own existence in relation to each other, so we spent some time, understandably, saying that physics is better at university X than at university Y. It's better to focus on being competitive internationally rather than explaining that the colleague next door is a... you know.

Excerpt from an interview conducted with a former president of one of the three universities on the site

However, creating a new university out of the three previous ones was not an easy task. This merger was a lengthy process, especially due to its disciplinary dimensions. When the mandates changed, and new heads of the universities were elected, the executive teams from the law and social sciences faculties sought assurances from a project that was predominantly centred around the natural sciences. Overcoming their disagreements proved possible, primarily because they had collaborated over the years to implement numerous instruments and policies prior to the Idex, necessitating significant inter-university activities (Harroche, 2022). While the leaders of the universities reached a

consensus, the support of the various academic communities was not guaranteed. In 2011, one of the university boards voted against the merger. In this context, university leaders leveraged the Idex as a resource to facilitate the merger, arguing that its occurrence would significantly enhance their chances of being selected in the Idex application process and securing significant and potentially sustainable additional resources. The financial argument proved to be the decisive factor, leading to the merger of the three universities in 2012.

The natural sciences were a primary focus of this merger and served as the foundation upon which the executive teams based their Idex application. As a result, the natural sciences also held a central position within the Idex project in question. This is also due to the Idex Instrument and the importance it gives to rankings and quantitative indicators. In the context of the proliferation of rankings and their extended use (Karlsen, 2013), all the Idex projects primarily perceive international competition through rankings and their criteria. It is necessary to demonstrate the “*credibility of the proposed trajectory and the ability to implement it*” through the “*description of a multi-year funding plan outlining milestones for the operational implementation of the project, description of targets to be achieved at four and ten years in terms of governance, scientific excellence, valorisation, training policy, and international visibility.*”⁵ Thus, as early as page four of the project, in the section titled “scientific ambition of the project,” the project’s ambition and desired outcomes are captured through rankings: “*The joint ambition of the university merger and the Idex foundation project is to elevate the university to the top 20 European universities and the top 100 research universities worldwide within the next ten years.*”⁶ However, these mechanisms are not neutral towards different disciplines, they favour the natural sciences and conversely relegate the humanities and social sciences to “non-profitable sectors” (Eloire, 2010, p. 24); meaning that a consortium will find it easier to showcase the site’s performance and achieve a higher position in the Academic Ranking of World Universities (also known as the Shanghai ranking) if it has strengths in the field of natural sciences. This specific ranking is an ongoing preoccupation for the university executive teams, who have used this argument in the merger project. They also prepare a presentation every year during the ranking publication, to assess the current position of the site and possible measures to implement for improvement. The significance of this ranking is often criticised in interviews, including by supporters of the Idex project and the merger:

When I hear people say they’re against the merger, that it was better before... honestly, it needed to be done, it made no sense. But then again, their obsession with the Shanghai ranking, I can understand how that’s annoying.

Interview conducted with an academic who was elected to represent its peers in the merged university board

The capacity of disciplines to be objectified in different rankings creates tension between the natural sciences and the humanities and social sciences in the studied university site. As an example, the benchmark produced within the merger

project and later on used for the IDEX project focuses on two disciplinary fields under the section “focus on specific domains” for opposing reasons. The first focus is on the humanities and social sciences, as they cannot be measured according to the standards of the natural sciences. A specific section is created with broader indicators, fewer visualisations, and less detailed comparisons. The variable “journal or impact factor of journals” is not indicated; publications are counted based on coarser categories such as books, book chapters, articles in peer-reviewed journals, presentations, other articles, and more. Only a few categories for specific disciplines are counted, such as law notes in the “law, justice, and society” category, or a distinction between national and international productions in the “management sciences” category. In contrast, the second focus is on clinical medicine and showcases a precise and detailed benchmark. The objective is to specify the proportion of clinical medicine publications among the already analysed publications, as this is a strength of the site. It is important to note that the downgrading of social sciences is not limited to the university under study; it has also been observed at other IDEX university sites (Rowell, 2022).

As natural sciences are the disciplines that hold a significant position in the IDEX project, they benefit the most from it but also bear the highest expectations for results. Once the university was awarded the IDEX, this privileged position translated into a greater deployment of these additional resources in this sector. There is an overrepresentation of natural sciences among the winners of research calls organised by the IDEX foundation. As an example, in the year 2013, 22 out of 25 winners belong to the natural sciences. In interviews, the university and foundation executives explain that they do pay attention to the balance between disciplines but add that certain criteria that could favour the natural sciences are more important. As demonstrated by this interview extract regarding recruitment, a member of the executive team believes that the priority is to recruit the best candidates rather than ensuring a distribution of funds between disciplines:

And then for us, we need to find a balance. Well, now we've recruited a lot of physicists, we'll be careful to recruit slightly fewer.

How do you make these decisions?

First, we take the best. If there's a physicist on the verge of getting a Nobel Prize, we'd still take them, you see. So, we take the best, we really take the best.

Extract from an interview conducted with a member
of the executive team of the merged university

The IDEX call for proposals is an instrument oriented towards the natural sciences, as it aligns with the forms that scientific competition takes in this sector, especially through the prominence of rankings and the indicators used to assess performance. This compatibility results in a direction of funds favourable to them on the site where the university merger project was designed with these disciplines in mind. Therefore, it is this sector that stands to gain the most from the implementation of this reform.

11.5 The Idex, an instrument compatible with the needs and practices within natural sciences

The natural sciences are the disciplines that benefit from the Idex the most also because of the modalities through which this reform is enacted. Project-based funding is at the centre of this policy. The Idex consist of a national application call that allocates resources, subsequently distributed through local application calls within the Idex universities⁷. Yet, in France, project-based funding has a long history in natural sciences, contributing to its integration into the practices of researchers in this field. In the early 1960s, it was specialties from these disciplines that benefited from the first forms of project-based funding (Aust and Picard, 2014). During the 1970s, while project-based research funding gradually expanded to other disciplinary domains, such as the humanities and social sciences (Bezes and Chauvière, 2005), its widespread adoption primarily relied on natural sciences, such as life sciences (Aust, 2016). Moreover, the nature of research activities carried out within these disciplines makes them reliant on project-based funding. The majority of these activities involve experimental research, which requires significant expenses that recurrent funding fails to adequately cover. Responding to calls for projects is a routine activity for researchers in these disciplines. In fact, in the university I studied, unlike researchers in other faculties, scientists from natural sciences do not differentiate between a call for proposals organised by the Idex foundation and those launched by other funding agencies, such as the French National Research Agency (NRA) – the main research funding body in France – to which they are accustomed to responding:

Was the decision to respond to this call for proposals [call for proposals launched by the Idex foundation] unanimous?

-Oh, yes! We, here, responded without expecting much. We responded quickly as soon as we saw the announcement, and it's no more complicated than the NRA, and then we recycled... well, submitted projects to the NRA.

-You submitted it to the NRA too...

-Oh yes, we try everything, even more than that! If you knew all the things we try! I feel like I spend my life writing projects!

Extract from an interview with a research team director in natural sciences

On the site, the calls for proposals launched within the framework of the Idex project do not receive specific treatment from researchers in natural sciences and they are not a topic of conversation, unlike in law or social sciences. The few oppositions to the Idex are predominantly found within those disciplines. The only action organised by the unions to resist once the university became an Idex was boycotting the internal application calls launched by the Idex foundation. However, the majority of researchers from the faculty of sciences cannot take part in this struggle because they are too dependent on project-based funding:

Yes, at the union level, we decided not to participate in the project calls [organised by the Idex foundation]. (...) I don't know if there are many of us. I am one of those, but I have the privilege to be able to do so. I conduct relatively inexpensive research, I am a modeler, I do calculations, I just need a powerful computer, and I have access to things that are not very expensive. I don't need large equipment like some might need for experimental work, so if there's no money, we can't buy substrates, etc... and then we can't work. So, I have a comfortable position to refuse, let's say... there are topics where it's more difficult. (...) For some colleagues, not responding to these kinds of calls means technical unemployment.

Extract from an interview with a scientist elected to the board one of the former universities and a member of a union

The context in which the Idex is launched makes the field of natural sciences dependent on the additional funds it distributes. Excellence policies were initiated during a period of funding crisis in higher education and research, which continues to this day. This crisis has taken place on a European scale, with countries facing massification of higher education and budgetary difficulties since the 1970s. The issue of funding for higher education and research has been a long-standing concern and has led to differentiated developments in various countries (Lepori, 2008). The hierarchy and specialisation of activities, as well as the introduction of competitive mechanisms in funding, have gradually been adopted in response to this crisis. Beyond the characteristics of the Idex instrument, its greater impact on natural sciences primarily results from the substantial funds it distributes in a context of financial scarcity. As a result, taking part in the Idex at the national level and competing for the various internal calls for projects it initiates seemed evident to many researchers:

If you ask the research community here, it was inconceivable not to apply because it represents significant funding, and it is a label that identifies the site and them as high-quality research and useful funding for research. Not just research, but especially research.

Interview with a member of the university's executive team

The inequalities among disciplines in terms of funding have been demonstrated. Sylvain Faure and Charles Soulié notably highlighted the differentiated funding of disciplines, particularly literature, as well as the social and human sciences, which heavily rely on self-financing. On the other hand, the experimental sciences are consistently funded and cannot resort to self-financing. The authors then emphasise the vital role of funding for the natural sciences (Faure and Soulié, 2006, p. 66). In the context of a research funding crisis, the material and symbolic resources allocated by Idex are not just incentives for experimental sciences but a necessity. However, it is not because the other disciplines don't need these resources as much as natural sciences to carry out research activities that they can ignore this instrument.

Especially because the Idex application call requires projects to delineate an excellence perimeter, abbreviated as ‘peridex,’ where at least 60% of the Idex endowment has to be allocated. In the university I studied, this perimeter is exclusively composed of the laureates of the Investment for the Future Program. Consequently, it creates a concentration of funds, as stated in the Idex project:

About 60% of the Idex grant (apart from Labex grant) will be focused on the initial Peridex (30% of research staff). It means that the funding per researcher will be 3.5 times higher inside the Peridex than outside and 9 times higher when the total budget of the Idex foundation (including Labex) is considered.⁸

As a result, the other academic fields are also dependent on these funds but for different reasons. It was clear for the academic community at the university in question that the funds distributed by the Investment for the Future Program were an extraordinary opportunity and that the natural sciences would benefit from it being the strongest disciplines locally. For them, the aim was not primarily to get the funding to carry out research that could not be done otherwise but to be in this scheme in order to not be excluded from the new prioritisation that the Investment for the Future Program will generate. It is the case in economics for instance where one of the researchers involved in the genesis of a Labex explains that they decided primarily to bid for it in order to not be excluded and not be too marginalised locally:

It [the Investment for the Future Program] is something really important. In 2011, when the opportunity arose, we thought that we could not miss this chance. If we missed it, we would be irreversibly left out. The stakes were high, very high. [...] The idea was to gather all the strength we had in economics on the university site around a theme that was unifying.

Interview with a member of a Labex in economics

This interview excerpt also shows that in fields outside of natural sciences, the projects intended for submission to the Investment for the Future Program tended to be more inclusive, with only one project being elaborated and validated by university leaders. However, in natural sciences, multiple projects have been developed and validated, with a focus on specific objects or questions rather than the strength of entire disciplines. Given the disciplinary configuration of the university site I studied doubled Idex instrument’s inclination towards natural sciences, the latter had more than one chance to receive those extraordinary funding. As for the other scientists, the competition was perceived as less favourable, and their participation was aimed at securing funding to ensure their discipline was not left out; to ‘survive,’ in the words of a researcher involved in a Labex in social sciences.

11.6 Conclusion

The Idex reform is not neutral across disciplines; it favours the field of natural sciences, designating them as the disciplines of excellence. This can be attributed to at least two mechanisms that have been examined in this chapter. Firstly, this instrument aligns with the forms that scientific competition takes within these disciplines. The natural sciences are more amenable to evaluation, quantification, and ranking, and performance-driven methodologies play a pivotal role in this reform. Universities competing for the Idex at the national level must be multidisciplinary and are encouraged to emphasise strengths in natural sciences, rather than fields like law, for instance. The focus of the Idex projects on these disciplines makes them the primary recipients of the resources allocated by this policy. In the university under study, more application calls are directed towards these disciplines, resulting in an overrepresentation of laureates in these fields. Secondly, this instrument is also compatible with natural sciences' practices and needs. The modalities through which this reform is implemented make the application calls the cornerstone of the Idex. In other words, the Idex can be envisioned as a set of Russian nesting dolls for project funding. The Idex is a national application call that allocates resources to a small number of universities, which then have to redistribute these funds through project funding at the local level. Academics in natural sciences are accustomed to project funding. Moreover, this instrument is essential for most of them, as research activities in that field depend on it. Application calls for scientific projects are the primary means for academics, especially those conducting experimental science, to obtain sufficient funding to cover the expenses associated with this type of research.

The prioritisation of natural sciences has effects for the other disciplines as well, including economics. While the Idex partially aligns with the needs of experimental sciences especially, the social sciences and law do not necessarily require substantial upfront funding. They can more easily rely on self-funding and ongoing allowances even though the funds allocated by this reform are also appealing to the social sciences and law sectors, which are experiencing the effects of a challenging budgetary environment as well. These funds mostly end up being necessary for this sector to avoid being too marginalised. Applying to Idex foundation calls for projects, even when they don't align with social sciences' needs or practices, becomes crucial to counterbalance the systematic prioritisation of natural sciences. It is primarily due to the changes in power relations between disciplines driven by excellence policies that academics from the humanities and social sciences, as well as law, engage with this instrument. The Idex serves as both the problem and the solution for social sciences and law. Competing for Idex funds appears to be the only way for academics in these fields to address the disciplinary inequalities created by this instrument. This highlights the fact that even amongst the winners there are losers. This also applies to economists. With academic excellence initiatives, the organisational scale is reinforced, thereby formally transforming universities into another

arena for competition among disciplines. Due to the way resources are allocated, not all academic communities within the IDEX benefit from this policy. Highly endowed application calls cannot reach all staff, but only a select few considered to be the best, without much consideration for disciplines' equilibria. One could argue that this phenomenon necessitates vigilant monitoring to prevent reinforcing already powerful mechanisms in scientific competition, exemplified by the Matthew effect, which perpetuates the ongoing selection of the same winners over time (Merton, 1968). This is especially true for French universities, where handling such differentiated allocation of funding is a new challenge, and managing the inequalities it creates is a new aspect to contend with. Ultimately, the concentration of funding through this type of public policy has implications for the kind of knowledge produced and what is left outside of this prioritisation. These discrepancies, among which disciplines are considered the most valuable in the search for excellence, need to be further explored, especially given the global aspect of academic excellence initiatives.

Annex 11.1 IDEX universities' characteristics

<i>Institution</i>	<i>IDEX project name</i>	<i>Grant awarded</i>	<i>IDEX confirmation</i>	<i>Numbers of students</i>	<i>Number of staffs</i>
Aix-Marseille University	Aix-Marseille Initiative of Excellence: Interdisciplinarity for the Excellence of Aix-Marseille (AMIDEX)	750 M€	IDEX awarded in 2012 and confirmed in 2016	80,000	8,000
Université Paris-Saclay	Campus Plateau of Saclay (CPS)	950 M€	IDEX awarded in 2012 and confirmed in 2020	48,000	9,000
University of Bordeaux	Excellence Initiative of the University of Bordeaux	700 M€	IDEX awarded in 2012 and confirmed in 2016	54,000	5,900
Paris Sciences et Lettres University	Paris Sciences et Lettres star: Making the necessary possible (PSL*)	750 M€	IDEX awarded in 2012 and confirmed in 2020	17,000	2,900
Paris Cité University	Sorbonne Paris-Cité	800 M€	IDEX awarded in 2012 and confirmed in 2022	64,100	4,500
Sorbonne University	Sorbonne Universities in Paris for Teaching and Research (SUPER)	900 M€	IDEX awarded in 2012 and confirmed in 2018	55,300	10,000

(Continued)

<i>Institution</i>	<i>Iindex project name</i>	<i>Grant awarded</i>	<i>Iindex confirmation</i>	<i>Numbers of students</i>	<i>Number of staffs</i>
University of Strasbourg	University of Strasbourg: Beyond Borders, the University of Strasbourg (UNISTRA)	750 M€	Iindex awarded in 2012 and confirmed in 2016	56 800	10,200
Université Côte d'Azur	Université Côte d'Azur Joint, Excellent and Dynamic Initiative (UCAJEDI)	500 M€	Iindex awarded in 2017 and confirmed in 2021	35,000	3,000
Université Grenoble Alpes	UGA	800 M€	Iindex awarded in 2017 and confirmed in 2021	59,500	10,400

Notes

- 1 Translated from French “Programme d’Investissement d’Avenir.”
- 2 In 2010, there were 80 universities in France.
- 3 Agence pour l’évaluation de la recherche et de l’enseignement supérieur (AERES).
- 4 The application call was officially released in January 2010 with a deadline of the 19th of May 2011.
- 5 Excerpt from the Iindex call for projects published by the French National Agency for Research in 2010, p. 6.
- 6 Response to the Iindex second wave call for proposals produced by the PRES of the studied site in 2011, p. 4.
- 7 Only one Iindex university out of nine does not predominantly use internal application calls to distribute the Iindex endowment.
- 8 Response to the Iindex second wave call for projects produced by the university site studied in 2011, p. 50.

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12 A field theory approach to the critical study of global university rankings

Pablo Antonio Lillo Cea

12.1 Introduction

In 2003, Philip Altbach, the founding director of the Center for International Higher Education (1994) and former Professor of Higher Education at Boston College (1994–2013), noticed an emerging global trend: the surging desire among multiple nations to build “world-class universities” (Altbach, 2003). Despite the widespread use of the term, its definition remained unclear. Altbach then took on the task of delimiting the scope of the notion, suggesting that this class of institutions stood apart from the rest mainly by their subscription to the values and norms practised and observed by elite institutions in the USA and major Western-European countries. This geographical link insinuated the existence of very few world-class universities, relegated to very specific regions of the globe. Considering these implications, Altbach warned against hasty attempts to emulate this model without the necessary infrastructure, cautioning that it could harm a country’s education system should it not possess the financial and educational resources necessary to embark on such a project. Notwithstanding his efforts, Altbach ended his piece acknowledging the term’s lingering ambiguity attributed to the lack of a universal metric for *academic excellence*.¹

Interestingly, the Academic Ranking of World Universities (ARWU), commonly known as the Shanghai Ranking, made its debut in 2003. This pioneering effort sought out to order universities on a global list of institutions according to their performance as measured against a universally acceptable excellence standard. From then on, ARWU’s successful experience transformed the global landscape of higher education, turning the practice of ranking universities across the globe into an annual tradition.

Over the first two decades of the twenty-first century, global university rankings rapidly gained a firm foothold in the spheres of higher education worldwide (Altbach, 2012), growing dramatically in numbers as well as in scope, wielding considerable influence, and attracting attention from a broad audience including journalists, policymakers, and the scientific community (Brankovic, 2018). These developments bolstered Altbach’s proposal, offering a plausible answer to the semantic conundrum surrounding the notion of

world-class universities by making the “world-class” status synonymous with *high-ranking positions*.

But the rise and expansion of global university rankings has not been without its detractors. Multiple voices have raised concerns over the effects and methodologies associated with these devices. Critics have argued that university rankings often oversimplify the multidimensional nature of a university’s value, potentially leading to skewed priorities in academia. Others also emphasise potential biases in these methodologies that may favour certain disciplines or geographic regions over others. Furthermore, there are concerns about the undue pressures these rankings place on universities and scholars, which might divert resources and attention away from holistic educational and even research-related goals in favour of optimising for rank-centric metrics.

Largely undeterred by these critiques, however, the popularity of global university rankings remains undeniable. In spite of numerous objections, they have become a pivotal force shaping educational decisions, with university leaders and applicants alike viewing them as valid and meaningful markers of world-class status (Hazelkorn, 2015; Rodriguez-Pomeda & Casani, 2016). The sustained prominence of these rankings in spite of contestation, a notable “paradox” as has been termed (Kaidesoja, 2022), appears to be significantly influenced by the manner in which rankings advocates engage with their critics, establishing a conversation that reinforces the legitimacy of these evaluations (Hamann & Ringel, 2023). Originating from a diverse range of standpoints, the critiques afford ranking proponents a broad canvas to formulate a wide range of responses. Given this context, a pressing question emerges: In addition to this dialogue, to what extent does the resiliency of these rankings can be attributed to a fragmented critical landscape, one that lacks a more robust conceptual framework connecting those critiques?

In this chapter, I propose a comprehensive approach to critically analyse global university rankings, integrating diverse critiques through a unified perspective. Initially, I explore critical studies of these rankings, which focus on their impact on institutional behaviours and methodological issues. Then, introducing Pierre Bourdieu’s field theory as an appropriate analytical tool, I aim to bring these critiques together, examining the history of the rankings as the development of a global sub-field of world-class universities. This approach not only connects various critiques but also contextualises rankings within a larger academic and social context. The concluding section synthesises these discussions, highlighting how the application of field theory not only fortifies existing critiques but also encourages new lines of inquiry and research directions.

12.2 Ranking critiques: from many voices to a synthesised narrative

Proponents of global university rankings argue that these systems can help mitigate national biases by offering a standardised framework for evaluating academic institutions worldwide. Rankings aim to provide an objective set of criteria that can highlight excellence in regions that might otherwise be overlooked due

to historical or geopolitical biases. This standardisation would allow institutions from different countries to be compared on a level playing field, potentially reducing the influence of national prestige and encouraging universities to improve based on measurable performance indicators (Hazelkorn, 2015).

However, critics have thoroughly challenged this optimistic view focusing, on the one hand, on the effects they produce and, on the other, on the methodologies they employ (Hamann & Ringel, 2023). The first type of criticism, concerning unintended effects, underscores that these rankings are far from being the passive evaluative instruments they tend to be portrayed as. Instead, evidence shows that they play a proactive role in moulding the behaviours and priorities of the institutions they assess (Chun & Sauder, 2022; Espeland & Sauder, 2007; Hazelkorn, 2015; Johnson, 2006; Wedlin, 2011). This line of reasoning suggests that while aiming to merely assess quality in higher education, rankings end up widening existing inequalities among institutions and individuals. It has been demonstrated how ranking systems potentially reduce access to goods and services for lower socio-economic groups by increasing demand for top-ranked institutions and optimising criteria unfavourable to these individuals (Chu, 2021), as well as how rankings foster the concentration of research funding resources in the hands of a select few (Mittelman, 2018; Münch, 2016). Consequently, they spur institutions into a rat race, often encouraging them to take opportunistic measures to improve or keep their ranking positions, such as the adoption of market-driven policies (Deem et al., 2008; Sabzalieva, 2017). Some institutions even resort to data manipulation to ascend the ranks (Bush & Peterson, 2013), actions which sceptics point out deviate them from the intended purpose of higher education institutions (Biagioli et al., 2019).

Adding another layer to this criticism, there's a growing concern about the pervasive erosion of scholarly autonomy in the wake of ranking pressures. By superimposing an external metric system on the inherent cadence and ethos of academia, rankings introduce rigid, sometimes alien accountability mechanisms (Gingras, 2016; Pardo-Guerra, 2022). This rigidity alters the conventional academic power relations to the detriment of academic freedom (Shore & Wright, 2015). With economic factors often driving these quantitative measures, the essence of academic endeavour, many believe, is under siege (Baert & Shipman, 2005; Hallonsten, 2021).

Turning to the second type of critiques, concerning ranking methodologies, scholars often state the need for a more careful examination (Marginson, 2014). This literature contends that these methodologies often fall short of the meticulousness and rigour expected from scholarly research (Barron, 2017; Hägg & Wedlin, 2013; Johnes, 2018; Schmoch, 2015; Westerheijden, 2015). In this line of literature, there's a prevailing sentiment that these rankings have an inclination to oversimplify intricate concepts like "quality of teaching" or "research performance" (Espeland & Stevens, 1998; Johnes, 2018). These simplifications cause rankings to serve as an inaccurate proxy for quality at best (Gadd, 2020), calling into question the meaning of their evaluations.

Furthermore, there's a growing demand for transparency in ranking systems. Often, the underlying data, indicators, and metrics are shrouded in ambiguity and are not accessible to the public, leading many to question their credibility (Bougnol & Dulá, 2015; Surappa, 2016). In addition to the myriad of inconsistent indicators used in various rankings, the rationale for assigning particular weights to each indicator is frequently unclear, leading to further questions about the objectivity and validity of these systems.

Another critical area of discussion is the validity and reliability of the ranking methodologies themselves. There's a consensus that the methods employed are over-simplistic and potentially misleading (Leiber, 2017; Schmoch, 2015). Especially contentious is the use of surveys, as seen in systems like the QS and Times Higher Education world university rankings. Critics argue that such tools often suffer from inconsistencies and might not always be reliable or even valid indicators of institutional quality (Dill & Soo, 2005).

In sum, the most outstanding critiques reveal that rankings perpetuate inequality among institutions and individuals, driving the adoption of market-oriented policies that undermine academic pursuits and erode academic freedom, all under an evaluation system with opaque and unclear rules. While these critiques might initially appear scattered across the available literature, they are in fact consistent and interrelated, originating from a variety of theoretical perspectives. However, there has yet to be a concerted effort to synthesise these diverse but coherent critiques into a unified theoretical framework.

It is here that field theory, as formulated by Pierre Bourdieu and collaborators, comes to the fore. With its nuanced, encompassing, and integrative lens, this theory offers a wide array of interrelated concepts that, when implemented, clarify the connections between these critiques. Let's delve deeper into field theory and its foundational concepts in the next section and expand on why and how it can be of use for the case at hand.

12.3 Field theory foundations

The concept of "field" was first introduced by physicists in the mid-nineteenth century as a method to explain how different forces impact matter from a distance (Weinberg, 1977, pp. 18–21). This approach allowed for a more relation-focused understanding of how particles interact, as opposed to just focusing on their individual properties. In the realm of sociology, this conceptual tool has found a significant application in understanding social interactions—echoing Auguste Comte's vision of sociology as "social physics" (Comte, 1853). The French sociologist Pierre Bourdieu and his team, in particular, leveraged this notion to explain how social forces shape the behaviours and practices of different agents in social settings.

Circling back to Altbach's dilemma, instead of asking "what is" a world-class university as if it were a quasi-linguistic problem, a field theory perspective leads us to consider "why" and "how" certain universities are designated as world-class institutions in the first place. Adopting this approach emphasises

the need to examine who holds power to assign meaning to this classification, how their authority has been legitimised and exercised, and what symbolic relationships emerge through this classification process. Hence, the focus shifts from discussing the semantics of the label to understanding the socio-historical context of its development and current uses.

Addressing the existence of social classes, Bourdieu suggested examining social struggles through a relational approach, akin to modern mathematics and physics, focusing on relationships rather than substances (Bourdieu, 1984). He described social space as a structure of external positions defined by social relations (Bourdieu, 1987). This space encompasses various spheres of social interests, where agents' positions are influenced by their possession of different species or forms of capital: economic (money, property), cultural (degrees, skills, objectified cultural possessions), social (networks, group affiliations), and symbolic (value in a specific context). Bourdieu emphasised the importance of analysing the volume, composition, and dynamics of these capitals to understand the social positioning of agents (Bourdieu, 2002, 2021). Among these species of capitals, the latter—symbolic capital—appears as particularly pertinent to understand the role of global university rankings and the label of world-class university, as I will further explain in coming sections.

Now, a social field, as defined by Bourdieu, is a distinct sphere of social interest that gains relative autonomy from individuals and other spheres of interests through its unique set of enduring rules and logic (Bourdieu & Wacquant, 1992). Examples include the fields of literature, science, politics, and academia. The autonomy of a social field is evident in its unspoken yet fundamental law (nomos), leading to implicit adherence (illusio) by those within the field. This adherence forms the basis for shared cognitive and evaluative beliefs (doxa), or principles of vision and division, adopted by all members of the field (Bourdieu, 2000).

The emergence of global university rankings came with the establishment of a new set of rules dictating a set of principles of vision and division that could be applied to universities across the world. Again, I will come back to these ideas in a later section. Let's for now continue with the inspection of the core ideas of field theory, specifying the role of education in general and of higher education in particular in the structuring of social fields.

12.3.1 Symbolic violence, higher education institutions, and the field of power

In field theory, the nation state is conceived as an ensemble of bureaucratic fields and constitutes a place of struggle where what is at stake is the monopoly over the power to establish as universal a common set of coercive norms within a given territory. Together with the relations among the different forms of power stemming from the specific features of dominant positions in other social fields, they constitute the “field of power”. All agents holding a volume and kind of capital enough and appropriate to be placed in the dominant regions of their respective fields simultaneously integrate the field of power,

which can further be defined as a place of struggles where what is at stake is the monopoly over the power to determine the dominant principles of domination and over the legitimate mode or strategies of reproduction of the foundations of domination itself—or in short, over the monopoly of legitimate “symbolic violence” (Bourdieu, 1996, pp. 375–376).

Symbolic violence, in Bourdieu’s theory, is a type of non-physical violence that’s embedded in the everyday social practices of a society. Particularly, it refers to the way power and dominance are maintained not through overt force or coercion, but through accepted norms, beliefs, and perceptions. These rules and principles don’t have inherent value in and of themselves; their value is assigned by society and often reflects the interests of the dominant groups. In simpler terms, their content is “arbitrary”—not as a synonym of indiscriminate or random, but as indicative that they are assigned, not intrinsic or natural.

One of the strategies of reproduction more widely used by agents to legitimise their access to the field of power are those connected to the operations of institutionalised educational systems (Bourdieu, 1996, pp. 386–388; Bourdieu & Passeron, 1990). Through attaining a specific form of cultural capital, e.g., a university diploma from a prestigious programme in a prestigious institution after following an educational trajectory in very selective schools, a given agent positioned in the field of power secures, rationalises, and legitimises their dominant position.

Bourdieu notes that the structure of the field of institutions of higher education in France reproduces the structure of the field of power to which it gives access (Bourdieu, 1988; Bourdieu, 1996). There is a close relation between the fields of higher education institutions and the field of power not only in that the former provides strategies to legitimately access the latter but also in that the fields of higher education institutions contribute to the reproduction of the conditions of existence of the social fields connected to the disciplines imparted by these institutions.

Bourdieu’s theorisation and analysis of higher education institutions and the field of power were conducted within a national setting. The case of global university rankings, however, expands into a global scale. This raises the question about the conceptualisation of global fields and a global field of power. Next, I turn to these concerns and answer why and how a global field approach is possible.

12.3.2 A global sub-field of higher education institutions?

In the study of the social structures of the economy, Pierre Bourdieu reflects on the possibility of conceiving and studying “global fields”. It is noted that because of the growing weakening of the technical and juridical limits constraining economic fields to national borders by the establishment of contemporary means of communication—such as the internet and supra-national regulatory frameworks—one can propose the emergence of a global economic field. Bourdieu highlights that the formation of such a field is not the result of

a mechanical process, but the result of a political creation materialised by the implementation of neoliberal policies. In attention to the social and historical context of these developments, globalisation in this case should be understood as the universalisation of a particular set of features and practices embedded in a particular social structure of the economy, more precisely in Bourdieu's account, those of the USA (Bourdieu, 2005, pp. 224–227).

The rise of global university rankings can be seen as part of this broader economic transformation, where higher education institutions are increasingly viewed through the lens of market-driven policies. Rankings act as a form of economic regulation, influencing the allocation of resources and shaping institutional behaviours to align with global standards. This process not only impacts the internal dynamics of universities but also affects their positioning within the global economy.

More recently, a growing body of literature using a field approach in the examination of other global phenomena has begun to emerge. Some examples are the work by Dezalay on the internationalisation and subsequent restructuring of legal fields (Dezalay, 1990), the study by Lebaron on central bankers and their relation to a global field of power (Lebaron, 2008), the analysis of the emergence of a global field of social sciences carried out by Heilbron (2014), the study on the globalisation of the field of literature by Sapiro (2010), the exploration of the global field of IB schools conducted by Dugonjic-Rodwin (2021), the proposition of the emergence of a cultural world economy by Buchholz (2022), and the examination carried out by Madsen on power elites and transnational fields (Madsen, 2016).

The available research on global fields, however, does not always engage explicitly nor consistently in the debate on how to study social fields on a global scale. Attending to this problem, Larissa Buchholz suggests the distinction between two kinds of relative autonomy: on the one hand, the functional autonomy traditionally described by Bourdieu, which can be understood as a horizontal autonomy, and on the other, a vertical autonomy that differentiates a global level of social organisation in the same realm of specific interest and practice as that of the national level (Buchholz, 2016, pp. 40–41). A global field is therefore defined as a sphere of specialised social practice on a global scale with functional autonomy from other fields of practice and vertical autonomy from regional or national field levels of organisation within the relevant sphere of practice. This vertical autonomy has been found to emerge through three main mechanisms: (1) the foundation of global institutions for exchanges across borders, (2) the formation and legitimation of a field-specific global discourse, and (3) the creation of global evaluation devices (Buchholz, 2016, p. 44).

Drawing on the remarks made by Bourdieu and Buchholz, we can read the recent developments in university systems worldwide as evidence of the formation of a global sub-field encompassing a select group of “world-class” universities. The new means of communication and more accessible transportation in combination with the establishment of supra-regional regulations have fostered the flow of ideas and people as well as the adoption of market-driven and

pro-globalisation policies, boosting at once competition and collaboration among higher education institutions to an extent never seen before.

Against this backdrop, a number of global narratives, institutions, and evaluation systems surrounding universities have emerged, and stand as key developments informing the perspective I propose. Next, I will elaborate on the implementation of a field theory perspective to global university rankings, offering an approach to the critiques through the conceptual lens of this Bourdieusian approach.

12.4 A global field approach to global university rankings

After the end of World War II and most notably since the 1980s, it has become progressively more common for universities to strive to play a relevant role on a global scale. From a political perspective, certain supra-national entities, like the European Union, have invested significantly in the integration of the geographical space they govern.² Public policies and strategies fostering a widening geographical focus regarding recruitment and collaboration now occupy the agenda of a rising number of nation states and institutions (Marinoni, 2019). At the same time, transnationally mobile students have more than doubled over the past ten years;³ a phenomenon partially explained by the increase in strategies deployed by institutions to attract transnational talent and the growing interest on the side of students for gaining or reconverting educational assets through their partaking in the cross-boundary practices massified by the implementation of pro-globalisation reforms.

Therefore, while universities still operate primarily on a national level regarding their recruitment, governance, and funding (Engwall, 2016, p. 223), they also function as transboundary entities, facilitating the exchange of ideas and the movement of students and staff across borders. In recent years there has been an increase in investments concerning activities that promote knowledge transfer, physical mobility, and collaboration as well as competition between universities and nation states (Teichler, 2004, pp. 9, 22–23). As a result, universities today occupy a unique position as national, international, transnational, and global entities, surrounded by an increasing number of global initiatives such as the International Association of Universities (IAU), the International Ranking Expert Group (IREG) Observatory, UNESCO, and of course global university rankings.

In this context, a clear competition over a “world-class” status has taken over the agenda of multiple nations and institutions during the first two decades of the twenty-first century. This competition is more often substantiated by a growing concern among the leading universities of each country for becoming relevant players in the global arena. The position a given institution occupies in a global university ranking list seems to impact student and academic recruitment, research collaboration, and funding (Hazelkorn, 2015, pp. 105–110, 133–ff); or, in other words, the positioning impacts the acquisition, accumulation, and reproduction of other vital assets for the institution.

With the operation of global university rankings, the label of “world-class university” has become a symbolic asset with global recognition; it has become a specific form of symbolic capital over which higher education institutions now compete. The struggle over this symbolic capital has given rise to an exclusive global field of institutions that are considered legitimate candidates for and even legitimate examples of “world-class” status. Institutions encompassed by this global field are recognised as distinct from the institutions lacking the resources to even feature in these lists. These world-class institutions are subjected to the dynamics of this field, influenced by global rankings and the competition to accumulate symbolic capital, at the time that they also have the agency to strategically act, adjust their practices, and contribute to some degree to alter the field’s boundaries and norms—especially the universities at the very top of the hierarchy.

This is not a spontaneous or mechanical development stemming from a logic inherent to university systems. Specific groups of actors with particular sets of interests have laid the foundations of the infrastructure that makes the legitimate evaluation and subsequent distinction of “world-class universities” possible and legitimate. Next, I will provide an overview of how the formation and legitimation of a field-specific global discourse, the foundation of global institutions for exchanges across borders, and the creation of global evaluation system have led to the formation of a global field of universities.

12.5 The formation of a global sub-field of universities

Three pivotal shifts have notably transformed the contemporary functioning of higher education on a global scale: the shift in the arguments leading the debate on the idea of the university during the 1980s and 1990s; the foundation of new global institutions for evaluating and consecrating higher education institutions during the early 2000s; and the implementation of a new evaluation system organised around the idea of the world-class university.

Together, these events laid the foundation for a new institutional and cultural infrastructure that fostered the formation of a global field of universities. As a result, higher education institutions worldwide found themselves engaging in a new set of symbolic struggles. Gradually, these developments led to the construction and legitimation of a new kind of symbolic capital, often embodied through the use of the moniker “world-class university” or a ranking position. All these transformations signal a fundamental shift toward a global logic in the spheres of higher education, which points at the development of new narratives surrounding the role and value of universities.

12.5.1 The idea of the (world-class) university

Nowadays, when we speak of universities, discussions on quantitative metrics tend to dominate the conversation. Beyond these numbers, however, lies a deep debate documented in a vast body of literature regarding the role and value of

universities as institutions (Peters & Barnett, 2018). The rise and spread of the ranking logic seem to have tacitly settled this discussion by offering an objective measurement to globally assess the performance of universities: in the twenty-first century, the ideal university seems determined by a collection of ranking indicators.

The many years of existence of the university and its widespread presence across the globe has resulted in an abundance of concrete embodiments of this institution. Over time, prominent academics and philosophers, spreading across diverse geographies and disciplines, have contributed to a dynamic dialogue, articulating what they believe to be the *raison d'être* of the university. For many centuries, a general consensus existed. The university was regarded as a beacon of knowledge and culture, shining its light onto the masses (Newman, 1886; Ortega y Gasset, 2007). This vision upheld the university as an entity with a unique privilege: a degree of autonomy from political and religious powers (Kant, 2018; von Humboldt, 2018). In this paradigm, the university's "sacred" duty was to contribute to the reservoir of universal knowledge and facilitate national growth. But this perception of the university faced a paradigm shift as global dynamics evolved. From being a repository of knowledge and culture, the university began its transformation into an engine of the global knowledge economy (Marginson, 2009, p. 65).

Specifically, during the latter half of the twentieth century, the debates surrounding the university's role began to change dramatically. The age-old, enlightenment-inspired ideals began to give ground to pragmatic, economy-driven objectives (Lyotard, 1984). This transition was analysed by Bill Readings, who noted that as universities slowly began to resemble bureaucratic corporations, people participating in global discussions surrounding higher education institutions favoured the language of economic management over that of cultural conflict. Within this new narrative, "excellence" emerged as the universal standard to which all universities should aspire (Readings, 1996). However, this "excellence" was an empty container, devoid of an intrinsic meaning or external benchmark. Consequently, the imperative arose for a tangible, quantitative system to gauge this elusive "excellence" across universities of varied histories and cultures.

Enter the era of global university rankings. The quest for "excellence" in higher education intersected with the emergence of these rankings, especially in the pursuit of the coveted "world-class" status. As specialists in the field suggest, the pathway to achieving "world-classness" is paved with "excellence initiatives" (Salmi, 2017)—strategic moves that often, and unsurprisingly, cater directly to the metrics favoured by global rankings. Thus, the narrative of the university's transformation from an intellectual sanctuary to a player in the global economic arena is inextricably linked with the rise and influence of global university rankings.

The development, spread, and legitimation of this idea was made possible through the foundation and activity of specific institutions. In particular, the IREG Observatory and the Center for World-Class Universities at Shanghai

Jiao Tong University played a chief role in this process, mainly through the organisation of conferences and other instances where ranking publishers and other agents gathered to refine and consolidate the nascent infrastructure for the global evaluation of universities.

12.5.2 The rise of global institutions

12.5.2.1 IREG

Today, the IREG Observatory on Academic Ranking and Excellence is an international institutional forum that brings together ranking organisations, universities, and other stakeholders to improve the quality and transparency of university rankings. In 2002, the inaugural assembly of the IREG, now referred to as the “IREG-0 Conference”, took place in Warsaw, Poland. This gathering was orchestrated by the UNESCO European Centre for Higher Education (UNESCO-CEPES) and guided by its then director, Jan Sadlak, alongside Jamie Merisotis, the president of the Washington-based Institute for Higher Education Policy (IHEP). They titled this instance “The Invitational Roundtable on Statistical Indicators for Quality Assessment of Higher/Tertiary Education Institutions: Ranking and League Tables Methodologies”, which came about as a response to UNESCO’s appeal for a system that could quantify the intricate aspects of higher education (Merisotis, 2002). Rather than global rankings in specific, the main focus of their efforts revolved around understanding the broader international trends in higher education at the time, of which university rankings were one among other concerns (Lounsbury et al., 2016).

In 2006, in collaboration with UNESCO-CEPES and the IHEP, and with the participation of representatives from the World Bank, the IREG established what we know today as the Berlin Principles on Ranking of Higher Education Institutions. This document lays down a set of guidelines to foster the transparency and quality of global university rankings. The inception of these principles was driven by the escalating influence of these rankings worldwide and their consequential impacts on educational policies and public perceptions. Furthermore, the Berlin Principles fostered international collaboration among ranking producers, encouraging ranking organisations to share their methodologies, join forces to enhance data quality and undertake joint research activities.

In 2008, the group began to prepare the formalisation of the instance as an international organisation. By 2009, IREG had fully transitioned into a non-profit entity known as the IREG Observatory on Academic Ranking and Excellence. This transformation brought together approximately 50 members globally, with strong representation from Eastern Europe, areas under Russian influence, as well as Gulf and Far East nations. This composition is reflective of its historical roots in UNESCO-CEPES. Later, in 2013, the IREG Observatory undertook its first audits guided by the Berlin Principles. Nowadays university managers responsible for international relations frequently refer to the IREG

principles and endorsements when determining the credibility of rankings that they use for assessing their institution's standing.

Regarding its composition, the executive committee of the group is an international ensemble of eleven members, hailing from a diverse array of countries. This includes Brazil, China, Denmark, Germany, Hungary, Italy, Kazakhstan, Spain, and the USA,⁴ with Poland being represented by two members. Further enriching the global representation, there are eight honorary members, with individual representation from China, and Spain, two members from the USA, two from Germany, and two more from Poland. The composition of the group is notably intriguing due to the direct involvement of prominent ranking producers. This includes Nian Cai Liu, the pioneer behind the Shanghai ranking, Robert Morse, the director of data research for US News and World Report, Gero Federkeil of U-Multirank, and Isidro Aguillo, who heads Webometrics. One can say that these members have dual roles as judges and parties, given their direct relationship with the very instruments and commodities they produce and which IREG endorses.

These latter individuals occupy dominant positions within the space of ranking production, playing a crucial part in defining the rules and standards governing the very production that they are responsible for. This turns the IREG from a neutral third-party observer into an integral participant in this arena. In other words, the IREG isn't merely a passive observer assessing the relevance and quality of global university rankings in a detached manner. Instead, it operates as a significant hub within a tightly knit, interdependent network of agents who validate each other's work. This web of relationships reinforces their collective authority and shapes the landscape of global university rankings and global higher education.

Throughout its history, the IREG has further developed a field-specific discourse that acts today as a "law of constitution" of a global field of universities. In addition to the embrace of the idea of the world-class university, this law can be summarised in three narratives put forward throughout IREG's documentation—as well as in other documents and articles outside its direct scope of influence—as summarised by Brankovic, Ringel, and Werron: Rankings are inevitable, rankings reflect reality, and rankings are needed (Brankovic et al., 2023).

The first narrative, "rankings are inevitable", frames rankings as a necessary outcome of current global trends, such as the massification, globalisation, and the expansion of higher education. This narrative is encapsulated in the often-repeated assertion "rankings are here to stay", signifying a belief in the enduring relevance and influence of global rankings in higher education. But, as critiques point out, evidence shows how these devices are not an inherent outcome of how higher education works. Rather, there are socio-historical factors that clearly explain their emergence, providing a broader context against which to understand it.

The second narrative, "rankings reflect reality", regards rankings as an honest attempt to reflect the reality of higher education dynamics. This suggests

that rankings offer an impartial overview of the status dynamics within higher education, revealing a true hierarchical order of universities around the world. Influential scholars, like Philip Altbach, are often quoted to support this view, arguing that rankings are an essential tool to gauge global competition in higher education. But then again, we know from evidence that the evaluation results of these rankings are not impartial. For the same socio-historical context that explain their emergence, rankings cannot and have not been neutral, producing a number of effects beyond merely evaluating institutions. Detractors have clearly shown how by their operation, rankings end up legitimising pre-existing inequalities, rather than merely revealing a hierarchy based on a purely technical assessment.

The third narrative, “rankings are needed”, emphasises the necessity and usefulness of rankings. It argues that rankings meet a growing demand for comprehensive and transparent information about higher education institutions, serving as useful tools for universities, governments, and other stakeholders to improve the quality of education. The utility of rankings is seen as an inherent quality, with millions of students, researchers, scholars, and managers relying on them. Yet, as previously discussed, crucial information remains inaccessible for most of the audience, further failing to provide clear explanations to fundamental decisions such as why one set of indicators should be used over another, or even how the weight of each indicator is assigned.

Thus far, the IREG has strategically employed these narratives to foster a constructive discourse around rankings, inviting discussions on how rankings can better reflect reality or meet the needs of various users. Through these narratives, criticisms against the inevitability, utility, or realism of rankings are often dismissed as unreasonable or futile, thus preserving the legitimacy of IREG and the significance of the rankings they endorse in the landscape of higher education. Going back to a theoretical level, one can say that the IREG has become the consecration instance for global university rankings playing a fundamental role in the legitimation of the global ranking system and therefore in the constitution of a global field of universities.

12.5.2.2 The centre for world-class universities

Parallel to the development of IREG, the organisation of international conferences on world-class universities, with the first iteration taking place in June 2005, represents another crucial instance for the institutionalisation of a field-specific discourse. Two years after the debut of global university rankings, the First International Conference on World-Class Universities (WCU-1) was launched by the Center for World-Class Universities at Shanghai Jiao Tong University. The objective behind these international platforms was to facilitate dialogue among a global cohort of leaders, scholars, policy researchers, and senior university administrators on the multifaceted issues underpinning the notion of “world-class universities”. The centre started its research on world-class universities in 1985. In 2003, this institution introduced the ARWU.

Since its inception, the conference series has been held biennially, hosting participants from over 40 countries, including university presidents, government officials, and academics. Each conference, while sharing the broader theme of world-class universities, has had a unique focus. Starting with “World-Class University and Ranking: Aiming Beyond Status” in 2005, the themes have evolved, reflecting changing contexts and priorities in higher education.⁵

This institution has played a crucial role in ensuring the idea of a “world-class university” remains not only relevant but intrinsically connected to the ranking discourse. The impact of these conferences extends beyond dialogue, as illustrated by the 2007 publication of the book using the title of WCU-1: “World-Class University and Ranking: Aiming Beyond Status”. This compilation is structured into an introductory section, which examines the expectations and realities of world-class university status and ranking practices, followed by three main thematic parts, titled “Characteristics and Criteria of the World-Class University”, “Evaluation and Ranking of World-Class Universities”, and “Building a World-Class University” (Liu & Saldak, 2007).

The central argument of the book, implied in its subtitle, is the claim that a “world-class university” does not merely refer to an institution of global prestige. Instead, it suggests that the characterisation of world-class universities can be rendered more objectively by assessing their performance in relation to other institutions. This viewpoint serves to solidify the influence of rankings and their integral role in defining what constitutes a world-class university, echoing the objectives and influence of the conference series. Therefore, these international conferences and subsequent publications, in effect, have preserved and cultivated the vitality of the “world-class” notion within higher education discourse, reflecting the dynamics of a global field of universities.

The foundation and activity of both the IREG Observatory and the Center for World-Class Universities, as well as the involvement of the other aforementioned organisations, wouldn’t have been possible without the introduction of a global evaluation system of universities, the last piece in the foundation of a global field of universities. Let’s now turn to examine the origins of these rankings.

12.5.3 A global evaluation system for universities

Born in an era when academic excellence and performance took centre stage, global university rankings swiftly changed the landscape of higher education on a global scale first and foremost by quantifying it and making it more tangible. The very first global university ranking to make an appearance was the ARWU, also known as the Shanghai Ranking. Even though its first publication was made in 2003, its origins can be traced further back to 1998, when China’s central government launched its ambitious 985 policy (Usher, 2017). This strategy was designed to offer a substantial influx of additional funding to a select set of universities, with the ultimate goal of propelling these institutions into a “world-class” echelon. Nevertheless, much like today, the concept

of “world-class” was vague at best, prompting the need for coining a more tangible, measurable definition.

Under these circumstances, Shanghai Jiaotong University, one of the chosen institutions for this grand project, delegated the task of defining “world-class” to an engineering professor, Nian Cai Liu. Professor Liu, taking specifically and explicitly the values and practices of top American universities as his reference, devised a set of nine distinct metrics to assess Chinese institutions. His approach was a marked departure from previous regional ranking efforts, such as those performed by Asiaweek some years before, that relied on self-reported data. Instead, Liu chose to rely exclusively on third-party mostly bibliometric sources, considering them more reliable and objective. His efforts resulted in a publication that circulated in China in 2001. Upon this accomplishment, Liu went on to broaden the scope of the ranking to fit a global perspective, which required a revision of the previously used indicators to accommodate third-party data sources that encompassed the new corpus of institutions.

The reliability and objectivity of the third-party sources chosen by Liu, however, can be called into question. From a field theory approach, one should consider that the data produced by those sources are still the product of socio-historical events and thus carry their footprint. What’s measurable and how it’s measured is ultimately arbitrary. By this I don’t mean that those measurements are random or aleatory, but rather, that their specific embodiments respond to the logic of the fields from which they emanate. Rather than “objective”, these metrics stem from a process of “objectivation” whose principles are informed by their context of production. For example, the attention directed toward the number of alumni and staff holding Nobel or Field Prizes transposed a view of the “world-class university” as one not only with current high performance but also with historical prestige in scientific fields. Moreover, because American institutions remained the ultimate benchmark for “world-class” status, the bias towards certain forms of higher education organisation to the detriment of others was reinforced.

The success of ARWU paved the way for the development of other global rankings. Times Higher Education (THE), a UK-based higher education magazine, set off to develop a ranking system to provide a comprehensive comparison of universities worldwide. Their reasoning was to meet a growing demand for more transparency and information about higher education institutions. It also aimed to provide insights for various stakeholders, such as students deciding where to study, academic professionals considering where to work, and governments looking to compare their countries’ universities with others around the world. In this endeavour, they partnered with Quacquarelli Symonds (QS), a British company specialised in education and studying abroad. QS thus provided the expertise in data collection and analysis.

The first version of the THE ranking contemplated several indicators including academic reputation, employer reputation, faculty/student ratio, citations per faculty, and international orientation. Unlike ARWU, it relied on institutions’ self-reported data and academic reputation indicators based on

surveys circulated among scholars. In 2009, THE and QS decided to go their separate ways due to differing views on methodology. After the split, THE collaborated with Thomson Reuters to refine its ranking methodology. The new approach emphasised research impact over research output, made use of a more robust database for citations, and reduced the reliance on reputational surveys. On the other hand, QS continued to produce the QS World University Rankings, maintaining the importance of reputation surveys. Despite the changes over time, THE World University Rankings grew to become one of the most respected and referenced global university rankings.

During the first decade of the twenty-first century, several other rankings were created, but none reached the level of influence or recognition that the “big three”—ARWU, THE, and QS—managed to attain. One such example is Webometrics, which was introduced in 2004 and offers a distinct approach by focusing primarily on metrics related to universities’ online presence. In 2007, the National Taiwan University Performance Ranking of Scientific Papers for World Universities was launched, anchoring its ranking system solely on bibliometric indicators. This ranking highlighted the scientific research output of universities, reflecting their contributions to the world of academic publishing.

In 2009, Scimago entered the ranking arena, providing another perspective on global university performance by incorporating a three-dimensional approach to indicators. These indicators were designed to reflect scientific, economic, and social characteristics of institutions. Significantly, Scimago’s methodology includes both size-dependent and size-independent indicators, allowing for a comprehensive analysis of an institution’s output while facilitating comparisons between institutions of varying sizes. The final indicators, after being weighted differently, are normalised on a scale from 0 to 100, ensuring a standardised evaluation framework. A few years later, in 2012, the Centre for World University Rankings joined the field, offering yet another unique methodology for evaluating universities worldwide. Another contender, the University Rankings of Academic Performance (URAP), came into existence in 2010. Each of these rankings provided fresh dimensions of analysis, contributing to the increasingly complex and varied ecosystem of global university rankings.

While these lesser-known rankings did not garner the same level of attention as their more prominent counterparts, they nevertheless added diverse perspectives to the discourse around university quality and performance. Each offered unique lenses through which to examine and compare institutions, further enriching the conversation about what makes a university “world-class”, highlighting once again the arbitrariness underpinning the operationalisation of this benchmark.

The transition of global university rankings from its embryonic stage, with the Shanghai Ranking’s inception, to its present state, underscores the formation of a global evaluation system for universities. Though each ranking offers its perspective on university excellence, they collectively feed from and shape a specific global discourse. As universities and stakeholders navigate this landscape, it becomes imperative to approach these rankings with a discerning eye,

critically examining the assumptions and biases that underpin them. The formation of a global field of universities is thus a testament to the dynamic interplay of objectified metrics and subjective interpretations in shaping the current narratives governing the current global dynamics of higher education.

12.6 Discussion and concluding remarks

In this chapter, I have discussed how the emergence and development of global university rankings and associated institutions can be studied as the formation of a distinct global sub-field of world-class universities. From this vantage point, the process of legitimation of inequalities stemming from the operation of global university rankings can be seen as the effects of a consecration process whereby a field-specific symbolic capital previously accumulated by higher education institutions becomes objectified, rationalised, and naturalised. Insofar as the socio-historical process of this accumulation is effectively transformed into a process of technical evaluation, its true nature remains hidden.

In “The State Nobility”, Bourdieu presents an analysis of the social magic of consecration instances and rites of institution concerning the educational strategies used by agents to gain legitimate access to the field of power in France. Bourdieu proposes that traversing through a *Grande École*, i.e. accumulating a specific type of cultural and social capital, constitutes a rite of passage which transforms an act of social reproduction—the evaluation of the degree of coincidence between the predispositions associated with the social origin of applicants and the predispositions possessed by those in charge of creating and implementing the admission process—into an act of meritocracy.

Multiple scholars around the world have conducted similar studies arriving at analogous conclusions regarding the true nature of admission processes of national higher education systems. In sum, they have shown how universities, especially the most prestigious and selective ones, tend to serve as consecration instances capable of transforming advantageous social predispositions stemming from arbitrary social inequalities into legitimate and meritocratic achievements for those accessing power positions in different fields—and, in turn, justify and rationalise the arbitrary exclusion of those who lack the possession of the assets required to access dominant social positions.

At the dawn of the twenty-first century, the already discussed developments in higher education threatened with exposing the implicit workings of this so-called social magic: the dissociation of prestige and excellence underlying the logic of global university rankings suggested—at least hypothetically—that institutions conventionally recognised as prestigious could lack the level of excellence required to justify their reputation. If this dissociation became effective, then questions regarding the symbolic value attributed to the social goods produced and distributed by these institutions would surely ensue. In other words, the expansion of higher education systems that followed the widespread marketisation of the sector together with the spread of a global excellence standard in higher education brought about a potential inquest on the legitimacy of the social division consecrated by higher education systems.

As the reader may remember, however, the idea of excellence, embodied in higher education by the idea of the “world-class university”, lacks a fixed meaning, therein laying its strength. Therefore, in practice, its measurement had to be carried out according to a standard reflecting the features of institutions already perceived as prestigious and excellent. Hence, traditionally prestigious universities—particularly, American institutions and those with a similar way of operating—managed to retain and solidify their reputable positions because their advantageous predispositions were effectively transubstantiated into a more objectified form of prestige: a global ranking position assigned by evaluating institutional performance according to measurable indicators.

University rankings have thus become consecration instances which reproduce and legitimise a global order of universities. Furthermore, they represent a special type of consecration instance, since they effectively consecrate other consecrators. Through the “social magic” exerted by global rankings, universities subjectively perceived as prestigious can confirm and objectify their reputation by being well evaluated according to quantitative indicators derived from the arbitrary notion of what an excellent university should be. At the same time, less prestigious institutions are confirmed in their exclusion by the operation of the same indicators. Evaluators then publish an ordered list regarded as the outcome of an annual competition where institutions can gain, maintain or lose reputation depending on their performance as measured by those excellence indicators.

Global university rankings govern a global sub-field composed of both aspiring and established world-class universities, dictating what assets count as a legitimate measurement of academic excellence. This arbitrary attribution of an arbitrary meaning to the notion of excellence in higher education and its evaluation according to the indicators used by these rankings constitutes an act of symbolic violence: an arbitrary power—evaluators and the evaluator of evaluators, the IREG Observatory—successfully impose a cultural arbitrariness—the identification of prestige with the idea of excellence symbolised in the notion of the “World-Class University” as expressed by ranking indicators—rationalising and legitimising a pre-existing social order.

Considering these insights, the critiques regarding the unintended effects of these rankings can be understood as a new set of strategies that the institutions encompassed or aiming to access a global sub-field of world-class universities are forced to deployed by the symbolic violence exerted in this context. And the unclear disparities regarding the methodologies used by rankings aren’t but a token of the cultural arbitrariness characteristic of these dynamics.

Notes

- 1 Portions of this chapter have been adapted from sections of my PhD thesis; Lillo Cea, Pablo. (2024). *The World-Class Ordination: A Field Theory Approach to the Study of Global University Rankings* (PhD dissertation, Acta Universitatis Upsaliensis).
- 2 The implementation of the Bologna Process and the creation of a European Higher Education Area as well as a European Research Area are clear examples.

3 Data available at <http://data.uis.unesco.org>.

4 One of the honorary members from the USA, Robert Morse, sits on the executive committee.

5 Other conference titles can be found in <https://cwcu.sjtu.edu.cn/2022/en>.

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