Higher Education Dynamics 49

Otto Hüther
Georg Krücken

Higher Education in Germany—Recent Developments in an International Perspective

Springer

Higher Education Dynamics

Volume 49

This series is intended to study adaptation processes and their outcomes in higher education at all relevant levels. In addition it wants to examine the way interactions between these levels affect adaptation processes. It aims at applying general social science concepts and theories as well as testing theories in the field of higher education research. It wants to do so in a manner that is of relevance to all those professionally involved in higher education, be it as ministers, policy-makers, politicians, institutional leaders or administrators, higher education researchers, members of the academic staff of universities and colleges, or students. It will include both mature and developing systems of higher education, covering public as well as private institutions. All volumes published in the Higher Education Dynamics series are peer reviewed.

More information about this series at http://www.springernature.com/series/6037

Otto Hüther • Georg Krücken

Higher Education in Germany—Recent Developments in an International Perspective

Springer

Otto Hüther
INCHER-Kassel
Universität Kassel
Kassel, Germany

Georg Krücken
INCHER-Kassel
Universität Kassel
Kassel, Germany

Translated by Michael Alger

ISSN 1571-0378 ISSN 2215-1923 (electronic)
Higher Education Dynamics
ISBN 978-3-319-61478-6 ISBN 978-3-319-61479-3 (eBook)
https://doi.org/10.1007/978-3-319-61479-3

Library of Congress Control Number: 2018930986

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer International Publishing AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword

During the more than 70 years that has passed since the reopening of German universities following Hitler's defeat in 1945, much change has taken place in German higher education. It began with the rather tepid efforts to denazify the professoriate in the immediate postwar period and the simultaneous restoration of a traditional German university model that then came under serious challenge and stress during the student rebellion of the late 1960s. Subsequently, reforms waxed and waned to enter a seemingly permanent reform phase in the late 1990s.

Otto Hüther and Georg Krücken analyze the developments of the last 20 years in their new book on German higher education:

> [T]he higher education system has been put under pressure to change—whether in respect of teaching, research, or in terms of personnel, funding or governance structures. We believe that these wide-ranging reforms have not necessarily followed a master plan or a coherent concept. Instead, these are rather disconnected reforms that, in part, are contradictory. In addition, the federal system of German higher education consisting of 16 states with 16 different higher education acts hardly makes reform from a single mold possible.

The foreign observer of German higher education, even the informed foreign observer, struggles to find denominators, not to mention common denominators of a bewildering array of approaches. Otto Hüther and Georg Krücken, in this book, do an absolutely splendid job of offering theoretical perspectives, qualitative and quantitative data, and comparative assessments.

They discuss the challenges of transforming an elite system to a mass system (in 1960 less than 9 percent of an age cohort attended a higher education institution in Germany, rising to 58 percent in 2014). Major concerns, such as deteriorating teacher-student ratios, research capacity, and governance, are treated, as are myriads of more discrete issues (such as the fact that the majority of German doctoral students still are not part of structured doctoral programs but remain dependent on *Doktorväter* and *Doktormütter*).

Hüther and Krücken pay much attention to the so-called new public management reforms that have attempted to structure the regulation of higher education institutions and higher education systems in a manner that ensures the efficient and

effective achievement of goals. Part of that agenda has been greater university autonomy.

Hüther and Krücken do not believe that there has been much progress in that respect:

> [It] can be seen that the autonomy of higher education institutions has in fact hardly increased despite the state exerting significantly less detailed control. This is because newer controls outlined in target and performance indicators and controls through the interventions of newly-created actors (e.g., accreditation and evaluation agencies) keep the decision-making scope of higher education institutions in check.

Also, the German Excellence Initiative, in the recent evaluation of which I participated, has placed great emphasis on coherent concepts for the future of discrete universities, on "visions" that are then to be evaluated by outside experts. I confess that I remain as skeptical of this approach as I and the other members of the International Commission of Experts were in our final report. The Commission recommended that an excellence premium should not be based on applications envisioning concepts for the future but solely on past merit.

In my first year as president of Stanford, students, reporters, and alumni frequently asked me about my "vision", "plan", and "agenda" for the university. The question always made me very uncomfortable. It was certainly a fair one to raise, but it was nearly impossible to answer.

Universities can become too set, too complacent, and too smug in their ways. It is the responsibility of presidents, deans, and other leaders to continuously question the manner in which things are being done at a university. On the basis of that questioning, there is ample room for developing ways, sometimes radical ways, to improve teaching, learning, and research and to envision improvements.

The true university, however, works mostly from the bottom up, not from the top down. The main task for a university's leader is to create and maintain the conditions that make university work possible. Wallace Sterling, who was at the helm of Stanford when it became one of the United States' best universities, responded to student representatives who had asked about his "educational philosophy": "My philosophy. . .is not to develop a philosophy of education, but instead to try to find the best possible faculty; then to upgrade the breadth and variety of students, and provide needed physical plant; and then sit back and see what results." On the whole, I find this view very congenial, though not quite complete.

There is a great need for flexibility, at all levels of the university, to apply material and immaterial resources where they can produce the greatest possible intellectual gain. Active management at the very top is necessary but absolutely insufficient unless deans and the chairpersons of departments and institutes flexibly complement it. As one reads Hüther and Krücken's book, one gets the impression that "new public management" has not really responded to these needs—needs that I view as inherent to the very nature of a good university.

Few businesses have as many highly differentiated "product lines" as do universities. The almost unlimited multiplicity of actual or possible endeavors is one reason why university decision-making needs to be, simultaneously, hierarchical

and flat. The effectiveness and quality of such a system depends on the leadership's willingness to question, consult, and communicate but, of course, also on its willingness to make choices. For this a university's leadership must understand itself as a team, subject to informal checks and balances, and the members of a university need to think of themselves as "belonging" to the institution.

The many incremental changes that Hüther and Krücken analyze, do not, they say, feel in any way incremental, the system as a whole feels radically different by comparison with 20 years ago. This is a telling insight that I share from my own observations and from having read their book. What a former president of the University of Tübingen, Adolf Theis, in the mid-1990s called the *Behördenmodell* (government agency model) of the university has been largely overcome. And, yet, after reading Hüther and Krücken's stimulating analysis, one wonders about the extent to which the system changes have brought about real changes in the institutional character of individual universities that result in a greater sense of institutional identity, autonomy, coherence, responsibility, and belonging than has been typical in the past.

Gerhard Casper

President Emeritus and Professor
Emeritus, Stanford University
Senior Fellow, Freeman Spogli Institute
for International Studies, Stanford
University, Palo Alto, USA

The German Higher Education System: Some Key Facts

Types of Institutions

There are three main types of higher education institutions in Germany (for detailed description, see Sect. 3.2.1).

Universitäten (Universities): Universities are the traditional higher education institutions in Germany. In the winter semester 2014/2015, Germany had 129 universities. The main missions of universities are (basic) research and teaching. Within universities, a distinction can be made between traditional universities, technical universities, educational colleges, and theological colleges. Traditional universities offer the whole range of academic disciplines and study programs, whereas the other university types are more specialized. In general, only universities have the right to award doctoral and habilitation degrees. In the winter semester 2014/2015, 64 percent of all students in Germany were studying at universities.

Fachhochschulen (Universities of Applied Sciences): Universities of applied sciences were introduced in the 1960s/1970s as one measure to deal with the growth in student numbers. In the winter semester 2014/2015, there were 246 universities of applied sciences in Germany. Their main missions are teaching and applied research. Most universities of applied sciences specialize in certain disciplines (like engineering or social work). Several disciplines (law, medicine, most natural sciences, and humanities) are not offered at universities of applied sciences. In the winter semester 2014/2015, 35 percent of all students were studying at universities of applied sciences.

Kunst- und Musikhochschulen (Colleges of Art and Music): Colleges of art and music are highly specialized higher education institutions offering study programs in fine art, performing arts, and music. In the winter semester 2014/2015, there were 52 colleges of art and music. Their main mission is teaching. In the winter semester 2014/2015, roughly 2 percent of all students were studying at colleges of art and music.

Public and Private Higher Education Institutions

Higher education institutions in Germany are either public or state-recognized private institutions. In the winter semester 2014/2015 of the 427 higher education institutions in Germany, 270 were public and 157 were state-recognized private higher education institutions. The majority of private higher education institutions are universities of applied sciences with specialized programs. In recent years, the private higher education sector has expanded significantly (in 1992, there were just 63 private higher education institutions). However, 93 percent of all students study at public institutions (for detailed description, see Sect. 3.2.2).

Students and Academic Staff: Quantitative Developments

Students: Over the last 15 years, Germany has seen an enormous expansion of student numbers. In the winter semester 2015/2016, Germany had 2,7 million students and in 2015 58 percent of the relevant age cohort attended a higher education institution. In comparison, in the winter semester 2000/2001, Germany had only 1,8 million students and in 2001 only 34 percent of the relevant age cohort attended a higher education institution.

Academic staff: Over the last 15 years, there was also a strong expansion in academic staff numbers, mostly due to increased third-party funding for research. In 2014 German higher education institutions employed 236,364 academics. In comparison, this number was only 157,216 in 2000. In 2014 roughly 75 percent of employed academics were non-professorial staff, often called *Mittelbau* or mid-level staff. Mid-level staff are usually employed via fixed-term contracts and often pursue a further academic qualification (doctorate or habilitation) (for detailed description, see Sect. 3.1).

Funding

Since 2014, none of the 16 states have levied general tuition fees at public institutions. Although some states introduced tuition fees between 2006 and 2007, these were later abolished. Public higher education institutions are therefore mainly financed via public funds (state dominance funding model). Overall, since 2005 there was a significant increase in funding of the higher education system. The two most important funding sources are state baseline funding and third-party funding. In the last decades, the importance of third-party funding has slowly but steadily increased in Germany. For example, in 2001, 18 percent of all funding of universities came from third parties, whereas this number stood at 26 percent in 2014.

However, roughly two thirds of the third-party funding is also public money that flows mostly via competition arrangements (e.g., through the *Deutsche Forschungsgemeinschaft*, DFG) to the higher education institutions (for detailed description, see Sect. 3.3).

Governance

The German higher education system is in general a federal system. The 16 states *(Bundesländer)* are primarily responsible for the legal regulation and funding of public higher education institutions. Compared to the states, the federal government plays only a minor role, in particular concerning legal regulation. Furthermore, the federal government can only fund higher education institutions or programs if all of the 16 states agree to the specific funding program. This minor role of the federal government has not always been the case. From 1969 to 2006, the influence of the federal government was greater, in particular due the responsibility for framework regulation of higher education, which was later abolished. In recent years, there have been lively discussions as to whether the current minor role is still functional, and we can observe an increase in common programs between the federal government and the states with regard to higher education funding. Examples include the Excellence Initiative or the Quality Pact for Teaching, which allow for higher education funding through the Federal Ministry for Education and Research.

A central governance actor in Germany is the Federal Constitutional Court *(Bundesverfassungsgericht)*. In the last few years, the Federal Constitutional Court has passed a number of judgments on higher education reforms that have led to considerable modifications of the originally envisaged reforms. Of particular importance for higher education governance is Article 5.3 of the German constitution: "Arts and sciences, research and teaching shall be free." In the past, the Federal Constitutional Court has interpreted this freedom of research and teaching as an individual right. Against the background of Germany's experience with the Nazi dictatorship, this protects individual academics from direct state and organizational intervention.

Decision-making bodies at the central level of higher education institutions are in most cases the board of governors, university leadership (composed of the president, vice-presidents, and the chancellor), and the academic senate. At the decentral level, decision-making bodies are the dean's office (dean and vice-deans) and the department council. There are significant differences with regard to decision-making competences between these bodies in the states. In Germany there is still a chair system. Therefore, a significant center of power at higher education institutions is found at the level of chairs (full professors) (for detailed description, see Chaps. 4 and 5).

Types of Degrees

In the course of the European Bologna process, introduced in 1999, Germany has established the BA/MA degree system for the vast majority of study programs. Only in a few disciplines (law, medicine, partly teacher education) are there still traditional state examinations *(Staatsexamen)*. Most bachelor courses are 3-year programs and most master courses are 2-year programs.

In 2013, 27,707 doctorates were awarded by German higher education institutions. The selection process for doctoral students is in most cases conducted by the one professor who will supervise the student (master-pupil model). The vast majority of doctoral students are not part of structured doctoral programs, though their number is continuously increasing (between 10 and 20 percent are part of a structured program).

The habilitation *(Habilitation)* is a postdoctoral examination, typically 6–8 years after the doctorate, and for a long time in Germany, it was required for becoming a full professor at universities. The habilitation examination comprises a thesis and a lecture. Grades are not awarded: candidates either pass or fail the examination. Successful candidates who teach at least one course a year at a university have the right to use the title *Privatdozent* (PD). In 2013, 1567 academics passed the habilitation examination in Germany (for detailed description, see Chap. 6).

Academic Careers

In Germany there are three professorship scales. Scales W2 and W3 are full professorships and W1 is a non-tenured junior professorship. Traditionally, the habilitation was the only means to qualify as a full university professor and internal appointments of candidates were not possible *(Hausberufungsverbot)*. Since the 2000s, these traditional career structures have changed at the formal level. Nowadays there are three qualification possibilities for a full professorship: a habilitation, a junior professorship, or equivalent qualifications to a habilitation (typically for candidates from abroad, including a PhD and a number of publications comparable to a habilitation). Additionally, at least some junior professors have a tenure-track option and therefore an internal career path to a full professorship (for detailed description, see Sect. 6.2).

Contents

List of Figures

List of Tables

Chapter 1
Introduction

The German higher education system has a remarkably rich history. When Wilhelm von Humboldt established the Berlin University in 1810 he founded the first research university. Historically, the notion of a university where research and teaching took place under one roof and were embodied in one role, the professor, was new and had ramifications for very different national systems worldwide—from Scandinavia through to Latin America and Japan. Today's highly respected American research universities, which in many ways serve as a role model, are in fact based on the fundamental principles of the German university of the nineteenth century. Consequently, histories of the German higher education system fill whole libraries, and in international comparative research on national higher education systems the worldwide significance and appeal of German universities in the nineteenth and early twentieth century are just as indisputable as top American universities today (Ben-David 1991; Clark 1983; Rothblatt and Wittrock 2006).

While in the past the systematic study and description of the German system was a great source of inspiration for analyzing and shaping higher education systems internationally, more recently the German system appears to be only relevant for historians. Especially at the end of the twentieth century the German system was seen as passé. Research described it as a system that "had fallen into oblivion" (Keck 1993, 145), while other systems in Europe, but also those in the United States and Australia, appeared much better suited to overcome the rapid changes the various higher education systems were exposed to. This includes the extraordinary growth, expansion, and dynamics of higher education systems leading to the integration of ever-increasing numbers of people into the system and a fundamental change to the previously elite status of higher education. At the same time, national higher education systems and their institutions have been subjected to a comprehensive process of reform over the last two or three decades. We only have to think of the Bologna Process, changes to external and internal governance structures or the increasing relevance of competition. As Germany is clearly a "latecomer" in terms of these processes in international comparison, it is hardly surprising that of

O. Hüther, G. Krücken, *Higher Education in Germany—Recent Developments in an International Perspective*, Higher Education Dynamics 49,
https://doi.org/10.1007/978-3-319-61479-3_1

the hundreds of monographs on the history of the German higher education system, there is not one comprehensive topical monograph about recent developments in this system. Therefore, the aim of this book is to describe and analyze recent developments in the quantitative and structural configuration of the German system, its governance and organization structures, the social composition of groups at higher education institutions and the related aspect of equality of opportunity for an international audience.[1]

The book is also a reaction to growing international interest in the German system in recent years. The increasing internationalization across all levels of the system, the Excellence Initiative in research and decisions to cease charging tuition fees despite the rapid rise in the student population have made the German higher education system relevant and fascinating again, not only for historians, but also for those interested in contemporary developments.

Before we present the contents of the book, we would first like to introduce some core assumptions that underlie this publication.

Firstly, and most essentially, we take it for granted that academic curiosity, impartiality and scientific detachment are fundamental requirements for being able to portray the German higher education system as accurately as possible. It has not always been easy to have the German higher education system as an object of study when we, the authors, are a part of this, teaching and researching at a German university. As a metaphor for our position let us take Edgar Allen Poe's "A Descent into the Maelström". Here, Poe recounts how a fisherman frees himself from a whirlpool on the high seas although his two brothers in the boat die. Despite his desperation, the fisherman escapes because his detached curiosity enables him to fathom the peculiarities of the whirlpool. Our situation is nowhere near as dramatic. However, it is important that we also approach the subject of our deliberations with detached curiosity. Only in this way can we fathom the peculiarities of the change processes occurring in the higher education system and its institutions. This detached perspective provides us with insights into the "whirlpool" of higher education developments, insights that remain hidden to the committed perspective of the activist—either as engaged advocate or opponent of a development.

Secondly, we argue that the study of developments in German higher education needs to include international, not just national, processes. Current reforms and system dynamics can only be understood within a framework of the broader, international and global context the German system is embedded in. This means both taking account of international and global developmental

[1]The book is based on a German book from 2016 that provides an introduction to research on higher education (Hüther and Krücken 2016). The English edition has been brought up to date, reworked and expanded in some parts but reduced in others. The goals of our editing were to more fully explain certain contextual conditions to an international audience and to shift emphasis from introductory explanations to highlighting newer developments in the German higher education system. Consequently, there are considerable differences between the German and English editions, resulting in two very different books. It should be noted that German quotations have been translated.

trends and also using international comparisons to embed and classify the German higher education system in a broader setting.

Our third core assumption is that in order to analyze and understand contemporary social structures and processes, we need to see how they are embedded in historical developments. This is particularly the case with the German higher education system and its institutions because the great success of German universities in the past has had a significant impact on current developments. This means that expectations or demands regarding social change and higher education reforms do not directly lead to comprehensive changes, but have to be translated into a specific context that itself is characterized by previous developments. Therefore, we will be referring to historical conditions throughout the book in order to understand current developments.

Fourthly, we need theories and we will be drawing on them. Relevant theories may refer to both higher education institutions and higher education systems. We use these theories to generate abstractions beyond the specific circumstance at hand. Moreover, theoretical knowledge that goes beyond higher education is necessary—to deal with questions of societal development, forms of governance and the organization of complex systems, for example—in order to abstract and classify knowledge related to higher education institutions and systems.

Fifthly, data and appropriate empirical methods are a further element we use to gain objectivity in describing the development of the German higher education system and classifying this in terms of international and global change processes. It is important for us to constantly reflect on the methods employed to generate our data and to explore the data's strengths and weaknesses.

Finally, our approach is unavoidably interdisciplinary. As sociologists, drawing on our specialist knowledge in the study of the German system and its recent developments is inexorable. However, the social scientific perspective we have adopted is broader and also takes account of politics and economics, history and law, and psychology and education. In addition, knowledge of transdisciplinary research areas such as science studies and organizational research also play an important role in this book.

Based on these core assumptions, the book describes the latest developments in the German higher education system and in higher education institutions from a variety of perspectives that should provide a holistic picture.

We start in Chap. 2 with an overview of intentional attempts to change, i.e. reform, the German higher education system. We show that over the last 20 years reform efforts have occurred on a variety of levels in the German higher education system. We also show that these efforts are tied to general social change—not just in the German system, but in many other higher education systems. Here, we want to make clear that developments in the German higher education system are embedded in a transnational framework. In all the following chapters the effects of these reforms for the development of the German higher education system are a main theme.

Our following detailed descriptions of recent developments in the German higher education system are organized along three frequently used analytical levels in the social sciences: the macro, the meso and the micro level. Chapter 3 describes developments at the macro or system level of the German system. Chapters 4 and 5 deal with developments at the meso- or institutional level (governance, organization) and Chaps. 6 and 7 focus on the micro level. Groups consisting of individual actors (students, academics, administrators) are seen as micro level elements here. The developments at each level are not at all independent of each other, but heavily connected or intertwined. Therefore, in the course of the book we will also point to the connections between recent developments at the three different levels.

Chapter 3 highlights developments at the macro level of the German system and describes changes in the quantitative and structural configuration. This not only includes the massive expansion in higher education in recent years, but also the expansion of research capacities in the German higher education system that cannot solely be explained by the increase in the student population. The impact of these two processes—the increase in student numbers and the expansion of research capacity—on the differentiation and funding of the German higher education system is a further focal point of this chapter.

In Chap. 4 we turn to developments at the meso level. Here we deal with governance structures of German higher education institutions. As in other countries, the development towards new public management is particularly important for Germany. To increase the analytical depth of our description we will first explore the fundamentals of the concept of governance—in particular, the functioning of various governance mechanisms. In a second step we will then use the Triangle of Coordination and the Governance Equalizer to present and observe two key governance typologies for higher education institutions. This allows us to classify German governance structures and to systematically follow recent developments. Later on in the chapter, we will describe research findings on the impact of change on governance structures in Germany.

Chapter 5 also focuses on changes at the meso level. But instead of applying the governance perspective to German higher education institutions, we analyze them through the lens of different organizational approaches. Through the use of different organizational approaches we are again looking to increase the analytical depth of our deliberations and to embed them in theory. Firstly, therefore, we present a simple model of organizations and transfer this to (German) higher education. In a second step, we look at organizational neo-institutionalism as a general theory of organizations and present selected studies on German higher education that use this approach.

Afterwards, we look at three dominant organizational descriptions of higher education institutions—loose coupling, professional organization and organized anarchies. These three approaches are applied to German higher education in two steps. First, a specific organizational feature of German higher education is described in detail for each of the three approaches. In terms of loose coupling,

we explore the dominant position of chairs in German higher education and show that, in comparison with higher education institutions in other countries, the proportions and elements that are either loosely or tightly coupled are different. In the professional perspective we focus on organizational effects arising through the scientific and teaching freedom guaranteed by the German constitution. In the light of these freedoms, we show that the position of professors at German higher education institutions is different to that of professors in other countries. The specific aspect of German higher education we highlight with the perspective of organized anarchies is the historical mixture of decision-making principles of the university of professors, group and managerial universities. Finally, we apply the three organizational perspectives on German higher education to discussing the organizational structures the various reform efforts are attempting to change.

In Chap. 6 we switch to the micro level and present research findings and developments in the German higher education system relating to individual actors and related groups of actors embedded in the macro and meso levels. We start by looking at students, considering among other things their choice of study program, the reasons behind and impact of dropping out, and their transition to working life. Academics form the second group of actors. Here, we will be dealing with the various levels of the German career system and with research on the factors that contribute to a successful academic career in Germany. The third and final group of actors is the administrative staff at higher education institutions. Here we reflect on developments in the qualifications of these actors and ask whether a new profession—that of higher education management—has developed in Germany.

In Chap. 7 we also deal with the micro level of the German higher education system. Here we focus on the issue of equal opportunities in the German higher education system with regard to the groups of actors we analyzed before. This allows for closer linkages to previous chapters, in particular to the analysis in Chap. 6, but also by relating the macro and micro level of analysis more explicitly to each other. In terms of gender equality, we will be looking at developments with regards to students, academics and administrative staff. In terms of social background, our deliberations focus on both students and academics. Given the shortage of data, however, this is not possible for administrative staff.

The book concludes with some summarizing reflections on the recent developments it describes. In recapitulating each chapter we try to answer the question whether we are witnessing radical or more incremental changes to the German higher education system over the last two decades.

Although the book does provide a broad overview of developments in the German higher education system, we do not claim to comprehensively cover all developments. The book sets priorities and has made selections. Although these priorities and selections can be justified and arguments provided, it ultimately remains a choice made by the authors. The book primarily deals with developments at structural level, while developments in teaching processes or in research remain

marginal. This is mainly because we are attempting to present to our international readers the significant developments that have taken place at the structural level since the mid-1990s.

We would also like to clarify some terminology. Throughout large sections of the book we use the concept of the higher education institution to include the two main types of higher education institutions in Germany: universities and universities of applied sciences. We do this to make clear linguistically that our focus is on the higher education system and its reforms. In doing so, we are not arguing for these two types of higher education institutions to be placed on an equal footing: at various points in the book, and with regard to various issues, we highlight key differences between them. It cannot be denied that in research on German higher education there is a clear focus on universities—especially in respect of governance and organization, and the group of academics. Nonetheless, we have decided by and large to use the concept of higher education institution to avoid any additional confusion.

Secondly, throughout the book we discuss "transintentional" effects of reforms and developments in the German system. The concept is related to Merton's sociology of unanticipated consequences of intended social action (Merton 1936). Enlarging on Merton, however, we are not so much looking at individual decision makers who carry out actions with surprising ("unanticipated") results. Instead, higher education is a field of action comprising chains of action and process dynamics where it is difficult to attribute change to any one decision maker. Equally, the broad and critical discussion on higher education policy argues that although the surprise of non-intended effects may well apply to individual actors, it does not apply to the same extent for the whole system in which such effects may even be critically anticipated at an early stage.[2]

We would also like to thank the people who have helped and supported us in the writing of this book. Important information came from Guido Bünstorf, Anita Engels, Choni Flöther, Susanne Höckelmann, Thomas Kailer, Lars Müller and Elke Wild. Our special thanks go to Anna Kosmützky, Christiane Rittgerott and Peter Maassen who read the whole manuscript and provided many invaluable comments. We would like to thank Michael Alger for translating and Katherine Bird for the final editing of the book.

[2]For further details of the concept of transintentionality see Greshoff et al. (2003) and Krücken (2013) in respect of higher education.

References

Ben-David, J. (1991). *Scientific growth. Essays on the social organization and ethos of science*. Berkeley: University of California Press.

Clark, B. R. (1983). *The higher education system. Academic organization in cross-national perspective*. Berkeley: University of California Press.

Greshoff, R., Kneer, G., & Schimank, U. (Eds.). (2003). *Die Transintentionalität des Sozialen. Eine vergleichende Betrachtung klassischer und moderner Sozialtheorien*. Wiesbaden: Westdeutscher Verlag.

Hüther, O., & Krücken, G. (2016). *Hochschulen. Fragestellungen, Ergebnisse und Perspektiven der sozialwissenschaftlichen Hochschulforschung*. Wiesbaden: VS Verlag.

Keck, O. (1993). The national system for technical innovation in Germany. In R. R. Nelson (Ed.), *National innovation systems: A comparative analysis* (pp. 115–157). Oxford: Oxford University Press.

Krücken, G. (2013). Die Universität – ein rationaler Mythos? *Beiträge zur Hochschulforschung, 35*(4), 82–101.

Merton, R. K. (1936). The unanticipated consequences of purposive social action. *American Sociological Review, 1*(6), 894–904. https://doi.org/10.2307/2084615.

Rothblatt, S., & Wittrock, B. (Eds.). (2006). *The European and American university since 1800. Historical and sociological essays*. Cambridge: Cambridge University Press.

Chapter 2
Recent Reforms in the German Higher Education System

This chapter focuses on specific reforms in the German higher education system in recent years. These reforms are embedded in general societal developments that will also be explored. Furthermore, it is only possible to understand recent reforms in German higher education by adopting a broader perspective that also considers the key role of international reform developments. Although the development of a national higher education system like the German one has been characterized by multifaceted processes of interaction with other systems since as far back as the nineteenth century, these processes have accelerated rapidly in the last two to three decades. We argue that only by taking account of the latest wave of international reforms is it possible to understand the considerable reform efforts in the German higher education system.

For a long time, higher education in Germany was scarcely a matter of public concern. The last major reform wave took place in the 1960s and 1970s and introduced the so-called *Gruppenuniversität* (group university). This reform primarily aimed at strengthening the right to participate in decision-making processes for students, non-professorial academic and non-academic staff vis-à-vis professors. The results of these reforms were seen as disappointing in many respects. Consequently, the reform's key goal was not achieved. The position of power enjoyed by professors at German universities compared to the other three groups (students, non-professorial academic and non-academic staff) was hardly weakened: the professoriate continued to dominate university decision-making processes. However, since this reform they only hold a narrow majority in the academic decision-making bodies and govern with a "truce" to help secure majorities. In addition, real participation, particularly among students, gradually declined over the course of time. Entirely in line with Michels' "iron law of oligarchy" (Michels 1915 [1911]), a functionary class of student representatives emerged whose affiliation to those they were supposed to represent was quite loose. At the same time, internal conflict and cumbersome decision-making processes at group universities meant that they were, in part, incapable of making decisions. This

O. Hüther, G. Krücken, *Higher Education in Germany—Recent Developments in an International Perspective*, Higher Education Dynamics 49,
https://doi.org/10.1007/978-3-319-61479-3_2

disappointment meant that in the 1980s and 1990s fundamental reforms were no longer desired and appeared hardly feasible (Neusel 1993, 185). Furthermore, German reunification impacted reform intension. During this phase, the deficits of the West German higher education system were rather pushed into the background to facilitate a speedy integration of the East German higher education system.

This contrasted considerably with developments in many other European higher education systems. Developments in the 1980s in the United Kingdom radically questioned the traditional governance structures of higher education institutions (e.g. Leisyte et al. 2006; Risser 2003; McNay 1999; Henkel 1999; Burnes et al. 2014). The Netherlands were also caught up in these developments from a relatively early stage (e.g. de Boer et al. 2006; de Boer and Huisman 1999). From the 1990s, governance reforms could be observed in nearly all European higher education systems (e.g. Braun and Merrien 1999; Amaral et al. 2003; Kehm and Lanzendorf 2006b; Paradeise et al. 2009; Krücken et al. 2007; Dobbins and Knill 2009, 2014; Popp Berman and Paradeise 2016; Frost et al. 2016; Gornitzka and Maassen 2000). The changes instigated in the various countries encompassed not only the regulatory and management structures of higher education institutions, but also their diversification, financing and the nature of the degrees awarded.

Germany almost entirely avoided these changes until well into the 1990s and can therefore be described as a "latecomer" when it comes to reforms in the higher education system (Kehm and Lanzendorf 2006a, 190; see also Lange and Schimank 2007; Schimank 2005). Before we turn our attention to the reform contents in Germany, we still need to clarify what actually moved so many European higher education systems to instigate such fundamental changes since the 1980s. We identify one particular trigger in general societal trends—developments that are global in nature and go beyond the higher education sector and beyond Europe. We now turn to these developments.

2.1 General Societal Developments as a Fundamental Trigger for Reforms

In our opinion, three general societal trends had a significant impact on European universities and are largely responsible for the fundamental reform efforts: the development towards a knowledge-based society, the blurring of boundaries and the rise of an audit society.

The trend towards a knowledge-based society was comprehensively sketched out as early as 1973 by American sociologist Daniel Bell in his work "The Coming of Postindustrial Society". Interestingly, for Bell (1973) the university had become the central institution of the postindustrial, knowledge-based society. Only here did the learning of theoretical knowledge, as a basic condition for the knowledge-based society, appear possible for broader sections of the population.

The societal importance of universities has clearly been strengthened over the last 40 or so years. The most obvious example is the striking increase in the proportion of an age group studying at universities and other higher education institutions. This increase is a global trend that has also clearly been seen in Europe. Therefore higher education systems and the institutions within them, not only in Europe but worldwide, have changed rapidly in just a few decades. Increasingly, a university degree has become a standard feature of any biography and the inclusion of ever more sections of the population in higher education represented a considerable challenge for higher education institutions.

A similar trend could also be seen in respect of the research function of European universities. This was, and still is, being expanded and in this respect, too, reflected the increasing significance of universities in the knowledge-based society. The European Union's Lisbon Strategy and the large-scale research program, Horizon 2020, for example, considerably enhanced the status of universities. University research has become an integral and indispensable element of national and European innovation systems with numerous national initiatives aiming to promote research excellence. These initiatives are targeted at strengthening fundamental research and facilitating collaborations with research-oriented corporations to actively drive scientific/technological breakthroughs and their further development as marketable products and processes. In addition, universities are expected to fulfill a "third mission" (e.g. Krücken 2003; Etzkowitz and Leydesdorff 2000); that means universities should contribute directly to social and economic development. Their previously indirect and uncertain contribution through education and research—only when some time has passed can we see if this knowledge can be applied or not—is no longer sufficient.

Accompanying the general societal trend towards a knowledge-based society we can see an increased social significance of universities and other higher education institutions in Europe in the last few decades that has also increased their visibility, changed the make-up of the student population, and has integrated research closer and earlier in innovation processes.

The blurring of boundaries is a second fundamental societal trend that has had a considerable impact on European higher education institutions. For us, the blurring of boundaries has two faces: in relation to a cumulative embedding of higher education institutions in a transnational framework, and in respect of blurring boundaries between various societal sectors and institutions.

Ever since the early nineteenth century we can observe intensive processes of interaction between national societies: exchange that was strengthened over time by a number of factors including the founding of international organizations such as the UN or the OECD (e.g. Henry et al. 2001; Armingeon and Beyeler 2004). More recently, developments in information and communication technologies have also played a key role. This has led to a more rapid circulation of ideas and models of how to both organize societies as a whole and individual aspects thereof. This has been demonstrated, for example, by the increased embedding of universities at transnational level both in terms of a global comparison—facilitated in particular by world rankings—and by numerous initiatives of Europeanizing national higher

education systems, in particular through the Bologna Process. Globalization and "Europeanization" processes have increased the competitive pressure faced by European higher education institutions with respect to financial resources, staffing and last but not least their legitimacy.

The blurring of boundaries refers not only to the globalization and Europeanization of national systems and the higher education institutions embedded in them. The blurring of boundaries also increasingly questions clearly drawn institutional boundaries within a society. Whereas in the 1980s Western societies were often described as functionally differentiated societies with clear boundaries between their subsystems, more recent descriptions emphasize the network character of societies (Castells 2011) or even liquefaction processes (Bauman 2000). The former view sees higher education institutions as a central part of the scientific subsystem. It underlines that the scientific system is operating according to its own standards, values and incentive structures that differ from other subsystems like the economy or the political system. Other studies, however, emphasize that the scientific system is closely entwined with external social contexts (in particular the general public, economics and politics). In contrast to the views advanced by the traditional sociology of science, the scientific system today is no longer seen as a distinctive and clearly demarcated part of society (Gibbons et al. 1994; Nowotny et al. 2001; Latour 1988). In particular, the broad discussions on the "New Production of Knowledge" (Gibbons et al. 1994) conducted since the 1990s contain implications for higher education institutions and for the knowledge they generate. Even if the thesis is seen as controversial, it does highlight a trend that puts pressure on higher education institutions. It questions the legitimacy of a purely "internal" production of knowledge as part of independent higher education institutions that seal themselves off from societal influences solely for this purpose. The new production of knowledge therefore calls for far-reaching institutional change and new notions of identity at the level of higher education institutions and at the level of individual academics and researchers.

A third general societal trend consists in what Power (1999) describes as the "audit society". Such a society is characterized by its expectations that organizations exhibit formal responsibility or accountability and control their internal processes. This general trend can be seen in widely different types of formal organizations. One example is the introduction of new public management in general administrative organizations (Pollitt and Bouckaert 2004), but also in hospitals (Preston 1992; Reay and Hinings 2009; Bode 2010) and universities (Krücken and Meier 2006; de Boer et al. 2007).

The audit society reflects an erosion of societal trust in organizations, in particular those—such as universities, hospitals and schools—that organizational sociology describes as "professional organizations". Many of these professional organizations are being reorganized, based increasingly on a standard model of an accountable, independent decision-making and responsible organization (Bromley and Meyer 2015).

This implies significant changes to higher education institutions: Traditionally, the control of higher education institutions was the responsibility of the academic

profession, primarily professors. In terms of higher education's core activities—research and teaching—this can be justified, given that both activities are not only highly complex, but they also do not lend themselves to being depicted externally by measurable data. Their measurement is based on the knowledge of professional experts (Mintzberg 1983). This presupposes a high degree of trust from society at large in the ability of the academic profession to regulate itself. The rise of external evaluations and performance assessments, together with the corresponding expansion of management capacities and hierarchical decision-making structures are now placing considerable pressure on traditional higher education institutions, where the focus has previously been on self-regulation by the profession.

This change represents a significant challenge, especially for European higher education institutions, that historically have hardly any experience with boards of governors, evaluation and accreditation agencies, and the use of performance indicators. There are, however, doubts concerning the positive effects of these reforms on the performance of European higher education institutions that many had hoped for. Formal accountability is viewed with skepticism, given that it can lead to bureaucratization of working processes, demotivation of academic staff and high costs for supervision and monitoring while the benefits remain unclear (e.g. Welpe et al. 2015; Whitley and Gläser 2014).

Besides Power (1999) and others who are critically applying his approach to higher education institutions, we also need to take account of technological developments. Such developments have also contributed to the erosion of trust in professions as can be seen in the field of medicine—perhaps one of the classic examples in professional sociology of the unique and unbridgeable "knowledge divide" between the doctor as the representative of the profession and the patient, the uninitiated layperson. However, this knowledge divide disappears to some extent when the patient has access to medical knowledge that today is broadly available in the internet.

Similar developments are also presenting higher education institutions with new challenges: students are now capable of questioning locally available expertise during lectures by being able to conduct internet research in real time. Massive open online courses (MOOCs) and other offerings make it easier to compare content and form of knowledge transfer, a fact which itself puts local expertise into perspective. The same applies to research. Using bibliometric indices, ministries can generate key data to assess the academic performance of individual universities and disciplines, independent of the willingness of professors to cooperate. Equally, corporate organizations can use bibliometric and patent data to paint their own picture of potential cooperation partners in higher education without having to consult the academic profession. Thus, in a wide variety of ways trust in the profession is being increasingly replaced by trust in numbers (Porter 1996).

The three general societal developments described above have had an impact on higher education institutions in two respects: firstly, by the pressure exerted directly by society at large to adapt; and secondly, by pressure exercised by state actors to adapt. The latter is particularly significant for European higher education institutions given the fact that higher education institutions are traditionally often public

institutions principally financed—either directly or indirectly—by the state. These general societal developments initially put pressure on the state; the state then—more or less explicitly—passes this pressure on to the higher education institutions. Historical experience shows that higher education institutions in Europe react much more strongly to the pressure exercised by the state than to requirements directly imposed on them by society (Schimank 2002, 3; Führ 1993, 58).

The multifaceted reforms in the individual European countries are so embedded in general societal and global developments that state bodies are increasingly reacting with fundamental attempts to reform higher education systems and higher education institutions. Although the German reaction has been somewhat slow compared to its European neighbors, since the mid-1990s Germany has also instigated fundamental reforms. These will be described briefly below.

2.2 Higher Education Reforms in Germany Since the Mid-1990s

Discussions on restructuring the higher education system in Germany gained pace from the mid-1990s. This can be seen in publications from Führ (1993), Glotz (1996) and Daxner (1996), for example. Numerous publications from the German Council of Science and Humanities[1] (*Wissenschaftsrat* – WR) and the German Rectors' Conference[2] (*Hochschulrektorenkonferenz* – HRK) were concerned with a fundamental reform of higher education (e.g. Wissenschaftsrat 1993, 1996, 2000; Hochschulrektorenkonferenz 1992, 1995). Discussions also took account of the state's financial problems arising from the costs incurred by German reunification.

The starting point for implementing the first reform attempts was the fourth amendment of the Framework Act for Higher Education (*Hochschulrahmengesetz* – HRG) from 1998. The Framework Act for Higher Education was introduced in 1976 in a bid to harmonize what is fundamentally a federally structured system of higher education in Germany. Historically, the German higher education system was exclusively a federal system, i.e., the states themselves were responsible for higher education, including its financing. Until 1969, the national government bore no responsibility whatsoever for higher education. In the light of financing problems caused by the rapid rise in student numbers and the desire to harmonize different higher education structures, in 1969 the federal government was granted framework legislative competence in higher education through amendments to the

[1]The German Council of Science and Humanities is a science policy advisory council founded in 1957 that advises federal and state governments in all key questions of higher education and scientific developments (more detailed information at: http://www.wissenschaftsrat.de/en/home.html).

[2]The German Rectors' Conference is a voluntary body of nearly all state and state-recognized higher education institutions in Germany, represented by their respective rectors (more detailed information at: https://www.hrk.de/hrk-at-a-glance/).

Basic Law, Germany's constitution. In other words, the federal government was able to prescribe framework structures with the filling in of details being a matter for the states, governed by their respective higher education legislation. For instance, the Framework Act for Higher Education contained rules for regulating organizational structures. It was precisely these basic organizational regulations that the 1998 Framework Act for Higher Education deleted entirely,[3] allowing the federal states to go their own way. Reforms in Germany therefore began with a process to strengthen federal structures (e.g. Hüther 2010; Lynen 2004; Detmer 2004). This federalization process was further strengthened by the 2006 Reform of the Federal System (*Föderalismusreform*) because the national government's framework legislative competence introduced in 1969 was removed from the Basic Law.[4] Following a phase of harmonization after 1976, the German higher education system has therefore increasingly become an exclusively federally structured system again since 1998, which has led to strong differentiation at state level. Reforms thus coincided with a differentiation at state level. This is somewhat unusual when seen in an international perspective. Therefore, the reform trends described below vary in intensity from state to state.

The following reconstruction of reform trends aims to provide an overview. We have made a conscious decision not to go into detail at this point, but to handle the details in other chapters of the book in their respective context. In the following we analytical distinguish five reform areas. The reforms affected on the one hand the two traditional core activities of higher education institutions, teaching and research, and on the other hand their structures: financial structures, staffing structures and governance structures.

2.2.1 Reforms in Teaching

Reforms initiated as part of the Bologna Process in respect of teaching are unprecedented in the German higher education system. The quality of teaching at higher education institutions had already been the subject of criticism for a long time. The critique concerned for example the high drop-out rate, long periods of study, the lack of practical relevance of courses and the feeling that some professors were neglecting their teaching duties. However, fundamental reforms of teaching at higher education institutions only came about with the Bologna Process. The

[3] Articles 60 to 69 of the Framework Act for Higher Education were abolished. These contained specific regulations on the internal organization of universities.

[4] This meant that the national government hardly had any influence at all on higher education institutions in Germany and, in particular, could not carry out any long-term financing (the so-called ban on cooperation) which led to controversial discussions as things developed. As a consequence, the Basic Law was amended again in 2014 and the ban on cooperation eased. As in the past, however, all states have to approve measures instigated by the federal government in higher education. This also applies, for example, to the Excellence Initiative discussed later.

central issue of teaching reform concerned the consecutive degrees (bachelor and master) as part of the Bologna Process (see for example Winter 2009; Hochschulrektorenkonferenz 2008; Krücken 2007). For Germany this meant giving up the traditional Diplom and Magister qualifications in favor of bachelor and master degrees.[5] The aim of the process is to create a European higher education area, making it easier for students to change higher education institutions between the national systems. At the same time, this process aims to harmonize comparability of degrees in Europe (Bologna Declaration 1999). Here, we can clearly see that while these changes are linked to the blurring of boundaries described above, this comparability also marks a trend towards an audit society.

Alongside the pursuit of official pan-European political aims, the introduction of bachelor degree courses was seen as an opportunity in Germany to shorten the period of study, which had hitherto been regarded as too long, and to reduce the supposedly high drop-out rates (Reichwald 2000, 319). More pronounced practical elements incorporated into these bachelor courses make it clear that these are also intended to be occupational qualifications with the concept of "employability" (for an overview see Tomlinson 2012) playing a key role in the discussion. Accordingly, the bachelor degree was to be the higher education standard qualification (KMK 2003).

It can therefore hardly be surprising that educational policy has greatly accelerated the implementation of the Bologna Process, seeing in it a solution to long-standing problems inherent in higher education study. The Bologna Process was a "legitimated chance" to realize fundamental structural change that would not have been possible without it.

In the course of the Bologna Process, the doctorate degree has also been the focus of attention. At the conference of education ministers on the Bologna Process that took place in Bergen in 2005, the doctorate was recognized as the third phase of study following the bachelor and master degrees. Traditionally, the doctoral phase in Germany was less structured and was characterized by a master-pupil model (Enders 2005). Under the guidance of a professor, the doctoral student would complete a dissertation largely independently. The unstructured nature of this master-pupil model was already apparent in the selection of doctoral students, who were accepted based on professors' idiosyncratic criteria. The lack of formal structures is also shown in the fact that doctoral students are traditionally not integrated in any taught course system during their program.

The traditional German doctoral system has also come under increasing criticism since the 1990s, with the length of the doctoral phase and the poor support offered to students found to be at fault. Since then there is a discernible trend towards making the doctoral phase subject to a more formally structured approach (Röbken 2007). This includes the graduate colleges of the *Deutsche*

[5] State examinations in law and medicine, however, have not been changed. In contrast, teacher-training courses either have bachelor/master qualifications or a traditional state examination, depending on the states.

Forschungsgemeinschaft (DFG)[6] and the graduate schools set up as part of the Excellence Initiative. The selection of doctoral students, the support and the nature of the qualification in these colleges and schools is clearly more structured than traditionally was the case. In addition, several universities have set up their own graduate schools, providing a more or less structured taught program for doctoral students.

The trend witnessed in the last few years reveals that the doctoral phase has been subject to greater structuring. However, this process is not just restricted to Germany, it is taking place in a range of European countries (Kehm 2005). Despite these developments, the significant majority[7] of German doctoral students still complete their degrees in traditional systems and not in structured doctoral programs.

A further aspect of reform efforts in teaching can be seen in the obligation of higher education institutions to give a detailed account of their teaching performance as part of their evaluation reports. Students have been increasingly assessing taught courses in the last few years and this has also been seen as a quality assurance measure (e.g. Rindermann 2009; Klein and Rosar 2006; Engel and Krekeler 2001; Daniel 1998; Windolf 1995; Wolbring 2013). Here we can also see an increase in the responsibility not only of higher education institutions overall, but also of individual lecturers for students and their learning success, which in turn can be seen in connection with the trend towards an audit society.

2.2.2 *Reforms in Research*

The recent reforms in research in the German higher education system were mainly triggered by worldwide university rankings. In particular, the ranking conducted by Times Higher Education (THE 2016) and the Academic Ranking of World Universities carried out by the Jiao Tong University in Shanghai (Shanghai Jiao Tong

[6]The *Deutsche Forschungsgemeinschaft* (DFG) was established in 1951 and is the most important source of third-party funding for German universities. In 2014, the overall budget measured 2.8 billion euros, with the federal government and the states providing over 99%. The history of the DFG extends back to the Weimar Republic, when a state-financed body was established in 1920 at the behest of research academies to provide support for research projects. In keeping with the DFG's concept of its role as a self-governing organization, it represents all academic disciplines, from the humanities through to engineering sciences. This reflects the strong role of the academic profession and a broader understanding of the German tradition of "science and research"—the unity of the systematic and open search for truth that includes all academic disciplines (more detailed information at: http://www.dfg.de/en/dfg_profile/index.html).

[7]According to estimates supplied by the German Federal Statistical Office, 92% of doctoral students were not in structured programs in 2012 (Statistisches Bundesamt 2012, 23; see also Bosbach 2009). More recent studies show that the proportion of doctoral students in structured programs has increased moderately in recent years and now lies between 12% and 23%, depending on the study (Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2017, 146–148).

University 2017) were important. Just like the "PISA shock" that was felt when Germany did not occupy any of the top places in an international comparison of school student performance, the first Shanghai Ranking from 2003 prompted broad and critical discussions because no German university was to be found among the top 50. Despite the considerable methodological criticism of these and other rankings of research (e.g. Marginson 2007), they have played a key role in the reform debate although they have often been criticized as a media event (Maasen and Weingart 2006, 38). Therefore, the effects of the general societal trends described above can be fully recognized here too. On the one hand, given their transnational focus these rankings are promoting the embeddedness of universities beyond national boundaries. On the other hand, rankings represent an attempt to measure performance, again providing a link to the trend towards the development of an audit society.

The measuring and evaluation of the research performance of individuals, departments, universities and the whole German system is now a standard procedure in Germany. Indicators of performance measurement primarily include third-party funding and publications in international journals. This increases pressure within the system to acquire third-party funding and to publish in international peer reviewed journals. Therefore, the obligation to evaluate and measure performance in research is at the same time increasing competition within the system.

In addition, we can see attempts to initiate an institutional process of differentiation in terms of research reputation. While in the past—despite all the awareness of differences—the assumption in Germany was that universities were fundamentally equal in terms of research performance, now the aim is to differentiate reputation. Among other things, the goal is to have internationally visible research universities that could compete with Harvard, Princeton, Stanford, Oxford and Cambridge. In other words, the aim of the latest reforms is to establish world-class universities. Although it is not quite clear what is meant by world-class universities (Altbach 2004; Huisman 2008), the aim is clearly about keeping up with top American and British universities in international rankings (Hazelkorn 2009; Hazelkorn and Ryan 2013), regardless of the potential negative side effects of such a development (Deem et al. 2008).

As far back as 2000, the federal government considered establishing "elite" universities. This was implemented in particular through the creation of the Excellence Initiative that identified high-performing universities and attempted to raise performance still further by plowing in considerable additional funding. The program only targeted universities, not universities of applied sciences (for an overview see Leibfried 2010; Deutsche Forschungsgemeinschaft and Wissenschaftsrat 2015).

The German Excellence Initiative is an ambitious program. It began in 2006 and will run in its present form until the end of 2018. In summer 2016, the decision was taken to extend the program still further, at least until 2032. From 2006 through to 2017, a total of 4.6 billion euros is to be invested in high quality research to strengthen the international visibility and competitiveness of German universities and the German higher education system overall. Before the Excellence Initiative

got underway, a marathon negotiation and decision-making process was necessary to define competencies and responsibilities between the federal government and the states.

The result is a joint program between the federal government and all 16 states with three lines of funding: graduate schools, excellence clusters and institutional strategies (*Zukunftskonzepte* – concepts for the future).

Graduate schools aim at training particularly well-qualified doctoral students in structured programs. The design of such schools can vary: they can comprise single disciplines or subject groups or can be set up at the level of the whole university. Excellence clusters try to bundle research capacities and are based on networking and cooperation. There is also no prescribed structure for these clusters: cooperation can refer to inner-university cooperation, but also to other public research institutions such as Max Planck Institutes or partners from industry. As part of institutional strategies, whole universities can be distinguished. The prerequisite for this is a coherent concept for the future, overall strong research performance and success in the two other lines, with at least one graduate school and one excellence cluster.

In terms of institutional innovation in research, the third line of funding is certainly the most interesting: graduate schools and research clusters are also supported in other programs sponsored by the *Deutsche Forschungsgemeinschaft* (DFG).

While financial resources are raised jointly by the federal government and the states, competition is organized by the DFG and the German Council of Science and Humanities (*Wissenschaftsrat*). Because most German universities take part in one form or another in this competition, the selection process is based on an international academic peer review. A large number of international experts from a wide variety of disciplines and areas of research came to Germany to review the applications. The final decision was made in a joint commission comprising DFG, German Council of Science and Humanities and ministers from both federal and state governments. In the past, academic assessments have largely been followed whereas regional considerations, for example, have hardly played any role.

To date there have been two phases of the program. The first phase lasted from 2006 to 2012 and provided 1.9 billion euros in funding. The second runs from 2012 to 2018 and provided until October 2017 2.7 billion euros in funding. In 2017, a total of 45 graduate schools, 43 excellence clusters and 11 institutional strategies at 44 universities are being funded in this way. Given the number of universities involved, it is clear to see the break with the program's original idea of funding a few elite universities. This is especially so given that Germany only has around 100 traditional universities and technical universities.

A report compiled by an international commission of experts evaluating the Excellence Initiative published in 2016 draws an overall positive balance:

> The Excellence Initiative has made the German university system more dynamic and has become a tangible symbol for the will to improve the international competitiveness of German universities (Internationale Expertenkommission zur Evaluation der Exzellenzinitiative 2016, 6).

In principle, the report highlights the positive contribution the Excellence Initiative has made to generating differentiation within the system and that it clearly elucidates differences in performance. In terms of the specific causal effects of the Excellence Initiative, the report remains somewhat low key given the myriad of changes in the German system that coincided with it—such as the huge expansion in higher education and the number of students, governance and organization reforms, and numerous other funding programs. Moreover, the experts believed that the evaluation period of 10 years was hardly sufficient to determine the actual impact in the field of top research and its lasting effects. They recommend continuing the Excellence Initiative beyond 2017. However, instead of the three lines of funding—graduate schools, research clusters and institutional strategies—they argue that just the last two should be continued, and these, in part, in considerably modified form. Whole universities should no longer be funded upon application coupled with a future concept. Instead, the process should be based on past research performance founded on simple indicators (DFG third-party funding, research prizes). Excellence clusters should be more flexible in structure and facilitate smaller formats than has been the case to date. This reflects some of the past criticisms of the Excellence Initiative: uncertain benefits of graduate schools, research clusters are too large for small departments and universities, high degree of complexity, especially in applying for the third line.

Nonetheless, the discussion of higher education policy in Germany raises a very much deeper criticism of the Excellence Initiative. In particular, this relates to the vertical differentiation of the German higher education system in respect of the research objectives of the Excellence Initiative. Critics argue that such a differentiation runs counter to the broad, high quality of the German system, that the harmony of research and teaching is under threat because of the sole emphasis on research in the Excellence Initiative, and that the competition for excellence produces too many losers and aggravates social inequalities (e.g. Hartmann 2010; Münch 2006).[8] There is a similar discussion on the international stage where the question has been raised whether one should be striving towards achieving world-class universities or a world-class university system (e.g. Hazelkorn and Ryan 2013; Cremonini et al. 2014).

We cannot at this point go into the pros and cons of the respective arguments. Nevertheless, two points need to be made. Firstly, the Joint Science Conference[9] (*Gemeinsame Wissenschaftskonferenz* – GWK) decided in April 2016 to set up a new initiative once the Excellence Initiative expires, which would target the continuation of excellence clusters and institutional strategies. Secondly, the Excellence Initiative has certainly contributed to the increased international visibility of

[8]For some regional effects of the shift toward academic excellence in Germany see Koenig et al. (2017).

[9]Founded in 2007, the Joint Science Conference is a body that coordinates higher education and science policy between the states and the federal government. Its members are ministers for research and finance from the states and the federal government (more detailed information at: http://www.gwk-bonn.de/english).

the German higher education system and corresponding reform initiatives. If, since the 1990s, the German higher education system could mainly be seen as a "recipient" of reform initiatives coming from other national higher education systems, as a "sender", the German Excellence Initiative has influenced a range of European and Asian nations and triggered a broad international wave of comparable initiatives (for France see for example Boudard and Westerheijden 2017; for Denmark Aagaard and de Boer 2017; for Spain Seeber 2017).

2.2.3 Reforms in Financing

Changes have also taken place in the financing of higher education in Germany, even though this may appear less radical compared to other countries (especially in comparison to the English system). We will deal with the financing of the German higher education system later in the book (Chap. 3) and just mention the key points briefly here. We will only deal with the introduction and abolition of tuition fees in some states in detail, since this is one point we will not be picking up on in the course of the book.

A key change in the financing of the German system has been the introduction of global budgets that can be used more or less freely by higher education institutions. Previously, state funds were only allocated for specific purposes and could only be spent for these purposes. Higher education institutions now have greater flexibility in how they spend their budgets.

The introduction of global budgets is linked to two further changes. Firstly, spending of global funds is only being monitored within the framework of target and performance agreements concluded between the individual higher education institution and the ministry. Spending is no longer monitored in detail, only whether pre-defined targets have been achieved with the funds available. Secondly, most states have changed the way in which funds are distributed among their higher education institutions. At least some of the funds are distributed based on performance indicators, whereas in the past funds were allocated as a continuation of the previous year's funding. The states have therefore tried to initiate competition for funding between higher education institutions.

Another key aspect of financing is that the proportion of temporary funding to higher education institutions has increased over the course of time. In part, this is due to the rise in importance of temporary third-party funding at higher education institutions. It is not as if there have been comprehensive cuts in basic funding of higher education institutions; instead, new and additional state funding is increasingly distributed through competitions which thus reduces the proportion distributed through basic funding. In this respect we could mention the Excellence Initiative described above, but also the fact that funds distributed through the DFG over the last few years have increased faster than the basic financing of higher education institutions. In addition to the rise in third-party funding, the proportion of temporary funding has also been rising because new financial support packages

granted by the federal government for higher education relate to fixed-term programs, such as the financing of new study places because of increasing demand. This is also because, between 2006 and 2014, the federal government was not permitted to finance the higher education system on a permanent basis. As additional funds have been made available to higher education, mainly by the federal government in recent years, and these had to be temporary funds, over time, the proportions of temporary and permanent funding available to German higher education institutions has changed.

A further aspect of funding higher education institutions is the sensitive topic of tuition fees. With most of the recent reforms described in this chapter, Germany tends to move with the mainstream of global developments in higher education: in part we find late adoption processes (NPM reforms), in part early innovations that have been adopted by others (the Excellence Initiative). However, the issue of tuition fees is an interesting exception to this mainstream trend (see also Hüther and Krücken 2014). Tuition fees can be found in a wide variety of national higher education systems and of late we have seen a considerable rise in these fees, for instance in England and the USA (e.g. Ertl and Dupuy 2014). In Germany, however, from 2006 onward there were only isolated attempts to introduce tuition fees at public higher education institutions which were abolished again shortly after, at the latest by 2014. How did this unusual development in international terms come about?

The discussion concerning tuition fees began in the mid-1990s. As part of the much debated crisis in higher education institutions in Germany, funding was one of the issues raised. Although student numbers continued to rise, given the costs of reunification, states were finding it difficult to find the funds for higher education institutions. Budget cuts in higher education coincided with an intensive discussion on what many thought of as the inadequate quality of teaching as part of the criticism of the "mass university". In the light of this, introducing tuition fees promised to overcome bottlenecks in funding on the one hand, and to improve teaching quality on the other. Between 2006 and 2007, seven of the 16 states—Lower Saxony, Hesse, Saarland, Hamburg, North Rhine-Westphalia, Bavaria and Baden-Württemberg—introduced universal tuition fees. In most states, tuition fees stood at roughly 500 euros per semester. In 2014, Lower Saxony was the last state to abolish fees. Thus, the attempt to introduce tuition fees has failed for the time being and there are no signs at present for a rekindling of the discussion.

In our opinion, the interaction of three mutually reinforcing factors can be held responsible for the failure of the introduction of tuition fees. Firstly, Germany boasts a strong welfare-state orientation. Therefore, the public at large view the funding of higher education—as with education generally—as a function of the state. The crisis in the "German-style" welfare state and the simultaneous stronger acceptance in society of a neo-liberal body of thought towards the end of the 1990s opened a window that facilitated the introduction of tuition fees in some states. However, the window closed again in the wake of the financial and banking crisis.

Neo-liberal market-based solutions were viewed much more critically than previously and uncertainties arising from the financial crisis led to a call for a restrengthening of welfare-state policies.

Secondly, the effects of tuition fees are unclear. It could neither be proved beyond doubt that tuition fees actually led to an improvement in teaching quality, nor that they did not lead to an increase in social selectivity when it came to access to higher education. In fact, studies showed that there was only an insignificant improvement in quality whereas the social selectivity in the education system—which is high anyway—was further strengthened by the fact that tuition fees had a deterrent effect on some students from so-called less well-educated families. Even if such effects were case specific, uncertain and ambiguous, they had an impact because of the already somewhat generally skeptical view of tuition fees.

Finally, the third factor—the federal system—is of particular importance. The effects of federalism could initially be seen in the fact that only seven states introduced universal tuition fees. In other words, the opposition to tuition fees was evident in the political system and the majority of states were able to advertise their waiving of tuition fees. But federalism also affected the institutionalization and legitimacy of tuition fees in another way. At state level, Germany is in a constant election campaign. Between 2006 and 2012, there were 27 elections in the states, taking place at 17 different points in time. Tuition fees were a major issue in many campaigns and the controversy was constantly being updated.

While centralist systems enjoy a period of consolidation following an election—until the next election—we did not have this in Germany in relation to tuition fees. This contrasts with other neo-liberal reforms in Germany that were not passed at state level, but at national level. Far-reaching reforms in labor market policy in Germany implemented under the social democratic Schröder government in 2002 and 2003—much against the sometimes vehement resistance of the trade unions and some of Schröder's own social democratic party—were retained and not abolished later. This example of the unsuccessful introduction of tuition fees in Germany shows—beyond this specific issue—what reform processes in a federal system can look like: they are not uniform, not nationwide and are somewhat incremental in nature—500 euros tuition fees per semester is very little compared to other countries. Instead they are highly fragile, and given the many election campaigns they can easily become a permanent, controversial ongoing topic. It is, therefore, likely that such reforms will not be adopted on a larger scale or even abolished, if, as in our case, there is an ingrained fundamental skepticism toward the reform.

2.2.4 Reforms in Staffing Structures

The reforms in staffing structure comprise three principal aspects. The first is the conversion from "C" to "W" salary structures for professors (e.g. Handel 2005;

Herzog and Kehm 2012). The "C" salaries were introduced in the 1970s in Germany and comprised four scales (C1 to C4), with full professors[10] categorized in scales C3 and C4. In each of the "C" salary scales there was a fixed basic salary that applied nationwide and which rose based on set rules over the course of employment (increments based on experience). In principle, this meant that professors employed at the same scale and with the same level of experience would be paid the same salary regardless of their subject and their performance. A slight variation in this was only available at the highest scale (C4), where professors could negotiate an increase in salary based on a call from another higher education institution (Wahlers 2006).

In contrast, the new "W" salaries have three scales (W1 to W3), with scales W2 and W3 applying to full professors and W1 to non-tenured junior professorships. Unlike "C" salaries, "W" salaries consist of a (significantly smaller) basic salary, which can be improved through performance bonuses that are usually restricted to a certain amount. Pursuant to Article 33.1 of the Civil Service Remuneration Act (*Bundesbesoldungsgesetz* 2006), there are three ways to obtain performance bonuses: based on appointment terms and negotiations to remain at the institution when professors receive a call from another higher education institution; for individual performance in research, teaching, further education and/or support given to junior academics (special performance bonuses); and by taking on management functions (management performance bonuses). The conversion of the salary structure meant that individual performance had an impact on professors' salaries. The conversion increased competition between professors, particularly so because the overall amounts allocated for professors' salaries was not increased. This is more or less a zero sum game in which the gain enjoyed by one meant a loss for another.

The introduction of performance-based salaries is a good example of how the trust in the work of professors we described above has been replaced with a "trust in numbers" (Porter 1996). At the same time, this has led to a differentiation of salaries—albeit significantly limited. This differentiation was however increased as a result of the Reform of the Federal System which we described above when responsibility for regulating professors' salaries was handed over to the individual states in 2006. Although they did not change the fundamental structures in any way, differences arose in the basic salary paid by each of the states. The basic gross salary of W3 professors in Thuringia mid-2015, for example, was 5732.73 euros per month, while in Baden-Württemberg the same scale stood at 6575.51 euros (Deutscher Hochschulverband 2016).

However, the Federal Constitutional Court passed judgement on the regulations governing the state of Hesse's performance bonuses for W2 salaries (BVerfG 2012), declaring them unconstitutional as the salary—without the performance element—

[10]In the German system there are two types of full professorships (before 2002, C3 and C4; since 2002, W2 and W3). Whereas in the past both types were different in status, salary and endowment, nowadays these differences play a far smaller role.

did not adequately comply with constitutionally guaranteed payments in line with the maintenance principle[11] for public officials (*Beamte*). Although the judgment only referred to the regulations in Hesse and the W2 salary scale, it did question the whole "W" salary system since the basic gross salary for W2 professors in Hesse of 4176.45 euros per month was not much different to salaries paid in other states. This gave cause for all states to review their salary regulations. In most states, the basic salary was increased, with a simultaneous lowering of the performance proportion of the salary. In addition, increments based on experience were re-introduced in some states (Gawel 2013).

As we will see as the book progresses, this is our first encounter with the Federal Constitutional Court as an actor exerting considerable influence on the reform of higher education in Germany. In terms of formal jurisdiction and the legitimacy of its judgments, the position of the Federal Constitutional Court can be best compared to the Supreme Court in the USA. Given the various constitutional norms, the Federal Constitutional Court has passed a number of judgments on higher education reforms in the last few years. This has led to considerable adaptations of the reforms compared to how they were originally envisaged. In respect of performance incentives, for example, it can be seen that the Constitutional Court does not have any fundamental objections under constitutional law to such a salary structure. If the basic salary is sufficient, the Federal Constitutional Court has no concerns about performance incentives. The fact that performance incentives have nevertheless been reduced in the wake of the judgment is due to the states not wanting to increase the total sum allocated to salaries. This then leads to a zero sum game, now to the detriment of performance incentives.

Connected to the reform of "W" salaries was the introduction of junior professorships (W1) as a second important reform element in staffing structures (e.g. Federkeil and Buch 2007; Burkhardt and Nickel 2015). On the basis of amendments to the Framework Act for Higher Education, this scale was introduced on a national level. The junior professorships gave newly-qualified academics access to independent teaching and research positions after gaining their doctorate—much earlier than under the traditional German system. At the same time it was planned to replace the post-doctoral habilitation[12] with the junior professorship

[11]The maintenance principle is one of the principles guaranteed in German civil service law. Article 33.5 of the Basic Law establishes the jurisdiction of the principles of the professional civil service. The maintenance principle means that the employer is obliged to provide suitable maintenance commensurate to the office assigned to public officials, and this life long. Commensurate is measured in comparison to other professions. This regulation must be seen in the light of the fact that public officials in Germany cannot go on strike and thus are somewhat limited in the manner they can assert their interests over those of their employer. The maintenance principle does not therefore apply to public service employees (*Angestellte*), who are permitted to assert their interests by striking. In Germany, most professors are public officials, which explains why the maintenance principle is relevant here.

[12]The habilitation is a post-doctoral examination typically 6–8 years after the doctorate and for a long time in Germany it was required to become a full professor (for more details, see Chap. 6).

as a requirement to qualify as a full professor. An attempt was thus being made to abolish the habilitation (Detmer 2004, 54).

However, in a judgment passed by the Federal Constitutional Court, the original plans were amended (BVerfG 2004). Several states took legal action. They were of the opinion that the federal government had overstepped its framework legislative competence in prescribing detailed guidelines for the junior professorship and that the states would no longer have decision-making authority. The Federal Constitutional Court shared this view, repealing the nationwide regulations in the Framework Act for Higher Education relating to junior professorships and affirming that the federal government had transgressed its authority. This was not about the structures of the junior professorship itself, and from a constitutional law perspective there was nothing against anchoring the junior professorship with identical words at the level of the individual states.

The junior professorship was actually incorporated in the states' respective higher education acts—however, with one central disparity: it was no longer prescribed as the only possible prerequisite for gaining a full professorship. In practice, the junior professorship has now become an alternative to the traditional habilitation to qualify as a full professor. Federal government plans to replace the habilitation with the junior professorship clearly did not succeed.

A third change in the area of staffing concerns the fixed-term employment arrangements for non-professorial academic staff at higher education institutions introduced in the fifth amendment to the Framework Act for Higher Education in 2002 and in the meantime found in the Law on Fixed-Term Contracts in Higher Education and Research (*Wissenschaftszeitvertragsgesetz*). This stipulates that academic contracts could be limited for a total of up to 12 years following graduation.[13] Six of these 12 years could be assigned to the period prior to gaining the doctorate and six following the doctorate. The aim of the law was to force a decision on whether a member of staff could remain in the higher education system at the latest after 12 years' employment. In addition, "vacant positions should not be blocked permanently" (Deutscher Bundestag 2001, 20), because the ability of research to innovate is also based on the fact that there is fluctuation in staffing and that young researchers with new ideas can then be integrated.

These regulations—both in an overall sense as well as in detail—have proven to be controversial and have triggered lively discussion. The first change was introduced in 2007. This opened up the possibility of extending temporary employment beyond these 12 years through the use of third-party funding. Another key change was instigated in 2016. The primary reason for this was an evaluation of the Law on Fixed-Term Contracts in Higher Education and Research conducted by Jongmanns

[13]Normally, German labor law only allows fixed-term employment contracts for no longer than 2 years. The question of whether an employment contract is for a fixed term or indefinite is important in the German labor law system because indefinite contracts are subject to German employee protection law—including not inconsiderable restrictions on terminating the contract. On the other hand, if the contract is for a fixed term, employment can simply be terminated once the term has expired.

(2011) and the discussions which followed. The evaluation established that 53% of contracts were fixed-term contracts of up to 1 year, 36% between 1 and 2 years and only 11% were for fixed terms of more than 2 years. This meant that these regulations had led to a chain of short-term contracts and a high degree of uncertainty in terms of whether a contract would be renewed or not. In many subsequent discussions, this was described as a precarious situation that acted as a deterrent for young academics. Since 2016, the law now stipulates that the length of fixed-term contracts should correspond to the respective qualification goal and that with positions based on third-party funding, contracts should cover the full duration of a project. The aim here is to put a stop to short-term chains of contracts and to implement longer-term contractual periods. What the real effects will actually be remains to be seen—not least because of the very wishy-washy wording of the legislation.

2.2.5 Reforms in Governance Structures

Reforms in governance structures in Germany are strongly related to new public management[14] (NPM). These reforms comprise a wide range of measures including some that have already been described in this chapter. The fundamental aim of NPM reforms is to structure the regulations of higher education institutions and higher education systems in such a manner as to ensure that goals can be achieved as efficiently and effectively as possible.

The traditional governance model of universities in Germany was characterized by the coexistence of strong state regulation and academic self-organization (e.g. Clark 1983; Braun 2001). In contrast, the NPM model strengthens competition both between and within the higher education institutions, strengthens managerial self-governance, weakens the principle of academic self-organization and provides for stronger external guidance, instead of detailed state regulation (de Boer et al. 2007; Lange and Schimank 2007; Kehm and Lanzendorf 2006b; Braun and Merrien 1999). Alongside the "New Public Management Model" label we can now find

[14]In the general NPM concept, we need to distinguish between a macro (regulatory dimension) and a micro dimension (internal structures). The regulatory dimension assesses the whole public sector to determine whether certain tasks can be undertaken by the state or by private providers and attempts to limit state influence on core tasks. Examples of this include the privatization of rail and postal services and power supply in Germany. In relation to higher education, these discussions have played a somewhat minor role (for the international discussion see Serrano-Velarde and Krücken 2012). On the other hand, the internal structures dimension is concerned with the manner in which state tasks can be performed as effectively and efficiently as possible. The focus is on the internal structures of public organizations, which, in terms of decision-making structures, staffing policies, performance assessment and management are to be aligned with private corporations, especially those in the service sector (for the German discussion on the general NPM concept see Bogumil et al. 2007; Kegelmann 2007; Proeller and Schedler 2006; Vogel 2006; Naschold and Bogumil 2000; for international developments see Pollitt et al. 2007; Christensen and Lægreid 2002).

terms such as "New Managerialism" and, if one focuses on the underlying university model and not the governance model, "Entrepreneurial Universities".

Let us first take a look at the notion of competition. Competition between higher education institutions has increased in recent years. This is expressed, for example, in the Excellence Initiative mentioned above and the program from both federal and state governments aimed at improving conditions for studying and the quality of teaching (the Teaching Quality Pact). At the same time, many states have established competition between their higher education institutions by, on the one hand, initiating their own "excellence" competitions at state level, and on the other hand by linking an element of funding to performance, with performance measured by comparing higher education institutions (e.g. Nickel and Ziegele 2008; Hartwig 2006; Schröder 2004; Jaeger et al. 2006; Leszczensky and Orr 2004).

There has been a significant increase in competition within higher education institutions between departments and institutes. Some state Higher Education Acts now call for funds to be distributed within the higher education institutions based on evaluations and performance indicators. Thus departments are competing among themselves for funding. While in the traditional German system, funding was based on cameralistic, or single-entry, accounting, now we are witnessing competition between and within higher education institutions (e.g. Jaeger 2008; Jaeger et al. 2006; Schröder 2004).

This heightened competition also affects professors in terms of both staffing remuneration and their endowment. The clearest sign of this is in the introduction of performance bonuses for special achievements in teaching and research mentioned above. This establishes competition between professors within a higher education institution. In much the same direction, this means that a chair is endowed normally only for a temporary period and only when appropriate performance continues to be guaranteed (e.g. Detmer 2003; Schenke 2005). By way of contrast, in the traditional system endowment commitments were indefinite and thus independent of any future performance.

Overall, it can be noted that the competitive mechanisms within the German higher education system have increased on a number of levels in recent years. However, this competition is not taking place on traditional markets, but at the most on quasi-markets (Le Grand 1991). The only attempt at introducing traditional market competition in higher education was the tuition fees, but as we described above, this attempt failed.

The fact that external guidance or "steering from a distance" (Marginson 1997; de Boer et al. 2006) has become the new dominant leitmotiv of the reform process in recent years[15]—more or less replacing the detailed state regulation—can also be illustrated with the help of some examples. These include the introduction of global budgets described above (e.g. Lanzendorf and Pasternack 2008; Hartwig 2006; Postlep 2004), target and performance agreements (e.g. Rogal 2008; König 2006;

[15]The first discussion of external guidance as a governance mechanism for higher education systems can be found in van Vught (1989).

Schimank 2006; Ziegele 2006; Lanzendorf and Orr 2006) and the transfer of state supervisory functions to the newly-created higher education boards of governors (Hüther 2009; Jochheim et al. 2016; Kretek et al. 2013).

In some areas, there is thus a trend towards deregulating the higher education system and converting it to a form of "steering from a distance". Higher education institutions are therefore being freed from the regulations concerning formal detailed provisions that had been required since the 1970s. Accordingly, higher education institutions have been gaining formal autonomy since the end of the 1990s. In part, this includes rights they have not enjoyed for centuries. A number of states now allow higher education institutions to appoint professors themselves: traditionally appointments were made by the respective ministries for education and research in the states.

In terms of autonomy, however, three facts need to be taken into account. Firstly, external steering has not been implemented consistently across the board and has in fact been organized to different degrees in the individual states. Secondly, the past few years have seen a curtailing of autonomy with new state-based higher education acts re-introducing intervention rights for education and research ministries (e.g., 2015 in North Rhine-Westphalia). And thirdly, higher education institutions' autonomy can also be narrowed through external guidance—sometimes clearly more effectively than through the regulation of details. What has changed as part of NPM is the mode of steering, not necessarily the intensity of the steering.

Closely connected to the reduction in the regulation of details is the strengthening of managerial self-governance. According to the ministries for education and research, the new competences and freedoms are not being transferred to academic decision-making bodies which are regarded as being incapable of making decisions. The strengthening of managerial self-governance is achieved by shifting decision rights from the state and academic bodies to presidents and deans (Hüther 2010, 195–336).

Moreover, there have also been attempts to professionalize higher education management. This has been expressed not only in extending the terms of office for presidents, vice presidents and deans (Hüther 2011), but also for the professionalization of the whole administrative body of higher education institutions (Krücken et al. 2009, 2012, 2013; Whitchurch 2006; Gornitzka et al. 1998). Overall, the literature on the subject assumes that we are seeing the emergence of a managerial hierarchy at German higher education institutions and at the same time the previously dominant principle of academic self-organization is losing importance.

The aim of these reforms is to resolve some of the decision-making problems incumbent in the group universities introduced in the 1960s and 1970s. Decision-making processes are to be accelerated and the quality of decisions should be increased by strengthening the management level. In terms of internal organizational structures, the new reforms are attempting to correct misguided developments and the transintentional effects of the introduction of the group universities imposed by the state.

However, upon closer observation, it can be seen that the regulations introduced to strengthen higher education management are, in part, inconsistent. In most states,

presidents, vice presidents and deans are still elected by academic decision-making bodies. Furthermore, these bodies play an important role in voting out presidents, vice presidents and deans (Hüther 2011). In addition, higher education leaders have hardly any chance to safeguard their decisions by exercising power and imposing sanctions on academic staff (Hüther and Krücken 2011, 2013, 2015). Recent research results show that consensual decision-making is still the norm at German higher education institutions, even though formal hierarchical decisions could have been made (e.g. von Stuckrad and Gläser 2012; Bieletzki 2018; Kleimann 2015). Within higher education, we are still witnessing a continuation of the consensual culture. This is hardly surprising given the long tradition of academic self-organization.

This chapter has shown that many reforms on a wide variety of levels have taken place in the German higher education system since the late 1990s. Regardless of how these reforms are evaluated—either individually or overall—it can be seen that the German higher education system is being put unter pressure to change. This book takes a deeper look at many of these reforms, attempts to retrace effects to date and to deliver preliminary assessments with regard to the scope and depth of the elicited changes. From an academic point of view, the new dynamics in the German higher education system, a system rich in tradition and which has been highly successful in the past, make this a rewarding and exciting field of study.

References

Aagaard, K., & de Boer, H. (2017). The Danish UNIK initiative: An NPM-inspired mechanism to steer higher education. In H. de Boer, J. File, J. Huisman, M. Seeber, M. Vukasovic, & D. F. Westerheijden (Eds.), *Policy analysis of structural reforms in higher education* (pp. 141–159). Cham: Palgrave Macmillan/Springer.

Altbach, P. G. (2004). The costs and benefits of world-class universities. *Academe, 90*(1), 20–23.

Amaral, A., Meek, L. V., & Larsen, I. M. (Eds.). (2003). *The higher education managerial revolution?* Dordrecht: Kluwer Academic Publishers.

Armingeon, K., & Beyeler, M. (2004). *The OECD and European welfare states*. Cheltenham: Edward Elgar Publishing.

Bauman, Z. (2000). *Liquid modernity*. Cambridge: Polity Press.

Bell, D. (1973). *The coming of post industrial society: A venture in social forecasting*. New York: Basic Books.

Bieletzki, N. (2018). *The power of collegiality. A qualitative analysis of university presidents' leadership in Germany*. Wiesbaden: VS Verlag.

Bode, I. (2010). Der Zweck heil(ig)t die Mittel? Ökonomisierung und Organisationsdynamik im Krankenhaussektor. In M. Endreß & T. Matys (Eds.), *Die Ökonomie der Organisation – die Organisation der Ökonomie* (pp. 63–92). Wiesbaden: VS Verlag.

Bogumil, J., Grohs, S., Kuhlmann, S., & Ohm, A. K. (2007). *Zehn Jahre Neues Steuerungsmodell*. Berlin: Edition Sigma.

Bologna Declaration. (1999). *Bologna declaration*. http://media.ehea.info/file/Ministerial_conferences/02/8/1999_Bologna_Declaration_English_553028.pdf. Accessed 10 May 2017.

Bosbach, E. (2009). *Von Bologna nach Boston? Perspektiven und Reformansätze in der Doktorandenausbildung anhand eines Vergleichs zwischen Deutschland und den USA*. Leipzig: Akademische Verlagsanstalt.

Boudard, E., & Westerheijden, D. F. (2017). France: Initiatives for excellence. In H. de Boer, J. File, J. Huisman, M. Seeber, M. Vukasovic, & D. F. Westerheijden (Eds.), *Policy analysis of structural reforms in higher education* (pp. 161–182). Cham: Palgrave Macmillan/Springer.

Braun, D. (2001). Regulierungsmodelle und Machtstrukturen an Universitäten. In E. Stölting & U. Schimank (Eds.), *Die Krise der Universitäten* (pp. 243–262). Wiesbaden: Westdeutscher Verlag.

Braun, D., & Merrien, F.-X. (Eds.). (1999). *Towards a new model of governance for universities? A comparative view*. London/Philadelphia: Jessica Kingsley Publishers.

Bromley, P., & Meyer, J. W. (2015). *Hyper-organization: Global organizational expansion*. Oxford: Oxford University Press.

Bundesbesoldungsgesetz. (2006). *Bundesbesoldungsgesetz in der Fassung der Bekanntmachung vom 6. August 2002 (BGBl. I S. 3020), zuletzt geändert durch Artikel 4 Abs. 1 des Gesetzes vom 17. Dezember 2006 (BGBl. I S. 3171)*.

Burkhardt, A., & Nickel, S. (2015). *Die Juniorprofessur: Neue und alte Qualifizierungswege im Vergleich*. Baden-Baden: Nomos Verlagsgesellschaft.

Burnes, B., Wend, P., & By, R. T. (2014). The changing face of English universities: Reinventing collegiality for the twenty-first century. *Studies in Higher Education, 39*(6), 905–926. https://doi.org/10.1080/03075079.2012.754858.

BVerfG. (2004). 2 BvF 2/02 vom 27.07.2004.

BVerfG. (2012). 2 BvL 4/10 vom 14.02.2012.

Castells, M. (2011). *The rise of the network society: The information age: Economy, society, and culture*. Chichester: Wiley.

Christensen, T., & Lægreid, P. (Eds.). (2002). *New public management. The transformation of ideas and practice*. Aldershot: Ashgate.

Clark, B. R. (1983). *The higher education system. Academic organization in cross-national perspective*. Berkeley: University of California Press.

Cremonini, L., Westerheijden, D. F., Benneworth, P., & Dauncey, H. (2014). In the shadow of celebrity? World-class university policies and public value in higher education. *Higher Education Policy, 27*(3), 341–361. https://doi.org/10.1057/hep.2013.33.

Daniel, H.-D. (1998). Beiträge der empirischen Hochschulforschung zur Evaluierung von Forschung und Lehre. In U. Teichler, J. Enders, & H.-D. Daniel (Eds.), *Brennpunkt Hochschule: Neuere Analysen zu Hochschule, Beruf und Gesellschaft* (pp. 11–53). Frankfurt am Main/New York: Campus.

Daxner, M. (1996). *Ist die Uni noch zu retten? Zehn Vorschläge und eine Vision*. Reinbek: Rowohlt.

de Boer, H., & Huisman, J. (1999). The new public management in Dutch universities. In D. Braun & F.-X. Merrien (Eds.), *Towards a new model of governance for universities? A comparative view* (pp. 100–118). London/Philadelphia: Jessica Kingsley Publishers.

de Boer, H., Leisyte, L., & Enders, J. (2006). The Netherlands – "Steering from a distance". In B. M. Kehm & U. Lanzendorf (Eds.), *Reforming university governance. Changing conditions for research in four European countries* (pp. 59–96). Lemmens: Bonn.

de Boer, H., Enders, J., & Schimank, U. (2007). On the way towards new public management? The Governance of University Systems in England, the Netherlands, Austria, and Germany. In D. Jansen (Ed.), *New forms of governance in research organizations. Disciplinary approaches, interfaces and integration* (pp. 137–152). Dordrecht: Springer.

Deem, R., Mok, K. H., & Lucas, L. (2008). Transforming higher education in whose image? Exploring the concept of the "world-class" University in Europe and Asia. *Higher Education Policy, 21*(1), 83–97. https://doi.org/10.1057/palgrave.hep.8300179.

Detmer, H. (2003). Leistungsbesoldung für Professoren. In K. Anderbrügge, V. Epping, & W. Löwer (Eds.), *Dienst an der Hochschule. Festschrift für Dieter Leuze zum 70. Geburtstag* (pp. 141–172). Berlin: Duncker & Humblot.

Detmer, H. (2004). Das Recht der Universitätsprofessoren. In M. Hartmer & H. Detmer (Eds.), *Hochschulrecht. Ein Handbuch für die Praxis* (pp. 46–123). Heidelberg: Verlagsgruppe Hüthig-Jehle-Rehm.

Deutsche Forschungsgemeinschaft, & Wissenschaftsrat. (2015). *Bericht der Gemeinsamen Kommission zur Exzellenzinitiative an die Gemeinsame Wissenschaftskonferenz*. Bonn: Deutsche Forschungsgemeinschaft, Wissenschaftsrat.

Deutscher Bundestag. (2001). *Drucksache 14/6853. Gesetzentwurf der Bundesregierung. Entwurf eines Fünften Gesetzes zur Änderung des Hochschulrahmengesetzes und anderer Vorschriften (5. HRGÄndG)*. Berlin: Deutscher Bundestag.

Deutscher Hochschulverband. (2016). *W-Besoldung*. https://www.hochschulverband.de/fileadmin/redaktion/download/pdf/besoldungstabellen/grundgehaelter_w.pdf. Accessed 02 July 2016.

Dobbins, M., & Knill, C. (2009). Higher education policies in Central and Eastern Europe: Convergence towards a common model? *Governance, 22*(3), 397–430. https://doi.org/10.1111/j.1468-0491.2009.01445.x.

Dobbins, M., & Knill, C. (2014). *Higher education governance and policy change in Western Europe: International challenges to historical institutions*. Basingstoke/New York: Palgrave Macmillan.

Enders, J. (2005). Brauchen die Universitäten in Deutschland ein neues Paradigma der Nachwuchsausbildung? *Beiträge zur Hochschulforschung, 27*(1), 34–46.

Engel, U., & Krekeler, G. (2001). Studienqualität. Über studentische Bewertungen und Rankings von Studienfächern einer Universität. In U. Engel (Ed.), *Hochschulranking. Zur Qualitätsbewertung von Studium und Lehre* (pp. 121–176). Frankfurt am Main/New York: Campus.

Ertl, H., & Dupuy, C. (Eds.). (2014). *Students, markets and social justice. Higher education fee and student support policies in Western Europe and beyond*. Oxford: Symposium Books.

Etzkowitz, H., & Leydesdorff, L. (2000). The dynamics of innovation: From national systems and "mode 2" to a triple helix of university – Industry – Government relations. *Research Policy, 29*(2), 109–123. https://doi.org/10.1016/S0048-7333(99)00055-4.

Federkeil, G., & Buch, F. (2007). *Fünf Jahre Juniorprofessur - Zweite CHE-Befragung zum Stand der Einführung*. Gütersloh: CHE.

Frost, J., Hattke, F., & Reihlen, M. (Eds.). (2016). *Multi-level governance in universities: Strategy, structure, control*. Dordrecht: Springer.

Führ, C. (1993). Die deutsche Universität: Im Kern gesund oder verrottet? Überlegungen zur fälligen Neuorientierung der deutschen Hochschulpolitik. In A. Neusel (Ed.), *Hochschule – Staat – Politik: Christoph Oehler zum 65. Geburtstag* (pp. 55–67). Frankfurt am Main/New York: Campus.

Gawel, E. (2013). *Neuordnung der W-Besoldung: Ausgestaltung und verfassungsrechtliche Probleme der Konsumtionsregeln zur Anrechnung von Leistungsbezügen* (Working Paper No. 115). Leipzig: Universität Leipzig; Wirtschaftswissenschaftliche Fakultät.

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *The new production of knowledge. The dynamics of science and research in contemporary societies*. London: Sage.

Glotz, P. (1996). *Im Kern verrottet? Fünf vor zwölf an Deutschlands Universitäten*. Stuttgart: Deutsche Verlags-Anstalt.

Gornitzka, Å., & Maassen, P. (2000). Hybrid steering approaches with respect to European higher education. *Higher Education Policy, 13*(3), 267–285. https://doi.org/10.1016/S0952-8733(00)00012-X.

Gornitzka, Å., Kyvik, S., & Larsen, I. M. (1998). The bureaucratisation of universities. *Minerva, 36*(1), 21–47. https://doi.org/10.1023/a:1004382403543.

Handel, K. (2005). *Die Umsetzung der Professorenbesoldungsreform in den Bundesländern. CHE-Arbeitspapier Nr. 65*. Gütersloh: CHE.

Hartmann, M. (2010). Die Exzellenzinitiative und ihre Folgen. *Leviathan, 38*(3), 369–387.

Hartwig, L. (2006). Neue Finanzierungs- und Steuerungsstrukturen und ihre Auswirkungen auf die Universitäten. Zur Situation in vier Bundesländern. *Beiträge zur Hochschulforschung, 28*(1), 6–25.

Hazelkorn, E. (2009). Rankings and the battle for world-class excellence: Institutional strategies and policy choices. *Higher Education Management and Policy, 21*(1), 55–76. https://doi.org/10.1787/hemp-v21-art4-en.

Hazelkorn, E., & Ryan, M. (2013). The impact of university rankings on higher education policy in Europe: A challenge to perceived wisdom and a stimulus for change. In P. Zgaga, U. Teichler, & J. Brennan (Eds.), *The globalisation challenge for European higher education: Convergence and diversity, centres and peripheries* (pp. 79–99). Frankfurt am Main: Lang.

Henkel, M. (1999). The modernisation of research evaluation: The case of the UK. *Higher Education, 38*(1), 105–122. https://doi.org/10.1023/a:1003799013939.

Henry, M., Lingard, B., Rizvi, F., & Taylor, S. (2001). *The OECD, globalisation and education policy*. Oxford: Pergamon.

Herzog, M., & Kehm, B. M. (2012). The income situation in the German system of higher education. A rag rug. In P. G. Altbach, L. Reisberg, M. Yudkevich, G. Androushchak, & I. F. Pacheco (Eds.), *Paying the professoriate: A global comparison of compensation and contracts* (pp. 145–154). New York/London: Routledge.

Hochschulrektorenkonferenz. (1992). *Konzept zur Entwicklung der Hochschulen in Deutschland: Beschluß des 167. Plenums vom 6. Juli 1992*. Bonn: HRK.

Hochschulrektorenkonferenz. (1995). Zur Evaluation im Hochschulbereich unter besonderer Berücksichtigung der Lehre. Entschließung des 176. Plenums vom 3. Juli 1995. Bonn: HRK.

Hochschulrektorenkonferenz. (2008). *Statistische Daten zur Einführung von Bachelor- und Masterstudiengängen. Sommersemester 2008*. Bonn: HRK.

Huisman, J. (2008). World-class universities. *Higher Education Policy, 21*(1), 1–4. https://doi.org/10.1057/palgrave.hep.8300180.

Hüther, O. (2009). Hochschulräte als Steuerungsakteure? *Beiträge zur Hochschulforschung, 31*(2), 50–73.

Hüther, O. (2010). *Von der Kollegialität zur Hierarchie? Eine Analyse des New Managerialism in den Landeshochschulgesetzen*. Wiesbaden: VS Verlag.

Hüther, O. (2011). New Managerialism? Gemeinsamkeiten und Differenzen der Leitungsmodelle in den Landeshochschulgesetzen. *die hochschule, 20*(1), 50–72.

Hüther, O., & Krücken, G. (2011). Wissenschaftliche Karriere- und Beschäftigungsbedingungen. Organisationssoziologische Überlegungen zu den Grenzen neuer Steuerungsmodelle an deutschen Hochschulen. *Soziale Welt, 62*(3), 305–325. https://doi.org/10.5771/0038-6073-2011-3-305.

Hüther, O., & Krücken, G. (2013). Hierarchy and power: A conceptual analysis with particular reference to new public management reforms in German universities. *European Journal of Higher Education, 3*(4), 307–323. https://doi.org/10.1080/21568235.2013.850920.

Hüther, O., & Krücken, G. (2014). The rise and fall of student fees in a federal higher education system: The case of Germany. In H. Ertl & C. Dupuy (Eds.), *Students, markets and social justice: Higher education fee and student support policies in Western Europe and beyond* (pp. 85–110). Oxford: Symposium Books.

Hüther, O., & Krücken, G. (2015). Incentives and power: An organizational perspective. In I. M. Welpe, J. Wollersheim, S. Ringelhan, & M. Osterloh (Eds.), *Incentives and performance* (pp. 69–86). Cham/Heidelberg: Springer.

Internationale Expertenkommission zur Evaluation der Exzellenzinitiative. (2016). *Endbericht*. Bonn: Internationale Expertenkommission zur Evaluation der Exzellenzinitiative.

Jaeger, M. (2008). Wie wirksam sind leistungsorientierte Budgetierungsverfahren in deutschen Hochschulen? In S. Nickel & F. Ziegele (Eds.), *Bilanz und Perspektiven der*

leistungsorientierten Mittelverteilung: Analysen zur finanziellen Hochschulsteuerung (pp. 35–60). Gütersloh: CHE.

Jaeger, M., Leszczensky, M., & Handel, K. (2006). Staatliche Hochschulfinanzierung durch leistungsorientierte Budgetierungsverfahren. Erste Evaluationsergebnisse und Schlussfolgerungen. *Hochschulmanagement, 1*(1), 13–20.

Jochheim, L., Bogumil, J., & Heinze, R. G. (2016). Hochschulräte als neues Steuerungsinstrument von Universitäten? Eine empirische Analyse ihrer Wirkungsweise. *der moderne staat, 9*(1), 203–225. https://doi.org/10.3224/dms.v9i1.23649.

Jongmanns, G. (2011). *Evaluation des Wissenschaftszeitvertragsgesetzes (WissZeitVG). Gesetzesevaluation im Auftrag des Bundesministeriums für Bildung und Forschung*. Hannover: HIS.

Kegelmann, J. (2007). *New Public Management. Möglichkeiten und Grenzen des Neuen Steuerungsmodells*. Wiesbaden: VS Verlag.

Kehm, B. M. (2005). Developing doctoral degrees and qualifications in Europe. Good practice and issues of concern. *Beiträge zur Hochschulforschung, 27*(1), 10–33.

Kehm, B. M., & Lanzendorf, U. (2006a). Germany – 16 Länder approaches to reform. In B. M. Kehm & U. Lanzendorf (Eds.), *Reforming university governance. Changing conditions for research in four European countries* (pp. 135–185). Lemmens: Bonn.

Kehm, B. M., & Lanzendorf, U. (Eds.). (2006b). *Reforming university governance. Changing conditions for research in four European countries*. Bonn: Lemmens.

Kleimann, B. (2015). *Universität und präsidiale Leitung. Führungspraktiken in einer multiplen Hybridorganisation*. Wiesbaden: VS Verlag.

Klein, M., & Rosar, U. (2006). Das Auge hört mit! Der Einfluss der physischen Attraktivität des Lehrpersonals auf die studentische Evaluation von Lehrveranstaltungen. Eine empirische Analyse am Beispiel der Wirtschafts- und Sozialwissenschaftlichen Fakultät der Universität zu Köln. *Zeitschrift für Soziologie, 35*(4), 305–316. https://doi.org/10.1515/zfsoz-2006-0404.

KMK. (2003). *10 Thesen zur Bachelor- und Masterstruktur in Deutschland. Beschluss der Kultusministerkonferenz vom 12.06.2003*. Bonn: KMK.

Koenig, J., Brenner, T., & Buenstorf, G. (2017). Regional effects of university funding: Excellence at the cost of regional disparity? *Review of Regional Research, 37*(2), 111–133. https://doi.org/10.1007/s10037-017-0117-8.

König, C. (2006). Verhandelte Hochschulsteuerung. 10 Jahre Zielvereinbarung zwischen den Bundesländern und ihren Hochschulen. *die hochschule, 15*(2), 34–54.

Konsortium Bundesbericht Wissenschaftlicher Nachwuchs. (2017). Bundesbericht Wissenschaftlicher Nachwuchs 2017. Statistische Daten und Forschungsbefunde zu Promovierenden und Promovierten in Deutschland. Bielefeld: Bertelsmann.

Kretek, P., Dragšić, Ž., & Kehm, B. M. (2013). Transformation of university governance: On the role of university board members. *Higher Education, 65*(1), 39–58. https://doi.org/10.1007/s10734-012-9580-x.

Krücken, G. (2003). Mission impossible? Institutional barriers to the diffusion of the "third academic mission" at German Universities. *International Journal of Technology Management, 25*(1), 18–33. https://doi.org/10.1504/ijtm.2003.003087.

Krücken, G. (2007). Organizational fields and competitive groups in higher education: Some lessons from the bachelor/master reform in Germany. *Management Revue, 18*(2), 187–203.

Krücken, G., & Meier, F. (2006). Turning the university into an organizational actor. In G. S. Drori, J. W. Meyer, & H. Hwang (Eds.), *Globalization and organization. World society and organizational change* (pp. 241–257). Oxford: Oxford University Press.

Krücken, G., Kosmützky, A., & Torka, M. (2007). *Towards a multiversity? Universities between global trends and national traditions*. Bielefeld: Transcript.

Krücken, G., Blümel, A., & Kloke, K. (2009). *Towards organizational actorhood of universities: Occupational and organizational change within German university administrations* (FÖV Discussion Paper 48). Speyer: FÖV.

Krücken, G., Blümel, A., & Kloke, K. (2012). Wissen schafft Management? Konturen der Managerialisierung im Hochschulbereich. In T. Heinze & G. Krücken (Eds.), *Institutionelle Erneuerungsfähigkeit der Forschung* (pp. 219–256). Wiesbaden: VS Verlag.

Krücken, G., Blümel, A., & Kloke, K. (2013). The managerial turn in higher education? On the interplay of organizational and occupational change in German academia. *Minerva, 51*(4), 417–442. https://doi.org/10.1007/s11024-013-9240-z.

Lange, S., & Schimank, U. (2007). Zwischen Konvergenz und Pfadabhängigkeit: New Public Management in den Hochschulsystemen fünf ausgewählter OECD-Länder. In K. Holzinger, H. Jörgen, & C. Knill (Eds.), *Transfer, diffusion und Konvergenz von Politiken. PVS Sonderheft 38* (pp. 522–548). Wiesbaden: VS Verlag.

Lanzendorf, U., & Orr, D. (2006). Hochschulsteuerung durch Kontrakte – wozu und wie? Unterschiedliche Stellenwerte von Wettbewerb, Autonomie und Indikatoren im europäischen Vergleich. *die hochschule, 15*(2), 80–97.

Lanzendorf, U., & Pasternack, P. (2008). Landeshochschulpolitiken. In A. Hildebrandt & F. Wolf (Eds.), *Die Politik der Bundesländer. Staatstätigkeit im Vergleich* (pp. 43–66). Wiesbaden: VS Verlag.

Latour, B. (1988). *The pasteurization of France*. Cambridge, MA: Harvard University Press.

Le Grand, J. (1991). Quasi-markets and social policy. *The Economic Journal, 101*(408), 1256–1267. https://doi.org/10.2307/2234441.

Leibfried, S. (Ed.). (2010). *Die Exzellenzinitiative: Zwischenbilanz und Perspektiven*. Frankfurt am Main/New York: Campus.

Leisyte, L., de Boer, H., & Enders, J. (2006). England – Prototype of the "evaluative state". In B. M. Kehm & U. Lanzendorf (Eds.), *Reforming university governance. Changing conditions for research in four European countries* (pp. 21–56). Lemmens: Bonn.

Leszczensky, M., & Orr, D. (2004). *Staatliche Hochschulfinanzierung durch indikatorgestützte Mittelverteilung. Dokumentation und Analyse der Verfahren in 11 Bundesländern*. Hannover: HIS.

Lynen, P. M. (2004). Entwicklungen des Hochschulorganisationsrechts und rechtliche Besonderheiten der "anderen" Hochschulen. In M. Hartmer & H. Detmer (Eds.), *Hochschulrecht. Ein Handbuch für die Praxis* (pp. 511–545). Heidelberg: C. F. Müller.

Maasen, S., & Weingart, P. (2006). Unternehmerische Universität und neue Wissenskultur. *die hochschule, 15*(1), 19–45.

Marginson, S. (1997). Steering from a distance: Power relations in Australian higher education. *Higher Education, 34*(1), 63–80. https://doi.org/10.1023/a:1003082922199.

Marginson, S. (2007). The public/private divide in higher education: A global revision. *Higher Education, 53*(3), 307–333. https://doi.org/10.1007/s10734-005-8230-y.

McNay, I. (1999). Changing cultures in UK higher education. The state as corporate market bureaucracy and the emergent academic enterprise. In D. Braun & F.-X. Merrien (Eds.), *Towards a new model of governance for universities? A comparative view* (pp. 34–58). London/Philadelphia: Jessica Kingsley Publishers.

Michels, R. (1915 [1911]). *Political parties. A sociological study of the oligarchical tendencies of modern democracy*. London: Jarrold.

Mintzberg, H. (1983). *Power in and around organizations*. Englewood Cliffs: Prentice-Hall.

Münch, R. (2006). Wissenschaft im Schatten von Kartell, Monopol und Oligarchie. Die latenten Effekte der Exzellenzinitiative. *Leviathan, 34*(4), 466–486.

Naschold, F., & Bogumil, J. (2000). *Modernisierung des Staates. New Public Management in deutscher und internationaler Perspektive* (2., vollst. aktualisierte und stark erw. Aufl ed.). Opladen: Leske + Budrich.

Neusel, A. (1993). Selbstregulierung oder staatliche Steuerung? Wandel der Hochschulpolitik in den neunziger Jahren. In A. Neusel (Ed.), *Hochschule – Staat – Politik: Christoph Oehler zum 65. Geburtstag* (pp. 185–191). Frankfurt am Main/New York: Campus.

Nickel, S., & Ziegele, F. (Eds.). (2008). *Bilanz und Perspektiven der leistungsorientierten Mittelverteilung: Analysen zur finanziellen Hochschulsteuerung*. Gütersloh: CHE.

Nowotny, H., Scott, P., & Gibbons, M. (2001). *Re-thinking science – Knowledge and the public in an age of uncertainty*. Cambridge: Polity Press.

Paradeise, C., Reale, E., Bleiklie, I., & Ferlie, E. (Eds.). (2009). *University governance: Western European comparative perspectives*. Dordrecht: Springer.

Pollitt, C., & Bouckaert, G. (2004). *Public management reform: A comparative analysis*. Oxford: Oxford University Press.

Pollitt, C., van Thiel, S., & Homburg, V. (Eds.). (2007). *New public management in Europe*. Basingstoke: Palgrave Macmillan.

Popp Berman, E., & Paradeise, C. (Eds.). (2016). *The university under pressure*. Bingley: Emerald.

Porter, T. M. (1996). *Trust in numbers: The pursuit of objectivity in science and public life*. Princeton: Princeton University Press.

Postlep, R.-D. (2004). Hochschulfinanzierung: Einige Anmerkungen zu Globalhaushalten und leistungsorientierten Finanzierungsschlüsseln. In G. Färber & S. Renn (Eds.), *Zehn Jahre Hochschulreformen seit dem Eckwertepapier. Anstöße, Maßnahmen, Erfolge* (pp. 75–82). Berlin: Duncker & Humblot.

Power, M. (1999). *The audit society: Rituals of verification*. Oxford: Oxford University Press.

Preston, A. M. (1992). The birth of clinical accounting: A study of the emergence and transformations of discourses on costs and practices of accounting in U.S. hospitals. *Accounting, Organizations and Society, 17*(1), 63–100. https://doi.org/10.1016/0361-3682(92)90036-R.

Proeller, I., & Schedler, K. (2006). *New Public Management*. Bern: Haupt.

Reay, T., & Hinings, C. R. (2009). Managing the rivalry of competing institutional logics. *Organization Studies, 30*(6), 629–652. https://doi.org/10.1177/0170840609104803.

Reichwald, R. (2000). Organisations- und Führungsstrukturen zur Stärkung der Wettbewerbsfähigkeit der Universität von morgen. In S. Laske, T. Scheytt, C. Meister-Scheytt, & C. O. Scharmer (Eds.), *Universität im 21. Jahrhundert. Zur Interdependenz von Begriff und Organisation der Wissenschaft* (pp. 315–335). München: Rainer Hampp.

Rindermann, H. (2009). *Lehrevaluation*. Landau: Verlag Empirische Pädagogik.

Risser, D. (2003). Governance and functioning of British universities. *Beiträge zur Hochschulforschung, 25*(1), 84–101.

Röbken, H. (2007). Postgraduate studies in Germany – How much structure is not enough? *South African Journal of Higher Education, 21*(8), 1054–1066. https://doi.org/10.4314/sajhe.v21i8.25759.

Rogal, U. (2008). *Hochschulautonomie und Zielvereinbarungen. Neue Instrumente der Hochschulsteuerung und ihre Vereinbarkeit mit der akademischen Selbstverwaltung*. Hamburg: Kovac.

Schenke, W.-R. (2005). Neue Fragen an die Wissenschaftsfreiheit. Neue Hochschulgesetze im Lichte des Art. 5 III GG. *Neue Zeitschrift für Verwaltungsrecht, 24*(9), 1000–1009.

Schimank, U. (2002). *Expertise zum Thema: Neues Steuerungssysteme an den Hochschulen. Abschlussbericht 31.05.2002. Förderinitiative des BMBF: Science Policy Studies*. Hagen: FernUniversität Hagen.

Schimank, U. (2005). New public management and the academic profession: Reflections on the German situation. *Minerva, 43*(4), 361–376. https://doi.org/10.1007/s11024-005-2472-9.

Schimank, U. (2006). Zielvereinbarungen in der Misstrauensfalle. *die hochschule, 15*(2), 7–17.

Schröder, T. (2004). Der Einsatz leistungsorientierter Ressourcensteuerungsverfahren im deutschen Hochschulsystem. Eine empirische Untersuchung ihrer Ausgestaltung und Wirkungsweisen. *Beiträge zur Hochschulforschung, 26*(2), 28–58.

Seeber, M. (2017). The international campus of excellence initiative in Spain. In H. de Boer, J. File, J. Huisman, M. Seeber, M. Vukasovic, & D. F. Westerheijden (Eds.), *Policy analysis of structural reforms in higher education* (pp. 183–201). Cham: Palgrave Macmillan/Springer International Publishing.

Serrano-Velarde, K., & Krücken, G. (2012). Private sector consultants and public universities: The challenges of cross-sectoral knowledge transfers. *European Journal of Education, 47*(2), 277–289. https://doi.org/10.1111/j.1465-3435.2012.01523.x.

Shanghai Jiao Tong University. (2017). *Academic Ranking of World Universities*. http://www.shanghairanking.com/. Accessed 10 May 2017.

Statistisches Bundesamt. (2012). *Promovierende in Deutschland 2010*. Wiesbaden: Statistisches Bundesamt.

THE. (2016). Times Higher Education. *World University Rankings 2015–2016*. https://www.timeshighereducation.co.uk/world-university-rankings/2016/world-ranking/#/. Accessed 10 May 2017.

Tomlinson, M. (2012). Graduate employability: A review of conceptual and empirical themes. *Higher Education Policy, 25*(4), 407–431. https://doi.org/10.1057/hep.2011.26.

van Vught, F. A. (1989). Strategies and instruments of government. In F. A. van Vught (Ed.), *Governmental strategies and innovation in higher education* (Vol. 7, pp. 21–46). London: Jessica Kinglsey.

Vogel, R. (2006). *Zur Institutionalisierung von New Public Management. Disziplindynamik der Verwaltungswissenschaft unter dem Einfluss ökonomischer Theorie*. Wiesbaden: Deutscher Universitäts-Verlag.

von Stuckrad, T., & Gläser, J. (2012). Es ist höchstens eine Kollegenschelte möglich, aber die bringt nichts. Kontingente und strukturelle Handlungsbeschränkungen der intrauniversitären Forschungsgovernance. In U. Wilkesmann & C. J. Schmid (Eds.), *Hochschule als Organisation* (pp. 223–243). Wiesbaden: VS Verlag.

Wahlers, W. (2006). Das Gesetz zur Reform der Professorenbesoldung und der Grundsatz der amtsangemessenen Alimentation. *Zeitschrift für Beamtenrecht, 54*(5), 149–159.

Welpe, I. M., Wollersheim, J., Ringelhan, S., & Osterloh, M. (Eds.). (2015). *Incentives and performance*. Heidelberg: Springer.

Whitchurch, C. (2006). Who do they think they are? The changing identities of professional administrators and managers in UK higher education. *Journal of Higher Education Policy and Management, 28*(2), 159–171. https://doi.org/10.1080/13600800600751002.

Whitley, R., & Gläser, J. (Eds.). (2014). *Organizational transformation and scientific change: The impact of institutional restructuring on universities and intellectual innovation*. Bingley: Emerald.

Windolf, P. (1995). Lehrevaluation als Problem der Selbstkontrolle. *Soziologie, 24*(3), 11–22.

Winter, M. (2009). *Das neue Studieren – Chancen, Risiken, Nebenwirkungen der Studienstrukturreform: Zwischenbilanz zum Bologna-Prozess in Deutschland. HoF-Arbeitsbericht 1/2009*. Wittenberg: Institut für Hochschulforschung.

Wissenschaftsrat. (1993). *10 Thesen zur Hochschulpolitik*. Berlin: Wissenschaftsrat.

Wissenschaftsrat. (1996). *Empfehlungen zur Stärkung der Lehre in den Hochschulen durch Evaluation*. Berlin: Wissenschaftsrat.

Wissenschaftsrat. (2000). *Thesen zur künftigen Entwicklung des Wissenschaftssystems in Deutschland*. Berlin: Wissenschaftsrat.

Wolbring, T. (2013). *Fallstricke der Lehrevaluation. Möglichkeiten und Grenzen der Messbarkeit von Lehrqualität*. Frankfurt am Main/New York: Campus.

Ziegele, F. (2006). Erfolgreich verhandeln. Bedingungen effizienter Zielvereinbarungen. *die hochschule, 15*(2), 18–33.

Chapter 3
Quantitative-Structural Configuration and Developments

In this chapter, we describe changes at the macro level of the German higher education system. Both the fundamental quantitative-structural configuration and developments in recent years are in focus. In part, these developments have been brought about by intentional interventions or reforms, in part by developments not attributable to intentional intervention, and sometimes we find a mixture of the two. In order to place the German system in the context of international developments, we will supplement our analysis by comparing developments in other countries. Furthermore, we will endeavor to provide theoretical explanations of the developments described.

As in other countries, Germany has witnessed a considerable expansion in higher education which in turn has also impacted other structural dimensions. In this chapter we will also show that, at least in the case of Germany, there has been no simple chain of causality between expansion of higher education and changes in other structural dimensions. However, this may be due to at least one further key development. Relatively independent of the expansion in higher education, Germany has seen a significant growth in research capacity which has also left its mark on other structural dimensions.

Higher education research focusing on the quantitative-structural dimension of higher education systems is primarily concerned with the "configuration, shape and size, pattern [and] structure" (Teichler 2007, 1) of a higher education system. This can spotlight the development of a higher education system over time and/or highlight the comparison between various higher education systems. Both temporal and international comparisons are usually based on selected indicators. Quantitative-structural configuration includes trends in the number of students or academic staff, the differentiation in various types of higher education institution (e.g., teaching focused or research focused) and the funding of higher education.

The quantitative-structural configuration of higher education systems is currently experiencing relatively high levels of attention not least because the specific shape and structure also enable conclusions to be drawn on whether the higher

O. Hüther, G. Krücken, *Higher Education in Germany—Recent Developments in an International Perspective*, Higher Education Dynamics 49,
https://doi.org/10.1007/978-3-319-61479-3_3

education system is functional or not functional, modern or not modern. More or less implicitly, any description of the higher education system often also entails an evaluation of the system (Teichler 2008, 350–351).

Of course, higher education systems are without doubt capable—to a greater or lesser degree—of achieving set goals, thus meeting expectations placed on them. It should be noted however, that these goals are not set automatically, but are normatively defined and are only rarely scrutinized. Whereas for the Organisation for Economic Co-operation and Development (OECD) it is self-evident that a desirable goal for higher education systems is to yield many graduates, this can also be problematic. The OECD view is based on the normative idea that societies are deemed to be "modern" or "postmodern" when a higher proportion of the population passes through higher education programs.

Likewise, it is commonly assumed that there is a relationship between the proportion of higher education graduates and the economic development of a country. Empirical research, however, shows that the connection between economic development and the proportion of graduates is not stable (Stock 2003, 145). In particular, studies conducted under the framework of the neo-institutional World Society Theory indicate that the expansion in higher education is relatively independent of socioeconomic structural conditions in the individual countries; even socioeconomic consequences are not unequivocal (Ramirez and Riddle 1991; Ramirez et al. 2006; Schofer and Meyer 2005).

In addition, it should be noted that higher education systems do not only pursue one goal, but several, and that these just might be in conflict with each other. In this regard, Schimank (2001, 227) talks of higher education institutions as "general stores" with a "clutter" of goals, which clearly also concerns the overall higher education system. Besides top quality research and teaching, goals include the practical relevance of teaching, the societal relevance of research and the realization of equal opportunity in terms of gender, social background and migration. While a particular structure may well be suitable for one of these goals, it may also hinder the achievement of one of the other goals. Which goal is followed with special attention at any one time is a normative matter and not particularly stable over time.

Both aspects—the setting of goals and conflicting goals—should lead to higher education research assuming critical distance when it comes to appraising "better" quantitative-structural design of higher education systems.

As mentioned above, this chapter deals with the quantitative-structural configuration of the German higher education system using selected indicators to make comparisons over time and in an international context. Firstly, we will examine the quantitative developments in terms of students and academic staff. This includes the analytical description of the development from an elite system to a mass system and ultimately to a universal system, providing some theoretical explanations for the quantitative developments. The next step is to take a closer look at differentiation within the German higher education system. Finally, we discuss changes in the funding of the German higher education system.

3.1 Quantitative Developments

Quantitative developments in higher education systems and higher education institutions are usually described with standardized indicators. As we work our way through the chapter, we too will often be falling back on such indicators, such as first-time entry rates, for example. We will be using indicators from both the German Federal Statistical Office (*Statistisches Bundesamt*) and from the OECD. At first sight, the indicators used suggest a high degree of uniqueness and precision. However, a closer look at measurement procedures and the underlying definitions of the indicators often reveals that these do not at all represent unique and precise measurements. Until very recently for example, first-time entry rates calculated by the Federal Statistical Office differed from those calculated by the OECD. The reasons for this were different definitions of who actually counted as a student and which establishments were classified as higher education institutions.

The fact that the indicators both available to and used by us should be viewed with a degree of skepticism can also be illustrated with regard to the percentages of individuals with university entrance qualifications. This usually counts the percentage of 18–20 year-olds who hold a qualification to study at an institution of higher education. However, the indicator does normally not include people who achieve this qualification after this age. Especially for education systems that offer non-traditional routes to higher education besides traditional routes through school education, the indicator does not measure the actual percentage of individuals with university entrance qualifications, but only captures a relative percentage rate. This is important in the German higher education system, for example, where there is an extensive system of second-chance education in which students can acquire their higher education entrance qualification outside of the traditional school system by attending evening school. In addition, entrance qualifications to German higher education institutions have been continually expanded for people pursuing vocational education. All these non-traditional entrance qualifications are not captured by just using the 18–20 year-old age cohort because these qualifications are in the main acquired after students have turned 20.

It is therefore clear that although the indicators provided by the Federal Statistical Office and the OECD claim to be clearly defined and precise, a closer observation of the fundamentals shows that there is often a lack of uniqueness and precision. It would be highly problematic to just "trust in numbers" (Porter 1996). Instead, we have to be aware of limitations and imprecision. Especially because "comparisons with numbers" lend themselves to treating demonstrated differences as unquestionable facts (Heintz 2010; Porter 1996), it is important to take a critical look at the data available. This does not mean that we should abstain from using quantitative comparisons and indicators, but that we should keep in mind just what is actually being measured and what limitations and/or imprecision are hidden behind these reputedly clearly defined and precise indicators. Thus, in the following sections we will be drawing on data from the Federal Statistical Office and the OECD and, at various points, highlighting limitations and imprecision.

3.1.1 The Expansion of Higher Education and Its Theoretical Explanation

In terms of the quantitative-structural configuration of higher education systems, it is worth pointing out its dynamics over time. Although higher education systems appear to be relatively rigid and stable, they are subject to considerable change in the course of time. Some new types of higher education institutions are established, then again some are abolished. The same can be said for higher education degrees, which can best be seen in the case of Germany which has recently seen the conversion from Diplom and Magister degrees to bachelor and master degrees. However, the most striking dynamic in western higher education systems in the last few decades has been the extent to which they have expanded.

The development from an elite system to a mass system and ultimately to a universal system, has been the most significant development in higher education systems and explains a multitude of other structures and challenges in higher education (Trow 2006, 1974). According to Trow, we can talk of an elite system when no more than 15% of an age cohort attends higher education. A mass system describes a proportion of between 16% and 50% of an age cohort, while a proportion of more than 50% is adequate to describe a system of universal access.[1]

In 2013, the average first-time entry rate to the tertiary education sector across OECD countries stood at 60% of the respective age group (OECD 2015, 348). Consequently, it can therefore be claimed that most OECD countries have reached the stage of universal access. It is obvious that higher education systems, such as that of 1960s Germany in which only 9% of an age cohort studied at university, look significantly different and have different functions. A series of problems in higher education systems result when the old functions, institutional characteristics and access/selection criteria remain unchanged and/or are even defended by the relevant actors in the system despite the shift to a new stage. The controversy of a more differentiated German higher education system with all its ambivalence is a clear example of the problems and delays that occur when transferring higher education systems from one phase to the next as Trow expected and described.

A key question here is how quantitative developments towards the spectacular expansion of higher education can actually be explained, or in other words: how is it that very different national higher education systems move together towards universal access?

First of all, we can certainly point to societal developments. Higher education expansion could be viewed at a macrosocietal level with various theoretical perspectives. We will take account of the concepts of knowledge society, modernization theory and conflict theory below.

[1] In terms of the last phase, the use of Trow's concept is, however, somewhat problematic. It is questionable whether we can speak of universal access with a proportion of more than 50%. If so, up to 49.9% of a cohort could possibly be excluded. Therefore, any description of the concept of universal access is to be rather viewed as a regulatory ideal and not as enforced reality.

The trend from an industrial society to a knowledge society (e.g. Bell 1973; Böhme and Stehr 1986) requires an ever-increasing number of well-educated people. Knowledge societies are characterized by the notion that knowledge permeates all aspects of society where it plays an ever-important role (e.g. Stehr 1994, 33). Whereas in an industrial society the material means of production determine the distribution of power and social structure, in a knowledge society, it is knowledge that takes on this function (Weingart 2001, 14).

Higher education institutions become key institutions of modern societies because their two main functions—generating and conveying knowledge—are essential for the knowledge society. At the same time, the trend towards a knowledge society creates capacity and demand for higher education graduates. Consequently, expansion in higher education is the result of a developing knowledge society and the subsequent effect that ever more academically-trained people are required, demanded and accepted by the economy.

The explanation provided by modernization theory follows a similar direction (e.g. Parsons 1971; Zapf 1994; Berger 1996). Modernization theories include a variety of theoretical constructs. What they all have in common is that modernization theories assume that societies pass through certain stages of development in a fixed sequence in which specific problems and effects arise.

According to modernization theories, societies develop from a pre-industrial to an industrial and ultimately to a post-industrial or modern society usually subject to a linear development. Consequently, the expansion in education is an effect of developments towards a modern society. Modern societies produce new functional requirements and these requirements are the reason for integrating ever-larger segments of the population in the higher education system. Higher education has become necessary, for example, because working techniques in a modern society have changed. Furthermore, conditions for integrating individuals in an increasingly complex society are also changing. According to modernization theorists, this integration is made all the more possible as a consequence of equal opportunities arising from the expansion in higher education. Modernization theorists therefore assume that both the expansion in higher education and improved equal opportunities are functional requirements of post-industrial societies. In following this line of thinking, higher education expansion not only leads to rising graduate rates but also to rising equal opportunities.

Trow's model of phases and phase transitions describes the higher education system of pre-industrial (elite), industrial (mass) and post-industrial societies (systems with universal access). His model bears a strong resemblance to modernization theories. Therefore, Trow's model of phases is not just a purely descriptive representation. Rather, his descriptions are based on the assumptions of modernization theories, which can well be viewed critically. Such criticism is expressed by conflict theories, for example, which we will now discuss.

Conflict theories provide a completely different explanation to modernization theories for the expansion of higher education (e.g. Coser 1956; Dahrendorf 1957; Bourdieu 1984; Collins 1975; Bourdieu and Passeron 1979 [1964]). Bourdieu (1984, 1988), for example, explains the expansion in the school and higher education systems by suggesting that they are a means for the ruling class to pass on their

position in society to their children. Since societies no longer allocate elevated positions through lineage, education—or rather, formal titles gained through education—is the key criterion for distributing such positions. Formal educational capital in Bourdieu's sense, which is acquired through higher education, becomes the key criterion for recruiting people for occupational positions of high income and prestige. This leads to higher education institutions fulfilling a placement function on behalf of society. Given the increasing number of higher education entrants, this affects broader sections of the population, influencing upward mobility opportunities between the generations (Hradil 2006, 131; Parsons and Platt 1973). In order to maintain their higher social positions, members of the ruling class have to invest in the education of their children. Only then can attained social positions be passed on. Every educational success of groups previously deemed underprivileged jeopardizes the chances of such positions being inherited and leads to even greater investment.

Accordingly, educational expansion is an effect related to power, monetary and prestige processes within societies (e.g. Collins 1979). What is happening in the school and higher education system in modern societies is therefore a battle for status between various classes. It should be noted that conflict theorists view the expansion of education as only a superficial contribution towards a broader equality of opportunity: what we have is the "The Illusion of Equal Opportunity", as reflected in the German title of a study by Bourdieu and Passeron (1979 [1964]). In fact, the educational successes of previously underprivileged groups have meant that the educational system has become internally differentiated and that the hurdles and the investment required for a top-level education have become ever higher.

In this sense, the differentiation in higher education systems is not a socially neutral process, but is an expression of the battle for control of social positions among specific social groups. Through this process of differentiation, the school and higher education system reproduces the existing unequal social structures without by any means leading to more equal opportunities. Whereas modernization theories have adopted an optimistic position with regard to equal opportunity, conflict theories argue that existing inequalities are simply being reproduced.

The macrosocietal perspectives just outlined are, however, only one level of explanation for the expansion of higher education. At the same time, we need to ask how it can be explained at an individual level. Why do ever more young people decide to go to higher education institutions?

Theories that use the individual decisions of young people as an initial explanation for higher education expansion originate in particular from the field of economics. Of course, we need to note that individual decisions are rooted in social processes. Thus, macro-explanations are also important in any consideration of these "microtheories". Moreover, decisions themselves do not necessarily mean a conscious, subjectively rational weighing up of alternatives. They can also be based on practiced patterns of action, routines or rules of thumb ("heuristics").[2]

[2]We will be discussing these sociological and psychological explanations for decisions later in the book (see Chap. 6).

One explanation at a micro level is the traditional consumption approach (e.g. Scherhorn 1969; Campbell and Siegel 1967, 484–485). This assumes that involvement in education mainly gives rise to immediate benefits. These include the "many social, intellectual, and athletic activities" (Campbell and Siegel 1967, 484) offered as part of a course of higher education study. From this perspective, education is consumption, an enjoyment that increases the quality of life generally. Accordingly, young people study to realize their capabilities and the benefits of education are realized by the respective consumption. However, such consumption is only possible when the fundamental basic needs have been secured; in other words, when a society has sufficient economic resources (e.g. Hradil 2006, 137).

On the other hand, the human capital theory (Becker 1993; Schultz 1963) sees the benefits of education not in the here and now, but in future returns. Education is therefore an investment in the future. It is expected that this will lead to greater rewards, promotion opportunities and a lower risk of unemployment. However, education does incur costs that have to be factored in; costs such as tuition fees, for example, or the opportunity cost of not earning while studying, or only having limited opportunities to earn. As long as the gains arising from higher education exceed the costs, young people will continue to study. However, as soon as the costs are higher than any anticipated gains, higher education expansion will have reached its limits. While the consumption approach and human capital theory were viewed as mutually exclusive in the 1960s and 1970s, today it is assumed that education involves both consumption and investment (Hummelsheim and Timmermann 2010, 97–98).

In contrast, the filter and signaling theory (Arrow 1973; Spence 1974; Thurow 1978) argues that the expansion in higher education will not end when the high number of highly educated people minimizes the benefits of higher education. In fact it suggests the opposite, that this would lead to further competition and a further kindling of higher education expansion (e.g. Hradil 2006, 137).

In both theories it is assumed that formal educational titles and the institution where they are acquired will be used in making selection decisions on the labor market. As employers can never truly appreciate the full range of applicants' skills, they try to minimize the uncertainties of their decisions by integrating information gained at the lowest possible price into the decision. Educational titles are cost-effective information as these are already available in a candidate's application. Educational titles at least signal certain desired skills such as stamina, intelligence, whether applicants actually have them or not, and thus keep induction costs lower. In contrast to the human capital theory, we are dealing here with attributions, not with any actually identifiable skills.

The filter theory highlights the notion that higher education institutions split the potential workforce into two groups—those who start and end a program of study, and those who do not. From this point of view, the benefits of higher education are primarily seen in easing screening procedures for employers because higher education—regardless of the actual knowledge acquired—suggests the presence of

certain skills. Higher education "serves as a screening, in that it sorts out individuals of differing abilities, thereby conveying information to the purchasers of labor" (Arrow 1973, 194).

Signaling theory (Spence 1974) goes beyond this by not only seeing higher education as a signal, but by also taking account of various signals within the group of higher education graduates. This includes the reputation of the institution of higher education. The signals and related attributions lead to a ranking of applicants in terms of anticipated costs of training (Thurow 1978), with the ranking principally determined by the amount of education and the reputation of the institution. To rise up the ranking, either more or different education is required, which in turn has to be acquired in the higher education system. The competition to acquire more or better education leads to a further expansion in higher education and also to an increasing differentiation within the higher education system.

To sum up, the tendency of higher education systems to develop towards universal access can be explained by a variety of theoretical concepts at both the macro and the micro level. All theoretical models can be used to explain the expansion in higher education. However, distinctions can be found in the degree to which they expect limits to expansion in certain situations (human capital vs. filter and signal theories) on the one hand, and on the other hand the extent to which equal opportunities improve through educational expansion (modernization theories vs. conflict theories).[3]

We will be examining the predictive power of the theories discussed here in terms of equal opportunity later in the book (see Chap. 7). However, suffice to say at this point, the assumption of modernization theorists that higher education expansion would lead to considerably reduced inequality is not true, at least not for Germany.

So far we have described how higher education systems generally tend to expand. Next we will take a detailed look at the quantitative development in the German higher education system in terms of students and academic staff in order to examine whether and/or how these general trends are reflected in German higher education.

3.1.2 Quantitative Development of the German Higher Education System in Terms of Students

The size and/or developments in the size of a higher education system can be measured using a variety of indicators. One of these is the number of higher

[3]Windolf (1992a, b) conducted an empirical investigation to assess whether the retention of status as an element of conflict theory or the human capital theory best explained higher education expansion between 1870 and 1990. Interestingly, he discovered that theories of status retention best explained European expansion, whereas the human capital theory was integral to explaining developments in the USA.

education institutions at any given time in a country. In Germany, the Federal Statistical Office recorded 427 higher education institutions in 2015. Of these, 107 were universities, 217 universities of applied sciences, 6 colleges of education, 16 colleges of theology, 52 colleges of art and music and 29 colleges of public administration (Statistisches Bundesamt 2015a, 12). By way of comparison, in 1951 there were 92 higher education institutions in Germany. Seventy-one of these[4] were in the former West Germany (including West Berlin) and 21 in former East Germany (Statistisches Bundesamt 1953, 70–71; Staatliche Zentralverwaltung für Statistik 1956, 65). These figures reveal a significant increase in the number of higher education institutions in Germany since 1951, suggesting considerable expansion of the higher education system. The problem with absolute numbers of institutions, however, is that they are insufficient to measure the size of the system: they do not give any indication of the size of the respective institutions. In Germany there are higher education institutions with more than 40,000 students and some institutions with significantly less than 1000 students (Statistisches Bundesamt 2015a, 66–70).

A better indicator for measuring size is therefore the number of students. Figure 3.1 shows the development in the number of students in Germany.

These numbers make it easy to comprehend the expansion of higher education and thus the higher education system. In the winter semester of 1950/51, there were 128,528 registered students at higher education institutions in West Germany (including West Berlin). This number rose to 421,976 students in the winter

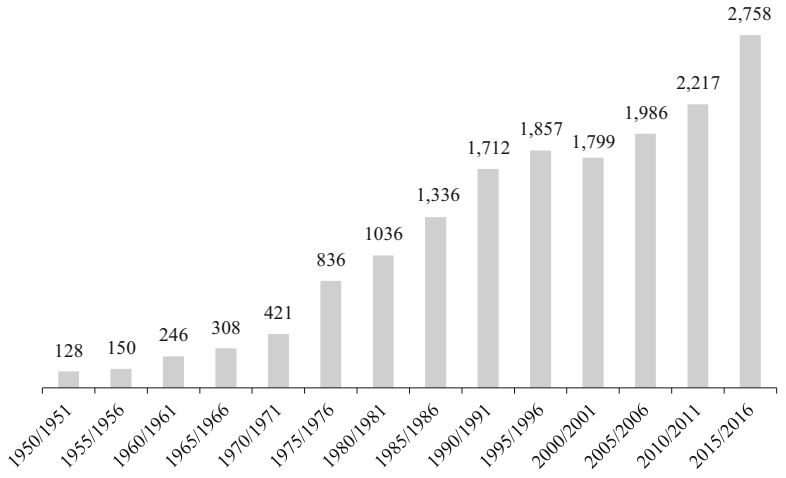

Fig. 3.1 Students in Germany from 1950 to 2015
Numbers in thousands; up to and including the winter semester 1989/90 numbers apply only to former West Germany and West Berlin; source: BMBF (2017h)

[4]Twenty-five universities, 46 non-university higher education institutions.

semester of 1970/71, crossed the one million threshold for the first time in 1980/81 and in the winter semester of 2015/16 stood at over 2.7 million students.

The chart also shows that Germany has witnessed phases of rapid growth in student numbers and phases of stagnation. For instance, the student numbers nearly doubled between 1970/71 and 1975/76. In contrast, from 1995 to 2005 there was a period of stagnation or even a decline in student numbers. From 2005 we can see a renewed increase in growth rates that is still continuing.

It is also interesting to note which type of institution students are attending in Germany. The German system is dominated by universities and by universities of applied sciences, which, since the 1960s, have been offering more practical programs of higher education. Other institutions of higher education play a much smaller role. We will be dealing in detail with the differences between the two types of institutions later in this chapter (see Sect. 3.2.1). Figure 3.2 shows the proportion of students at the two dominant types of higher education institutions over time since the winter semester 1975/76.

Roughly two-thirds of students in Germany attend a university. We can also see that the proportion of students at universities of applied sciences has continued to rise over time and stood at 35% in winter semester 2015/16. If this long-term trend continues (an increase of 0.6% per year since 2000), it can be expected that 50% of students will be attending universities of applied sciences by around 2040. However, when universities of applied sciences were established in the 1960s and 1970s, the aim was to have the majority of students attending these facilities. The data show that achieving this aim is going to clearly be a "project of the century".

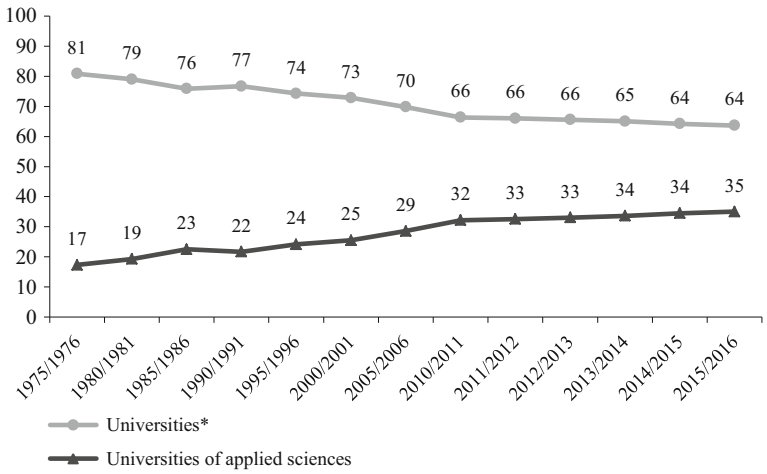

Fig. 3.2 Proportion of students at various higher education institutions since winter semester 1975/76

Figures in percent; colleges of art and music are not shown; until 1989/90 for former West Germany and West Berlin; source: BMBF (2017h); own calculations; *including colleges of education, colleges of theology, and comprehensive universities (*Gesamthochschulen*)

Besides sheer student numbers, another illustration of the expansion of higher education often draws on the first-time entry rates in different age cohorts. This is an indicator we are familiar with from Trow's model descriptions. The advantage of this indicator is that student numbers can be placed in relation to population size and also that the period of study is not important. This facilitates better international comparisons because sheer student numbers are dependent on population figures and the length of the program.

The expansion of the German higher education system can also be appreciated in terms of first-time entry rates. Figure 3.3 shows that in 1960 just under 9% of the relevant age cohort attended a higher education institution, rising to 58% in 2014. Phases of both rapid rise and of stagnation can be observed. Since 2005, we have been in an accelerated phase of expansion, with first-time entry rates rising 21 percentage points between 2005 and 2014.[5]

The fact that the first-time entry rate has increased considerably in recent years is all the more surprising since the OECD benchmark for higher education first-time entry rate of 40% for Germany was deemed unattainable up until a few years ago, not least due to the extensive vocational education and training system (VET) in the country.

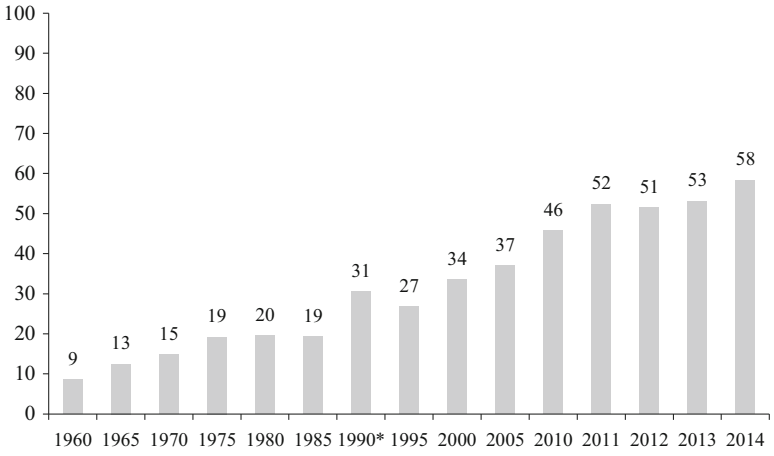

Fig. 3.3 Higher education first-time entry rates for Germany from 1960 to 2014
Figures in percent; up to 1989/90 only former West Germany and West Berlin; from 2007 to 2013, the figures have been adjusted for the doubled number of *Abitur* graduation classes; *one-off effect of reunification; source: figures from 1960 to 1990 Kehm (1999, 42); figures from 1995: BMBF (2017e)

[5]At the end of the 2000s, some states reduced the numbers of years of *Gymnasium* school education from 9 to 8 years. This meant that in these states for 1 year there were double the usual number of *Abitur* graduation classes taking up a place in higher education. Between 2007 and 2103 this effect brought about an increase in first-time entry rates. The doubled number of *Abitur* graduates has already been filtered out of the calculation. Figure 3.3 shows the actual increase and not a one-off effect reflecting the change in school education in some states.

We can assume that several factors are responsible for this increase. Firstly, higher education appears an attractive option for a larger number of young adults; secondly—and we will be dealing with this point in more detail shortly—the proportion of those entitled to attend higher education has increased in the course of time; thirdly, the increase may well be due to developmental or re-labeling effects with a range of apprentice-based occupations that were previously included in the VET system and are now being offered as higher education programs—mainly in universities of applied sciences (e.g. Wolter and Kerst 2015). The last point demonstrates an "academic drift" (Riesman 1956; Neave 1979) of vocational training, i.e., apprentice-based occupations are being integrated into higher education institutions.

We can establish that Germany has surpassed the 50% threshold for first-time entries to higher education and that, in line with Trow's (1974) definition described above we are in a phase of universal access.

In the past, however, it was always maintained that the first-time entry rate in Germany was too low in international comparison. The question then arises, how the first-time entry rate in Germany is to be classified in an international context. Figure 3.4 shows data gathered by the OECD for 2013.

Here it is clear to see that although Germany has a lower first-time entry rate compared to other countries, the gap to these other countries is narrower than in the past. Even the gap to the OECD average has closed significantly in recent years. Thus, the OECD average for enrolling students in tertiary sector A, which includes

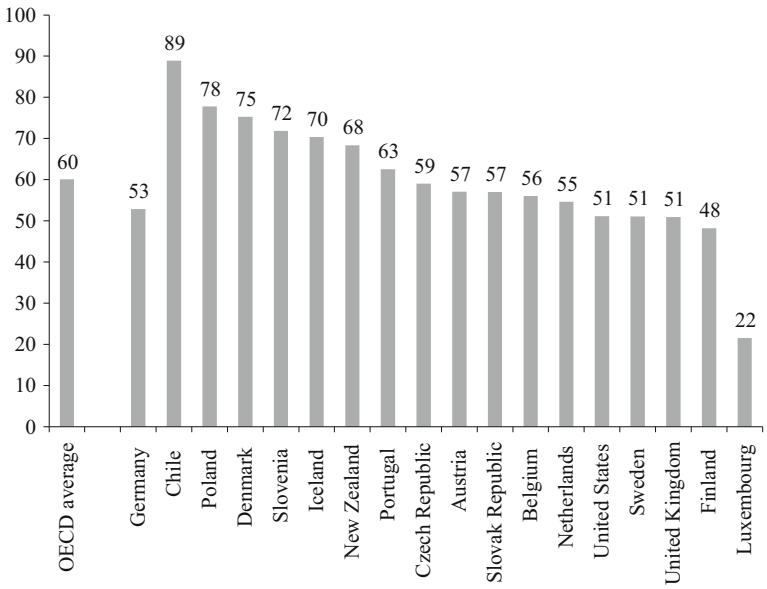

Fig. 3.4 First-time entry rates into tertiary education 2013
Excluding international students; figures in percent; source: OECD 2015, 348

universities and universities of applied sciences in Germany, stood at 45% in 2000, while in Germany the rate stood at about 30% (OECD 2002, 231).

It should be noted that trends discussed on the basis of Fig. 3.4 not only reflect trends within Germany, but also the fact that for its publication "Education at a Glance" the OECD uses the revised International Standard Classification of Education 2011 (ISCED 2011) (OECD 2015, 23–26; see also UNESCO 2012) from its 2015 issue onwards, bringing about a sizeable shift in first-time entry rates in some countries. These shifts do not affect Germany as much—because the conversion hardly influenced the German rate[6]—but rather countries such as the USA and the UK where shifts have been considerable. Therefore, not only are we witnessing actual trends, but also effects arising from changes in measuring data at various points in time.

One reason for the traditionally lower first-time entry rate in Germany, compared to other countries, is the country's extremely well-developed vocational education and training system (VET) (for an overview see Hoeckel and Schwartz 2010; BIBB 2015c). This provides for occupational training without having to follow a program in higher education. In contrast to many other countries, the VET system is "deeply embedded and widely respected in German society" (Hoeckel and Schwartz 2010, 14).[7]

In the following we will provide a brief description of the German VET system. This will facilitate a greater understanding of Germany's first-time entry rate in an international context.

In the German VET system, occupations are learned in programs of 2–3 years. The training takes place partly on the job and partly in state-funded vocational schools. The apprentice enters into a contract with the company and is paid a salary during the training period. The salary hinges strongly on the occupation being trained for, but is significantly below the salary of fully-trained employees.[8] The apprenticeship ends with a final examination in which both practical and theoretical skills are assessed. Success rates in the VET system are significantly higher than in the higher education system (see Chap. 6). It is estimated that only 12% of apprenticeships that commenced in the chosen occupation were not completed within 36 months (Beicht and Walden 2011, 4). The success rate in the VET system

[6]However, one side effect is that both national and international first-time entry rates are now identical: in the past there were some deviations. These arose because the OECD distinguished between tertiary sectors A and B, assigning colleges of public administration to sector B. In national statistics, however, students attending such colleges were included in the calculation of first-time entry rates, leading to higher first-time entry rates compared to international statistics. By converting to ISCED 2011, these differences have now been eliminated, with the type of degree (BA/BSc, MA/MSc, PhD) now being used as the key classification criterion.

[7]For example, 21% of companies in Germany that employ at least one employee are involved in the VET system (BIBB 2015c, 36).

[8]In 2013, the average monthly salary in wage agreements stood at 767 euros in the old federal states of West Germany and 708 euros in the new federal states (former East Germany) (BIBB 2015c, 41).

should in fact be even higher because an estimated 34% of this 12% start an apprenticeship in another occupation within 2 years (Beicht and Walden 2011, 10).[9]

In 2013 there were 329 training occupations (BIBB 2015c, 9) in Germany. This is therefore a system in which "a wide spectrum of professions" (Hoeckel and Schwartz 2010, 14) are integrated. There are apprenticeships for opticians, bank clerks, biological laboratory technicians, interior decorators, tax clerks, clerks in public administration, event managers and dental technicians. These are occupations that are strongly anchored in higher education institutions in other countries. In addition, there are training occupations that, in other countries, are learned exclusively through training on the job such as mason, carpenter, parquet layer, industrial cleaner, housekeeper, swimming pool lifeguard and gas station attendant; not forgetting some quite unusual training occupations—not only for international readers—such as specialist in ice cream making, glass blower, violin maker, glass and porcelain painter and maker of plucked musical instruments.[10] It is important to note that in Germany, an apprenticeship is required for many occupations, or if this is not a prerequisite, salaries of people with such training are significantly higher than those of people without. This explains why the vast majority of young adults are either in the VET system or attend a higher education institution. Official Microcensus data compiled by the Federal Statistical Office in 2014 show that 55% of 40–44 year-olds in Germany have qualifications acquired through the VET system and 21% have at least one higher education qualification. In addition, 8% have a trade and technical school certificate. Thus, only 15% of this age group do not have any formal occupational qualification (own calculations based on Statistisches Bundesamt 2015c, 38).

The dovetailing of training and the transition to regular employment is also an important part of the German VET system. In 2012 for example, 66% of newly-qualified trainees were taken on in regular employment by their companies (BIBB 2015c, 33). Twenty-four months after their training, just 11% were either registered as unemployed or were involved in further qualification programs (Autorengruppe Bildungsberichterstattung 2016, 92). The transition from training to regular employment is therefore relatively successful—in particular when compared with many other countries (e.g. Hoeckel and Schwartz 2010, 14).

Not only does the German VET system exert a direct influence on the relative position of higher education in Germany, in representing an alternative and recognized path towards an occupational qualification, it also has an indirect influence because the German school system is geared to feeding both the VET system and

[9]If this drop-out rate is to be compared with drop-out rates in higher education, then the latter would have to include students who change their program of study.

[10]A complete list of translated training occupations has been published by BIBB (2015b) and can be found at https://www.anerkennung-in-deutschland.de/media/liste_ausbildungsberufe_en.pdf

higher education. For a long time in Germany[11] there were three forms of secondary school (*Hauptschule, Realschule, Gymnasium*), which followed on from the 4-year elementary school. These were distinguished by the number of years pupils attended school and the nature of the knowledge taught. School-leavers from the highly practically-oriented 5-year *Hauptschule* and the 6-year *Realschule* usually began their training in the VET system at the age of 15 or 16. One of the key differences between the two types of school is that access to certain occupations is only possible after having completed *Realschule*. In the main, the considerably less practice-focused 8- or 9-year *Gymnasium* prepares its pupils for higher education study. However, 24% of people starting an apprenticeship in 2013 had successfully completed *Gymnasium* and thus held a higher education entrance qualification (BIBB 2015c, 30). We see here again that the German VET system is a recognized alternative to higher education.

The important point here is that the three-pronged German school system prepared pupils in two school types for the VET system. Thus, school structure clearly targets the interlocking of the school system and the VET system. Although we find an increasing number of debates in some states and even changes to the school structure[12]—especially in the wake of shocks felt as a result of the PISA study in 2000—ultimately not that much has changed in the German school system with respect to school types that are primarily aligned to the VET system and types that prepare students for higher education study. The successful and broadly accepted VET system is a key factor in stabilizing and retaining these different school types. In the last few years, one positive effect of the German VET system has become more than obvious: during and after the financial crisis of 2008 the youth unemployment rate in Germany was strikingly lower than in other European countries with a much larger higher education sector.

This positive effect has not come cheaply. In particular, we can highlight two consequences. Firstly, the German system leads to a high degree of social selectivity and a strong relationship between social background and educational success. This not only concerns school and higher education, but can also be found within the VET sector (e.g. Heinz et al. 1998; Schindler and Reimer 2011; Reimer and Pollak 2009). We will be examining the effects of social selectivity in terms of higher education in detail in Chap. 7. Secondly, and related to this, in Germany we find significantly greater selection in terms of access to higher education than in other countries. And precisely here we find another explanatory factor for the lower number of higher education entrants in

[11] As is the case with higher education institutions, the individual federal states bear sole responsibility for schools in Germany. This means that although in principle school structures are similar from state to state, in some details there are considerable differences at state level.

[12] In some states, the *Hauptschule* has virtually disappeared. Instead, comprehensive schools have been established that offer all three qualifications.

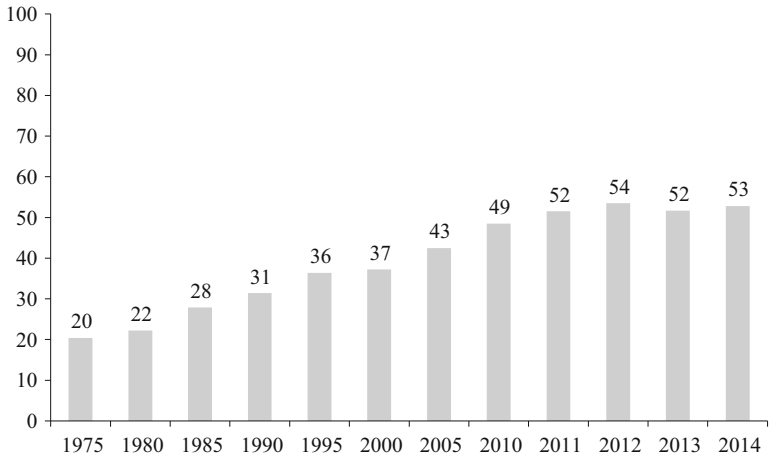

Fig. 3.5 Proportion of pupils with higher education entrance qualifications in Germany from 1975 to 2014

Figures in percent; before 1995: former West Germany including West Berlin; before 2005 the percentage of people qualified to enter higher education is the average for the age group 18 to under 21. From 2006 to 2008, the percentage of people qualified to enter higher education is related to the age-specific population; from 2007 to 2013, data has been adjusted to take account of the doubled number of *Abitur* graduation classes; source: BMBF (2017g)

the past in Germany. As the German *Abitur* is still the prerequisite for most higher education institutions and only one of the traditional three school types offered this qualification, the school system considerably depletes the pool of potential students enrolling in higher education when compared internationally.[13] Let us now take a closer look at this situation.

In order to measure the pool of potential entrants to higher education, studies usually use the proportion of pupils with higher education entrance qualifications. However, as described above, we should note here that the calculation of the proportion of pupils with university entrance qualifications does not include a large element of non-traditional students who have acquired their entitlement to study through second-chance education (evening school, for example) or through the vocational training system (e.g. Teichler and Wolter 2004).

Figure 3.5 shows the proportion of pupils with higher education entrance qualifications for Germany between 1975 and 2014.

Overall, Fig. 3.5 shows that there has been a continuous rise over time. At the same time it is clear that over the period under review there have been phases of

[13]In recent years however, politicians have been increasingly trying to open up alternative access paths to higher education by formally recognizing successfully completed apprenticeships as an entry requirement. Be that as it may, the effects to date have been relatively minimal. Just 4% of students did not have some form of *Abitur* in 2012, a figure that has hardly changed in the last 15 years (Middendorff et al. 2013, 56).

rapid increase and phases of stagnation. It is worth noting that the rise of 16 percentage points between 2000 and 2014 suggests a strong period of expansion.[14] This shows that in recent years there has been a considerable shift in the German school system because an ever increasing number of pupils are attending a school that ends with access entitlement to higher education study.

Despite this considerable shift, the international comparison illustrates the significant effects of the traditional three-pronged German school system on the proportion of pupils with higher education entrance qualifications. Figure 3.6 shows the graduation rates at upper secondary level in relation to the subcategory "General programs".

According to the new ISCED 2011 categorization, these are programs which are "usually designed for students planning to continue to academic or professional studies at the tertiary level" (OECD 2015, 25). However, it is also worth noting that there are other access points to higher education in various countries that are not included in this category. In particular, these concern higher education institutions that have a strong practical focus. The important point here is that for Germany, the category presented in the figure actually captures those who have acquired higher education entrance qualifications directly, even if this leads to a discrepancy between national and international rates of one percentage point.

Figure 3.6 shows that some countries have significantly higher upper secondary graduation rates than Germany, but that there are also countries with lower rates. In many OECD countries, considerably more young people graduate from school with a qualification that enables direct access to higher education. This is especially so for Canada, New Zealand and the USA.

This draws attention to the significant differences higher education systems exhibit in terms of access requirements. In particular, these differences can be observed in the level at which selection takes place (for the following see Teichler 2007, 14). This selection and the resulting access models link the school and higher education systems with each other and, given their long tradition, are relatively stable.

In some education systems, selection mainly takes place during school which leads to a comparatively lower proportion of pupils with higher education entrance qualifications. As such, there is hardly any selection at the transition to higher education. Higher education institutions in these countries are regarded as relatively equal and therefore there is little competition for places at a certain higher education institution.[15] In some of these countries the higher education system is

[14]This does not have anything to do with the effects of the effective shortening of pupils' time at *Gymnasium* from 9 to 8 years in some states. The data from 2007 to 2013 has been adjusted to compensate for this effect.

[15]However there is competition based on *Abitur* grades for places in certain subjects. In Germany for example, excellent *Abitur* grades are necessary to secure places in medicine and psychology.

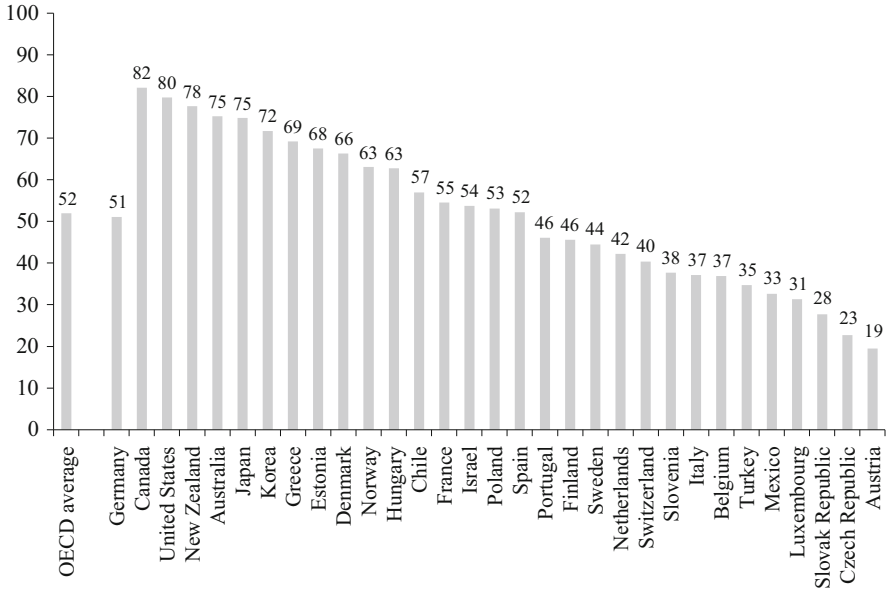

Fig. 3.6 Upper secondary graduation rates of general programs 2013
Figures in percent; source: OECD (2015)

supplemented by a well-developed VET system. Such a system can mainly be found in Germany, Switzerland and Austria.

In other countries, such as the USA, there is hardly any selection in the school system. Instead, selection takes place during the transition to the tertiary sector with the higher education system exhibiting strong differentiation—in particular in terms of reputation. This initially reveals a high proportion of pupils with university entrance qualifications because of the near absence of selection in the school system. However, potential students are in strong competition in terms of type of higher education institution, subject and the reputation of the institution.

Then there are countries where selection takes place both in the school system and at the transition to the tertiary sector. The British education system is perhaps the clearest example of this model, and it should be noted that there is at least a tendency in Germany to converge on this model. This is manifested by the fact that higher education institutions increasingly choose their students themselves and that a variety of measures is broadening differences within the higher education system. This development has arisen because the proportion of pupils with university

entrance qualifications has increased significantly in recent years and now new selection mechanisms are being tested.

In terms of quantitative student trends in Germany, overall we can see that we have entered a new phase of expansion in recent years. The German system is thus becoming much more similar in scope to the tertiary education systems of other countries, although it has a broadly accepted and popular VET sector. This quantitative trend in student numbers in Germany is one key trigger for the new dynamism in the German higher education system. The many changes that have taken place there since the end of the 1990s have aimed to increase the proportion of students entering higher education. This includes shorter periods of study brought about by the introduction of bachelor study programs and also the attempt to achieve greater differentiation within the higher education system and to make it more attractive for new target groups. It should be noted that although OECD criticism of the low number of higher education entrants has been regularly dismissed by German politicians, with reference made to the VET system, this criticism has however played a role in the development of the German higher education system. Regardless of whether these planned changes or other factors have been responsible for the rise in student numbers in recent years, the rapid expansion of the higher education sector in Germany has led to pressure to adapt the system still further. A self-dynamic process has been triggered and it is unlikely that changes to the German higher education system have been concluded. Instead, it is much more likely that more adaptations will be made in the future—especially if tertiary expansion continues at its current pace.

3.1.3 Quantitative Development of the German Higher Education System in Terms of Academic Staff

The quantitative structure of higher education systems includes the number, and characteristics, of staff at higher education institutions, giving rise to the question of the impact the expansion of higher education described above has had on the trend in academic staff numbers in the German higher education system. We will be taking a more detailed look at this question in this section. In doing so, we will be focusing on academic staff, excluding technical and administrative staff (see Chap. 6). This is because academics are the operative core of higher education institutions, responsible for fulfilling their key functions, namely teaching and research.

However, it should be noted that the degree to which these functions is fulfilled is only marginally reflected in the proportion of academic/technical-administrative

staff. In 2014, 525,863 core staff[16] were employed at German higher education institutions, 45% of whom were academic staff (Statistisches Bundesamt 2015b, 24). Thus, 55% of core staff at higher education institutions in Germany are employed in administrative and technical areas. This includes administrative staff (16% of core staff), nursing staff (12%), technical staff (11%) and library staff (2%). In terms of pure numbers, core academic staff are in the minority (Statistisches Bundesamt 2015b, 24).[17]

Given the rise in student numbers described above, it is hardly surprising that the number of academic staff has risen considerably in the last few decades. In 1952/53, there were 11,897 academic staff employed at universities in West Germany and West Berlin (at that time there were no universities of applied sciences). By 1966 this had risen to 26,654 across all higher education institutions. In the boom phase of educational expansion, the figure rose to 76,150 in 1975—nearly a three-fold increase in just 10 years (Statistisches Bundesamt 1950–1990).

The trend in core academic staff numbers after 1980 is presented in Fig. 3.7. As the statistics from 1980 make a distinction between core and additional staff—this distinction is not available prior to 1980—the figures between 1975 and 1980 are only comparable to a limited extent. It can be seen, however, that although the expansion of academic staff at higher education institutions from the 1980s may have slowed down compared to the 1960s and 1970s, the rise has continued.

In 2014, 236,364 academics were employed as core staff at German higher education institutions. The largest group was the non-professorial scientific staff which accounted for 177,528 employees, while there were only 45,749 professors. Furthermore there were 3431 postdoc assistants and 9656 lecturers for special tasks (Statistisches Bundesamt 2015b, 24). It is clear here that in terms of numbers the group of non-professorial scientific staff is the dominant sector of the core staff structure. Later in the book we will see that this is not true for all higher education systems, but is something specific to the German system.

Let us take another brief look at the rise in employment numbers. Although the considerable increase between 1990 and 1995 can be attributed to the effects of reunification and is therefore less relevant for identifying any long-term trend, this cannot be said for the rise between 2005 and 2014. Here, we can see an increase of 70,627, or 43%, in the numbers of academic staff. As we saw with the proportion of

[16] Any correct interpretation of staff figures at German higher education institutions needs to take account of an important distinction. We need to differentiate between "core" and "additional" staff to describe people whose primary employment is at a higher education institution and those whose primary employment is elsewhere (in German we categorize this as *hauptamtlich* vs. *nebenamtlich*). Moreover, we have to distinguish between full-time and part-time core staff. The German Federal Statistical Office does not draw these distinctions when it translates employment figures at German higher education institutions into English, which can lead to some data being misinterpreted. By making the distinction between core and additional staff, we are attempting to avoid such a misinterpretation.

[17] Alongside core academic staff, we find also 149,283 additional staff at German higher education institutions in 2014. Sixty-six percent of these were lecturers (*Lehrbeauftragte*) and 30% research assistants (*wissenschaftliche Hilfskräfte*) (Statistisches Bundesamt 2015b, 24).

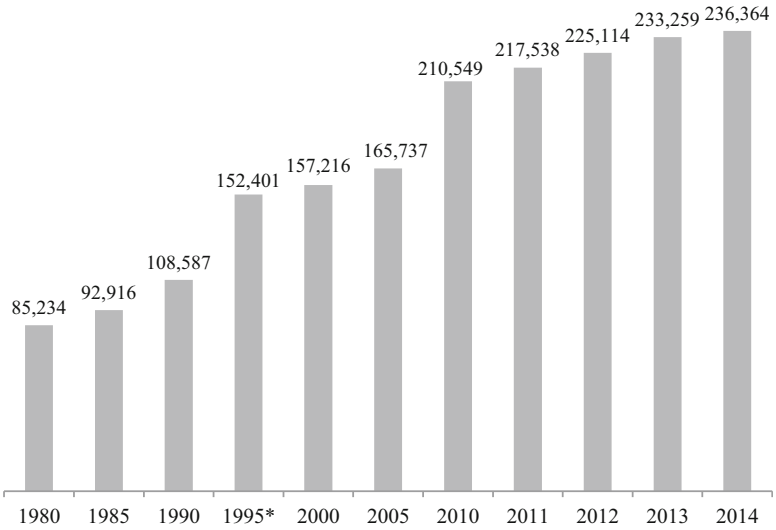

Fig. 3.7 Core academic staff at higher education institutions from 1980 to 2014
Until 1990 only former West Germany and West Berlin; *one-off effect for reunification; source: figures prior to 1990: Statistisches Bundesamt: Statistisches Jahrbuch (annual publication); figures after 1995: Statistisches Bundesamt: Personal an Hochschulen (annual publication)

pupils with higher education entrance qualifications and the number of students, the German higher education system has been in a new phase of expansion in recent years.

What is behind this? Two trends are of particular significance. Firstly, there has been an expansion in non-professorial scientific staff. Having accounted for 67% of the core staff in 2005, this proportion had risen to 75% in 2014. Secondly, it is noticeable that the proportion of academic staff financed through third-party funding has increased significantly. While 23% of the core staff were financed through third-party funding in 2005, by 2014 this had risen to 31% (Statistisches Bundesamt 2006, 149; 2015b, 144). The expansion in terms of core staff at German higher education institutions can be explained on the one hand by the creation of positions for non-professorial scientific staff, on the other hand by increased third-party funding.

This draws attention to a very important development. The increase in academic staff is not simply due to the rise in student numbers. In recent years we have also witnessed a considerable expansion in research capacities at higher education institutions in Germany—independent of student numbers. This is manifested by the fact that there is a disproportionate increase in the proportion of third-party funded employees and that third-party funded staff formally—and usually in practice too—are not involved in the tuition of students in Germany. The expansion of this group of employees has therefore little to do with the rise in student numbers.

The data also shows that this expansion in research capacity has a specific German flavor. This expansion in capacity is largely comprised of more or less

experienced young researchers, while the research expansion due to the creation of positions at professorial level has hardly played any role to date. Whether this can be a promising strategy in terms of research output, is at least questionable. In any case, we would expect the emergence of problems in career prospects for young researchers due to this strategy to expand research capacity. They will necessarily be in competition with the ever-growing numbers of non-professorial academic staff for the relatively stable number of professorships. We shall take a closer look at this situation in Chap. 6.

Let us now turn to the question of the relationship between the increase in student and academic staff numbers. We will be using this illustration to show how important it is to deal with the construction processes of the respective indicators and the assumptions underlying them.

For this purpose, Fig. 3.8 reflects the trend in the different relations between students and staff at higher education institutions since 1980. When interpeting this data, two factors are important.

Firstly, these indicators are often used to describe student-teacher ratios. However, this description is to be used with care: it assumes that everyone in the respective group is involved in teaching, that they all do this in the same average ratios. Depending on the group, these assumptions can however be more, or less, realistic.[18]

Let us look at the example of the ratio of students to core staff. Above, we showed that the proportion of third-party funded, core academic staff has increased disproportionately. In Germany, these academics usually do not have any teaching responsibilities, but are solely employed to conduct research. We therefore have an overestimation of higher education teaching staff capacity, without even considering the question of whether the academic staff are in full-time or part-time employment.

The same applies when the group of academic staff (i.e., core and additional academic staff) is assessed in relation to student numbers. Given the situation described above, we still need to ask if these academic staff can be equated to "teaching staff" (see for example Statistisches Bundesamt 2014, 17). In addition, the composition of additional staff needs to be taken into account. This comprises guest professors, emeriti, lecturers, scientific assistants, i.e., groups that although they can be said to be involved in teaching students, in comparison to core academic staff, will only do so to a much lesser extent.

Bearing in mind the increase in the proportion of additional academic staff in relation to all academic staff from 31% to 38% between 2005 and 2014, it is clear that the improvement in academic staff/student ratios cannot be said to have led to an improvement in teaching support given to students, and if such claims are made, these have to be subject to a whole range of critical assumptions.

Secondly, the ratios highlighted in Fig. 3.8 reveal in part divergent trends. This interpretation thus works in the opposite direction. While one indicator suggests an

[18]Just how reliable staffing statistics and the calculation of formally scheduled teaching capacities are for the question of how many staffing groups actually teach at German higher education institutions is made particularly clear in a study by Bloch et al. (2014).

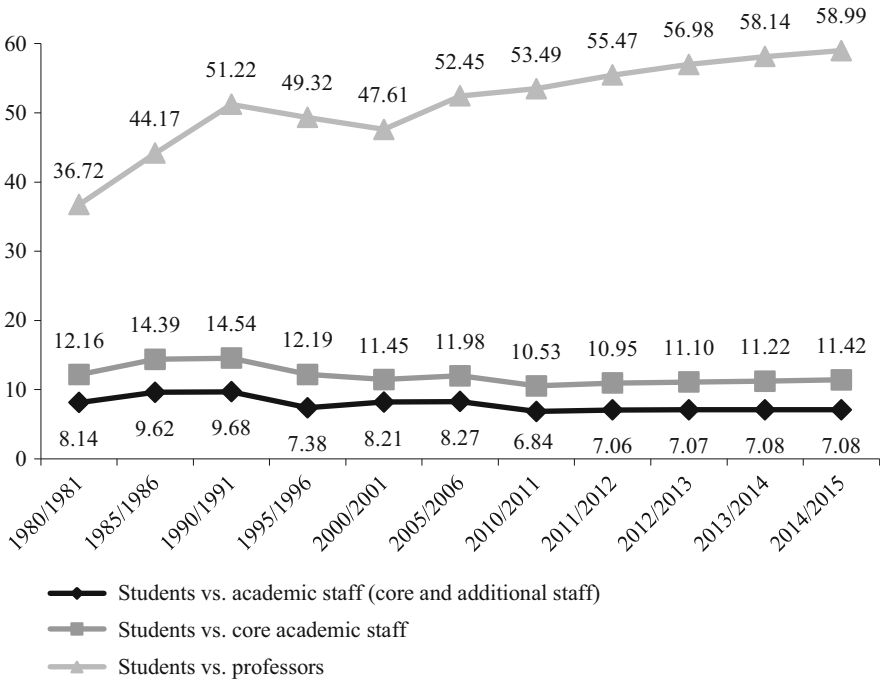

Fig. 3.8 Trends in student/academic staff ratios at German higher education institutions
Up to and including 1990/1991 only former West Germany and West Berlin; number of students at the beginning of each winter semester in relation to the number of staff employed in the year of the start of the winter semester (i.e., students in the winter semester 1980/81 vs. staff 1980); source: figures prior to 1990: Statistisches Bundesamt: Statistisches Jahrbuch (annual publication); figures after 1995: Statistisches Bundesamt: Personal an Hochschulen (annual publication), own calculations

improvement in teaching, another shows a deterioration. Once again, we can see particularly clearly that for the use and subsequent interpretation of quantitative data it is essential to reflect critically on what is being measured.

Figure 3.8 shows that the ratio of students to academic staff, and to core academic staff, improved in comparison with the 1980s. However, it also shows that the ratio has deteriorated since 2010.

In contrast, the picture is very different in terms of students and professors. Here, there is a serious decline in the ratio since the 1980s. In comparison with 1980, professors in 2014 are responsible for more than 22 additional students. Once again this clearly shows that the quantitative expansion of the German higher education system in relation to staffing—as was the case in the 1960s and 1970s—was largely brought about by the creation of positions below that of professors. This means that

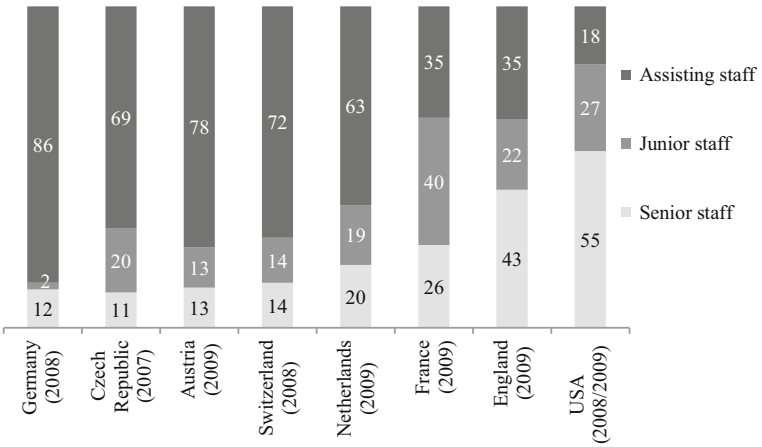

Fig. 3.9 Proportion of core academic staff at universities in international comparison
Own presentation based on Kreckel (2011, 38–39)

the improvement in the ratio between students and academic staff in Germany over time is due mainly to students being taught by less experienced academic staff.[19]

To conclude this section, we need to take a look at the composition of academic staff in Germany and compare this internationally. In doing so, we will draw on data found in Kreckel (2011), that, however, only refers to universities.[20]

Figure 3.9 shows the proportion of senior, junior and assisting staff at universities in various countries.

Senior staff includes tenured professors, no longer regarded as junior staff. In Germany, this would include full professors (W2/W3). For the USA, these are full and associate professors. Junior staff also research and teach independently, but are still in the middle of their academic careers. For Germany, this applies to junior professors; for the USA, assistant professors. Assistant staff do not research or teach fully independently, but are assigned to senior or junior staff. Depending on the country, this category can include people with different levels of experience and with different types of contract (fixed-term/indefinate duration). In Germany, assistant staff would best describe mid-level[21] academic staff because these are—virtually without exception—assigned to a professor, and, at least in part, teach and research under the professor's guidance.

[19]There are also significant differences when it comes to the various higher education institutions and subjects. Overall, the ratio between students and professors is especially poor at universities (e.g. Dohmen 2014).

[20]Kreckel (2011) does not go into detail to describe what precisely counts as a university in each of the individual countries. This is not unproblematic especially when it comes to the United States.

[21]It is common in Germany to call non-professorial academic staff at higher education institutions *Mittelbau* or mid-level staff.

Figure 3.9 shows that the proportions of formally independent staff at universities in Germany are significantly lower than in other countries. However, there are countries with similarly low proportions of independent staff (Austria, Czech Republic, Switzerland). Nevertheless, what is particularly striking about Fig. 3.9 is that in Germany the proportion of formally independent staff (whether senior or junior staff) is by far the lowest. In Chap. 6 we will be examining how these specific German features arise and are integrated in the academic career system.

Overall, in terms of quantitative developments we can see that the German higher education system has experienced considerable expansion over the last few decades. This can be seen in student numbers, the higher education entry rates and academic staff numbers. However, this has not been a linear trend: there have been phases of rapid increase and phases more characterized by stagnation. For the last 10 years, it can be seen that the German system has entered a new phase of rapid expansion.

It is also clear that the rapid rise in student numbers since 2005 is not the only explanation for the increase in academic staff at German higher education institutions. This is due to the fact that the last few years have seen a disproportionate growth in positions financed by third-party funding. The changing dynamics in the German higher education system can be seen in the light of two general trends: firstly, the speedy expansion of higher education and, secondly, the expansion in research capacity that is at least partially independent of this.

3.2 Trends in Differentiation within the German Higher Education System

Given the quantitative developments in the German higher education system described above, the question now is whether this has had any impact on differentiation within the German higher education system, and, if so, what form it takes. Much of the literature on this topic assumes that an expansion of higher education towards universal access also leads to an increase in differentiation within the higher education system.

There is widespread agreement in the literature that national higher education systems differ quite considerably in the extent of their internal differentiation. They also differ in the level at which differentiation takes place. Distinctions can be made at two fundamental levels: vertical and horizontal differentiation (for an overview see Teichler 2007, 2008).

Vertical differentiation refers primarily to the reputation and functions of higher education institutions within the system. This includes differentiation between different higher education institutions, for example, between universities and universities of applied sciences in Germany, but also a differentiation in terms of research- vs. teaching-based higher education institutions as encountered particularly

strongly in the USA. In contrast, horizontal differentiation is about the profiles, taught programs or the various schools in research.

In principle, it can be assumed that the extent of differentiation in higher education systems is connected to the models of higher education systems as described by Trow (1974, 2010). While elite systems are highly homogeneous, mass systems manifest differentiation, characterized by uniform standards within the higher education system. In contrast, in higher education systems with universal access bigger differences are to be anticipated in which uniform standards no longer exist. It can be concluded that increasing differentiation of higher education systems nearly inevitably emerges with the expansion of higher education. There is a "widespread belief that a high degree of vertical diversity is desirable" (Teichler 2008, 351). The assumption is that higher education systems that want to be seen as being "modern" have to differentiate. However, the question is often not asked, let alone answered, "whether this judgement is supported by evidence" (Teichler 2008, 351).

This question arises not least from the insights gained from the conflict theories described above. Unlike functionalistic explanations that view differentiation in higher education systems as a functional requirement of these modern systems, which is advantageous both for students as well as for society at large, the explanation offered by conflict theories is somewhat different: differentiation in higher education does not (only) result from functional requirements, but is an attempt by higher social strata to secure their social position despite higher education expansion. Although students from less well-educated families receive higher education, differentiation in the higher education system provides students from well-educated families with a higher quality education at better higher education institutions. Differentiation in higher education therefore reproduces social inequality. The discussion on differentiation in higher education takes place in this interplay between functional requirements and equality of opportunity in the higher education system.

When exploring differentiation in higher education systems, the literature provides us with a variety of classifications that shed light on diverse aspects (for a discussion see Teichler 2008, 354). We have already come across one of these classifications—differences established by Trow (1974) in elite, mass and universal higher education systems and the related differentiation tendencies. Other classifications come, for example, from Birnbaum (1983) or Scott (1995). We will be ignoring the "bewildering diversity" (Teichler 2008, 354) of these concepts and focusing on some of the key aspects of differentiation in higher education systems. The aim is to classify the German system in relation to these aspects and to present new developments in the respective areas. We will be looking at differentiation based on types of higher education institutions, differentiation in terms of ownership (public vs. private) and in terms of reputation.[22]

[22]Other differentiation features not dealt with here include by type of degree, programs and profiles of higher education institutions. Teichler (2005, 2008), for example, provides an overview of these types of differentiation.

At various points, we will be taking a cursory look at the higher education systems in the USA, the Netherlands and the UK, using these for comparison to better embed German structure internationally. We have selected these countries for a variety of reasons. The first reason is rather pragmatic and is due to the simple fact that there is a comprehensive range of data available in English for these countries. Secondly, these countries are often drawn on for international comparisons. Thirdly, these countries provide different starting points and stages of development with respect to more recent reforms in higher education. The higher education system in the USA is of particular interest because of its diversity and sheer size. In addition, it is often viewed as a desirable "ideal model" in discourse on higher education policymaking. In contrast, the British higher education system is particularly interesting because it has traditionally set itself apart from higher education systems in continental Europe and at the beginning of the 1980s instigated fundamental reforms as part of new public management (NPM). The UK is thus a pioneer in NPM in higher education in Europe. On the other hand, the Netherlands represented a typical continental European higher education system until well into the 1980s, but since then has introduced several reforms that are in line with NPM ideas.[23] Whereas Germany had similar starting conditions as in the Netherlands, reforms here began much later. Moreover, changes in the German system were much less pronounced than in the Netherlands and the UK.[24]

3.2.1 Developments in Differentiation by Type of Higher Education Institution

A key line of differentiation in higher education is based on the various types of higher education institution, with differentiation usually being based on the different functions. For the European context, differentiation is typically based on an application/professional training focus or a research focus, as can be found in Germany.

The literature often distinguishes between university-dominated, binary, unified and stratified systems (Kyvik 2004, 2009; Scott 1995).[25]

[23]However, the governance model of Dutch higher education is still in many respects fundamentally different from the governance model of English higher education. For the development of the Dutch system see for example Maassen et al. (2011).

[24]We do not want to suggest that NPM reforms in these countries are identical. Indeed they are not. One reason for this is the NPM concept itself. NPM is not a coherent concept but instead an "eclectic set of doctrines" (Lodge and Gill 2011, 142). These doctrines are "translated" and "edited" in different ways from country to country. The result is a common reform theme, but different reforms.

[25]We ignore "dual systems" here. Although this system is historically relevant, it is no longer a feature in European higher education. In fact, over time the dual systems have all been converted to binary systems (Kyvik 2009, 8).

In *university-dominated systems* we only find universities that have a strong research focus. In contrast, all other institutions offering post-secondary education are not part of the higher education system. There is a strong distinction between these and universities. This system was found in many European countries up until the 1960s and forms the traditional starting point for European higher education systems.

Binary systems consist of two different sectors of higher education. On the one hand we have universities, on the other a non-university higher education sector. Both sectors are subject to their respective uniform regulations that lead to relatively uniform structures within each of the sectors. Institutions in the non-university higher education sector are relatively small compared to universities. Nonetheless, they are usually multidisciplinary; in other words, they are not specialized on delivering one particular training program, but offer courses in a variety of subjects. Most European countries have developed a binary system since the 1960s, however at different times and along different paths. Overall, it can be seen that these binary systems are the clearly dominating system in Europe (e.g., in the Netherlands, Ireland, Denmark and Sweden).

Unified systems are characterized by the fact that practice-orientated training has been integrated into universities, or that non-university institutions have been granted university status. This is what happened to British polytechnics: established in the 1960s and pursuing a much more practical orientation than universities, they were turned into "new universities" in 1992. The unified system primarily developed out of a binary system and, besides Britain, can also be found in Australia and Spain.

Stratified systems are distinguished by their fluid demarcation between higher education and vocational training. They are structured by relatively clear hierarchical classifications of the individual institutions. The traditional example of such a system is the higher education system of the USA with its classification of universities, liberal arts colleges and community colleges, with the latter promoting a vocational focus. Here, there is not only one hierarchy with universities at the top, but there are hierarchical structures even within the three sectors, and particularly pronounced in the university sector. Another characteristic of the US system is the overlapping of the three sectors in respect of educational qualifications. Liberal arts colleges offer nearly the same courses as undergraduate colleges within universities, and besides vocational training, community colleges offer the chance to study the first 2 years of a bachelor program. However, there is a strong segregation in terms of doctoral programs. Only 6.3% of US higher education institutions award more than 20 PhD degrees per year (Carnegie Foundation 2010).

Since the 1960s, the German higher education system has exemplified a binary structure, with the crucial differentiation being between universities and *Fachhochschulen* (universities of applied sciences). Fachhochschulen or universities of applied sciences[26] were established from the 1960s onwards and were more practical and provided shorter periods of study. Alongside the expansion of existing universities and the establishment of new universities, they represented the third pillar of educational expansion in Germany in the 1960s and 1970s.

Universities and universities of applied sciences differ in terms of a range of elements most of which have been formally stipulated (Enders 2010). This also includes the qualifications of professors. A prerequisite for university professors in Germany is a post-doctoral academic qualification. This can either be through a "habilitation" or equivalent qualification, or through a junior professorship (see Chap. 6). In addition to a doctoral qualification, professors at universities of applied sciences need to have at least 5 years' professional experience, with at least three of these 5 years outside the academic world. Such requirements clearly manifest the strong practical focus of universities of applied sciences.

Another difference lies in the fact that professors at universities of applied sciences are usually expected to teach twice as much as university professors (16–18 vs. 8–9 h per week during the semester). This also mirrors differences in research requirements, with research representing a significantly greater proportion of tasks undertaken by university professors. Thus, the binary system in Germany embodies the differentiation between teaching- and research-focused higher education institutions (e.g. Enders 2010, 445). This can also be seen in the fact that the proportion of third-party funded research at universities is significantly higher than at universities of applied sciences. There are also differences in the nature of the research conducted, with universities of applied sciences primarily undertaking more applied research, while basic scientific research is not envisaged.

The staffing structure at both types of higher education institutions reveals two key differences. Universities of applied sciences do not have the breadth of mid-level academic staff as is the case at universities. In other words, chairholders usually do not have academic staff at their chairs who are qualifying for their PhDs or habilitations. This is due in part to the fact that universities of applied sciences do not have the right to confer degrees at doctoral and post-doctoral levels. The second key difference in staff structure is related to this smaller number of mid-level academic staff and the applied nature of this type of institution. A far greater proportion of teaching posts at universities of applied sciences are occupied by additional lecturers. Ideally, these lecturers would come from industry, thus automatically raising the practical nature of teaching.

[26]The term "universities of applied sciences" is relatively new and is used in the international literature for the German "Fachhochschulen", the Dutch "Hogeschools" or the Swedish "Högskola", for example. The term "universities of applied sciences" also reflects the trend of an academic drift of the traditional non-university institutions towards universities in many European binary systems.

There are also differences in the subject structure of the two higher education institutions. In contrast to universities, universities of applied sciences do not offer general degree programs in natural sciences (e.g., physics and mathematics), medicine, jurisprudence and the humanities (e.g., German studies, philosophy). Programs offered by both higher education institutions mainly overlap in subjects of a more practical nature, such as engineering and social pedagogy.

The final key difference can be found in access to both higher education institutions. Students at university are expected to have gained their general high school graduation certificate, the *Abitur*, acquired after 13 or 12 years of schooling. In contrast, students can study at universities of applied sciences with a vocational *Abitur* acquired at a special vocational school or at a *Gymnasium* where pupils study 1 year less. In addition, it is easier for students with vocational qualifications to gain access to universities of applied sciences. Therefore, the access structure of the universities of applied sciences is more open and more diverse.

Overall, the two dominating types of higher education institution in Germany can be distinguished in terms of a variety of aspects that reflect the assignment/categorization of the German higher education system as being based on binary structures. However, it is worth noting that this categorization obscures important developments in the German higher education system. One example is the plan embodied in 1970s legislation to establish a unified system. The aim was to create *Gesamthochschulen*, or comprehensive universities, a more or less strong integration of universities and universities of applied sciences. Although this experiment can now be viewed as a total failure—of the few comprehensive universities that were established, not a single one still exists, with all of them having been converted to universities—it does show that developments can take place below the classification level of binary systems.

In the light of the quantitative developments discussed above, the question is whether they have led to effects relevant to differentiation by type of higher education institution that although not incompatible with a binary system, still manifest other possible paths of development.

One path of development we have observed in recent years has been the increasing process of convergence of universities and universities of applied sciences (e.g. Enders 2010). This "academic drift" (Riesman 1956; Neave 1979) or "academization" (Kyvik 2009, 136–137), is not only a specifically German phenomenon, but can be seen in many higher education systems. Even historically, this phenomenon is nothing new to the German system: the technical schools and their subsequent upgrading to, and equal treatment with, universities at the end of the nineteenth century is an early example of academic drift.

The current academic drift comprises a number of aspects. Firstly, there has been lively debate in recent years on whether universities of applied sciences should have the right to confer doctoral degrees and whether this will lead to the disappearance of a key distinction between universities and universities of applied sciences (Bartosch 2009; Czornohus et al. 2012). To date, universities of applied sciences have not been able to realize their ambition. However, discussions have led to a significant increase in cooperative doctoral programs run by both universities and

universities of applied sciences. This is partly the result of some state education ministries intimidating universities into either developing such cooperative doctoral programs or running the risk of universities of applied sciences being granted the right to offer their own doctoral programs. The last few years have seen an increase in the number of graduates from university of applied sciences gaining their doctorates although absolute figures are still extremely low (Hochschulrektorenkonferenz 2013).

The demand from universities of applied sciences to have the right to award doctorates is connected to two other aspects of the convergence process. Firstly, research has taken on much more weight at universities of applied sciences in recent years (Hachmeister et al. 2015). The proportion of third-party funding has risen and, at the same time, the federal government's *Forschung an Fachhochschulen* (research at universities of applied sciences) program is stimulating focus on research at universities of applied sciences. Although the program is still rather small—especially when compared to the Excellence Initiative for universities—funding has increased from 10.5 million euros in 2005 to 48 million euros in 2016 (BMBF 2017f). Secondly, there is a trend towards developing a mid-level academic staff at universities of applied sciences, which will over time lead to a moderate convergence of staffing structures with universities. Thus, the proportion of academic staff[27] relative to the total number of core staff at universities of applied sciences rose from 18% in 2005 to 37% in 2014 (own calculation based on Statistisches Bundesamt 2015b, 2006). As these are mainly positions for doctoral and post-doctoral graduates, the incapacity to award such degrees is a problem for universities of applied sciences, which are reliant on universities to provide their staff with the required qualifications.

Furthermore, we can find convergence between universities and universities of applied sciences in the conversion of degrees awarded within the bachelor-master system. Both types of higher education institution now award identical qualifications: in the past, degrees conferred by universities of applied sciences had to be labeled as such (usually with the append FH, for *Fachhochschule*). Moreover, a bachelor degree gained from a university of applied sciences also entitles the student to take up a master's program at a university.[28] Finally, convergence of the two institutions can also be seen in the fact that the period of study at both universities and universities of applied sciences is now identical. One of the aims of universities of applied sciences during their early days was to offer a shorter period of study than was possible at universities. Since the introduction of the Bologna reform this aim no longer applies. In view of the degree qualifications and course

[27]Excluding lecturers for special tasks.

[28]In practice, however, many universities circumvent this formal equality by demanding special requirements of master students. Nonetheless, a bachelor degree obtained at a university of applied sciences cannot be used as a direct criterion for excluding students from a master's program at a university.

structures we can see a significant approximation between both types of higher education institution.

In summary, this path in recent developments raises the question of whether the convergence between universities and universities of applied sciences in Germany will continue to advance in the coming years and whether we are moving in the medium term towards an internally strongly differentiated unified system.

The second line of development we would like to sketch out here looks at the trend towards a stratified system. This is mainly expressed in the fact that the demarcation between the higher education system and the vocational education and training system (VET) in Germany has blurred in recent years. On the one hand, we have seen an academization of certain vocational programs, which are being increasingly offered as study programs at universities of applied sciences. On the other hand—and much more crucial—an increasing number of dual study programs are on offer in Germany, leading to a "semi-tertiary sector" (Schindler and Reimer 2011) being established (Graf 2016; Solga et al. 2014, 11; Minks et al. 2011; Baethge and Wolter 2015; Wolter and Kerst 2015). Dual study programs are hybrids between the VET system described above and the higher education system. In the traditional VET system, students undergo training on the job and in vocational schools. In dual study programs, however, vocational schools are replaced by higher education institutions—most often, by universities of applied sciences—and students receive a double qualification (a vocational diploma and a bachelor's degree). From an international perspective, the semi-tertiary sector is primarily emerging in countries with a broadly accepted VET sector. This condition explains why the semi-tertiary sector is playing an increasing role in Germany, Switzerland and Austria. However, there are significant differences in regard to the semi-tertiary sector among these three countries (Graf 2013, 2016).

In Germany, the semi-tertiary sector did not arise due to any political planning, but as a "subversive response" (Graf 2016, 6) of larger industrial enterprises to the conversion of technical schools to universities of applied sciences in the 1960s. This transformation assigned technical schools to the higher education sector, widening the gap between VET and the higher education system. Some industrial companies saw this as a problem and created dual study programs. The effects of this bottom-up approach are still being felt today: there is a distinct "lack of standardization" (Graf 2016, 8) in dual study programs as far as concepts of vocational and higher education are concerned and also in terms of regulating student remuneration at companies. There are different entrance stipulations depending on the nature of the dual study program, but often a vocational *Abitur* is the minimum requirement (Minks et al. 2011, 24–26).

Both the number of dual study programs and the number of students in them have increased considerably in recent years (for the following see BIBB 2015a). For instance, the number of courses rose from 512 in 2005 to 1505 in 2014, with universities of applied sciences clearly dominating the market with 1014 programs. At the same time the number of students (from 40,982 in 2004 to 94,723 in 2014) rose

considerably. In terms of subjects, most programs were offered in the fields of engineering (39%) and business administration (31%). As a ratio of the total student population, dual study programs are still a relatively small segment. However, the rapid rise in numbers shows that the sector could gain in significance in the course of time.

Dual study programs have quite an ambivalent effect on the relationship between VET and higher education. On the one hand they act as a stabilizing factor for the distinction, because by having been created and expanded, they absorb "some of the pressure" (Graf 2013, 219) in questioning the whole configuration of education. On the other hand, a new sector has emerged that connects VET and higher education and blurs the demarcation between them (e.g. Baethge and Wolter 2015; Wolter and Kerst 2015). Whether the development of the semi-tertiary sector in Germany represents a step towards a stratified system, or an epiphenomenon without any impact on the whole system is still an open issue from our perspective.

Our discussion aimed to show that although the higher education system in Germany can still be viewed as a binary system, in recent years trends have emerged that could at least obscure this classification in the future. These trends are clearly related to the rapid expansion of higher education, but also to the increase in research capacity in Germany. The growth in mid-level academic staff at universities of applied sciences can be explained on the one hand by the increase in the student population together with its related impact on teaching requirements; on the other hand, it also show that research capacity is not only expanding at universities, but also at universities of applied sciences. The expansion in dual study programs can be seen as a new strategy of coping with the rapid increase in the number of students. Whether Germany will remain a binary system in future, or develop towards a unified system or even a stratified system remains to be seen and hinges not least on whether higher education and research capacities in Germany continue to expand at this current pace.

3.2.2 *Differentiation in Terms of Ownership (Public vs. Private)*

The rapid expansion in higher education and research capacity raises the question of whether there has been a change in terms of differentiating between providers of education and research. A key distinction between providers is whether they are in public or private[29] ownership.

Traditionally, national higher education systems can be distinguished according to whether private higher education institutions play a key role in the system. This is obviously the case in the United States, for example. Here, of the 4599 degree-

[29]It is important to note that private higher education institutions are not necessarily coupled with purely private funding. Far more often—especially in Germany—we find higher education institutions maintained by private bodies that receive considerable state funding.

granting higher education institutions in 2011, only 1656 were state maintained, while 2943 were maintained privately. Overall, this represents a proportion of 64% of all degree-granting higher education institutions. Within private higher education institutions, we can again distinguish between the 1630 not-for-profit institutions and the 1313 for-profit institutions. Furthermore, over time it can be seen that the proportion of private higher education institutions in the US has increased significantly, accounting for 54% in 1980 as compared to 64% in 2011. In particular, the number of for-profit higher education institutions has increased disproportionally in recent decades (1980: 165, 2011: 1313) (NCES 2012a; Douglass 2012).

The distribution of students between public and private higher education institutions in the US shows that of the overall nearly 21 million students at degree-granting higher education institutions in 2011, 26% attended institutions in the private sector. Given the number of higher education institutions, a higher proportion might have been expected. However, the statistics show that institutions in the private sector are often smaller (NCES 2012b).

The number of private higher education institutions and/or their increase over time and the proportion of students studying there do not give a real indication of the significance of private higher education institutions in the US system. Instead, their significance can be seen in the fact that some of the most reputable American universities are private nonprofit institutions. Private universities such as Harvard and Stanford are not only models for success in the US, but also worldwide. This fact further enhances the legitimacy of private higher education institutions in the US system.

In contrast, the picture is radically different in nearly all Western European higher education systems. In England, for example, privately-maintained higher education institutions hardly play any role (Leisyte 2007, 88). Of the 165 higher education institutions across the country, only three are privately funded (Brown and Carasso 2013, 7). There are also some private higher education institutions in the Netherlands. Of its 13 universities three are private denominational universities. However, these universities are mainly financed through public funds and the differences to public universities are rather small (Leisyte 2007, 111; Enders et al. 2013, 12). Alongside the denominational universities there are other private providers of higher education, but "many of them are very small and sometimes have highly specific characteristics" (Dutch Ministry of Education 2014, 96). Overall it can be seen that "Dutch higher education and research has been regarded both as a national affair and a public good; private higher education plays only a marginal role" (de Boer et al. 2007, 28).

Private higher education is also only of minor importance in Germany. However, this has little to do with the pure number of such institutions and less with the proportion of students attending them, but much more with their low formal legitimacy and the associated difficulties in the conditions for funding private higher education institutions. These conditions have again become exacerbated with student fees at all public higher education institutions in Germany being abolished. Unlike a study program at a private institution, studying at public institutions in Germany is free, except for an administrative fee charged each semester.

In the winter semester 2014/2015 of the 427 higher education institutions in Germany, 157, or 37%, are nevertheless privately maintained. Of these 157, the largest proportion is made up of universities of applied sciences, with 111 institutions. There are also 22 universities in the private sector. However, private universities usually focus on a narrow range of subjects (BMBF 2017c).[30] In particular, there is a focus on law (such as the Bucerius Law School) and/or business administration (such as the HHL Leipzig Graduate School of Management, European Business School). There are hardly any private universities offering a broad range of courses (exceptions include the University of Witten/Herdecke or the Jacobs University).

The establishment of private higher education institutions in Germany is subject to two control mechanisms. Firstly, they have to be approved by the ministry of science in the state in which the institution is headquartered. Secondly, private higher education institutions have to be accredited by the German Council of Science and Humanities (*Wissenschaftsrat*). Institutions can be accredited for 3, 5 or 10 years after which the process has to be repeated. Of the 150[31] accreditation procedures undertaken by the German Council of Science and Humanities between 2001 and 2016, 14 failed, in other words these establishments were denied the status of higher education institution.[32] This shows that the establishment of private higher education institutions in Germany is subject to relatively stringent controls (Kämmerer 2003). Despite these relatively high hurdles, it needs to be stressed that the number of private higher education institutions has risen significantly in recent years. In 1992, there were just 63 private higher education institutions (BMBF 2017c). This figure has more than doubled since then.

The expansion of the private higher education sector in Germany can be seen as an effect that is at least bolstered by the rapid expansion in higher education generally. This can be seen in the increase in the proportion of students registered at private higher education institutions, even though overall the proportion is still relatively low at 7% for the winter semester 2014/15. However, if just universities of applied sciences are considered, 17% of all students study at private higher education institutions (own calculations based on Statistisches Bundesamt 2015a, 55).

Despite the relatively high number of private higher education institutions and the comparatively high proportions of students when compared to other European countries, the position of private institutions in Germany is still marginal. There are two reasons for this.

Firstly, the manner in which private higher education institutions are financed in Germany is particularly precarious. This alone has a significant impact on the

[30]In addition, there are theological colleges (16), art/music colleges (7) and a college of public administration.

[31]This does not mean 150 higher education institutions, but procedures. In the period under review, many higher education institutions were accredited on numerous occasions when their accreditation expired.

[32]Own calculation based on the list of accreditation procedures provided by the German Council of Science and Humanities (http://www.wissenschaftsrat.de/download/archiv/Akkreditierungen.pdf).

legitimacy of private institutions. When some states started charging tuition fees at public institutions, a wave of private institutions was founded (Mitterle 2016, 196) because, with their own fees, they were suddenly more competitive. Once these fees at state higher education institutions were abolished, the competitive situation for private institutions became perceptibly more difficult. This particularly affected private institutions that were primarily funded by tuition fees. For this reason, the mortality rate among private higher education institutions in Germany is relatively high (Lenhardt et al. 2012).

Even the financial base of the few private higher education institutions financed by a "single large foundation" (Mitterle 2016, 199) (e.g., Hertie School of Governance, Bucerius Law School) is not particularly stable. When the institution is dependent on a single funder the situation becomes problematic when the sponsor withdraws support from the institution, as was the case with the Jacobs University in Bremen.

Overall, we can see that "most German private universities live from hand to mouth, struggling to expand their resources" (Mitterle 2016, 199). In recent years, the difficult financial situation of private higher education institutions has often meant that the state has had to provide financial support to "rescue" these private institutions. Such rescue measures are highly controversial in the public eye. The financial instability of large parts of the private higher education sector in Germany is a key factor for the slender legitimacy of the sector and its marginal significance for the German higher education system.

A second factor pointing to the minor importance of the private higher education sector in Germany is the dearth of elite private higher education institutions for research, as is the case particularly in the USA. This is illustrated by the fact that there is no private university among the top 40 leading research universities ranked by the *Deutsche Forschungsgemeinschaft* (DFG) between 2011 and 2013. This also applies when the ranking is differentiated by the four academic fields (Humanities, Social Sciences, Life Sciences, Natural Sciences) (DFG 2015, 62). In view of the DFG's highly respected third-party funding for research, private higher education institutions in Germany have hardly registered any success. Although there are continued attempts from private universities that give the impression of being "better" over time, however, these have very often failed (Mitterle 2016, 205–206).

Overall, we have noted an increasing differentiation in terms of ownership — public vs. private—in Germany in recent years. This has mainly been driven by the rapid expansion in higher education. However, the simultaneous expansion in research capacity has hardly had any impact on this differentiation since a large proportion of the private sector plays no role whatsoever in the field of research. In addition, private higher education in Germany has not been viewed as stable, or, expressed differently, the sector has not reached a "state of maturity" (Mitterle 2016, 214). Whether stability will ever be achieved remains to be seen. A key problem of private higher education could also be the increasing dynamism of the public higher education sector that could further exacerbate the competitive situation for private higher education institutions.

3.2.3 Developments in Differentiation by Reputation

Our final dimension of differentiation concerns differences in reputation. The question is whether the quantitative developments we have described above have any effect on differences in reputation between German higher education institutions.

There is no disputing the fact that there are differences in certain performance dimensions between higher education institutions. However, only under certain conditions will such performance differences lead to reputation becoming a key dimension differentiating between higher education institutions. Firstly, the performance dimension on which a difference is based needs to be seen as relevant; secondly, differences need to be relatively stable over time; and, thirdly, there has to be a broad recognition of differences in performance. Such a broad recognition can be highlighted or stabilized by a quantitative measurement of performance. This is also because "quantification is particularly effective in promoting the acceptance of communication" (Heintz 2010, 162). If it can be seen that higher education institutions in a country are distinguished by their differing reputations, a whole range of social—far from trivial—processes must have previously taken place.

If differences in reputation emerge among higher education institutions in a country, certain concentrations are to be expected. It is much easier for higher education institutions that are highly regarded in terms of research to recruit top-quality scientists. This can then lead to them publishing more and acquiring more third-party funding, which then goes on to further strengthening the reputation of the institution. Concentration processes can also be anticipated in terms of students, with the best students (functionalist perspective), or students with better socioeconomic backgrounds (conflict theory perspective) more likely to study at institutions with a stronger reputation. In both cases, we witness a self-stabilizing effect—due, however, to different processes—which perpetuates and reinforces differences in reputation. The crucial difference between higher education systems that manifest differentiation in terms of reputation and those that do not, can be seen in precisely these concentration effects.

In various countries, there are significant differences in terms of whether differences in reputation play a role and whether concentration effects can be observed. For some time now there have been fairly stable and widely recognizable differences in reputation in the USA and the UK. Over and again these have been upheld by both national and international rankings.

However, the situation in Germany is significantly different. This was not always the case, but has been the result of a trend evident since the 1960s. During its most successful phase at the end of the 19th and the beginning of the twentieth century, the German higher education system had a largely recognized and significant difference in reputation—with universities in Berlin, Heidelberg, Göttingen and Bonn heading the list. In the course of expansion of the tertiary sector, however,

this differentiation was replaced by a conception of equality in the 1960s and 1970s (Enders 2010, 452). It was assumed that within each of the two sectors—universities and universities of applied sciences—there were no basic differences in terms of research output and the quality of education. Rather, differences were not seen at the level of the institution itself, but at subject level. In other words, while Heidelberg was said to have a good reputation in medicine, the reputation for sociology in Bielefeld and Frankfurt on the other hand was considerably higher than in Heidelberg. Whether these conceptions of equality were actually real, or were more a myth, can be disputed (Turner 2001). Nevertheless, the conception of equality was largely recognized and was thus socially effective.

There were, and still are, significant differences in reputation between the two tertiary sectors, that is between universities and universities of applied sciences. In particular, this can be seen in the formal differences between the two forms of institution, which we have described above. Here, it is important to remember that universities of applied sciences cannot award doctorates, and professorships do not require a post-doctoral habilitation qualification. Thus, between the two sectors there are accordingly concentration effects in terms of academic staff and students.

The conceptions of equality dominant since the 1960s have turned into a symbolic battlefield in the German higher education system in recent years: there is no consensus, and no broad agreement, on whether there are relevant differences in performance at university level which would justify any differences in reputation. In Germany, the discussion mainly focuses on differences in reputation in terms of research. Therefore, the differentiation trend in terms of reputation is promoted less by the quantitative growth in the number of students than by the expansion in research capacity. This also means that this trend focuses mainly on the university sector, with research capacities significantly higher here than at universities of applied sciences.

A key trigger in the differentiation trend based on reputation in Germany has surely been the world university rankings (e.g. Shanghai Jiao Tong University 2017; THE 2016), published since 2003.[33] These rankings used universities as the unit of analysis and revealed that, based on the results of the rankings, Germany did not have one "world-class" university. Regardless of the question of whether the indicators used in the rankings are suitable to make such a global comparison (e.g. Marginson and Van der Wende 2007; Hazelkorn 2017), the rankings have had the effect of (again) catapulting universities as the relevant instance of reputation in the German discussion. These rankings have therefore brought into question the previously dominant units of comparison in measuring the reputation of the German system—types of higher education institutions (universities vs. universities of applied sciences) and subjects/disciplines.

Connected to the issue of the relevant unit for measuring performance is the question of whether the concentration effects that emerge from differences in

[33] A description of the different world university rankings can be found for example in Marginson and Van der Wende (2007).

reputation at university level are actually desirable. The resulting discussion in Germany is more or less implicitly interwoven with aspects of equal opportunity, but also with the question of whether excellent research requires an organizational concentration of researchers and funding. Even in an international context, debate is now questioning whether the performance of a national higher education system is best assessed on the number of world-class universities, or whether, instead, the overall performance of a system is to be considered—i.e., whether the question of a world-class system should be given prominence (e.g. Hazelkorn and Ryan 2013).

Let us note first of all, that—unlike in other higher education systems—in Germany, the assumption that universities and not subjects/disciplines are the relevant unit of reputation in terms of research performance is highly controversial. This controversy can also be seen in the Excellence Initiative. On the one hand, the "Institutional Strategies" funding line supports universities overall, thus recognizing that universities are an important unit of reputation. On the other hand, the largest proportion of funding flows into the two other lines that support excellent parts of universities. Here, the relevant difference is assumed to be at department level and thus in support of the perspective evident in the 1960s and 1970s. Funds provided by the Excellence Initiative do not flow into a handful of universities, but to 44 of the roughly 100 traditional universities and technical universities. The original idea of the Excellence Initiative—to support a few elite universities and to define whole universities as the relevant unit of performance—was therefore not advanced. This is a clear sign of the controversy of the assumption that universities overall are to be viewed as the relevant unit of performance. Nevertheless, the Institutional Strategies funding line shows that gaping cracks have appeared in conceptions of equality when it comes to universities.

The question of whether universities overall are the relevant unit of performance is not the only battle field in relation to reputation differentiation in Germany. At least two other aspects can be highlighted here: firstly, the question of the stability of the performance differences between universities and, secondly, the question of how performance differences are measured.

Above, we pointed out that relevant performance differences can only be used to construct reputation differences when these performance differences have stood the test of time. And the concentration effects of researchers and students arising from reputation can only be expected when these reputation differences have manifested a relatively high degree of stability. There is no factual evidence of such stability over time at university level in Germany. This can be seen by drawing on the Excellence Initiative itself. Universities funded by part of the Institutional Strategies also have to vouch for their performance following a period of funding and may lose their status. This regular competition for the status of "excellence university" thus leads to a high degree of instability. However, this was somewhat contentious because the new version of the Excellence Initiative 2016 would have come unstuck on the question of whether, and under what conditions, universities previously funded as part of the Institutional Strategies line could lose their funding.

A further point for discussion in Germany refers to the measurement of the performance differences in the tertiary sector—not only, but also at the institutional level. To illustrate this discussion, we will no longer be drawing on the Excellence Initiative but on a ranking that sets out to measure the quality of teaching at German higher education institutions, the ranking of the Center for Higher Education Development (CHE) (for a description see Marginson and Van der Wende 2007, 323–324). Its aim is to measure the quality of studies at subject level and to serve as a source of information for students. However, there is at least the suspicion that institutional management and ministries of education and science use the ranking to make decisions regarding resources. There has been, and still is, intense debate on the indicators used by the CHE and the measurements they are based on. This has led to several professional bodies (e.g., for history, sociology and education) advising their members to cease their involvement in the ranking. As a result, 37 of the 53 sociology institutes in Germany that were assessed in the past are no longer actively involved in the ranking.

Both the quantification of the performance differences and the identification of performance differences by peer review—as is the case with the Excellence Initiative—are controversial in Germany. The criticism raised with respect to the Excellence Initiative is that funding decisions were not so much based on performance differences, but were an expression of the power cartel of larger universities. It is therefore not about identifying or funding top research projects, but about establishing and affirming oligopolies at university level (Münch 2006, 2014; Hartmann 2010).

Regardless of which position is viewed as correct or meaningful, the arguments presented above show that social processes necessary for considering reputation differences at institutional level as an important and largely recognized distinguishing feature of the higher education system have not in any manner been completed in Germany. However, it is also difficult to imagine returning to conceptions of equality.

Overall, we can see that there have been identifiable movements in relation to the reputation differences at institutional level in the German higher education system, but that this has not yet led to a recognizable paradigm shift. We are still very much in the midst of a battle for the dominant interpretation between adherents of the conception of equality and supporters of stronger differentiation.

3.3 Trends in the Funding of the German Higher Education System

The quantitative-structural configuration of higher education systems also includes its funding. The question is how the expansion of higher education and of research capacity impacts the funding of the German higher education system.

The funding of higher education is often a subject of public discussion. In Germany as well as in many other countries, there has been heated debate in recent years on the issue of tuition fees (Ertl and Dupuy 2014). The topic of funding is also addressed with respect to the rising number of students in Germany. German discussions regularly focus—especially in comparison with other countries—on the alleged underfunding of the German higher education system. This finding is then the starting point for further assumptions where it is claimed that underfunding leads to poorer quality of teaching and research, in international comparison, and jeopardizes the future viability of a country lacking natural resources—such as Germany—in the long term. Discussions about funding always deal with the underlying assumptions about the quality of the higher education system and the development potential for society as a whole.

Ziderman and Albrecht (1995) distinguish between three ideal models of funding higher education systems: state dominance, cost recovery and revenue diversification.

In the state dominance model, higher education systems are primarily funded by the state, with both direct and indirect funding methods. In the latter, third-party funds are awarded to higher education institutions via the state funding of foundations. We find state dominance funding in many European countries, including the Netherlands and Germany.

In its ideal pure form, the cost recovery model envisages the funding of the higher education system through cost-covering tuition fees. In reality however, a higher education system is never wholly funded in this way: funding by means of tuition fees is usually supplemented by state or other funds. However, in many systems we can find individual higher education institutions with a cost recovery funding model. The British higher education system[34] has developed most clearly toward a cost recovery model in recent years. One important point here was the drastic increase in tuition fees in the wake of the financial crisis of 2008. In 2012/13, 40% of higher education funding in the UK was attributable to tuition fees, significantly exceeding direct state funding which made up 24% of higher education budgets. By way of comparison, in 2006/07 tuition fees accounted for 25% with direct state funding 38% of budgets (in part own calculations based on HESA 2014).

In the revenue diversification funding model, we not only have state funding and tuition fees, but also other relevant sources of funding. This would include the provision of professional training and development courses, conducting research for industry, funding from alumni and the receipt of donations from business. In

[34]In contrast to our analysis on differentiation in higher education systems where we described the English higher education system, we will be focusing here on the British system. Although it should be stated that the individual British higher education systems (especially the Scottish system) have grown apart in recent years and we should actually avoid speaking of a British system, especially with regard to general quantitative design. However, when it comes to internationally comparable key financial data, only data for Britain as a whole are available.

addition, there can be fundamental differences in the importance of the funding sources between higher education institutions in this model. This diversification model is best reflected in the American higher education system. Funding is thus ensured from several pillars. However, there are considerable differences in the composition of the funding not only between public and private universities, but also between public universities in different states. Differences between states arise for example through different tuition fee policies or differences in the proportion of state funding (e.g. Ziderman and Albrecht 1995, 18; Schreiterer 2008; Nahai 2014; see also the chapters about the USA in Popp Berman and Paradeise 2016).

The German higher education system can clearly be assigned to the state funding model. The higher education system is nearly exclusively state financed, with both direct and indirect state funding playing a role. Although some states cautiously toyed with the idea of the cost recovery model by introducing tuition fees, the relatively low fees and their renewed abolition in all states would speak against any approximation to this model (Hüther and Krücken 2014).

After briefly presenting some data comparing the extent of funding in the different higher education systems we can then take a closer look at the German higher education system and the trends in this area.

3.3.1 Developments in the Extent of Financing—An International Comparison

Alongside the funding models briefly described above, the extent of higher education funding is also a key theme for international comparisons. Here, higher education expenditure in relation to gross domestic product (GDP) is frequently used as an important indicator.

Looking at this ratio for Germany, it is clear that this has hardly changed since 1995. Figure 3.10 shows that across the whole period under review, between 1.0% and 1.3% of GDP was allocated to higher education. Expenditure on higher education as a ratio of GDP has hardly increased in recent years, but has fluctuated within a relatively narrow corridor.

It is interesting now to compare this indicator internationally. Figure 3.10 shows the proportion of GDP spent on higher education in the Netherlands, the UK and the USA. It is abundantly clear that both the Netherlands and the US spend a larger proportion of GDP on higher education than Germany. Even the OECD average—which stood at 1.9% in 2011—highlights the relatively low investment in the German higher education system.

From these figures it is often concluded that, when compared internationally, the German higher education system is heavily underfinanced—especially compared to the US. However, it should be mentioned that the proportion of an age cohort enrolling as students in these countries—at least in the past—varied enormously, and besides the higher education sector, Germany also invests considerable sums in

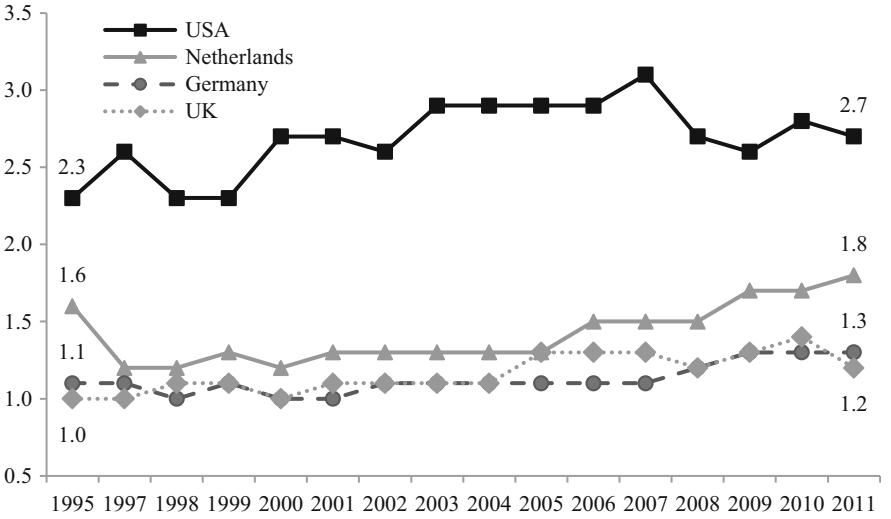

Fig. 3.10 Overall expenditure for the tertiary sector A/B in relation to gross domestic product for selected countries
Figures in percent; source: BMBF (2017a)

the vocational education and training sector. Thus, comparing expenditure per student is a further relevant indicator for the extent of investment in the tertiary sector. In addition, spending on higher education can increase in absolute terms but the percentage of GDP would remain stable if GDP is growing. That obviously has been the case in Germany in recent years.

Figure 3.11 shows a continuous rise in expenditure per student in Germany, with expenditure adjusted for purchasing power parity, standing at $9481 in 1998 and rising to $17,157 in 2012. However, the 2012 figure indicates that Germany is behind the other three countries, suggestive of a degree of underfunding. Figure 3.11 also shows that expenditure per student in the USA is much higher than in the other countries, although the peak of 2008, i.e., prior to the global financial crisis, has not been equaled in subsequent years. This indicator shows again that investment in higher education in the USA is significantly higher than in the other countries observed.

How can this striking difference between the USA and the other countries be explained? A key difference is that the proportion of private investment in the higher education system in the USA is considerably higher than in other countries. The proportion of private spending on tertiary sector institutions in 2011 in the USA amounted to 65%, in the Netherlands 29%, in Germany 15% and finally in the UK 70% (BMBF 2017d). The significantly higher proportion of private spending in the USA and the UK is mainly an effect of tuition fees that have risen considerably in both countries in recent years.

This means that in both Germany and the Netherlands state funding has to cover a significantly greater proportion of expenditure than is the case with the USA and the UK. Here we can see a cogent effect of the general funding models described

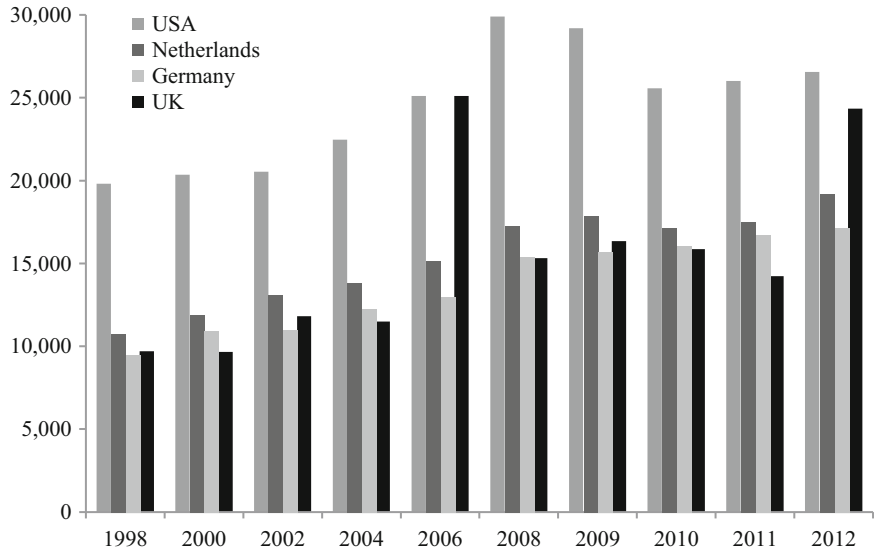

Fig. 3.11 Annual expenditure per student in tertiary education (including R&D activities) in equivalent USD converted using PPPs for GDP from 1998 to 2012
Source: 1998 to 2011: BMBF (2017b); 2012: OECD (2015, 217)

above. In terms of the amount of money within the higher education system, the trend has been clearly increasing for the USA, whereas the UK has witnessed very substantial fluctuations. These arose between 2011 and 2012 primarily as a result of a decline in student numbers (see HESA 2016) while state funding remained relatively constant. In the UK, de facto no more was invested in the higher education system: the same volume of funding was distributed among fewer students. The decline in student numbers—especially of enrolling students—may well be a discernible effect of increased tuition fees. Once again we can see that indicators cannot be taken out of context: whereas in Germany, funds per student have increased parallel to a rise in student numbers, in the UK decreasing student numbers has resulted in a significant upsurge in this funds-per-student indicator.

It should also be clear that greater private investment in the higher education system does not automatically lead to an increase in overall funds available—this can also be a zero sum game. Apparently, the advantage of the USA lies in its revenue diversification model of funding whereby—unlike, in part, in the UK—the system is not a zero sum game: the volume of funding rises overall by means of the various sources.

However, the American system of funding is not crisis free. There has been heated debate on the level of student debt in the USA as a consequence of tuition fees (e.g. Stiglitz 2013). This has given rise to the question of whether—from the perspective of the human capital theory—it is worth investing in higher education. In other words, whether students will ever see a return on their investment. It is also

worth remembering that state higher education institutions in the USA have been suffering from considerable financial problems, not least given the significant decline in state funding in the wake of the financial crisis of 2008. To date, other sources of funding have not be able to compensate for these cutbacks which have had to be recouped through higher tuition fees, further exacerbating the level of student debt (e.g. Barr and Turner 2013). A key aspect of this funding crisis is that it is more often to be observed in the middle and lower segments of the American higher education system where institutions struggle to demand higher fees. The differentiation within the American system as described above triggers various effects arising from crisis on the one hand, while, on the other, intensifying differentiation within the system.

Despite earlier forecasts, the system of funding in Germany—solely reliant on state funding—has not proven to be disadvantageous during the financial crisis: at least not from a holistic perspective. In fact, it could even be regarded as advantageous as we will show below in our closer observation of the funding of the German higher education system.

3.3.2 Detailed Examination of the Development of Higher Education Funding in Germany

Let us take a closer look at the funding of higher education in Germany. Here, we are primarily interested in revenues and expenditures in the tertiary sector over time, not in comparison with other higher education systems.

Figure 3.12 illustrates the trend in revenues and expenditures in German higher education between 1985 and 2014. First off, we can see that expenditure has risen continuously. The rapid increase between 1990 and 1995 is attributable to German reunification. While the increase in expenditure between 1995 and 2007 has been continuous, if moderate, from 2007 onwards—as previously discussed in our observations on numbers of students and academic staff—we see an accelerated rise in expenditure.

As before, the largest source of higher education funding is basic state funding. However, state funding as a proportion of overall tertiary sector expenditure fell from 67 to 49% between 1985 and 2014. In contrast, the proportion contributed by administrative income rose from 26 to 36%, and third-party funding from 7 to 15%. Tuition fees were raised by some German higher education institutions from 2006, however compared to other sources of income they were still relatively insignificant (see below).

We can see a shift in the funding of higher education in Germany in the course of time. It is surprising to note the relatively high proportion of administrative income. However, the explanation is quite simple and points out just how important the fundamental criteria for such observations are. The figures in Fig. 3.12 also comprise study programs in medicine at university clinics. Income arising from

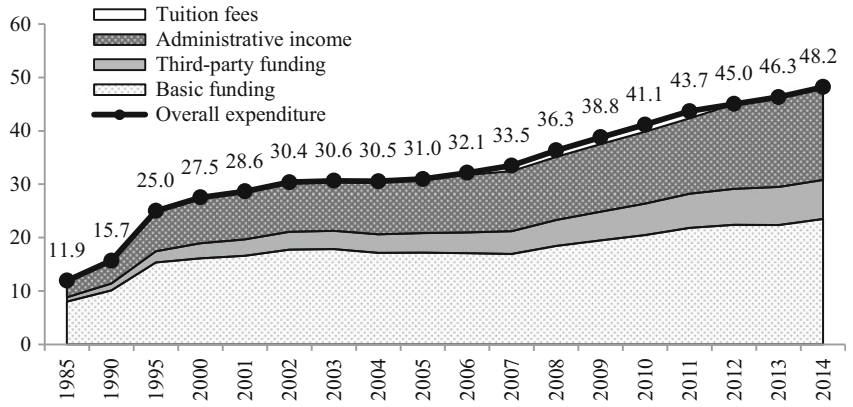

Fig. 3.12 Higher education expenditure and revenue from 1985 to 2014 (in billion euros) Source: Statistisches Bundesamt: Finanzen der Hochschulen (annual publication), own calculations

providing medical treatment is included in the statistics as part of higher education's administrative income. As we will see, the significance of administrative income is put into perspective when medical study programs and facilities are factored out of the equation.

Figure 3.13 shows the expenditure and revenue for universities excluding medical faculties for the period 2001 to 2014. Another important difference in comparison to Fig. 3.12 is that expenditure and revenue have been adjusted for inflation. Such price adjustment makes sense to control for the effects of different inflation rates over time. This ensures that rises or drops in expenditure and revenue are not the result of inflation.

Figure 3.13 shows a relatively stable increase in expenditure from 2001 to 2006. Between 2007 and 2010, however, the rise accelerates only to become moderate again between 2010 and 2014. In addition, it is clear that excluding medical faculties drastically changes the structure of income types. By factoring out medical faculties, administrative income—for example, registration fees for students—plays a very minor role for universities. For example, in 2014 administrative income accounted for only 4% of revenue. In contrast, basic funding and third-party funding are the dominant types of income.

Over time, we can also see a shift in funding: the proportion of basic funding falls from 79 to 69% from 2001 to 2014 while, in contrast, third-party funding has become a significantly more important source of funding for universities over time, rising from 18% to 26% from 2001 to 2014. The proportion of income from tuition fees stood at between 2 and 5% from 2007, peaking in 2008. Because tuition fees were abolished in all states, this element of funding is no longer relevant. For universities, we can note a fall in the significance of basic funding, with third-party funding playing a more important role.

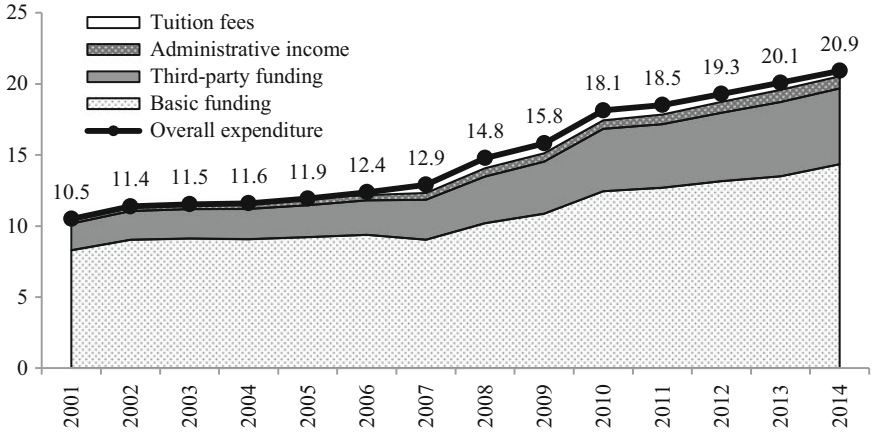

Fig. 3.13 Inflation adjusted expenditure and revenue of public universities from 2001 to 2014 (in billion euros)
Including comprehensive universities, excluding medical faculties, and colleges of education and theology; adjusted for inflation on the basis of consumer price indices with 2010 as the base year; source: Statistisches Bundesamt: Finanzen der Hochschulen (annual publication), own calculations

The picture is rounded off by taking a look at expenditure and revenue at public universities of applied sciences in Germany. Figure 3.14 shows the expenditures and revenues for 2001 to 2014, adjusted for inflation.

Firstly, the trend in expenditure is similar to that which we have already seen with respect to higher education institutions overall and to universities. However, total expenditure is much below that of universities.

If total expenditure for public universities and public universities of applied sciences are added together, the latter would account for 17–20%, increasing gradually over time. The proportion of 20% for 2014 is significantly below the proportion of students attending universities of applied sciences of 34%. However, this does not necessarily mean that universities of applied sciences are less well funded, but that the difference is at least partly attributable to the difference in staffing and subject structures between universities and universities of applied sciences as described above, and to differences in the volume of research conducted at both institutions.

In addition, Fig. 3.14 shows that the significance of sources of funding varies between universities and universities of applied sciences, with basic funding a more dominant factor for the latter. In 2014, basic funding accounted for 85% of the funding of universities of applied sciences, but just 69% for universities. However, the percentage proportion of basic funding also fell for universities of applied sciences, having stood at 93% in 2001. Thus, we can see a cut of around 10 percentage points for universities of applied sciences and universities, however with different starting points.

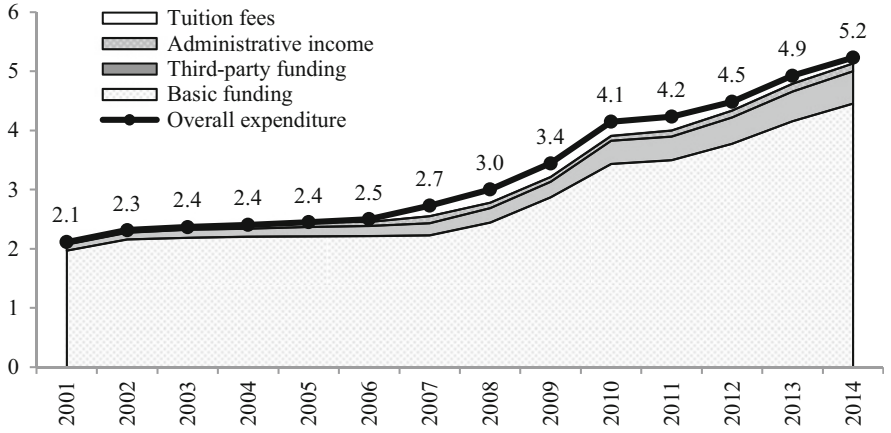

Fig. 3.14 Inflation adjusted expenditure and revenue of public universities of applied sciences from 2001 to 2014 (in billion euros)
Adjusted for inflation based on consumer price indices using 2010 as the base year; source: Statistisches Bundesamt: Finanzen der Hochschulen (annual publication), own calculations

This cut is compensated for by an increase in third-party funding and tuition fees that were charged temporarily. The proportion of third-party funding at universities of applied sciences rose from 5% in 2001 to 11% in 2014. Tuition fees accounted for 2–7% of the income of universities of applied sciences between 2007 and 2014.

As we have seen, the rapid expansion of higher education in Germany is also reflected in the funding of the system. Expenditure on tertiary education has increased significantly in recent years, corresponding to the increase in student numbers. The data on funding also includes the expansion in research capacity, a second relevant trend. This is expressed in the rising proportion of third-party funding both for universities and universities of applied sciences. Again, it should be noted that this shift in funding is primarily concerned with research capacity. Staff financed by third-party funding, for example, usually do not take on teaching assignments at higher education institutions. Despite this shift, basic funding still remains the most pronounced source of income for higher education institutions. In contrast to many other countries, in Germany we can see an increase in higher education funding, even after the global financial crisis of 2008. There are certainly a number of reasons for this. However, it is important to note that we have not seen any support in recent times for the widespread view that a purely state-funded higher education system is neither modern nor crisis-proof—at least not for Germany.

It is also important to note that the additional funds that have come into tertiary education since 2006 have nearly exclusively been short-term funds. This is not only valid for the increase in the proportion of third-party funding, but also in the proportion of basic funding. Thus, the considerable additional funds provided by the national government to finance higher education are only for the short term.

This is funding, for example, from the Quality Pact for Teaching (€2 billion until 2020) and the Higher Education Pacts which are intended to create additional places for students (over €20 billion from 2007–18). The fact that the expansion in research capacity has mainly been achieved by employing temporary staff in the mid-level has also to do with the short-term nature of additional funding.

We still need to examine how basic state funding is actually distributed in Germany and what the concept of third-party funding actually includes.

3.3.2.1 Developments in Basic Funding

Basic funds were awarded to higher education institutions in Germany for decades as part of a cameralistic, or single-entry, accounting system. Put simply, in a cameralistic system, funds requested are allocated to a budget for the following year. There is no agreement on an overall budget. Instead, applications for funds are described in detail, are awarded in the following year and may only be spent for the purpose in question. If funds are not utilized, they are returned to the state. Only funds actually utilized can be legitimately re-applied for the subsequent year. In the past, this led to the renowned "December fever": the frantic spending of residual funds in December to avoid having to return them and having fewer funds available for the subsequent year.

As part of the new public management (NPM) reforms briefly described above, most states have now adopted a policy of awarding basic funds to higher education institutions via a global budget. The institutions no longer have to detail the specific areas of expenditure they require the funds for. Depending on the state, global budgets have also become more or less flexible. In other words, funds initially intended for staffing can be shifted to equipment, and vice versa. Likewise, higher education institutions may also build up reserves—again this varies from state to state. Thus, they do not have to fully utilize funds in December, but can carry forward money to the following year. This conversion of the basic funding of higher education institutions to global budgets—effective to a greater or lesser extent—has been a key aspect of recent changes in the funding of higher education in Germany.

The states have also used the shift towards global budgets to take account of performance when awarding basic funds, whereas previously this was exclusively based on demand. This takes two aspects into consideration.

Firstly, the awarding of funds at state level is based on a set of indicators. This now takes place in nearly all states. In principle, we are experiencing competition between higher education institutions within a state for a share of state funding (Hartwig 2006; Jaeger et al. 2006; Leszczensky and Orr 2004). Budgeting via indicators basically includes factors such as teaching, research, equal opportunities and internationalization. This assessment is based not only on "demand" indicators (for example, the number of student places available, the number of current students in their standard period of study), but also on performance indicators (such as the number of students graduating within their standard period of study, third-party funding acquired or number of doctorates). Overall, the assessment measures

quantitative indicators which are relatively straightforward to compile. In nearly all indicator models, teaching is assigned the greatest weighting (Leszczensky and Orr 2004; Schubert and Schmoch 2010).

Experience shows that the actual financial effects on individual higher education institutions are relatively low and, according to Jaeger (2008, 40), have only brought about a shift in budgets of around 1% compared to the days prior to the indicator-based awarding of funds. For many states, we can conclude that there has been no great shift in the overall distribution of basic funds—at least not to date.[35] At least as far as we are aware, there have however been no new studies.

Secondly, states have integrated target and performance agreements with individual higher education institutions into their respective higher education legislation (Hüther 2012). These determine the performance and targets a higher education institution has to achieve by a certain point in time. In contrast to the indicator-based system of awarding funds, which applies to all higher education institutions within a state, such agreements allow individual performance levels and targets to be agreed with the institutions. The areas covered are often similar to those included in indicator-based systems: they mainly deal with teaching, research and equal opportunities. But there are also areas not included in an indicator-based system such as development and training of administrative staff and the integration of people with disabilities (In der Smitten and Jaeger 2014). In most target and performance agreements there are no clear and binding financial sanctions (whether positive or negative) because, in principle, these are already anchored in indicator-based systems. Target and performance agreements also provide ministries with considerable discretionary leeway. Some agreements offer non-monetary rewards for the successful achievement of targets, such as changes to legal conditions. Such declarations of intent from ministries of education and science are also extremely vague, not least because changes in legislation have to be ratified by state parliaments and the legislative procedures usually result in considerable divergence from any pledged rewards.

Overall, not only has there been a reduction in the proportion of basic funds allocated to higher education institutions in Germany, we can also see that the principles of granting funds have changed significantly in recent years. We can also note that the two instruments introduced have hardly led to any relevant shift in funding between institutions. It could therefore appear that both the indicator-based awarding of funds and target and performance agreements are merely political facades of legitimation intended to show that "modern" instruments are being deployed in higher education management. Given the shortage of research results, we can neither confirm nor refute whether this is actually the case. To date at least, there have been no comprehensive studies on the actual impact of the indicator-based awarding of funds or the target and performance agreements in relation to a

[35] One theoretical explanation for this apparent stability could be the "red queen" effect: i.e., when competitors improve but still do not achieve better positioning because other competitors have improved equally (Barnett 2008).

variety of aspects (e.g., choice of strategy, a shift in perception and goals at the various levels in higher education institutions). Past studies have either concentrated on analyzing documents, financial shifts or the effects in certain subjects (e.g. Jaeger 2008; Leszczensky and Orr 2004; Krempkow et al. 2012; In der Smitten and Jaeger 2014). However, we think it is safe the say that, to date, the two instruments have had a substantially smaller impact than in other countries, such as the British system with its Research Excellence Framework (REF).

3.3.2.2 Developments in Third-Party Funding

We have shown above that, besides basic funding, third-party funding is another key pillar in financing higher education and that this has become more significant over time. Generally, third-party funds include all money in addition to basic funds that higher education institutions acquire from public or private bodies. Often—but not always—these funds are acquired in a competitive environment.

The *Deutsche Forschungsgemeinschaft* (DFG) provides funds in individual grant programs (normal procedure) based on a research application, for example. Researchers are then in competition with other applicants in their subject area. The competition is, however, not direct, but indirect. Applications are not compared with each other. Instead, each application is assessed by experts independently of other applications. The competition therefore only refers to overall funds available to the subject area. The decisive factor for the approval process is scientific quality, it is the only legitimate decision-making criterion in the competition for DFG funds.

In contrast, with regard to research funds granted by the Federal Ministry of Education and Research (*Bundesministerium für Bildung und Forschung* – BMBF) we often find direct competition and other legitimate decision-making criteria besides scientific quality. The Federal Ministry of Education and Research usually issues a call for proposals for a specific research topic, such as "measuring performance in research" and applications for funds are then in direct competition with each other. Support is only given to those applicants who the Federal Ministry of Education and Research is interested in and whose application is not only of high scientific quality, but also has practical relevance.

It is important to note that, not only has the proportion of third-party funding changed over time, there has also been a shift from the individual funding of single projects to funding of "coordinated programs" (Meier and Schimank 2014). Coordinated programs are set up to support several projects on one topic—either at one higher education institution, or several—for a longer period of time (up to 12 years). Besides the Excellence Initiative's Clusters of Excellence, there are, for example, also Priority Programs and Collaborative Research Centers. The aim of these programs is to fund a particular research topic with sufficient critical mass to realize effects of scale. In addition, many of these coordinated programs are interdisciplinary, which is generally seen as necessary to achieve breakthroughs in research. In 2015, coordinated program funding accounted for 42% of overall DFG funding (DFG 2016). The increasing proportion of third-party funding awarded in

coordinated programs also precipitates further change. Let us take a look at one particular change. By funding research clusters at higher education institutions, there is also a change in the balance of power in the institutions. This is not only because new organizational units emerge over a relatively long period of time that cross departmental structures, but also because these relatively well-funded clusters are more independent of the financial resources of the institutions themselves (Meier and Schimank 2014).

To conclude our observations we would like to take a closer look at the structure of third-party funders in Germany. Table 3.1 lists the third-party funders for higher education institutions overall, for universities excluding medicine and for universities of applied sciences for 2014. It is worth noting that, together, public bodies (the federal government, the states and the EU) provide 37% of third-party funding for higher education institutions overall; for universities, the figure is 37% and for universities of applied sciences 61% of third-party funding. Considering that 99.7% of DFG funding comes from the federal government and the states (DFG 2012, 208), the proportion of public money in third-party funding rises to 69% for all higher education institutions, 74% for universities and 62% for state universities of applied sciences. If, in addition, a range of foundations are factored in that are nearly completely funded by the state, the proportion of public third-party funding would increase still further.

In addition, Table 3.1 reveals the clear difference in the structure of third-party funders between universities and universities of applied sciences. Whereas for universities the most important source of third-party funds is the DFG, which accounts for 32% of all such funds, it only provides 1% of third-party funding for universities of applied sciences. Although, formally, all DFG funding lines, except the Excellence Initiative, are also open to applicants from universities of applied sciences, scientists from these institutions view their chances of receiving DFG funding as rather low. Less than 1% of research applications in 2013 were submitted by scientists from universities of applied sciences (DFG 2014). In contrast, the

Table 3.1 The proportion of funds provided by various third-party funders according to type of higher education institution 2014

	All higher education institutions	Universities[a] excluding medicine	Public universities of applied sciences
Federal government	26	25	45
States	2	2	3
DFG	32	37	1
EU	9	10	13
Foundations	7	5	5
Industry	19	17	24
Other	5	5	10
Total	100	100	100

Figures in percent; [a]excluding colleges of education and colleges of theology; source: Statistisches Bundesamt (2016), some own calculations

federal government is the most important third-party funder of universities of applied sciences, providing 45% of all third-party funds acquired.

There is also a significant difference in the role played by industry as a provider of third-party funds to universities and to universities of applied sciences, with the latter receiving a higher proportion of third-party funding from industry than the universities. Therefore, not only can we see a significant difference between universities and universities of applied sciences in third-party funds as a proportion of overall revenue, but also that the third-party funder structure differs greatly.

Overall, third-party funding in Germany is largely from public sources that is given to higher education institutions. The increase in the proportion of third-party funding is not related to a change in the ideal types of funding models described above. As far as funding is concerned, the German higher education system remains a state system in which attempts are being made to achieve considerably greater competition.

References

Arrow, K. J. (1973). Higher education as a filter. *Journal of Public Economics, 2*(3), 193–216. https://doi.org/10.1016/0047-2727(73)90013-3.

Autorengruppe Bildungsberichterstattung. (2016). *Bildung in Deutschland 2016. Ein indikatorengestützter Bericht mit einer Analyse zu Bildung und Migration*. Bielefeld: Autorengruppe Bildungsberichterstattung.

Baethge, M., & Wolter, A. (2015). The German skill formation model in transition: From dual system of VET to higher education? *Journal for Labour Market Research, 48*(2), 97–112. https://doi.org/10.1007/s12651-015-0181-x.

Barnett, W. P. (2008). *The red queen among organizations: How competitiveness evolves*. Princeton: Princeton University Press.

Barr, A., & Turner, S. E. (2013). Expanding enrollments and contracting state budgets: The effect of the great recession on higher education. *The ANNALS of the American Academy of Political and Social Science, 650*(1), 168–193. https://doi.org/10.1177/0002716213500035.

Bartosch, U. (2009). Promovieren, aber wie? Eine Perspektive aus den Fachhochschulen. *Erziehungswissenschaft, 20*(39), 91–103.

Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education*. Chicago: University of Chicago Press.

Beicht, U., & Walden, G. (2011). *Duale Berufsausbildung ohne Abschluss – Ursachen und weiterer bildungsbiografischer Verlauf. BIBB Report 21/13*. Bonn: BIBB.

Bell, D. (1973). *The coming of post industrial society: A venture in social forecasting*. New York: Basic Books.

Berger, J. (1996). Was behauptet die Modernisierungstheorie wirklich – und was wird ihr bloß unterstellt? *Leviathan, 24*(1), 45–62.

BIBB. (2015a). *AusbildungPlus: Duales Studium in Zahlen. Trends und Analysen 2014*. Bonn: Bundesinstitut für Berufsbildung (BIBB).

BIBB. (2015b). *List of training occupations within the dual system*. Bonn: Bundesinstitut für Berufsbildung (BIBB).

BIBB. (2015c). *VET data report Germany*. Bonn: Bundesinstitut für Berufsbildung (BIBB).

Birnbaum, R. (1983). *Maintaining diversity in higher education*. San Francisco: Jossey-Bass.

Bloch, R., Lathan, M., Mitterle, A., Trümpler, D., & Würmann, C. (2014). *Wer lehrt warum? Strukturen und Akteure akademischer Lehre an deutschen Hochschulen*. Leipzig: Akademische Verlagsanstalt.

BMBF. (2017a). *Datenportal. Ausgaben für Bildungseinrichtungen im Verhältnis zum Bruttoinlandsprodukt nach Bildungsbereichen und Staaten*. http://www.datenportal.bmbf.de/portal/Tabelle-2.1.12.html. Accessed 10 May 2017.

BMBF. (2017b). Datenportal. Ausgaben von Bildungseinrichtungen je Schüler/-in und Studierende/-n nach Staaten und Bildungsbereichen in US-Dollar in umgerechneter Kaufkraftparität. http://www.datenportal.bmbf.de/portal/Tabelle-2.1.7.html. Accessed 10 May 2017.

BMBF. (2017c). Datenportal. Hochschulen nach Hochschularten und Ländern. http://www.datenportal.bmbf.de/portal/Tabelle-2.5.1.html. Accessed 10 May 2017.

BMBF. (2017d). Datenportal. Relative Anteile öffentlicher und privater Ausgaben für Bildungseinrichtungen nach Bildungsbereichen und Staaten. http://www.datenportal.bmbf.de/portal/Tabelle-2.1.6.html. Accessed 10 May 2017.

BMBF (2017e). Datenportal. Studienanfänger/-innen im 1. Hochschulsemester und Studienanfängerquoten nach Geschlecht und Land des Erwerbs der Hochschulzugangsberechtigung. http://www.datenportal.bmbf.de/portal/Tabelle-2.5.73.xls. Accessed 10 May 2017.

BMBF. (2017f). Forschung an Fachhochschulen. https://www.bmbf.de/de/forschung-an-fachhochschulen-543.html. Accessed 10 May 2017.

BMBF. (2017g). *Percentage of people qualified to enter higher education of the age-specific population, by types of qualification*. http://www.datenportal.bmbf.de/portal/en/Table-2.5.85.html. Accessed 10 May 2017.

BMBF. (2017h). *Total number of students and German students, by types of higher education institution*. http://www.datenportal.bmbf.de/portal/en/Tabelle-2.5.23.html. Accessed 10 May 2017.

Böhme, G., & Stehr, N. (1986). *The knowledge society: The growing impact of scientific knowledge on social relations*. Dordrecht: D. Reidel Publishing Company.

Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste*. Cambridge, MA: Harvard University Press.

Bourdieu, P. (1988). *Homo Academicus*. Stanford: Stanford University Press.

Bourdieu, P., & Passeron, J. C. (1979 [1964]). *The inheritors: French students and their relation to culture*. Chicago: University of Chicago Press.

Brown, R., & Carasso, H. (2013). *Everything for sale? The marketisation of UK higher education*. New York: Routledge.

Campbell, R., & Siegel, B. N. (1967). The demand for higher education in the United States, 1919–1964. *The American Economic Review, 57*(3), 482–494.

Carnegie Foundation. (2010). *Summary tables. Basic classification. Distribution of institutions and enrollments by classification category*. http://classifications.carnegiefoundation.org/summary/basic.php. Accessed 14 June 2014.

Collins, R. (1975). *Conflict sociology: Toward an explanatory science*. New York: Academic.

Collins, R. (1979). *The credential society. An historical sociology of education and stratification*. New York: Wiley.

Coser, L. A. (1956). *The functions of social conflict*. London: Routledge & Kegan.

Czornohus, S., Dobersalske, K., Heuel, F., & Petrow, N. (2012). Auf dem Weg zur Promotion: Zur Benachteiligung von Fachhochschul-Absolventinnen und -Absolventen. *Das Hochschulwesen, 60*(5), 110–117.

Dahrendorf, R. (1957). *Soziale Klassen und Klassenkonflikt in der industriellen Gesellschaft*. Stuttgart: Ferdinand Enke.

de Boer, H., Enders, J., & Leisyte, L. (2007). Public sector reform in Dutch higher education: The organizational transformation of the university. *Public Administration, 85*(1), 27–46. https://doi.org/10.1111/j.1467-9299.2007.00632.x.

DFG. (2012). *Deutsche Forschungsgemeinschaft Jahresbericht 2011. Aufgaben und Ergebnisse*. Bonn: Deutsche Forschungsgemeinschaft (DFG).
DFG. (2014). Pressemitteilung Nr. 29 | 3. Juli 2014. DFG-Jahrespressekonferenz mit dringendem Appell an Politik: Rasches gemeinsames Handeln für die Wissenschaft. http://www.dfg.de/service/presse/pressemitteilungen/2014/pressemitteilung_nr_29/index.html. Accessed 16 June 2015.
DFG. (2015). *Förderatlas 2015. Kennzahlen zur öffentlich finanzierten Forschung in Deutschland*. Bonn: Deutsche Forschungsgemeinschaft (DFG).
DFG. (2016). *Facts and figures* (p. 2015). Bonn: Deutsche Forschungsgemeinschaft (DFG).
Dohmen, D. (2014). *Entwicklung der Betreuungsrelationen an den Hochschulen in Deutschland 2003 bis 2012*. Berlin: Forschungsinstitut für Bildungs- und Sozialökonomie (FiBS).
Douglass, J. A. (2012). The rise of the for-profit sector in US higher education and the Brazilian effect. *European Journal of Education, 47*(2), 242–259. https://doi.org/10.1111/j.1465-3435.2012.01521.x.
Dutch Ministry of Education, C. a. S. (2014). *Key figures 2009–2013. Education, culture and science*. Amsterdam: Dutch Ministry of Education, Culture and Science.
Enders, J. (2010). Hochschulen und Fachhochschulen. In D. Simon, A. Knie, & S. Hornbostel (Eds.), *Handbuch Wissenschaftspolitik* (pp. 443–456). Wiesbaden: VS Verlag.
Enders, J., de Boer, H., & Weyer, E. (2013). Regulatory autonomy and performance: The reform of higher education revisited. *Higher Education, 65*(1), 5–23. https://doi.org/10.1007/s10734-012-9578-4.
Ertl, H., & Dupuy, C. (Eds.). (2014). *Students, markets and social justice. Higher education fee and student support policies in Western Europe and Beyond*. Oxford: Symposium Books.
Graf, L. (2013). *The hybridization of vocational training and higher education in Austria, Germany, and Switzerland*. Opladen: Budrich UniPress.
Graf, L. (2016). The rise of work-based academic education in Austria, Germany and Switzerland. *Journal of Vocational Education & Training, 68*(1), 1–16. https://doi.org/10.1080/13636820.2015.1107749.
Hachmeister, C.-D., Duong, S., & Roessler, I. (2015). *Forschung an Fachhochschulen aus der Innen-und Außenperspektive: Rolle der Forschung, Art und Umfang*. Gütersloh: CHE.
Hartmann, M. (2010). Die Exzellenzinitiative und ihre Folgen. *Leviathan, 38*(3), 369–387.
Hartwig, L. (2006). Neue Finanzierungs- und Steuerungsstrukturen und ihre Auswirkungen auf die Universitäten. Zur Situation in vier Bundesländern. *Beiträge zur Hochschulforschung, 28*(1), 6–25.
Hazelkorn, E. (Ed.). (2017). *Global rankings and the geopolitics of higher education: Understanding the influence and impact of rankings on higher education, policy and society*. London/New York: Taylor & Francis.
Hazelkorn, E., & Ryan, M. (2013). The impact of university rankings on higher education policy in Europe: A challenge to perceived wisdom and a stimulus for change. In P. Zgaga, U. Teichler, & J. Brennan (Eds.), *The globalisation challenge for European higher education: Convergence and diversity, centres and peripheries* (pp. 79–99). Frankfurt am Main: Lang.
Heintz, B. (2010). Numerische Differenz. Überlegungen zu einer Soziologie des (quantitativen) Vergleichs. *Zeitschrift für Soziologie, 39*(3), 162–181. https://doi.org/10.1515/zfsoz-2010-0301.
Heinz, W. R., Kelle, U., Witzel, A., & Zinn, J. (1998). Vocational training and career development in Germany: Results from a longitudinal study. *International Journal of Behavioral Development, 22*(1), 77–101. https://doi.org/10.1080/016502598384522.
HESA. (2014). *Income and expenditure of HE institutions*. https://www.hesa.ac.uk/pr201. Accessed 03 May 2015.
HESA. (2016). *Higher education student enrolments and qualifications obtained at higher education providers in the United Kingdom 2014/15*. https://www.hesa.ac.uk/sfr224. Accessed 26 July 2016.

Hochschulrektorenkonferenz. (2013). *Promotionen von Fachhochschulabsolventinnen und Fachhochschulabsolventen in den Prüfungsjahren 2009, 2010 und 2011*. HRK: Bonn.

Hoeckel, K., & Schwartz, R. (2010). *Learning for jobs. OECD reviews of vocational education and training. Germany*. Paris: OECD.

Hradil, S. (2006). *Die Sozialstruktur Deutschlands im internationalen Vergleich*. Wiesbaden: VS Verlag.

Hummelsheim, S., & Timmermann, D. (2010). Bildungsökonomie. In R. Tippelt & B. Schmidt (Eds.), *Handbuch Bildungsforschung* (pp. 93–134). Wiesbaden: VS Verlag.

Hüther, O. (2012). Wandelbarkeit von Forschungsstrukturen in deutschen Universitäten. Eine Analyse der Landeshochschulgesetze. In T. Heinze & G. Krücken (Eds.), *Institutionelle Erneuerungsfähigkeit der Forschung* (pp. 127–155). Wiesbaden: VS Verlag für Sozialwissenschaften.

Hüther, O., & Krücken, G. (2014). The rise and fall of student fees in a federal higher education system: The case of Germany. In H. Ertl & C. Dupuy (Eds.), *Students, markets and social justice: Higher education fee and student support policies in Western Europe and Beyond* (pp. 85–110). Oxford: Symposium Books.

In der Smitten, S., & Jaeger, M. (2014). Ziel-und Leistungsvereinbarungen in der Hochschulfinanzierung. *Hochschulmanagement, 9*(1), 2–6.

Jaeger, M. (2008). Wie wirksam sind leistungsorientierte Budgetierungsverfahren in deutschen Hochschulen? In S. Nickel & F. Ziegele (Eds.), *Bilanz und Perspektiven der leistungsorientierten Mittelverteilung: Analysen zur finanziellen Hochschulsteuerung* (pp. 35–60). Gütersloh: CHE.

Jaeger, M., Leszczensky, M., & Handel, K. (2006). Staatliche Hochschulfinanzierung durch leistungsorientierte Budgetierungsverfahren. Erste Evaluationsergebnisse und Schlussfolgerungen. *Hochschulmanagement, 1*(1), 13–20.

Kämmerer, A. (2003). Regulierung staatlicher und privater Hochschulen. In J. A. Kämmerer & P. Rawert (Eds.), *Hochschulstandort Deutschland* (pp. 119–142). Köln: Carl Heymanns.

Kehm, B. M. (1999). Higher education in Germany. In *Developments, problems and perspectives*. Wittenberg/Bukarest: CEPES/UNESCO und Institut für Hochschulforschung.

Kreckel, R. (2011). Universitäre Karrierestruktur als deutscher Sonderweg. In K. Himpele, A. Keller, & A. Ortmann (Eds.), *Traumjob Wissenschaft? Karrierewege in Hochschule und Forschung* (pp. 47–60). Bielefeld: Bertelsmann.

Krempkow, R., Landrock, U., & Schulz, P. (2012). Steuerung durch LOM? Eine Analyse zur leistungsorientierten Mittelvergabe an Medizin-Fakultäten in Deutschland. In U. Wilkesmann & C. J. Schmid (Eds.), *Hochschule als Organisation* (pp. 245–260). Wiesbaden: VS Verlag.

Kyvik, S. (2004). Structural changes in higher education systems in Western Europe. *Higher Education in Europe, 29*(3), 393–409. https://doi.org/10.1080/0379772042000331679.

Kyvik, S. (2009). *The dynamics of change in higher education expansion and contraction in an organisational field*. Dordrecht: Springer.

Leisyte, L. (2007). *University governance and academic research: Case studies of research units in Dutch and English universities*. Twente: University of Twente.

Lenhardt, G., Reisz, R. D., & Stock, M. (2012). Überlebenschancen privater und öffentlicher Hochschulen im Ländervergleich. *Beiträge zur Hochschulforschung, 34*(2), 30–48.

Leszczensky, M., & Orr, D. (2004). Staatliche Hochschulfinanzierung durch indikatorgestützte Mittelverteilung. In *Dokumentation und Analyse der Verfahren in 11 Bundesländern*. Hannover: HIS.

Lodge, M., & Gill, D. (2011). Toward a new era of administrative reform? The myth of post-NPM in New Zealand. *Governance, 24*(1), 141–166.

Maassen, P., Moen, E., & Stensaker, B. (2011). Reforming higher education in the Netherlands and Norway: The role of the state and national modes of governance. *Policy Studies, 32*(5), 479–495.

Marginson, S., & Van der Wende, M. (2007). To rank or to be ranked: The impact of global rankings in higher education. *Journal of Studies in International Education, 11*(3–4), 306–329. https://doi.org/10.1177/1028315307303544.

Meier, F., & Schimank, U. (2014). Cluster-building and the transformation of the university. *Soziologie, 43*(2), 139–166.

Middendorff, E., Apolinarski, B., Poskowsky, J., Kandulla, M., & Netz, N. (2013). *Die wirtschaftliche und soziale Lage der Studierenden in Deutschland 2012. 20. Sozialerhebung des Deutschen Studentenwerks durchgeführt durch das HIS-Institut für Hochschulforschung*. Berlin: BMBF.

Minks, K.-H., Netz, N., & Völk, D. (2011). *Berufsbegleitende und duale Studienangebote in Deutschland: Status quo und Perspektiven*. Hannover: HIS.

Mitterle, A. (2016). In search of the private: On the specificity of private higher education in Germany. In D. Cantini (Ed.), *Rethinking private higher education. Ethnographic perspectives* (pp. 193–219). Leiden/Boston: Brill.

Münch, R. (2006). Wissenschaft im Schatten von Kartell, Monopol und Oligarchie. Die latenten Effekte der Exzellenzinitiative. *Leviathan, 34*(4), 466–486.

Münch, R. (2014). *Academic capitalism: Universities in the global struggle for excellence*. New York: Routledge.

Nahai, R. N. (2014). What price university? Rising tuition fees, financial aid, and social justice in higher education in the USA. In H. Ertl & C. Dupuy (Eds.), *Students, markets and social justice: Higher education fee and student support policies in Western Europe and beyond* (pp. 133–159). Oxford: Symposium Books.

NCES. (2012a). *Digest of education statistics. Degree-granting institutions, by control and level of institution*. http://nces.ed.gov/programs/digest/d11/tables/dt11_279.asp. Accessed 16 June 2015.

NCES. (2012b). *Digest of education statistics*. Total fall enrollment in degree-granting institutions, by control and level of institution. http://nces.ed.gov/programs/digest/d11/tables/dt11_199.asp. Accessed 16 June 2015.

Neave, G. (1979). Academic drift: Some views from Europe. *Studies in Higher Education, 4*(2), 143–159. https://doi.org/10.1080/03075077912331376927.

OECD. (2002). *Education at a glance 2002*. Paris: OECD.

OECD. (2015). *Education at a glance 2015*. Paris: OECD.

Parsons, T. (1971). *The system of modern societies*. Englewood Cliffs: Prentice-Hall.

Parsons, T., & Platt, G. M. (1973). *The American university*. Cambridge, MA: Harvard University Press.

Popp Berman, E., & Paradeise, C. (Eds.). (2016). *The university under pressure*. Bingley: Emerald.

Porter, T. M. (1996). *Trust in numbers: The pursuit of objectivity in science and public life*. Princeton: Princeton University Press.

Ramirez, F. O., Luo, X., Schofer, E., & Meyer, J. W. (2006). Student achievement and national economic growth. *American Journal of Education, 113*(1), 1–29. https://doi.org/10.1086/506492.

Ramirez, F. O., & Riddle, P. (1991). The expansion of higher education. In P. G. Altbach (Ed.), *International higher education. An encyclopedia* (pp. 91–106). New York/London: Garland Publishing.

Reimer, D., & Pollak, R. (2009). Educational expansion and its consequences for vertical and horizontal inequalities in access to higher education in West Germany. *European Sociological Review, 26*(4), 415–430. https://doi.org/10.1093/esr/jcp029.

Riesman, D. (1956). *Constraint and variety in American education: The academic procession*. Lincoln: University of Nebraska Press.

Scherhorn, G. (1969). Soziologie des Konsums. In R. König (Ed.), *Handbuch der empirischen Sozialforschung. Zweiter Band* (pp. 834–862). Stuttgart: Ferdinand Enke.

Schimank, U. (2001). Festgefahrene Gemischtwarenläden – Die deutschen Hochschulen als erfolgreich scheiternde Organisationen. In E. Stölting & U. Schimank (Eds.), *Die Krise der Universitäten* (pp. 223–242). Wiesbaden: Westdeutscher Verlag.

Schindler, S., & Reimer, D. (2011). Differentiation and social selectivity in German higher education. *Higher Education, 61*(3), 261–275. https://doi.org/10.1007/s10734-010-9376-9.

Schofer, E., & Meyer, J. W. (2005). The worldwide expansion of higher education in the twentieth century. *American Sociological Review, 70*(6), 898–920. https://doi.org/10.1177/000312240507000602.

Schreiterer, U. (2008). *Traumfabrik Harvard: Warum amerikanische Hochschulen so anders sind*. Frankfurt am Main/New York: Campus.

Schubert, T., & Schmoch, U. (2010). Finanzierung der Hochschulforschung. In D. Simon, A. Knie, & S. Hornbostel (Eds.), *Handbuch Wissenschaftspolitik* (pp. 244–261). Wiesbaden: VS Verlag.

Schultz, T. W. (1963). *The economic value of education*. New York: Columbia University Press.

Scott, P. (1995). Unified and Binary Systems of Higher Education in Europe. In A. Burgen (Ed.), *Goals and purposes of higher education in the 21st century* (pp. 37–54). London/Bristol: Jessica Kingsley Publishers.

Shanghai Jiao Tong University. (2017). *Academic ranking of world universities*. http://www.shanghairanking.com/. Accessed 10 May 2017.

Solga, H., Protsch, P., Ebner, C., & Brzinsky-Fay, C. (2014). *The German vocational education and training system*. Berlin: WZB Berlin Social Science Center.

Spence, M. (1974). *Market signaling: Informational transfer in hiring and related screening processes*. Cambridge, MA: Harvard University Press.

Staatliche Zentralverwaltung für Statistik. (1956). *Statistisches Jahrbuch der Deutschen Demokratischen Republik. 1955*. Berlin: VEB Deutscher Zentralverlag.

Statistisches Bundesamt. (1950–1990). *Statistische Jahrbücher*. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. (1953). *Statistisches Jahrbuch 1952* (Fachserie 11 Reihe 4.1). Stuttgart/Köln: Kohlhammer.

Statistisches Bundesamt. (2006). *Bildung und Kultur: Personal an Hochschulen 2005*. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. (2014). *Bildung und Kultur: Personal an Hochschulen 2013*. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. (2015a). *Bildung und Kultur. Studierende an Hochschulen. Wintersemester 2014/2015*. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. (2015b). *Bildung und Kultur: Personal an Hochschulen 2014*. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. (2015c). Bildungsstand der Bevölkerung 2015.

Statistisches Bundesamt. (2016). *Bildung und Kultur. Finanzen der Hochschulen 2014*. Wiesbaden: Statistisches Bundesamt.

Stehr, N. (1994). *Arbeit, Eigentum und Wissen. Zur Theorie von Wissensgesellschaften*. Frankfurt am Main: Suhrkamp.

Stiglitz, J. E. (2013). Student debt and the crushing of the American dream. *The New York Times, May 12*, 2013.

Stock, M. (2003). Hochschulexpansion in komparativer Perspektive. *die hochschule, 12*(2), 144–157.

Teichler, U. (2005). *Hochschulsysteme und Hochschulpolitik: Quantitative und strukturelle Dynamiken, Differenzierungen und der Bologna-Prozess*. Münster/New York: Waxmann.

Teichler, U. (2007). *Higher education systems: Conceptual frameworks, comparative perspectives, empirical findings*. Rotterdam: Sense Publishers.

Teichler, U. (2008). Diversification? Trends and explanations of the shape and size of higher education. *Higher Education, 56*(3), 349–379. https://doi.org/10.1007/s10734-008-9122-8.

Teichler, U., & Wolter, A. (2004). Zugangswege und Studienangebote für nicht-traditionelle Studierende. *die hochschule, 13*(2), 64–80.

THE. (2016). *Times higher education. World university rankings 2015–2016*. https://www.timeshighereducation.co.uk/world-university-rankings/2016/world-ranking/#/. Accessed 10 May 2017.

Thurow, L. C. (1978). Die Arbeitskräfteschlange und das Modell des Arbeitsplatzwettbewerbs. In W. Sengenberger (Ed.), *Der gespaltene Arbeitsmarkt. Probleme der Arbeitsmarktsegmentation* (pp. 117–137). Frankfurt am Main/New York: Campus.

Trow, M. (1974). Problems in the transition from elite to mass higher education. In OECD (Ed.), *Policies for higher education. General report on the conference on future structures of post-secondary education* (pp. 55–101). Paris: OECD.

Trow, M. (2006). Reflections on the transition from elite to mass to universal access: Forms and phases of higher education in modern societies since WW II. In J. J. Forest & P. G. Altbach (Eds.), *International handbook of higher education* (pp. 243–280). Dordrecht: Springer.

Trow, M. (2010). *Twentieth-century higher education: Elite to mass to universal*. Baltimore: JHU Press.

Turner, G. (2001). *Hochschule zwischen Vorstellung und Wirklichkeit. Zur Geschichte der Hochschulreform im letzten Drittel des 20. Jahrhunderts*. Berlin: Duncker & Humblot.

UNESCO. (2012). *International standard classification of education. ISCED 2011*. Montreal: UNESCO Institute for Statistics.

Weingart, P. (2001). *Die Stunde der Wahrheit? Zum Verhältnis der Wissenschaft zu Politik, Wirtschaft und Medien in der Wissensgesellschaft*. Weilerswist: Velbrück.

Windolf, P. (1992a). Cycles of expansion in higher education 1870–1985: An international comparison. *Higher Education, 23*(1), 3–19. https://doi.org/10.1007/bf00141141.

Windolf, P. (1992b). Zyklen der Bildungsexpansion 1870–1990. Ergebnisse der Spektralanalyse. *Zeitschrift für Soziologie, 21*(2), 110–125. https://doi.org/10.1515/zfsoz-1992-0203.

Wolter, A., & Kerst, C. (2015). The 'academization' of the German qualification system: Recent developments in the relationships between vocational training and higher education in Germany. *Research in Comparative and International Education, 10*(4), 510–524. https://doi.org/10.1177/1745499915612188.

Zapf, W. (1994). *Modernisierung, Wohlfahrtsentwicklung und Transformation. Soziologische Aufsätze 1987 bis 1994*. Berlin: Edition Sigma.

Ziderman, A., & Albrecht, D. (1995). *Financing universities in developing countries*. London: Routledge Falmer.

Chapter 4
Governance Structures and Their Developments

This chapter deals with developments at the meso or institutional level in the German higher education system. In this chapter we are focusing on the governance structures concerning German higher education institutions. As in other European countries, the discussion on, and development of, governance structures is strongly linked to "new public management" (NPM). Accordingly, the question here concerns the extent to which NPM is to be found at the discursive, the legal/formal and the practice levels in Germany. In addition, there is also the question of whether, or which, transintentional effects have emerged.

At its core, the governance perspective deals with the regulation structures of a social unit and the interplay of these regulation structures. It concerns "all processes of social organization and social coordination" (Bevir 2012, 3). Analyzing governance structures does highlight one particular question: How is it possible for higher education systems and higher education institutions to achieve key goals despite the fact that, within them, individual actors are working on their own goals?

In recent years, the governance perspective has been increasingly discussed and applied in the social sciences. With its roots in economics (e.g. Williamson 1975), political science (e.g. Rosenau and Czempiel 1992) and sociology (e.g. Wiesenthal 2000; Offe 1985) the perspective is thus interdisciplinary. The advantage here is that it is able to integrate research from different disciplines into one perspective.[1] Against this backdrop, the governance perspective is particularly significant for interdisciplinary research on higher education.

Furthermore, the appeal for research on higher education is that the governance perspective not only analyzes regulation structures, but also applies the knowledge gained of these structures to facilitate targeted intervention and change. It is therefore also about the steering capacity for higher education systems and higher

[1] Interdisciplinary options are an important advantage, but also lead to high degree of heterogeneity in the use of the concept of governance (e.g. Hüther 2010, 85–87; see also Austin and Jones 2015, 1–6). In the following, we use the concept in a purely analytical sense.

O. Hüther, G. Krücken, *Higher Education in Germany—Recent Developments in an International Perspective*, Higher Education Dynamics 49,
https://doi.org/10.1007/978-3-319-61479-3_4

education institutions—at least implicitly (Schimank 2007b, 29; Mayntz 1993a). Consequently, it is often the regulation structures themselves that are the subject of reforms. These reforms attempt to change the regulation of higher education systems and higher education institutions, in order for goals to be achieved better and more efficiently. The NPM reforms described above in Chap. 2 are a striking example of this.

In relation to the steering of social units, the governance perspective shares an interest with the planning and steering debate of the 1970s and 1980s. Despite these topical overlaps, there are analytical differences between the concepts and debates (see Mayntz 1993a, 2004, 2008). In the planning and steering debate, the state was seen as the central actor in societal steering. It was assumed that it was relatively easy for the state to consciously steer subsystems of societies (including the higher education system) and consciously change them (Mayntz 1993a). These assumptions were criticized from two directions: firstly, implementation research showed that the steering capability of the state was limited in terms of actual behavioral change (e.g. Pressman and Wildavsky 1979); secondly, systems theory pointed out that each societal subsystem follows an idiosyncratic logic (e.g. Willke 1995; Luhmann 1989). The development of the governance perspective is a reaction to these criticisms and radically changed the fundamental perspective on steering and regulation.

Unlike in the planning and steering debate, the governance perspective does not deal with actor-centric (state) intervention. Instead, the focus is on the totality of the institutional regulations for a social unit (Mayntz and Scharpf 1995; Scharpf 1997). Thus, the change of concept includes a shift in perspective away from an actor-centric to "an institutional way of thinking" (Mayntz 2004, 5). As a consequence, the direct steering of social units through state interventions is viewed much more critically and the governance perspective accentuates the potential of indirect or context-related steering (Willke 1995). An important tool in this indirect or context-related steering process is the ability to change the regulation or governance structures of a social unit. This is precisely the reason for the immense interest in the regulation structures of higher education systems and higher education institutions in recent years.

But why are we witnessing the strengthening of competition and the weakening of academic oligarchy in Germany? To understand these indirect steering efforts, we need to take one basic fact into account: individual coordination mechanisms have specific properties which may be regarded as being both advantageous and disadvantageous. For example, efforts to enhance competition as part of new public management reforms can only be understood bearing in mind that coordination via competition involves certain properties that are viewed as advantageous and desirable. Therefore, tackling change in governance structures requires knowledge of at least the most salient features of the various coordination mechanisms.

This will be the focus of the next section. In the next step we present two typologies of governance that have been especially developed for the international

comparison of the regulation structures of higher education systems and of higher education institutions. Given the knowledge of the properties of governance mechanisms, we can then assess: (1) what effects are to be expected with a certain combination of governance mechanisms, and (2) what advantages and disadvantages are actually to be gained/minimized by consciously changing this combination. In the third part of this chapter we discuss current research results relating to the governance perspective.

4.1 Governance Mechanisms and Their Properties

Governance mechanisms describe the nature of coordinating the "patterns of handling interdependencies between actors" (Schimank 2007b, 30). In principle, therefore, we are dealing with coordinating the actions of individuals and social units.

The literature provides us with various suggestions on the systematization of governance mechanisms, with differences arising in particular in terms of the level of analysis (for an overview see for example Austin and Jones 2015). For Mayntz and Scharpf (1995) and Scharpf (1997) and similarly for Schimank (2002b, 2007b), basic mechanisms of coordination (e.g., observation or negation) between actors are the starting point for their deliberations. However, others choose coordination at the level of the society as their starting point (e.g. Wiesenthal 2000, 2006; Streeck and Schmitter 1985) or the coordination of actions in an economic system (e.g. Williamson 1975; Ouchi 1980; Adler 2001).

Below, we apply a combination of the different systematizations and examine the most important governance mechanisms for higher education systems and higher education institutions currently under discussion. The governance mechanisms we refer to are community, negotiation, markets and competition, majority decisions and hierarchy.[2] The descriptions that follow are to be seen as ideal types that represent basic functions and effects of coordination mechanisms. This means that in observations of practical coordination—of real types—several coordination mechanisms often play a role at the same time.

[2]We shall not be presenting coordination through networks. Coordination through networks plays a key role in governance discussions in political science (e.g. Mayntz 1993b) and organizational theory (e.g. Powell 1990; Sydow and Windeler 1997) and we are also assuming that governance networks are not unimportant for higher education systems and higher education institutions. However, to date, networks have hardly been applied systematically in discussions concerning governance of higher education institutions and higher education systems. In particular, coordination through networks plays no role in the governance regime typologies we will be examining later in the book. We have therefore taken the decision not to include this form of coordination in this book.

Community

In regard to coordination via communities we can find two different approaches—a traditional and a modern one. Sociological analyses have traditionally used the community concept to characterize the coordination of pre-modern societies (Durkheim 1933 [1893]; Tönnies 1957 [1920]). Communities in this sense are characterized by spatial proximity, smallness, homogeneity and a total inclusion of the members. In this kind of community the control of members' action via self-control and control by other community members is particularly high. Therefore, the flexibility of behavior is rather small.

In more recent literature we can find a more modern form of community descriptions. In these descriptions communities are no longer necessarily based on spatial proximity, smallness, homogeneity of their members and their total inclusion. Instead, communities are based in the fact that actors notice that they share a certain characteristic with other actors that is important to them (for example, a preference for a certain music group, or a common activity) (Gläser 2007, 86). The perception of an important common characteristic leads to a closer observation among these actors. In addition, the actors are more open to be influenced by each other (Lange and Schimank 2004, 20). For example, a moral appeal from an actor who shares a characteristic is likely to be more effective than an appeal from an actor who does not share the characteristic. Coordination in these communities therefore takes place through observation and mutual influence.

This coordination does not include any formal safeguard or any formal power. Coordination is deployed informally and is situational (Schimank 2007b, 39). When coordination is deployed using the "modern" notion of a community mechanism, key strategies or goals are not normally set and coordination results are hardly predictable and are not manageable. This means that coordination overall remains weak and that the actors can withdraw from the coordination process quite easily. Thus, new actions can be chosen. Overall we can see that coordination through this kind of community can offer a high degree of flexibility.

However, this flexibility depends not only on the size and homogeneity of the community but also on whether members of the community are included totally or partially. The smaller, the more homogeneous and the stronger inclusion is, the more communities tend in the direction of the traditional concept and reveal isolationist tendencies toward the wider environment, and the greater is the conformity of behavior within the community (Wiesenthal 2000, 58). As Bauman (2001, 4) correctly observed, the benefits of such traditional communities have their price: "The price is paid in the currency of freedom."

In higher education systems we normally find communities that have strong tendencies toward the direction of the above-mentioned modern description of communities. Therefore, the community mechanism deals often with larger, sometimes highly heterogeneous communities that exhibit little concern for total

inclusion. This is particularly so for the scientific community. This is usually a group that is not only very large and heterogeneous and whose members are widely distributed geographically, but it is also a community that does not include members as whole persons with all their characteristics and behaviors. Here, we are not dealing with total inclusion, but rather the partial inclusion of members. In scientific communities we therefore find a high degree of flexibility of action and hardly any formally potential to exert influence. Coordination is conducted much more through mutual observation and informal attempts to exert influence, which still offer opportunities for selecting new actions—whether in new research topics or in new methods. In our deliberations below, we therefore refer to the modern concept of community.

Negotiation

Coordination via negotiation is characterized by a binding agreement between actors, often secured in a formal manner—i.e., through a contract (for the following see Scharpf 1997, 116–150). The key benefits of coordination via negotiation for the actors lie in the relative predictability of the behavior of other actors. However, to safeguard this predictability institutions need to secure compliance with the results of negotiations. This means that in the event of any contractual infringements, options need to be in place to either force actors to change their behavior or to sanction the infringement. Successful negotiations secured by institutions in this manner significantly minimize actors' choice of behavior. In other words, there is a considerable increase in the collective potential for coordination.

Successful negotiations assume that all actors endorse the results of the negotiations. On the one hand, this provides a high degree of legitimacy of the results (everyone agreed); on the other hand, it ensures that an actor's vital interests are not going to be infringed. If an actor sees his/her vital interests being jeopardized during negotiations, he/she can either demand new negotiations, or, if the negotiation partner rejects this, withdraw from the negotiations. In the latter case, the results of the negotiation are not binding for the exiting party. Actors can therefore still withdraw from coordination relatively easily and can secure greater margins for maneuver in their choice of action.

Because the results of the negotiations are binding on everyone involved (Scharpf 1997, 117), the number of actors is a critical variable in the negotiations. Negotiations are therefore more promising with fewer actors than with many actors[3]: more negotiation partners means that more interests have to be taken into account and more veto options come into play. This explains why negotiation results are often characterized by the lowest common denominator and are rarely

[3]This problem can be minimized by a representation solution as seen in wage negotiations between employers' associations and unions. The problem here, however, is that those being represented have to approve the negotiation's results. In this situation, the ability of the representatives to pursuade their members to comply with the results becomes a critical variable.

suitable for agreeing on fundamental changes. Instead, many veto options usually lead to the status quo being maintained (Schimank 2001) and to a strong sense of rigidity. What is more, because negotiations often require time, they are not the most suitable mechanism for making speedy decisions. Further, decisions are often also not precise because consensus often also contains linguistic compromises.

One example for the use of the negotiation mechanism in higher education is target and performance agreements at different levels. In Germany there are target and performance agreements between the states and higher education institutions, between central and decentral units at institutions but also between university leaders and chairholders. All these agreements are formalized in the German system. However, the examples also show that the relationship between negotiation actors is not necessarily symmetric. For example, the high dependence of higher education institutions on state funding establishes highly asymmetric negotiation positions. However, the function and the legitimacy of the currently employed target and performance agreements are very different from the traditional hierarchical governance mechanism between states and higher education institutions (see below).

Market and Competition

Markets are a special form of negotiation, with actions coordinated by means of alternative processes of exchange. The contents of the exchange are relatively well specified and it is clear what the negotiations are about (money, services, goods). Ideal-typical, exchanges on markets take place immediately, like in spot markets (Schimank 2007b, 41; Scharpf 1997, 125–126). As described for negotiations, the market also requires a variety of institutional safeguards (Granovetter 1985; Engels 2009). Thus, for example, courts are needed to uphold the security of an agreed exchange, if required.

The biggest difference between negotiations and markets lies in the fact that, unlike negotiations, coordination through markets can achieve a high rate of targeted innovation. This is because providers of goods and/or services want to increase their market share and thus generate innovation to gain competitive advantage. Unlike possible innovations in other governance mechanisms, the potential for innovation here does not arise through weak or failing coordination (community, negotiations), but through the coordination itself. Innovations in markets are therefore much more targeted because they are specified much more clearly by the content of the exchange. The most critical variable in terms of these innovations is the availability of sufficient competition, i.e., at least one of the exchange partners needs alternative exchange partners (e.g. Wiesenthal 2000, 51; Ouchi 1980; Williamson 1975). Innovation cannot necessarily be expected with oligopolies and monopolies, as there would be no need for providers to innovate in order to increase their market share: oligopolies and monopolies already have a large market share without any effort.

When applying the market governance mechanism to higher education (especially in continental Europe) it should be noted that we are often only dealing with "quasi-markets" (Le Grand 1991), in other words with markets consciously created and designed by politics. In many cases these markets have no price mechanisms to automatically decide the relative position of the competitors in the market. Instead, politicians decide about the criteria for competition and often change these criteria over time. Despite these limitations, innovation is highly likely because competition is used as a mediation mechanism in both markets and quasi-markets and we can expect that competitors attempt to promote innovation to stay competitive.

Majority Decisions

Coordination via majority decisions entails majority voting, with actors in the minority willing to accept the results of decisions (Scharpf 1997, 151). The collective capacity for action is much higher than with negotiations because not all actors have to endorse the decision (Schimank 2007b, 41). For this reason, institutional requirements for majority decisions are much higher than with negotiations. There must be assurances that the minority will bow to the will of the majority. This can be established by exerting power. The minority then is more or less forced to bow to majority decisions. This occasionally happens, but is not the norm: implementing sanctions is coupled with high costs and means that the social unit will remain highly unstable. Normally, the minority's willingness to conform needs to be secured through legitimacy. The minority accepts that it is fundamentally correct or appropriate for majority decisions to be made. Connected to this legitimacy is often the fact that it is deemed valuable to maintain the unit in which the decision is made. The will of the majority is therefore accepted in order to sustain the unit (see Simmel 2009 [1908], Excursus on Outvoting).

Because not all actors have to reach agreement, there is a greater chance of instigating fundamental change. In principle, quicker and more clear-cut decisions are possible than with the negotiation mechanism. However, it should be noted that coordination by majority decision still often requires negotiation prior to a decision, if only because a majority still needs to be organized. This costs time and involves making compromises. Thus, there is also the risk that decisions will be protracted and inconclusive. However, in comparison to the negotiation mechanism, both the dynamics and the decision-making capabilities are higher.

Coordination via majority decisions is the common mechanism in academic bodies like the academic senate or departmental councils. Furthermore, majority decisions are central for decision-making within the board of governors and also in some leadership boards of German higher education institutions.

Hierarchy

With hierarchical coordination, a sole leadership authority can unilaterally determine the action of all actors. In this scenario, the collective capacity for action is

at its highest because, in an extreme case, one single actor can determine the actions of all other actors (Schimank 2007b, 42). However, this intensifies the problem described above in relation to majority decisions: How can you guarantee that subordinates will follow a decision? We have already seen the solution: either through exerting power or through legitimacy (Weber 1979 [1922], 941–955).

Coordination through hierarchy is faced with two fundamental problems: the information problem and the control/implementation problem. The information problem refers to the fact that decision makers have to be in possession of the information relevant to the decision. Whereas in previous mechanisms, information was virtually automatically integrated by the involvement of many actors, by strongly limiting the number of decision makers in the hierarchy, there are also limits to the information that can be integrated. Accordingly, the mechanism needs assurances that the information needed to make the decision is available. In contrast, the control/implementation problem arises when leadership authorities have to make sure that decisions have actually been implemented (Scharpf 1997, 172–194). However, as control capacities of leadership authorities are limited, in hierarchical coordination there is a great risk that decisions are undermined in everyday routine.

In the past, the most important mechanism for coordination between the states and higher education institutions in Germany was hierarchy. The states decided for example about the numbers for professors, had the last word in the selection of professors and decided what courses should be available at each higher education institution. However, in recent years at least at the formal level some hierarchical decision-making powers were transferred from the states to university leaders and the boards of governors. For example, in many higher education institutions the president now has the last word on the selection of professors. In addition, target and performance agreements between the states and higher education institutions have substituted coordination via hierarchy (see above).

The outline sketched above shows that ideal types of governance mechanisms function in different ways and produce various effects. From the community, in the modern sense, through to hierarchy, the freedom of actors involved in coordination becomes increasingly restricted. However, this restriction of freedom—or, expressed in positive terms, the higher degree of potential for collective coordination—requires more comprehensive institutional safeguards. If the safeguards for the respective mechanisms are not available, coordination via this mechanism is not possible—even if this is envisaged in formal terms. Informally, a coordination mechanism with fewer institutional safeguard requirements must be used in practice.

Taking account of the conditions and effects of the mechanisms described above, from a governance perspective the question now is why higher education

systems and higher education institutions are simply not coordinated using the hierarchy mechanism. In terms of steering capabilities and the achievement of goals, coordination through hierarchy obviously has the greatest potential—at least if institutional safeguards (power and/or legitimacy) are at hand. This is precisely the issue that was more or less openly propagated in planning and steering debates, especially in the 1960s and 1970s. However, the success of state attempts at steering by means of the hierarchy mechanism was somewhat limited.

A key explanation for this can be found in the description of the hierarchy governance mechanism: state actors were facing a serious control problem. Because not all actions can be controlled, hierarchical requirements were being undermined in everyday routine. The situation was exacerbated on the one hand by the efforts of higher education institutions and academics to secure their autonomy in the face of government interference and on the other hand by the fact that key processes in higher education (teaching and research) can hardly be controlled externally (see Chap. 5). Ultimately, it was seen that hierarchical coordination by the state only hypothetically solved the problem of steering.

Furthermore, hierarchical steering is subject to another problem. Having a leadership authority unilaterally determining actions is hardly conducive to developing innovative solutions. For higher education institutions, the capacity to innovate is of particular importance because research itself—as one of the two primary functions of higher education institutions—is based on generating innovative solutions. In terms of the research function of higher education institutions, coordination that does not promote innovation is to be viewed critically.[4]

Given the different objectives to be targeted, it is clear that governance mechanisms have their respective advantages and disadvantages. If the goal is primarily to enable state steering, hierarchy—both between the state and the higher education institutions and within the institutions—is still the method of choice, despite the problems discussed above. If on the other hand the aim is to achieve a high degree of innovation potential within the higher education system or higher education institutions, the picture is totally different. The lowest potential for innovation is to be found with hierarchy and majority decision-making since these are the mechanisms that restrict actors' freedom most of all. In contrast, the innovation potential arising through coordination via community, negotiation and markets/competition is much higher. It needs to be noted here that the capacity to innovate partly arises through coordination (market and competition), and partly by the absence of, or weak, coordination (community, negotiations).

Thus, we can witness a fundamental conflict in the transformation of governance structures in higher education systems and higher education institutions. Those mechanisms that have a particularly high potential for innovation imply minimal steering capacity from outside and those with a higher capacity for steering have the

[4]However, hierarchy can be a promising mechanism to implement innovation as quickly and broadly as possible. This can be seen, for example, in the state-driven and forced conversion to bachelor and master degree programs in Germany (Krücken 2007).

lowest potential for innovation. Attempts at changing the nature of coordination in relation to higher education systems and higher education institutions need to be viewed in this light. In this sense, reforms aim at ensuring a capacity for steering but also at still providing actors with leeway for innovation.

4.2 Typologies of Governance Regimes at Higher Education Institutions

In principle, the above description of ideal types of governance mechanisms explains the way they work. When applied to social units like higher education systems or higher education institutions, it should be noted that usually not just one, but several governance mechanisms come into play (Wald and Jansen 2007, 99; Wiesenthal 2000, 49; Mayntz and Scharpf 1995, 62). The combination of mechanisms used and their weighting then lead to a specific governance regime. In this context, typologies of governance regimes can be a useful analytical tool. In general, all of these typologies include two features: Firstly, they describe certain governance mechanisms[5]; secondly, they provide us with at least some indicators to determine the weighting of these governance mechanisms for a social unit.

In the following we will describe two typologies that reflect important results of research to date and facilitate the classification of the German higher education system and its higher education institutions in international comparison. We begin with the coordination triangle from Clark (1983), the first and most influential attempt at an international comparison of governance structures of various higher education systems. The second typology is the frequently used governance equalizer (Schimank 2002a, 2007a; de Boer et al. 2007).[6]

In the following our aim is not only to present a fundamental overview of governance research but we will also focus on two further aspects. Firstly, we analyze which of the general governance mechanisms described above are used in research in higher education. Secondly, with the knowledge gained of the ways in which governance mechanisms function, we discuss how suitable governance regimes are in terms of their innovation and steering capacities, while at the same time critically questioning the perceived benefits to be achieved when attempting to change the governance regime.

[5]It is striking that in higher education regime typologies, mechanisms of systemic (e.g. Ulrich and Probst 1984), and of individual self-discipline (e.g. Foucault 1977; Bröckling 2007) have not, or have only scarcely, been systematically examined. We attribute this to the fact that conscious and predictable external influence is hardly possible with this mechanism. This shows that the governance perspective is not exclusively, but is mainly, interested in mechanisms that can be consciously changed and planned.

[6]There are of course other typologies with their respective focal points. These include, for example, typologies from van Vught (1997) and McDaniel (1996) and also from Braun and Merrien (1999).

4.2.1 The Coordination Triangle

Clark's classification of governance regimes is basically the starting point for all subsequent typologies and is often referred to in more recent publications (e.g. Dobbins and Knill 2014).

In principle, Clark distinguishes between "state system, market system, and professional system" (Clark 1983, 136). Initially, Clark argues in terms of the two opposite poles: "state influence" and "market". Another level of classification is determined by the extent of the influence of the "academic oligarchy", i.e., the influence of academics. Thus, higher education systems are distinguished by the extent of influence of the state, the market and the academic oligarchy (Clark 1983, 139).

Clark sees in this a triangle of coordination in which the various governance regimes of national higher education systems can be classified. The position of the countries in this triangle illustrates "the relative weighting assigned to each of the three regulation models" (Braun 2001, 248). This has resulted in three extreme types that are strongly characterized by one of the three governance mechanisms (Clark 1983, 142).

The relative weighting of the state was particularly strong in the USSR in 1983, while market elements and the academic oligarchy only played a minor role (state model). In contrast, when Clark's analysis was carried out, the Italian higher education system was mostly characterized by the academic oligarchy, with state influence and market mechanisms being less pronounced (professional model). Unlike these two models, the higher education system in the USA was characterized by market coordination, with state influence and the influence of the academic oligarchy taking a back seat (market model). Most higher education systems, however, are not at one of the extreme points, but display a specific mix of the three forms of coordination (Fig. 4.1).

In 1983, this coordination triangle classified the German higher education system[7] as lying between the two poles of "state" and "academic oligarchy", while market mechanisms had little influence. Accordingly, Germany could be found close to Sweden and France. The state held a particularly strong position at the beginning of the development of German universities, which were founded by regional rulers. The central position of the state continued with the deployment of state *Curatoren* (state-appointed supervisors) at universities and the expansion of state administration in the nineteenth century, and was consolidated by the passing of state and national laws for higher education institutions in the 1960s and 1970s. Parallel to this is the dominant position of individual professors within higher education institutions—even after the "university of professors" (*Ordinarienuniversität*) was formally abolished in the1970s.

[7]Clark (1983) does not illustrate the German system in this figure. However, this classification is permitted in the light of the details presented on the German system.

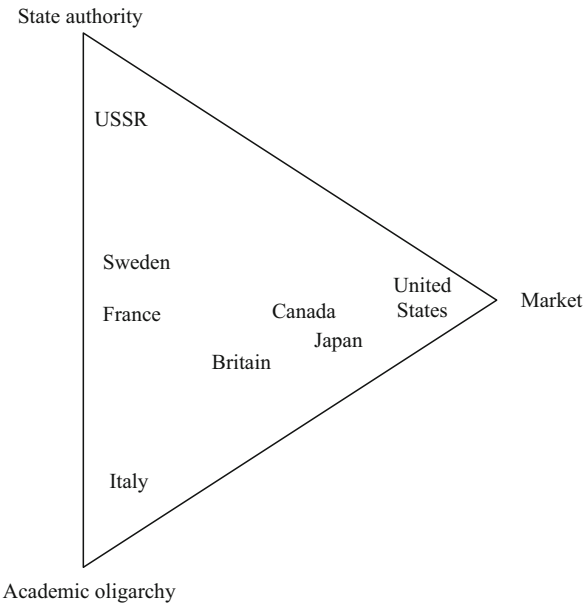

Fig. 4.1 Clark's coordination triangle Authors' illustration based on Clark (1983, 143)

Let us now apply the basic coordination mechanisms described above to Clark's extreme models. Coordination in state systems is particularly characterized by hierarchy, especially between state and higher education institution. In many areas, state actors determine the actions to be carried out in higher education institutions. As described above, this means that, on the one hand, there can be both control and information problems for decision makers, but also that there is limited potential for innovation because the actors hardly have any alternative opportunities for action at their disposal. By classifying the Soviet higher education system as a state system, at the same time Clark is also indicating the particular relevance of the effects of hierarchical coordination.

In the higher education system in the USA on the other hand, coordination takes place largely through the market. From previous observations we also know that this has certain associated effects. Thus, it can be assumed that the potential for innovation in market systems is particularly high because providers are looking to attain competitive advantage and are therefore looking for new solutions. Here, we can reckon with a high level of dynamism in the higher education system. Simultaneously however, goals not pursued by players in the market can only be achieved through external intervention. In the USA, the problem is not so much with the capacity to innovate, but with the implementation of overarching objectives defined by actors who are not directly involved in the market.

In terms of strong regulation through academic oligarchies it is also possible to draw some conclusions based on our observations of the coordination mechanisms. First of all, the academic oligarchy and the related strong position of academics point to coordination through community. However, the concept of oligarchy

emphasizes the fact that the community is pervaded by an asymmetric potential for influence. This asymmetric potential for influence within a community leads to an intensification of coordination given that some actors can more forcefully push through certain actions. Nonetheless, as is generally the case with large and heterogeneous communities where members are only partially included, coercive mechanisms are rarely likely to coordinate the actions of all members.

Differences in the strength of the asymmetry highlighted by the oligarchy will have various levels of impact on the potential for innovation. There is greater potential for innovation in a community mechanism—providing we are not dealing with small, homogeneous groups—primarily because alternative actions can be carried out and this because coordination is weak. Intensifying coordination with the help of oligarchic elements will reduce this potential for innovation. In addition, with a strong oligarchy, the community's isolation tendencies against the wider environment described above may increase. This can lead to the strengthening of conformity within the community, thus reducing the opportunities for alternative action. When a higher education system, such as the Italian system for example, is particularly characterized by the academic oligarchy, the strength and nature of the oligarchy will determine what effects can be expected in terms of innovation capacity. In contrast, the impact of implementing state objectives is relatively clear. Because overarching strategies can hardly be realized in communities, since the results of coordination can hardly be predicted, it is hardly possible to implement externally set goals. Such higher education systems and higher education institutions can hardly be steered from outside.

Connecting Clark's extreme models to the basic coordination mechanisms enables theoretically sound deductions to be drawn in relation to the effects and problems of coordination within higher education systems.

4.2.2 The Governance Equalizer

Another typology is the governance equalizer (de Boer et al. 2007; Schimank 2002a, 2005, 2007a), based on Braun and Merrien (1999) as well as Clark. This typology is currently deployed frequently, at least in European research on higher education. The equalizer attempts to capture the development of different European higher education governance regimes towards an "ideal type"[8] of new public management (de Boer et al. 2007).

[8]The term "ideal type" *(Idealtypus)*, sometimes translated as "pure type", refers to an analytical tool/a methodology introduced prominently by Weber (1946 [1919]). Ideal types are abstract constructions that overemphasize and simplify reality so as to better understand reality. In the sense of Weber, the term "ideal" should never be understood as something desirable or preferable. In addition, ideal types are not right or wrong; instead, they are useful or not useful to understanding social phenomena.

The typology distinguishes five different governance mechanisms that can be either strong or weak, namely state regulation, external guidance, academic self-organization, managerial self-governance and competition. The respective weighting of the mechanisms decides on the nature of the governance regime (de Boer et al. 2007, 138–140; Schimank 2002a). In comparison to Clark's triangle, the equalizer also differentiates levels of state steering, in which detailed state regulation and management by objectives (as part of the external guidance mechanism) can be distinguished. But unlike Clark, a detailed description of the internal coordination of higher education institutions considers not only the academic oligarchy, but also managerial self-governance as forms of coordination. Below, we take a closer look at all five governance mechanisms.

State Regulation

This mechanism describes the hierarchical steering of higher education institutions by the state. The influence of the state is implemented in the form of bureaucratic directives to the higher education institutions. Detailed directives issued by the state in respect of funding or personnel policies would speak for a high degree of state regulation. This is a hierarchy-based coordination with the previously discussed control and information problems and with a low level potential for innovation.

External Guidance

This mechanism comprises two types of coordination. Firstly, we again find hierarchical control by the state. In this case, however, it does not issue any detailed directives, but solely prescribes goals. Just how these goals are to be achieved is then a matter for the higher education institutions themselves. Thus, the assignment of a global budget without any directives on the areas where this budget is to be used is an example of external guidance, if, at the same time, the higher education institutions are assigned the goals to be achieved. Here it is clear that the potential effort connected with this hierarchical control is to be minimized. Thus, in this case, the state's effort is reduced to controlling the achievement of goals, not a multitude of individual actions. Furthermore, the state only needs information on which goals are suitable, while the choice of actions that lead to these goals being achieved is a matter for the higher education institutions. The potential for innovation within this type of hierarchical coordination is higher because although the goals have not been chosen by the higher education institution, the means to achieve them have. The implementation of regulation by controlling goals minimizes some of the problems of hierarchical control, at least theoretically.

Secondly, the external guidance mechanism involves a type of coordination in which the state integrates other actors into the governance of higher education institutions. This might be an intermediary organization (such as an accreditation agency, for example) or higher education boards of governors. This type of coordination may comprise hierarchical elements; on the other hand, however, we often

find hierarchy being replaced by coordination through negotiation. This becomes particularly clear with respect to boards of governors in Germany. In some federal states we find boards that can issue some hierarchical directives for the higher education institutions. However, it is more typical for boards to stand in the way of certain decisions, i.e., they have a veto position (Hüther 2009). If this is the case, we will find coordination through negotiation between the boards, the higher education leadership and/or the academic senate.

Transferring hierarchical competences to the newly-created intermediary units minimizes the control and information problems of hierarchical coordination. This happens because some intermediary units are formally a part of higher education institutions (for instance, some boards of governors) and it can then be assumed that higher degrees of control and density of information are possible.[9]

Managerial Self-Governance

Hierarchical self-control refers to the relative position of internal leaders in decision-making in higher education institutions. Managerial self-governance is high when presidents and deans can not only make but can also implement a multitude of decisions. We can thus find hierarchical coordination with the effects we have already addressed. However, unlike with state regulation, the control and information problem is not as pronounced because we can assume that the internal hierarchy enjoys greater proximity of decision makers, and thus has more information and better control opportunities.

Academic Self-Organization

Academic self-organization refers to the influence academics have in decision-making. Academics exert this influence through decision-making bodies they dominate (e.g., the academic senate). Decision-making primacy within these bodies is not based on hierarchy, but most typically on negotiation and subsequent majority decisions, with elements of community between academics also playing a role. Academic self-organization is held to be strong when a multitude of decisions can be taken by the academic bodies and the leadership's prime task is to implement these. We have also seen a number of effects to be expected here: no speedy and often imprecise decisions, but decisions with a high degree of legitimacy.

Competition

The fifth governance mechanism is the competition for funds, staffing and reputation. Higher education institutions could be in competition with each other, as can units within an institution.[10] This mechanism can either be integrated in markets or

[9]However, what speaks against such assumptions is that the boards of governors in Germany—in contrast to the ministries—do not have any administrative substructure (Hüther 2010, 354–355). It is precisely this that considerably minimizes control capacities.

[10]For a theoretical discussion of competition in higher education, particularly at the level of higher education institutions see Hasse and Krücken (2013) who employ neo-institutional, economic and sociological approaches.

Table 4.1 A comparison of the NPM ideal type and the traditional German model of governance

	NPM ideal type	Traditional German model
State regulation	Weak	Strong
External guidance	Strong	Weak
Managerial self-governance	Strong	Weak
Academic self-organization	Weak	Strong
Competition	Strong	Weak

quasi-markets, or can be without any connection to a market. In summary, the expectations can be defined as follows. The stronger coordination through the competition mechanism is, the more innovations are to be anticipated, with competitors trying to decide the competition in their favor through innovative solutions.

The ideal or pure type of new public management (NPM) is achieved by a certain combination of the five governance mechanisms. The NPM type is characterized by a low level of state regulation and academic self-organization. In contrast, the external guidance, managerial self-governance and competition mechanisms are more strongly pronounced.

As Table 4.1 shows, in comparison with the traditional German governance regime, the NPM type manifests an opposing weighting of the mechanisms.

Before we turn to the empirical application of the typology, we would briefly like to discuss which coordination effects are actually being targeted by adherents of the NPM type. We do this on the basis of the description of the basic coordination mechanisms provided above.

Strengthening external guidance and reducing state regulation help minimize information and control problems inherent in the state's hierarchical control. Likewise, greater variance—or an increase in innovative solutions—can be generated given that higher education institutions themselves can choose the means to achieve set goals. Because the state can determine higher education goals, there is still considerable potential for intervention, and attempts are made to ensure that the state can push through its own goals. Increasing competition should also help increase the potential for innovation.

By strengthening the internal hierarchy and simultaneously weakening academic self-organization the aim is to increase the speed and precision of decisions. In addition, fundamental change instigated by hierarchical coordination can be significantly more effectively achieved than by academic self-organization and the underlying mechanisms of community, negotiation and majority decision-making. However, other subsequent problems arise from changing the internal coordination mechanisms. Leadership authorities, whether these be presidents, rectors or deans, have to have power and/or legitimacy. Otherwise there is no guarantee that hierarchical decisions will be abided by. Secondly, although there are fewer control and information problems with the internal hierarchy than is the case with state

regulation thanks to the closer proximity of higher education leadership, these problems still exist.

Overall, we would like to highlight certain effects of the changes to the governance structures as part of the NPM reforms. As we have shown, the targeted changes can be theoretically deduced from observations of ideal types of coordination. One criticism is, however, that any attempts at change are based on a very technical and, ultimately, on an unrealistic understanding of coordination as it is assumed that practical coordination can be changed at will through formal regulations. This does not take account of the fact that governance mechanisms have institutional requirements and have to be socially embedded. Practical coordination does not take place in a vacuum: it is embedded in tradition and informal norms, for example.

Let us come now to the empirical application of the typology. Table 4.1 describes the five mechanisms as either strong or weak. The expression of strength for the respective governance mechanisms can of course vary between the two extreme poles. Seen in this light, we have a governance equalizer manifesting the respective weighting of governance mechanisms for a given social unit (see Fig. 4.2).

This governance equalizer was used by de Boer et al. (2007) to capture recent developments in higher education systems in a variety of countries. The point where the arrows start indicates the importance of each governance mechanism at the start of the 1980s in each country. The tip of the arrow indicates how the importance of this mechanism had developed by 2006. Taking state regulation as an example, its importance was low in England in the early 1980s, high in the Netherlands and particularly high in Germany. Since then its importance has increased in England but fallen in the other three countries. The greatest decline can be found in Austria and the smallest change in Germany. The gray blocks indicate the level of importance of each governance mechanism in the ideal or pure type of the new public management. We can see that by 2006 none of the four countries had achieved the ideal-typical level of state regulation.

The equalizer shows that in all the countries observed there were considerable changes in the weighting of the individual governance mechanisms, but that at this time none of the countries had completely implemented the ideal type of NPM.

On the basis of the description and classification, we can assume that changes to the German governance regime have been the smallest in comparison to other countries examined and that, overall, the distance to the ideal type of the NPM is the greatest. However, in terms of the individual mechanisms, there has been some movement towards the NPM type. This is expressed first and foremost by a reduction in state regulation and academic self-organization coordination, with coordination through external guidance, managerial self-governance and competition increasing. With de Boer et al. we can conclude that the German governance regime has been shifting towards the ideal type of NPM, but that, in comparison to

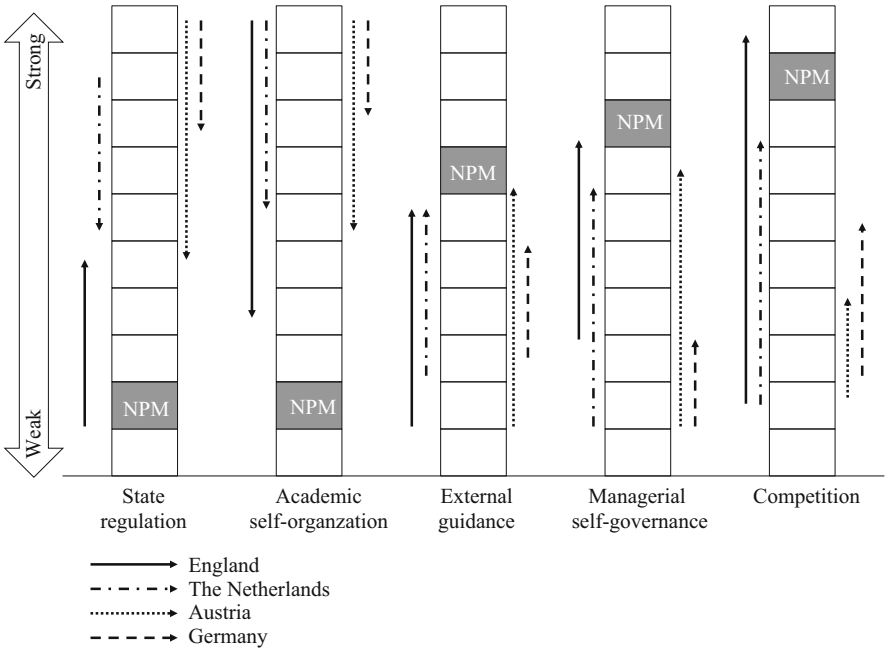

Fig. 4.2 Governance equalizer
Source: Authors' illustration based on de Boer et al. (2007, 149)

other national systems observed, the shift has been somewhat moderate (de Boer et al. 2007, 149).

The strength of the governance equalizer can clearly be seen in the fact that it can be used to graphically capture and represent developments in the various countries. It also shows that there are tendencies towards the NPM ideal type in all the countries examined. However, the use of an ideal type comes with some restrictions. Ideal types are abstract simplifications and not sufficient for an in-depth analysis of differences in the way NPM is implemented in policies, formal regulations and practices. Therefore, the observed tendencies towards NPM can be a result of very different policies, formal regulations and practices. In addition, from our point of view there is a fundamental problem with both governance typologies. Often there are no clear criteria or empirically usable operationalizations that verify the weighting of a given governance mechanism. Instead, the classification is based on experience and verbal descriptions of higher education systems that are more or less verifiable.

Although Schimank (2007a) proposed a weighting of governance mechanisms, this has not yet been used empirically. The proposal is also not without considerable uncertainty. It is not clear, for example, how to determine a low, medium or high

level of regulation in terms of staffing matters. In fact, some not insignificant questions arise: Which personnel decisions should be taken into account for the classification? In terms of these decisions, which criteria define a high to low level regulation? Is the assessment of regulation based on formal requirements or actual processes? How are the figures for the individual personnel decisions aggregated into an overall value?

As useful as typologies are to facilitate international comparisons of governance regimes, there is still a shortage of verifiable and clear, empirical operationalizations of governance mechanisms. When applying typologies, it is not rare to find a concentration on formal changes to governance structures. At times, there are comparisons that have observed formal structures at one time, but at another time actual dealings with these structures (for an example see de Boer et al. 2007). Not enough attention has been paid to the fact that although formal structures are easy to change, they do not necessarily apply to actual coordination in higher education institutions. In fact, there is the risk that changes in governance structures can be overestimated, with "wear and tear" effects not being taken into account when implementing change. The results of current research on governance which we will be presenting below show that it was the rule rather than the exception to overestimate the significance of changes in governance regimes in the 2000s.

4.3 Current Results of Governance Research

In the following we present some selected results of international comparative research on governance and recent results in relation to the German system. It is not our aim to present the whole gamut of recent research, but to highlight some key aspects.

Overall, recent research on governance reveals two key facts: firstly, a clear differentiation in the implementation of the NPM ideal type in European countries; secondly, greater emphasis on ambivalence and the contradictions arising in connection with changes to governance structures. Linked to the latter is the fact that empirical investigations of transintentional consequences of governance reforms are on the rise.

In more recent international comparative research on governance we find a focus on a new global governance model for higher education institutions (e.g. Dobbins and Knill 2009, 425; Baker and Lenhardt 2008; Enders et al. 2013, 9). This model broadly complies with the NPM ideal type described above and obviously plays a key role at the discursive level in the individual countries. This is attributable to attempts to generate legitimation for reform plans in individual countries by referring to a "global model" in discussions (Lange and Schimank 2007, 525; Hall 1993).

However, if we leave this discursive level, we find significant differences in the formal implementation of this global model. This was already seen in the article by de Boer et al. (2007) discussed earlier. Other comparative studies and projects draw attention to the large differences in the formal implementation of NPM (Paradeise

et al. 2009; Dobbins and Knill 2009, 2014; Dobbins and Leisyte 2014; Reale and Seeber 2013; Bleiklie and Michelsen 2013). In addition, it is clear that differences not only refer to countries, but are also to be found within national systems at the organizational level of higher education institutions (Paradeise and Thoenig 2013, 2015; Seeber et al. 2015; Capano and Regini 2014). Overall, it can be concluded that although there is a global model at the discursive level, there are differences in the formal implementation at national and local levels. There are thus different "translation" and "editing" processes of the global model (for both concepts see for example Sahlin and Wedlin 2008).[11]

Given the research results on the differentiated implementation of NPM in European countries, in recent years a series of articles has been looking at how these differences arise or at what these differences could depend on. Thus, for example, Ferlie et al. (2008) describe that different "narratives of public reform" are being used at national level that do not completely focus on NPM. Such "narratives" are to be seen as attempts to place single reform measures into larger contexts by embedding them in narratives, thus giving them legitimation and meaning. Besides the NPM narrative there are also narratives in relation to network governance and neo-bureaucracy. Depending on the country, these three at least partly contradictory narratives can be found in different strengths which then lead to a differentiated focus on NPM.

Another factor that partly explains different degrees of implementation or influences the likelihood of a stronger or weaker orientation towards NPM appears to be the political and administrative system of the respective country (Bleiklie and Michelsen 2013). This includes aspects such as the state's structure (centralized or federal), for example, or the type of government (a majority system such as that in Britain for instance, or consensus systems with coalitions such as in Germany or in Switzerland) both of which have an impact on the implementation of NPM. In addition, Jungblut (2015) discusses the role of different configurations and historical legacies of political parties in European countries.

Yet another factor concerns the timing of the implementation of NPM reforms or the adoption of individual elements (Dobbins and Knill 2009; Reale and Seeber 2013). These involve situational factors that help determine how high the level of acceptance is, or what the chances are of implementing comprehensive change at a given point in time. The point in time and the related "momentum" (Dobbins and Knill 2009, 425) thus play a role in respect of the different degrees of implementation of NPM.

Furthermore, past tradition in higher education systems is an important factor for the different degrees of implementation (e.g. Reale and Seeber 2013, 149; Ramirez and Christensen 2013), often referred to as path dependency.[12]

[11] Such "translation" and "editing" processes can basically be found in all nations. A particularly interesting case of the "translation" process is the "Islamist new public management" which combines elements of political Islam with the NPM as Babyesiza (2015) noted in her analysis of higher education governance in South Sudan.

[12] For more on this concept Beyer (2006).

As interesting as the individual results of this research into factors affecting the implementation of NPM might be, to date there is unfortunately no comprehensive systemization of such factors. A systematic comparison of the various factors would be beneficial to gain stronger coherence and, in particular, an understanding of the relationship of the relative influence of the various factors.

The different degrees to which NPM has been implemented can not only be seen in an international context, but also in the individual states in Germany. In Germany, the governance regime for all higher education institutions was by and large regulated from 1976 at national level in the Framework Act for Higher Education (*Hochschulrahmengesetz*). This provided a uniform governance regime[13] for all German higher education institutions. However, this changed in 1998 with an amendment to the Act which deleted the organizational regulations and the decision-making rules for higher education institutions. Thereafter, the states were free to define their own regulations for their institutions. Since then, the states have made heavy use of this opportunity to introduce new governance regimes. As a result, the NPM has been implemented to very different degrees at state level in Germany.

To illustrate this, we should look at the key results of a study by Hüther (2010, 2011, 2012). Here, he analyzed formalized decision-making rules in the states' own higher education acts in respect of the influence of ministries of education and science, boards of governors, higher education leadership (president/deans), and academic bodies in which professors held the majority. The influence of these instances on the formal decision-making level was measured as follows.

Initially, key structural[14] and personnel[15] decisions were selected for analysis. If the unit had significant influence[16] over a structural decision, the decision-making unit received one point. The points were then added across all structural decisions and then divided by the number of structural decisions. The result is then a figure between 0 and 1, where 0 implies no significant influence on structural decisions and 1 a significant influence across all structural decisions. The same procedure was carried out for selected personnel decisions. The figures for both structural and personnel decisions were then added and divided by two. The result was a number between 0 and 1 for each decision-making unit and each state for key decisions concerning structure and personnel.

[13]There were some differences within the states, but these largely concerned questions of detail.

[14]Structural decisions: Target and performance agreements; structure and development plans; budget allocation and criteria; establishment, modification, closure of faculties/departments; establishment, modification, closure of degree courses; adopting and amending basic regulations (six decision processes).

[15]Personnel decisions: Selection of board of governors members, election and voting out of the president/rector, vice presidents, chancellor and deans (nine decision processes).

[16]Significant influence means that the decision-making unit can at least force negotiations over the area to be decided. This is the case, for example, when a unit has to approve a decision, makes the decision or has a binding right to make proposals for filling a vacancy. In contrast, there is no significant influence if the unit only has the right to be heard or the right to be consulted.

The findings of this analysis are shown in Fig. 4.3. Here is it clear that the formal decision-making influence of different units observed in the states varies enormously. If the relationships of the decision-making influence of internal units (leadership, boards of governors, academic bodies) are used as a basis for comparing the 16 German states, various governance models can be distinguished. Thus, we find states in which higher education leadership has significantly greater influence than other units (leadership model), states in which both higher education leadership and boards of governors have particularly high levels of influence (leadership-board model), states in which the three internal units enjoy roughly the same degree of influence (leadership-board-academic model), states in which mainly higher education leadership and academic bodies have an influence on decisions (leadership-academic model) and finally states in which academic bodies have significantly more influence than other units (academic model).

It is also striking that in some states, the ministry exerts considerable influence (such as Baden-Württemberg) while in others the influence of the ministry was severely restricted (North Rhine-Westphalia). However, a statutory amendment passed in 2015 gave further strength to the influence of the ministry in North Rhine-Westphalia.

The analysis does show however that there is a common feature across most states: in most decision-making areas under observation, legal provisions envisage negotiations between the various decision-making units. It is rather atypical for one unit to make a decision alone. This means that, as before, the dominant governance mechanism at German higher education institutions is negotiation and not hierarchy. What do vary are the different units that are formally involved in negotiations on the various decisions.

It is also clear that at a formal level the states have implemented the NPM ideal type to varying degrees in their higher education acts. Therefore we find varying "hybrid types" (Bogumil et al. 2013) in the states between the traditional German governance regime and the NPM type. It should be noted that there is no longer any uniform German governance regime, at least not on a formal level. The harmonization of governance regimes in German higher education institutions established through the Higher Education Act of 1976 has been replaced by renewed and considerable differentiation at state level.[17] To date, this differentiation at state level remains fairly unstable in the light of the frequent legislative amendments.

The second key finding of international research on governance is that changes can trigger significant transintentional effects. In our opinion, the fact that these effects have only recently been the subject of research is because research is now focusing on patterns of practice, not so much on the formal changes that were investigated at the beginning of the 2000s. Likewise, in the course of this more recent research we are witnessing a certain relativism of the de facto changes in

[17]The differentiation is actually even greater if we consider that many state higher education acts contain experimentation provisions that allow higher education institutions—given the approval of the ministry—to define decision-making structures in their statutes that run counter to the law.

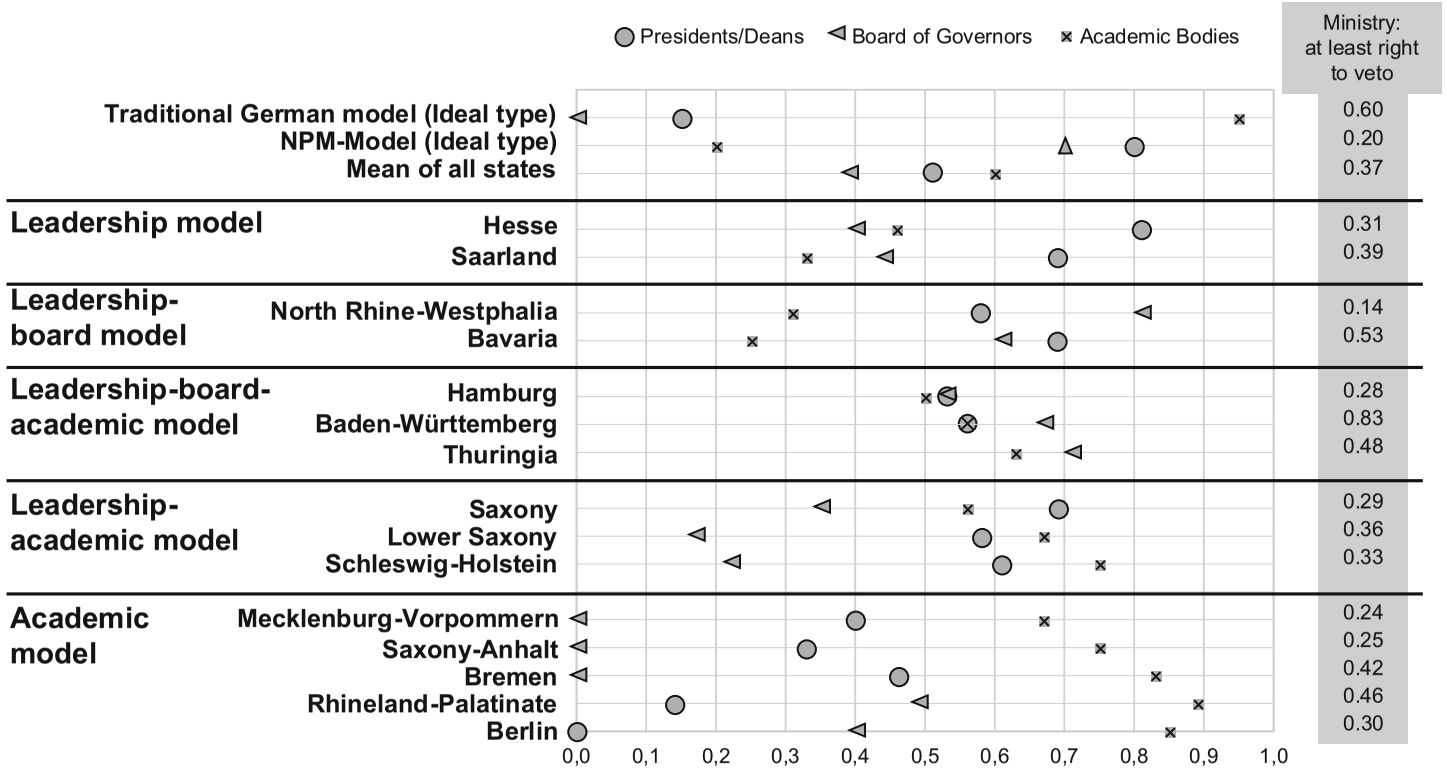

Fig. 4.3 Formal governance models in Germany (2012)

higher education institutions: Although changes at the discursive and formal levels can be relatively radical and swift, changes in practice are typically much slower and more incremental (e.g. Krücken 2006).

Thus, for various countries, despite the considerable formal weakness of academic committees, the informal norm of collegiality is as strong as before and has an impact on the actual decision-making processes in higher education institutions (Paradeise et al. 2009; Braun et al. 2015).

This affects German higher education institutions especially, as a series of recent studies show (e.g. Bieletzki 2012; von Stuckrad and Gläser 2012; Gläser and von Stuckrad 2013; Kleimann 2014, 2015; Bieletzki 2018). We see a key reason for this in the fact that although there has been a concentration of decision-making power in higher education leadership at the formal level in the course of reforms in Germany (differing in strength from state to state), in reality such formal changes can hardly be implemented because the institutional conditions of hierarchy simply do not exist.

As we have already seen in the description of the general coordination mechanisms, coordination through the mechanism of hierarchy requires legitimation and/or power. However, hierarchical decision-making structures contradict the long tradition of collegial decision-making in Germany and have therefore been rejected by a considerable proportion of academics. In other words, the new decision-making structures do not have sufficient legitimacy among academics, as has been clearly identified in the empirical results of the study conducted by Bogumil et al. (2013), for example. The researchers found considerable differences in the assessments of the new regulatory instruments made by higher education leadership and professors, with the latter viewing the new instruments much more critically.

In addition, higher education leadership hardly has any power—a necessary condition for the success of hierarchical decisions-making—to exert over academics at German higher education institutions. They can neither threaten professors with dismissal—as professors' employment contracts are usually non-terminable—nor can they hinder or facilitate an academic's career, because German higher education does not envisage careers within one and the same higher education institution (Hüther and Krücken 2011, 2013). For Germany, we can therefore see that although politics has partially changed the formal rules of decision-making, it has done so without in parallel creating the institutional conditions to implement the new regulations in real terms.

Consequently, coordination has to draw on a mechanism that is not contingent on so many requirements hitherto unknown to the system and its actors. And this is precisely what happens because coordination is conducted via a negotiation mechanism although formal hierarchical decisions are also envisaged (e.g. Kleimann 2014, 2015; Gläser and von Stuckrad 2013). As a result, this leads to greater informality in higher education institutions because these formal regulations are—and have to be—circumvented. Thus, as has been established in several studies on Germany, higher education leadership forms ad hoc committees and prepares decisions through them. Without being envisaged in any formal sense, these ad hoc committees are used as consultation committees on the one hand and—more importantly—aim at legitimizing

decisions internally. Given that governance reforms also aim at regulating decision-making responsibilities in a more clear-cut fashion, what we see here is obviously a transintentional effect of reform.

Such ad hoc groups are also often deployed to prepare decisions that academic bodies have to approve. Unlike formally designated academic bodies, higher education leadership is able to select the members for these informal ad hoc groups itself. However, members of the academic senate are always included in the ad hoc groups. For higher education leadership, the aim of this process is to increase the likelihood of decisions being taken in the direction it wants. By setting up such ad hoc groups, higher education leadership is likely to see two specific benefits. Firstly, by changing the composition of the ad hoc group it can also change the negotiations and thus change the results of the negotiations. This is not possible in the case of the academic senate. Secondly, again unlike the situation with the academic senate, ad hoc groups are created and legitimized by the higher education leadership which ensures that leadership controls the agenda setting together with all its related opportunities to influence decisions. If the ad hoc group and the higher education leadership agree on a decision, any potential resistance from the academic senate will at least be allayed, both through the approval of the ad hoc group and the consequent legitimation, and also by the integration of some of the members of the academic senate in the ad hoc group. How successful this new strategy will be in the course of time remains to be seen. At the moment, however, we can see some successful but also some disastrous examples—including the voting out of presidents.

Braun et al. (2015) draw attention to an interesting form of continuing the strong position of academic self-organization. The authors found that although the leadership at a Swiss university they studied held a very dominant position, there were hardly any hierarchical decisions. According to the authors, this was not because of tradition, of culture or of the absence of any sanctions, but because the dominant coordination mechanism at the university is "negotiations in the shadow of hierarchy" (Mayntz and Scharpf 1975).

Although this coordination mechanism basically envisages negotiations, all negotiation partners know that if the results of the negotiation are not satisfactory, an overriding decision-making unit can also make hierarchical decisions. Negotiations are therefore permanently being threatened by the fact that hierarchical decisions could be made that would be less favorable for all involved. If this threat of hierarchical decision-making is actually credible, negotiating partners will be anticipating which result this overriding unit would accept. By anticipating the situation in this way, results are achieved that are at least acceptable for the overriding unit, which is why no hierarchical decisions are actually being made. This means that academic self-organization committees show "anticipatory obedience" and the leaders gain cost favorable (a credible threat is sufficient) and better legitimated (everyone agrees with the results of the negotiation) results than if the decisions had been made through the mechanism of hierarchy.

The literature provides us with further transintentional effects that are connected to changes in governance structures in various countries. For example, studies report on an increase in bureaucracy within higher education institutions (e.g. Friedrichsmeier 2012; Enders et al. 2013, 14). At the same time, it can be seen that the autonomy of higher education institutions has in fact hardly increased despite the state exerting significantly less detailed control. This is because newer controls outlined in target and performance indicators and controls through the interventions of newly-created actors (e.g., accreditation and evaluation agencies) keep the decision-making scope of higher education institutions in check (e.g. Enders et al. 2013).

Other transintentional effects can be seen in relation to academics themselves. Data from the internationally comparative CAP study (The Changing Academic Profession) shows that the bond between academics and their higher education institutions has weakened, especially in countries where reforms are strongly influenced by NPM (Jacob and Teichler 2011, 83). A strong focus of reforms towards NPM seems to have a negative effect on the relationship between academics and their higher education institutions and departments. Furthermore, using CAP data Shin and Jung (2014) show that in countries where the NPM model has been especially strong, perceived stress at work felt by academics is particularly high.

Time and again, discussions also arise on whether the newly-created incentives (e.g., performance-related pay for professors, short-term funding) lead to extrinsic motivations crowding out the intrinsic motivation of academics which is considered to be central to science and higher education by sociologists of science (e.g. Merton 1973; Luhmann 1992).[18] If this is the case, one would expect that the primary goal of researchers would no longer be the intrinsically motivated search for truth, but fulfilling criteria that lead to extrinsic rewards (Osterloh 2012; Schimank 2010). It will no longer be about acquiring funds for an interesting and innovative research project with the aim of advancing knowledge, but about the acquisition of research funds per se.

In addition, it is interesting to note that in relation to the more recent changes, research often describes how the influence of academics in individual higher education institutions has declined. However, at the level of the higher education system, influence has risen (e.g. Enders and Westerheijden 2014, 9; Whitley 2014, 374). This can be explained by the fact that evaluations and assessments in higher education systems, which have increased significantly overall, are usually carried out by academics, in turn considerably increasing their influence.

A key difference appears to be that, unlike at the level of higher education institutions described above, the influence of academics is not evenly distributed. Instead, there is a heavy concentration of potential for influence at system level (e.g. Münch 2006b). This effect is evidenced by the fact that academics with a

[18]Such effects are described in the "crowding out" theory (e.g. Osterloh and Frey 2000; Frey and Oberholzer-Gee 1997; for recent studies see Welpe et al. 2015).

particularly strong reputation are more often called upon for reviews of research units, third-party funding projects or journal articles. While it can certainly be assumed that one intention of the changes undertaken in higher education governance is to restrict the influence of academics in the organizational decision-making processes within higher education institutions (e.g. Enders and Kaulisch 2005), the actual implementation of limitations to influence has the transintentional effect of increasing the influence of academics at system level.

Transintentional effects are also frequently discussed with regard to academic research. The rising competition and the increase in research sponsored by third-party funding are considered to be responsible for an increase in mainstream and a decrease in groundbreaking innovative research (e.g. Münch 2006a; Lee 2007). However, Winterhager (2015) shows for Germany that research groups from a variety of disciplines are reacting to the competition for third-party funding with different strategies and goals. The effects of an increase in competition and research sponsored by third-party funding may well be different from subject to subject, with some disciplines revealing desired effects but others stronger transintentional effects.

It is also argued that although the quantitative output of higher education institutions in terms of publications has increased, this cannot necessarily be said of the quality of the output (Osterloh 2012). Among other things, this is because academics are reacting to new performance criteria and increased competition with a publication strategy aimed at sharing research results in the smallest possible units that can be published. In other words, they can be said to be "salami slicing" (e.g. Butler 2003).

Whitley (2014) also draws attention to the fact that given the changes in authority relationships, the scope for academics to undertake risky and long-term research has become smaller. However, there are considerable differences between individual national settings and disciplines (see the chapters in Whitley and Gläser 2014). Findings reported by Heinze et al. (2009) also reveal a similar pattern. Here, it can be seen that when the competition mechanism produces too high a concentration of funds the impact on innovative research can be negative because successful researchers receive more funds and thus the size of their research groups grow. But scientific breakthroughs are achieved more frequently in smaller research groups. For Germany, Jansen et al. (2007) argue that above a given concentration of research funds, output does not rise in proportion to the level of funding.

With the help of the governance perspective, a great number of interesting and important research findings have been obtained in recent years both at the international and the German level. Major scientific advances have been made, in particular thanks to interdisciplinary perspectives, the use of international comparisons and the differentiated observations of regulation structures of social units. Thus, for Germany, although there has been a clear orientation towards the NPM model, its implementation has been somewhat moderate—especially when viewed internationally—both in terms of legal provisions and its practical impact. In addition, given the federal structure of higher education in Germany, developments vary from state to state.

References

Adler, P. S. (2001). Market, hierarchy, and trust: The knowledge economy and the future of capitalism. *Organization Science, 12*(2), 215–234. https://doi.org/10.1287/orsc.12.2.215.10117.

Austin, I., & Jones, G. A. (2015). *Governance of higher education: Global perspectives, theories, and practices*. New York: Routledge.

Babyesiza, A. (2015). *University governance in (post-)conflict southern Sudan 2005–2011: The nexus of Islamism, new public management and neopatrimonialism*. Wiesbaden: VS Verlag.

Baker, D. P., & Lenhardt, G. (2008). The institutional crisis of the German research university. *Higher Education Policy, 21*(1), 49–64. https://doi.org/10.1057/palgrave.hep.8300178.

Bauman, Z. (2001). *Community: Seeking safety in an insecure world*. Cambridge: Polity Press.

Bevir, M. (2012). *Governance: A very short introduction*. Oxford: Oxford University Press.

Beyer, J. (2006). *Pfadabhängigkeit. Über institutionelle Kontinuität, anfällige Stabilität und fundamentalen Wandel*. Frankfurt am Main/New York: Campus.

Bieletzki, N. (2012). "Möglichst keine Konflikte in der Universität". Qualitative Studien zu Reformprojekten aus der Sicht von Universitätspräsidenten. In U. Wilkesmann & C. J. Schmid (Eds.), *Hochschule als Organisation* (pp. 155–164). Wiesbaden: VS Verlag.

Bieletzki, N. (2018). *The power of collegiality. A qualitative analysis of university presidents' leadership in Germany*. Wiesbaden: VS Verlag.

Bleiklie, I., & Michelsen, S. (2013). Comparing HE policies in Europe. *Higher Education, 65*(1), 113–133. https://doi.org/10.1007/s10734-012-9584-6.

Bogumil, J., Burgi, M., Heinze, R. G., Gerber, S., Gräf, I.-D., Jochheim, L., et al. (2013). *Modernisierung der Universitäten. Umsetzungsstand und Wirkungen neuer Steuerungsinstrumente*. Berlin: Edition Sigma.

Braun, D. (2001). Regulierungsmodelle und Machtstrukturen an Universitäten. In E. Stölting & U. Schimank (Eds.), *Die Krise der Universitäten* (pp. 243–262). Wiesbaden: Westdeutscher Verlag.

Braun, D., & Merrien, F.-X. (1999). Governance of universities and modernisation of the state: Analytical aspects. In D. Braun & F.-X. Merrien (Eds.), *Towards a new model of governance for universities? A comparative view* (pp. 9–33). London/Philadelphia: Jessica Kingsley Publishers.

Braun, D., Benninghoff, M., Ramuz, R., & Gorga, A. (2015). Interdependency management in universities: A case study. *Studies in Higher Education, 40*(10), 1829–1843. https://doi.org/10.1080/03075079.2014.914913.

Bröckling, U. (2007). *Das unternehmerische Selbst: Soziologie einer Subjektivierungsform*. Frankfurt am Main: Suhrkamp.

Butler, L. (2003). Explaining Australia's increased share of ISI publications – The effects of a funding formula based on publication counts. *Research Policy, 32*(1), 143–155. https://doi.org/10.1016/s0048-7333(02)00007-0.

Capano, G., & Regini, M. (2014). Governance reforms and organizational dilemmas in European universities. *Comparative Education Review, 58*(1), 73–103. https://doi.org/10.1086/672949.

Clark, B. R. (1983). *The higher education system. Academic organization in cross-national perspective*. Berkeley: University of California Press.

de Boer, H., Enders, J., & Schimank, U. (2007). On the way towards new public management? The governance of university systems in England, the Netherlands, Austria, and Germany. In D. Jansen (Ed.), *New forms of governance in research organizations. Disciplinary approaches, interfaces and integration* (pp. 137–152). Dordrecht: Springer.

Dobbins, M., & Knill, C. (2009). Higher education policies in central and Eastern Europe: Convergence towards a common model? *Governance, 22*(3), 397–430. https://doi.org/10.1111/j.1468-0491.2009.01445.x.

Dobbins, M., & Knill, C. (2014). *Higher education governance and policy change in Western Europe: International challenges to historical institutions*. Basingstoke/New York: Palgrave Macmillan.

Dobbins, M., & Leisyte, L. (2014). Analysing the transformation of higher education governance in Bulgaria and Lithuania. *Public Management Review, 16*(7), 987–1010. https://doi.org/10.1080/14719037.2013.770060.

Durkheim, É. (1933 [1893]). *The division of labor in society*. New York: Macmillan.

Enders, J., & Kaulisch, M. (2005). Vom Homo Academicus zum Homo Oeconomicus? Die doppelte Kontextualisierung der Forschung und ihre (möglichen) Folgen für die Wissenschaft als Beruf. In M. Pfadenhauer (Ed.), *Professionelles Handeln* (pp. 207–220). Wiesbaden: VS Verlag.

Enders, J., & Westerheijden, D. F. (2014). The Dutch way of new public management: A critical perspective on quality assurance in higher education. *Policy and Society, 33*(3), 189–198. https://doi.org/10.1016/j.polsoc.2014.07.004.

Enders, J., de Boer, H., & Weyer, E. (2013). Regulatory autonomy and performance: The reform of higher education revisited. *Higher Education, 65*(1), 5–23. https://doi.org/10.1007/s10734-012-9578-4.

Engels, A. (2009). Die soziale Konstitution von Märkten. In J. Beckert & C. Deutschmann (Eds.), *Wirtschaftssoziologie. Sonderheft Kölner Zeitschrift für Soziologie und Sozialpsychologie* (pp. 67–86). Wiesbaden: VS Verlag.

Ferlie, E., Musselin, C., & Andresani, G. (2008). The steering of higher education systems: A public management perspective. *Higher Education, 56*(3), 325–348. https://doi.org/10.1007/s10734-008-9125-5.

Foucault, M. (1977). *Discipline & punish*. London: Allen Lane.

Frey, B. S., & Oberholzer-Gee, F. (1997). The cost of price incentives: An empirical analysis of motivation crowding-out. *The American Economic Review, 87*(4), 746–755.

Friedrichsmeier, A. (2012). Varianten der Messung von Organisationsführung. Das Beispiel des Effekts von Anreizsteuerung auf den Formalitätenaufwand der Hochschullehrer. In U. Wilkesmann & C. J. Schmid (Eds.), *Hochschule als Organisation* (pp. 165–190). Wiesbaden: VS Verlag.

Gläser, J. (2007). Gemeinschaft. In A. Benz, S. Lütz, U. Schimank, & G. Simonis (Eds.), *Handbuch Governance. Theoretische Grundlagen und empirische Anwendungsfelder* (pp. 82–92). Wiesbaden: VS Verlag.

Gläser, J., & von Stuckrad, T. (2013). Reaktionen auf Evaluationen: Die Anwendung neuer Steuerungsinstrumente und ihre Grenzen. In E. Grande, D. Jansen, O. Jarren, A. Rip, U. Schimank, & P. Weingart (Eds.), *Neue Governance der Wissenschaft. Reorganisation – externe Anforderungen – Medialisierung* (pp. 73–93). Bielefeld: Transcript.

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology, 91*(3), 481–510. https://doi.org/10.1086/228311.

Hall, P. A. (1993). Policy paradigms, social learning, and the state: The case of economic policymaking in Britain. *Comparative Politics, 25*(3), 275–296. https://doi.org/10.2307/422246.

Hasse, R., & Krücken, G. (2013). Competition and actorhood: A further expansion of the neo-institutional agenda. *Sociologia Internationalis, 51*(2), 181–205. https://doi.org/10.3790/sint.51.2.181.

Heinze, T., Shapira, P. R., & Senker, J. (2009). Organizational and institutional influences on creativity in scientific research. *Research Policy, 38*(4), 610–623. https://doi.org/10.1016/j.respol.2009.01.014.

Hüther, O. (2009). Hochschulräte als Steuerungsakteure? *Beiträge zur Hochschulforschung, 31*(2), 50–73.

Hüther, O. (2010). *Von der Kollegialität zur Hierarchie? Eine Analyse des New Managerialism in den Landeshochschulgesetzen*. Wiesbaden: VS Verlag.

Hüther, O. (2011). New Managerialism? Gemeinsamkeiten und Differenzen der Leitungsmodelle in den Landeshochschulgesetzen. *die hochschule, 20*(1), 50–72.

Hüther, O. (2012). Wandelbarkeit von Forschungsstrukturen in deutschen Universitäten. Eine Analyse der Landeshochschulgesetze. In T. Heinze & G. Krücken (Eds.), *Institutionelle Erneuerungsfähigkeit der Forschung* (pp. 127–155). Wiesbaden: VS Verlag für Sozialwissenschaften.

Hüther, O., & Krücken, G. (2011). Wissenschaftliche Karriere- und Beschäftigungsbedingungen. Organisationssoziologische Überlegungen zu den Grenzen neuer Steuerungsmodelle an deutschen Hochschulen. *Soziale Welt, 62*(3), 305–325. https://doi.org/10.5771/0038-6073-2011-3-305.

Hüther, O., & Krücken, G. (2013). Hierarchy and power: A conceptual analysis with particular reference to new public management reforms in German universities. *European Journal of Higher Education, 3*(4), 307–323. https://doi.org/10.1080/21568235.2013.850920.

Jacob, A. K., & Teichler, U. (2011). Der Wandel des Hochschullehrerberufs im internationalen Vergleich. In *Ergebnisse einer Befragung in den Jahren 2007/08*. Bonn: BMBF.

Jansen, D., Wald, A., Franke, K., Schmoch, U., & Schubert, T. (2007). Drittmittel als Performanzindikator der wissenschaftlichen Forschung. Zum Einfluss von Rahmenbedingungen auf Forschungsleistungen. *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 59*(1), 125–149. https://doi.org/10.1007/s11577-007-0006-1.

Jungblut, J. (2015). Bringing political parties into the picture: A two-dimensional analytical framework for higher education policy. *Higher Education, 69*(5), 867–882.

Kleimann, B. (2014). Universitätspräsidenten als "institutional entrepreneurs"? Unternehmensmythen und Führungsfabeln im Hochschulbereich. In E. Scherm (Ed.), *Management unternehmerischer Universitäten: Realität, Vision oder Utopie?* (pp. 43–61). München: Rainer Hampp.

Kleimann, B. (2015). *Universität und präsidiale Leitung. Führungspraktiken in einer multiplen Hybridorganisation*. Wiesbaden: VS Verlag.

Krücken, G. (2006). Wandel – welcher Wandel? Überlegungen zum Strukturwandel der universitären Forschung in der Gegenwartsgesellschaft. *die hochschule, 15*(1), 7–18.

Krücken, G. (2007). Organizational fields and competitive groups in higher education: Some lessons from the bachelor/master reform in Germany. *Management Revue, 18*(2), 187–203.

Lange, S., & Schimank, U. (Eds.). (2004). *Governance und gesellschaftliche Integration*. Wiesbaden: VS Verlag.

Lange, S., & Schimank, U. (2007). Zwischen Konvergenz und Pfadabhängigkeit: New Public Management in den Hochschulsystemen fünf ausgewählter OECD-Länder. In K. Holzinger, H. Jörgen, & C. Knill (Eds.), *Transfer, Diffusion und Konvergenz von Politiken. PVS Sonderheft 38* (pp. 522–548). Wiesbaden: VS Verlag.

Le Grand, J. (1991). Quasi-markets and social policy. *The Economic Journal, 101*(408), 1256–1267. https://doi.org/10.2307/2234441.

Lee, F. S. (2007). The research assessment exercise, the state and the dominance of mainstream economics in British universities. *Cambridge Journal of Economics, 31*(2), 309–325. https://doi.org/10.1093/cje/bel021.

Luhmann, N. (1989). *Ecological communication*. Chicago: University of Chicago Press.

Luhmann, N. (1992). *Die Wissenschaft der Gesellschaft*. Frankfurt/Main: Suhrkamp.

Mayntz, R. (1993a). Governing failures and the problem of governability: Some comments on theoretical paradigms. In J. Kooiman (Ed.), *Modern governance. New government – Society interactions* (pp. 9–20). London: Sage.

Mayntz, R. (1993b). Policy-Netzwerke und die Logik von Verhandlungssystemen. In A. Héritier (Ed.), *Policy-Analyse. Sonderheft Politische Vierteljahresschrift* (pp. 39–56). Wiesbaden: VS Verlag.

Mayntz, R. (2004). *Governance theory als fortentwickelte Steuerungstheorie?* Köln: MPIfG.

Mayntz, R. (2008). Von der Steuerungstheorie zu Global Governance. In G. Schuppert & M. Zürn (Eds.), *Governance in einer sich wandelnden Welt* (pp. 43–60). Wiesbaden: VS Verlag.

Mayntz, R., & Scharpf, F. W. (1975). *Policy-making in the German federal bureaucracy*. Amsterdam: Elsevier.

Mayntz, R., & Scharpf, F. W. (1995). Der Ansatz des akteurzentrierten Institutionalismus. In R. Mayntz & F. W. Scharpf (Eds.), *Gesellschaftliche Selbstregelung und politische Steuerung* (pp. 39–73). Frankfurt/Main/New York: Campus.

McDaniel, O. C. (1996). The paradigms of governance in higher education systems. *Higher Education Policy, 9*(2), 137–158. https://doi.org/10.1057/palgrave.hep.8380018.

Merton, R. K. (1973). *The sociology of science. Theoretical and empirical investigations*. Chicago: University of Chicago Press.

Münch, R. (2006a). Die Entsorgung wissenschaftlicher Kreativität. Latente Effekte der kennzifferngesteuerten Mittelverteilung im akademischen Feld. *die hochschule, 15*(2), 98–122.

Münch, R. (2006b). Wissenschaft im Schatten von Kartell, Monopol und Oligarchie. Die latenten Effekte der Exzellenzinitiative. *Leviathan, 34*(4), 466–486.

Offe, C. (1985). *Disorganized capitalism*. Oxford: Polity.

Osterloh, M. (2012). "New Public Management" versus "Gelehrtenrepublik" – Rankings als Instrument der Qualitätsbeurteilung in der Wissenschaft? In U. Wilkesmann & C. J. Schmid (Eds.), *Hochschule als Organisation* (pp. 209–221). Wiesbaden: VS Verlag.

Osterloh, M., & Frey, B. S. (2000). Motivation, knowledge transfer, and organizational forms. *Organization Science, 11*(5), 538–550.

Ouchi, W. G. (1980). Markets, bureaucracies, and clans. *Administrative Science Quarterly, 25*(1), 129–141. https://doi.org/10.2307/2392231.

Paradeise, C., & Thoenig, J.-C. (2013). Academic institutions in search of quality: Local orders and global standards. *Organization Studies, 34*(2), 189–218. https://doi.org/10.1177/0170840612473550.

Paradeise, C., & Thoenig, J.-C. (2015). *In search of academic quality*. New York: Palgrave Macmillan.

Paradeise, C., Reale, E., Bleiklie, I., & Ferlie, E. (Eds.). (2009). *University governance: Western European comparative perspectives*. Dordrecht: Springer.

Powell, W. W. (1990). Neither market nor hierarchy: Network forms of organization. *Research in Organizational Behavior, 12*(1), 295–336.

Pressman, J. L., & Wildavsky, A. B. (1979). *Implementation. How great expectations in Washington are dashed in Oakland. Or, why it's amazing that federal programs work at all*. Berkeley: University of California Press.

Ramirez, F. O., & Christensen, T. (2013). The formalization of the university: Rules, roots, and routes. *Higher Education, 65*(6), 695–708. https://doi.org/10.1007/s10734-012-9571-y.

Reale, E., & Seeber, M. (2013). Instruments as empirical evidence for the analysis of higher education policies. *Higher Education, 65*(1), 135–151. https://doi.org/10.1007/s10734-012-9585-5.

Rosenau, J. N., & Czempiel, E.-O. (Eds.). (1992). *Governance without government. Order and change in world politics*. Cambridge: Cambridge University Press.

Sahlin, K., & Wedlin, L. (2008). Circulating ideas: Imitation, translation and editing. In R. Greenwood, C. Oliver, R. Suddaby, & K. Sahlin (Eds.), *The SAGE handbook of organizational institutionalism* (pp. 218–242). Los Angeles/London: Sage Publications.

Scharpf, F. W. (1997). *Games real actors play*. Boulder: Westview Press.

Schimank, U. (2001). Festgefahrene Gemischtwarenläden – Die deutschen Hochschulen als erfolgreich scheiternde Organisationen. In E. Stölting & U. Schimank (Eds.), *Die Krise der Universitäten* (pp. 223–242). Wiesbaden: Westdeutscher Verlag.

Schimank, U. (2002a). *Expertise zum Thema: Neues Steuerungssysteme an den Hochschulen. Abschlussbericht 31.05.2002. Förderinitiative des BMBF: Science Policy Studies*. Hagen: FernUniversität Hagen.

Schimank, U. (2002b). *Handeln und Strukturen. Einführung in die akteurtheoretische Soziologie*. Weinheim: Juventa-Verl.

Schimank, U. (2005). Die akademische Profession und die Universität: "New Public Management" und eine drohende Entprofessionalisierung. In T. Klatetzki & V. Tacke (Eds.), *Organisation und Profession* (pp. 143–163). Wiesbaden: VS Verlag.

Schimank, U. (2007a). Die Governance-Perspektive: Analytisches Potential und anstehende konzeptionelle Fragen. In H. Altrichter, T. Brüsemeister, & J. Wissinger (Eds.), *Educational Governance. Handlungskoordination und Steuerung im Bildungssystem* (pp. 231–260). Wiesbaden: VS Verlag.

Schimank, U. (2007b). Elementare Mechanismen. In A. Benz, S. Lütz, U. Schimank, & G. Simonis (Eds.), *Handbuch Governance. Theoretische Grundlagen und empirische Anwendungsfelder* (pp. 29–45). Wiesbaden: VS Verlag.

Schimank, U. (2010). Reputation statt Wahrheit: Verdrängt der Nebencode den Code? *Soziale Systeme, 16*(2), 233–242.

Seeber, M., Lepori, B., Montauti, M., Enders, J., de Boer, H., Weyer, E., et al. (2015). European universities as complete organizations? Understanding identity, hierarchy and rationality in public organizations. *Public Management Review, 17*(10), 1444–1474. https://doi.org/10.1080/14719037.2014.943268.

Shin, J. C., & Jung, J. (2014). Academics job satisfaction and job stress across countries in the changing academic environments. *Higher Education, 67*(5), 603–620. https://doi.org/10.1007/s10734-013-9668-y.

Simmel, G. (2009 [1908]). Sociology: Inquiries into the construction of social forms. Boston: Brill.

Streeck, W., & Schmitter, P. C. (1985). Gemeinschaft, Markt, Staat – und Verbände? *Journal für Sozialforschung, 25*(2), 133–157.

Sydow, J., & Windeler, A. (1997). Über Netzwerke, virtuelle Integration und Interorganisationsbeziehungen. In J. Sydow & A. Windeler (Eds.), *Management interorganisationaler Beziehungen. Vertrauen, Kontrolle und Informationstechnik* (pp. 1–21). Opladen: Westdeutscher Verlag.

Tönnies, F. (1957 [1920]). *Community & society*. New Brunswick: Transaction Books.

Ulrich, H., & Probst, G. (1984). *Self-organization and management of social systems: Insights, promises, doubts, and questions*. Berlin/Heidelberg: Springer.

van Vught, F. A. (1997). The effects of alternative governance structures. A comperative analysis of higher education policy in five EU member states. In B. Steunenberg & F. A. van Vught (Eds.), *Political institutions and public policy. Perspectives on European decision making* (pp. 115–137). Dordrecht: Springer.

von Stuckrad, T., & Gläser, J. (2012). Es ist höchstens eine Kollegenschelte möglich, aber die bringt nichts. Kontingente und strukturelle Handlungsbeschränkungen der intrauniversitären Forschungsgovernance. In U. Wilkesmann & C. J. Schmid (Eds.), *Hochschule als Organisation* (pp. 223–243). Wiesbaden: VS Verlag.

Wald, A., & Jansen, D. (2007). Netzwerke. In A. Benz, S. Lütz, U. Schimank, & G. Simonis (Eds.), *Handbuch Governance. Theoretische Grundlagen und empirische Anwendungsfelder* (pp. 93–105). Wiesbaden: VS Verlag.

Weber, M. (1946 [1919]). *From Max Weber: Essays in sociology*. New York: Oxford University Press.

Weber, M. (1979 [1922]). *Economy and society. An outline of interpretive sociology*. Berkeley/London: University of California Press.

Welpe, I. M., Wollersheim, J., Ringelhan, S., & Osterloh, M. (Eds.). (2015). *Incentives and performance*. Heidelberg: Springer.

Whitley, R. (2014). How do institutional changes affect scientific innovations? The effects of shifts in authority relationships, protected space, and flexibility. In R. Whitley & J. Gläser (Eds.), *Organizational transformation and scientific change: The impact of institutional restructuring on universities and intellectual innovation* (pp. 367–406). Bingley: Emerald.

Whitley, R., & Gläser, J. (Eds.). (2014). *Organizational transformation and scientific change: The impact of institutional restructuring on universities and intellectual innovation*. Bingley: Emerald.

Wiesenthal, H. (2000). Markt, Organisation und Gemeinschaft als zweitbeste Verfahren sozialer Koordination. In R. Werle & U. Schimank (Eds.), *Gesellschaftliche Komplexität und kollektive Handlungsfähigkeit* (pp. 44–73). Frankfurt am Main/New York: Campus.

Wiesenthal, H. (2006). *Gesellschaftssteuerung und gesellschaftliche Selbststeuerung. Eine Einführung*. Wiesbaden: VS Verlag.

Williamson, O. E. (1975). *Markets and hierarchies*. New York: Free Press.

Willke, H. (1995). *Systemtheorie: Steuerungstheorie. Grundzüge einer Theorie der Steuerung komplexer Sozialsysteme*. Stuttgart: Lucius & Lucius.

Winterhager, N. (2015). *Drittmittelwettbewerb im universitären Forschungssektor*. Wiesbaden: Springer VS.

Chapter 5
German Higher Education Institutions as Organizations

In this chapter we also describe recent developments at the meso level of the German higher education system. However, in contrast to Chap. 4 we are not dealing with governance structures, instead we are applying selected organizational approaches to German higher education institutions in order to observe changes, but also stable patterns at these institutions. Our aim is twofold: firstly, we want to describe idiosyncratic features of German higher education institutions that become visible when we apply organizational concepts; secondly we deal with the question of whether German higher education institutions are developing towards the concept of a "complete organization", or whether there are obstacles standing in the path of such a development.

The organizational perspective is an important complement to the governance perspective when it comes to analyzing higher education institutions. However, in contrast to the governance perspective, the organizational perspective is not really useful in analyzing the regulation structure of entire higher education systems. Instead, the perspective is of particular importance in analyzing groups of higher education institutions or single institutions. Another important difference to the governance perspective is that national characteristics of higher education institutions are not paramount. Instead, the differences between higher education institutions as compared

O. Hüther, G. Krücken, *Higher Education in Germany—Recent Developments in an International Perspective*, Higher Education Dynamics 49,
https://doi.org/10.1007/978-3-319-61479-3_5

to other social units are at the center of attention.[1] At the core of the organizational perspective is the description of common features that distinguish organizations from families or networks, for example. Thus, organizational theory attempts to describe the commonalities of all organizations, independent of their national embeddedness.

However, organizations not only manifest commonalities, they are also considerably different to each other. Organizational theory deals with this by defining organizational types. Organizations with common features are analytically summarized into a type, with the assumption that organizations of any one type share similar problems and also apply similar solutions. But after taking a closer look, it can be seen that even organizations of any one type can still be very different. This leads to the very fundamental awareness that, depending on the depth of the analysis, every organization is: (a) like all other organizations; (b) like some other organizations; (c) like no other organization.[2]

Universities, especially European universities, are very old forms of organizations whose beginnings can be traced back to the University of Bologna in the eleventh century.[3] The first universities within the borders of present day Germany were founded in 1386 (University of Heidelberg), 1388 (University of Cologne) and 1389 (University of Erfurt). For a long time, however, universities were not viewed as organizations, but as cultural institutions. The notion and concept of the university was at the forefront, less the formal organizational structures, processes, hierarchy, etc. And so it was that Jaspers (1946) wrote about the "idea of the university" (see also Schelsky 1963). Viewing universities as cultural institutions also meant that the underlying concept and ideas had to remain sufficiently diffuse and vague to be recognized as an institution.

German higher education institutions as organizations only came into systematic focus in the 1990s (e.g. Meier 2009). Higher education institutions in Germany are increasingly being observed and analyzed from the organizational perspective in

[1] In qualifying this statement it should be noted that implicit national properties sometimes do play a role in organizational theory concepts. This is particularly the case for concepts concerned with organizations such as higher education institutions that are heavily dependent on their respective national environments. Special approaches to higher education organizations which we will be looking at later use American universities, more specifically American research universities, as a reference model. Because of this, it is to be expected that properties of these organizations are incorporated in these concepts. Especially because national characteristics are not supposed to play a role in organizational theory, it is therefore a critical question whether simply transferring these to German universities, for example, is at all possible and/or to consider what adaptations need to be made if it is. For details of specific organizational models of European universities, see Maassen and Olsen (2007) who look at both historical models as well as recent developments. A connection between changing national conditions in Europe and organizational transformations can be found in Bleiklie et al. (2017). For an instructive comparison of universities under pressure in Europe and the USA, see the contributions in Popp Berman and Paradeise (2016). For the interplay of organizational structure and teaching, learning and identities see the contributions in Leišytė and Wilkesmann (2016).

[2] See also Scott (1981, 27).

[3] A comprehensive appraisal of the history and development of universities can be found in de Ridder-Symoens (1992, 1996) and Rüegg (2004, 2011).

the light of the NPM reforms. This is also a result of the shift in society's perspective with regard to higher education institutions: over time, the social environment has begun to view them less as cultural institutions and much more as "normal" service organizations (e.g. Braun and Merrien 1999).

In this chapter, we start by presenting a general model of organizations and applying it to higher education institutions, particularly German higher education institutions. Afterwards, we use concepts of organizational neo-institutionalism to discuss some possible research questions when using this theory. We do this by briefly presenting selected studies on German higher education institutions that use concepts of organizational neo-institutionalism. Our next step is to deal with specific organizational approaches to describe and analyze higher education institutions. We describe the three most frequently used approaches: firstly, higher education institutions as loosely coupled systems (Weick 1976; Orton and Weick 1990); secondly, higher education institutions as professional organizations (e.g. Mintzberg 1983); and thirdly, higher education institutions as organized anarchies which also includes the garbage can model of decision-making (Cohen et al. 1972). All three approaches highlight how higher education institutions deviate from a rational, bureaucratic organizational model.

We will be applying all three approaches in two respects to German higher education institutions. First of all, we will be using the three perspectives to describe key deviations found in German higher education institutions compared to higher education institutions in other countries. For each perspective we will be focusing on a central aspect that is particularly relevant to the respective perspective. With respect to loose coupling, we examine the German chair system; for the professional organization, the constitutional protection of professors at German higher education institutions; and regarding the organized anarchy perspective in the form of the garbage can model, overlaps in decision-making principles that have developed historically from the university of professors (*Ordinarienuniversität*), the group university (*Gruppenuniversität*) and the managerial university.

Our second application of the three organizational perspectives to German higher education institutions is to appraise some recent reforms in Germany from each perspective. Our question here is: What becomes visible when the reforms are seen from the perspective of loose coupling, the professional organization and organized anarchies?

At the end of this chapter in our discussion of higher education institutions as "complete organizations", we will be examining on the one hand how important deviations between universities and other types of organizations are, and, on the other hand, how important are the deviations between German higher education institutions and higher education institutions in other countries based on the multiple NPM reforms.

5.1 General Organization Theory

Modern societies are societies of organizations (e.g. Perrow 1991; Schimank 2001b; Bromley and Meyer 2015). Organizations can be found in virtually all parts of society and have a considerable impact on the way people live together. On the one hand, organizations are a "mechanism by which, in a highly differentiated society, it is possible to 'get things done', to achieve goals beyond the reach of the individual" (Parsons 1960, 41), on the other hand, they also lead to an ever-greater rationalization of various aspects of life, which Habermas (1989), for example, critically views as a "lifeworld colonization".

However, this permeation of society by organizations is not a constant feature of societal development. It is, instead, a phenomenon that begins with the establishment of nation states and the accompanying need to administer them, arrives in the economic system through industrialization and then gradually extends to nearly all other societal areas (Türk et al. 2006). Organizations spread through a "dynamic of reactive formation" (Schimank 2001b, 284). In other words, as soon as organizations are established in an area of society this leads to interests being better asserted, to more economic success, to better control, better offerings. Then, other individuals or social units will also form an organization, to get the same benefits. Consequently, setting up an organization often leads to other organizations being formed.

Despite all the differences, macrosociological approaches since Max Weber have converged in viewing the particular efficiency of organizations as expressing the fundamental characteristics of the modern society. This is especially true with regard to the division of labor, differentiation, decision-making contingencies, instrumental rationality and a focus on progress (Coleman 1973, 2000; Luhmann 1997, 826–847; Krücken and Drori 2009).

The study of organizations and their impact on societies in a systematic way started in the 1940s and 1950s. Although there had already been isolated studies of organizations prior to this (e.g. Michels 1915 [1911]; Taylor 1911; Fayol 1916; Weber 1976 [1922]; Barnard 1938), the "big bang" of organizational research was the English translation of Max Weber's concept of bureaucracy in 1947. Weber's description of bureaucracy inspired a series of American researchers to conduct their own empirical work, which then led to the field of organizational research being established (e.g. Scott and Davis 2007, 9).

5.1.1 Organizations and Their Elements

Essentially, organization theory deals with intentionally created, stable social units that are based on voluntary membership. Organizations pursue certain goals, or at least claim to pursue them, and have a more or less formal structure that enables members' actions to be coordinated toward the achievement of these goals. In a

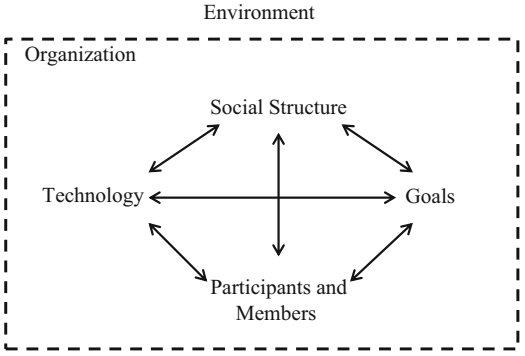

Fig. 5.1 Elements of organizations based on Scott
Authors' illustration based on Scott (1981, 13)

simplified way, organizations can initially be seen as a pool of resources to which members contribute some of their resources—such as labor or money—to achieve goals that individuals cannot achieve alone (Kieser and Walgenbach 2010, 2–4; Coleman 2000, 448–450).

In principle, organizations can be viewed analytically in two distinct ways: firstly, as corporative actors, and secondly as social systems. In the former, organizations are viewed holistically and the focus is on the connections and interactions to other organizations, social units, or whole societies. In our everyday lives, we assume that organizations can act, and thus are actors. This everyday assumption is not self-evident, but has emerged over time (Coleman 1973, 2000, 325–370; Bromley and Meyer 2015, 125–128). When analyzing organizations as social systems, the focus is instead on internal structures, interactions, member groups, working and decision-making processes, etc. (Scott 1981, 10–11; Coleman 2000, 421–450).

Organizations are complex structures, comprising a multitude of elements that interact with each other. These elements could include formal structures, behavior, technologies, functions, responsibilities, motives and many more. To give some order to this initially chaotic complexity and to simplify our analysis of organizations, we will draw on a simple model from Scott (1981, 13–19).[4] This model can be seen in Fig. 5.1.

Scott's model distinguishes five elements of organizations: social structure, participants and members, goals, technology and environment. Each of these elements are described briefly below before we examine how they apply to higher education institutions.

Social Structure

Social structure concerns relations between members of an organization. We can distinguish between the normative and the behavioral structure of an organization.

[4]See also Leavitt (1965).

Normative structure refers to values, norms and the expectations of roles within an organization, whereas behavioral structure highlights actual or de facto behavior in the organization. It should be emphasized that "[t]he normative structure and the behavioral structure of a social group are neither independent nor identical, but are, to varying degrees, interrelated" (Scott 1981, 14).

An important feature of organizations is that parts of their normative structures are formalized. Formalized expectations are independent of individual members of the organization and signal importance for their actual behavior. In addition, informal expectations also always exist among members and these structure behavior as well. While organizational research initially focused primarily on formal structures and formal patterns of behavior, later research was much more interested in informal structures and the interplay of formal and informal structures.[5] The de facto behavior of members in organizations arises through the interplay of formal and informal expectations. It is also possible to observe behavior that cuts through both types of behavioral norms.

An example of this from higher education institutions in Germany refers to the actual behavior of presidents and deans following the NPM reforms described above. The NPM reforms changed some formal decision-making structures and presidents have received greater formal decision-making authority compared to academic self-organization bodies, especially the academic senate. However, this new formal structure is usually far from being fully exploited. Actual decision-making behavior is dominated by consensus and discourse in which members of the academic-self organization bodies still play a central role. One explanation for this is the informal expectation of academics that they should be involved in decision-making processes. Here we can see the influence of the informal structure on the formal structure with regard to actual behavior.

Participants and Members

The second element of organizations are their participants and members. Whereas prevalent concepts only consider members as the decisive category in organizational research (e.g. Luhmann 1964), Scott extends this to include participants. Participants are all people who contribute to goals being achieved or to the continued existence of the organization. These can include customers, employees, stockholders, suppliers, for instance. These examples show that the contribution made by participants can vary enormously. The same applies to the amount of time invested by participants.

In contrast to participants, members of an organization—as a key subgroup of participants—are usually a more homogeneous group. Members usually join the organization voluntarily, receiving and accepting formally defined rights and duties (Luhmann 1964).

[5] See for example the so-called Hawthorne experiments (e.g. Roethlisberger and Dickson 1939).

For higher education institutions, it is important to distinguish between employees and "input members" (Müller-Jentsch 2003, 27) within the group of members. Employees follow organizational goals directly and usually have a contract of employment that defines rights and duties. They receive remuneration for their work. For higher education institutions, this includes academics and administration staff.

For the organization, input members on the other hand are "input to be processed" (Müller-Jentsch 2003, 27). In contrast to customers they tend to stay for longer periods of time and their behavior in the organization is much more regulated. Input members usually also go through a formal act of joining, which defines their rights and duties. It should be clear that input members of higher education institutions are the students who join the organization through the formal act of matriculation.

It is important to note that individuals are usually both participants and members of various organizations. In most organizations there is no total inclusion, only a partial inclusion.[6] This means that only some aspects of the whole behavior of academics and students are seen as specific to the organization. Membership and participation in a specific organization is thus mostly restricted socially, and in terms of purpose and time.[7]

Goals

Earlier, we indicated that organizations either pursue certain goals, or claim to pursue them. For a long time, organization theory assumed that a significant proportion of organizational behavior, or behavior in the organization, was connected to the respective goal(s) of the organization. This is why we find goals as a key category in most definitions of organizations. However, in more recent approaches, the connection between organizational goals and actions is seen to be more loosely coupled. We cannot, and do not wish to, decide on this discussion here. Instead, we simply point out that there is not always a tight coupling of organizational behavior, or behavior in the organization, and goals pursued officially (e.g. Brunsson 1989).

Most organizations do not pursue just one goal, but several. Most of the time these can be divided into primary and secondary goals. Primary goals of higher education institutions are research and teaching; secondary goals include equal opportunities for women, the integration of socially disadvantaged groups, the transfer of knowledge, etc. We therefore agree with Schimank when he states that higher education institutions are "general stores" (Schimank 2001a) that pursue a wide range of goals.

[6]Bearing in mind Max Weber's pure type of legal domination/authority as a bureaucratic administrative unit, in these organizations there is an inextricable separation of office and person.

[7]Exceptions to this are the input members of "total institutions" observed by Goffman (1961), such as prisons, monasteries and also secure psychiatric clinics.

It is typical for organizational goals to be in conflict, at least latently. For example, investing time in research leaves less time for teaching, and vice versa.

Not only are conflicting goals at organizational level relevant, we also find conflicting goals between individual members and the organization. This leads us to the question of who sets the goal(s) of the organization. Generally speaking, goals are negotiated in the "dominant coalition". This comprises all groups whose interests are to be taken into account (Cyert and March 1992 [1963], 30–51). Both internal and external groups can make up the dominant coalition. The composition of dominant coalitions varies from organization to organization and is to be determined empirically. For German higher education institutions we can assume that the various status groups (professors, non-professorial academic staff, students, administrative staff) but also external authorities such as political parties or economic interest groups (for example unions, employers' associations) play a key role in the dominant coalition.

Technology

Alongside the social structure, the participants and members, and the goals, the technology of an organization is the fourth internal element. Technology is to be understood in a very broad sense, not just in terms of machines or material equipment. In this general meaning, technology refers to the way in which a product is manufactured, to how people (remember the input members) are "processed" etc. It is about the "mechanism for transforming inputs into outputs" (Scott 1981, 17) within the organization. In higher education institutions this is a lecture, for example, and the social and material technology used to convey knowledge, but also a laboratory with all its apparatus, measuring devices and so on in which research is conducted.

We wish to emphasize that each organization has technologies at its disposal, but that there are considerable difference in the extent to whether these technologies are understood, controlled, routinized, efficient and effective. While, as a rule, the functioning of machines in a factory is understood and controlled, and contributes to routine, efficient and effective production, the same cannot be said of the technologies of higher education institutions. There is no guarantee—neither in research, nor in teaching—that the technologies used, i.e., the way of producing output from input, will be understood and controlled. Routine in both research and teaching is not exactly expedient, and whether research and teaching are efficient and effective can hardly be judged—at least not in the short term.[8] We will be returning to this point in our observations on higher education institutions as organized anarchies.

[8]For further details of the resulting challenges for science and higher education management see Krücken (2008).

Environment

The environment is Scott's final element of organizations. The environment comprises the external, technological, cultural and social conditions of an organization. To ensure their continued existence, organizations have to adapt to this environment. The elements discussed thus far reflect the dependency, or the close dovetailing, of organizations and environment. For example, expectations within the organization—as an important element of the social structure—are made possible, and even restricted, primarily by expectations outside of the organization. The goals of an organization are also co-determined by its social and cultural environment. Society, or at least its relevant parts, determines what is regarded as a goal and what type of support an organization can receive to pursue the goal.

If we apply this to German higher education institutions, it is clear that their goals are not in the main determined within the organization, but by politics and the scientific community as the "environment" of higher education institutions. The conversion to bachelor and master degrees was decided at European level and then imposed on higher education institutions. Even the social structure of higher education institutions is partly determined by instances—in the form of higher education acts, for example—located outside of the organizations themselves. On the other hand, the behavior of academics is largely characterized by standards and values inherent to their discipline or the scientific community. Accordingly, key values and behavioral norms are based on the overarching scientific system with its community structures and thus also stem from the environment of the organization.

We can conclude that organizations are systems that consist of various elements that are connected to each other, interact and thus elicit various effects. Higher education institutions as organizations can only be understood when the effects of the interaction between these elements are taken into account. Consequently, higher education institutions as organizations can not only develop through goals, or members, or social structure: the relations between these elements also need to be taken into consideration. As Scott states: "We will miss the essence of organization if we insist on focusing on any single feature to the exclusion of all others" (Scott 1981, 19).

5.1.2 Neo-Institutionalist Organization Theory and Its Application to German Higher Education Institutions

Just describing the elements of an organization reveals the fundamental complexity of the subject matter of organization theory. It is therefore no surprise that there is a multitude of organizational theories. Each focuses on specific properties and patterns of relationships and is not necessarily capable of capturing the whole picture of an organization. Which theory is to be used depends on the nature of the research and the knowledge to be gained.

Given the scope of this book, we cannot deal with the profusion of organizational theories. Instead, we refer to the excellent depictions of Scott and Davis (2007) and Perrow (1993), and for the German context to Kieser and Ebers (2006), Preisendörfer (2011) and Kühl (2011).

However, in our deliberations below we will present one general organizational theory and possible applications to higher education institutions. We have chosen the theory of organizational neo-institutionalism, one of the most important and popular approaches to research on organizations. This applies both to organizational theory in general (Davis 2006) as well as to research on higher education research organizations (Krücken and Röbken 2009). We apply the theory by discussing selected studies that have used this theory to analyze German higher education institutions.[9]

If we take Scott's model described above in which he distinguishes five core elements of organizations, the main focus for neo-institutionalism is on the relation between organizations and their environment. The theory also highlights the difference between formal structures and actual behavior as part of the social structure of organizations. The basic assumption of neo-institutionalism is at first remarkably simple: the behavior of organizations is largely characterized by their striving for environmental legitimation. This orientation towards the criterion of legitimation emphasizes the fact that organizations are embedded in society. Therefore, the traditional decision-making criteria for organizational behavior such as efficiency or micro-politics are contested. Building on this basic assumption, a dynamic research program has emerged that analyzes the conditions of social legitimation of organizations and uses this to try to explain organizational behavior.[10]

The approach is called "neo-institutionalism" because it shares the fundamental assumption of institutional theory that individual and collective actions can only be explained through authoritative guidelines for social behavior—institutions. Institutions can be both formal and informal in nature. Depending on the degree of formalization, they either lean more in the direction of legal standards (such as prohibitions) or general social conventions (shaking hands when meeting someone). However, regardless of the degree of formalization, it is assumed that institutions are known and that they promote certain types of behavior.

[9]We would also like to point out that in recent years other general organization theories have been applied and have contributed to new and interesting insights into German higher education institutions. The resource dependence theory is just one of these (Pfeffer and Salancik 1978). Nienhüser (2012) has used the resource dependence theory to explain the composition of higher education boards of governors in Germany, and Larmann (2013) has used the approach to analyze the situation regarding small higher education institutions in structurally weak locations. More recent international contributions applying organizational theory to higher education institutions include Fumasoli and Stensaker (2013), Popp Berman and Paradeise (2016) and some chapters in Bleiklie et al. (2017).

[10]Greenwood et al. (2017) provide a comprehensive review of the theory. A current overview of theoretical developments and empirical applications in Europe can be found in Krücken et al. (2017).

Accordingly, institutions can be defined as social structures of expectation that determine what is reasonable action and decision-making.

The main difference to traditional institutional theory is the point of reference: in traditional institutional theory the premise is that institutions guide individual behavior; in neo-institutional theory the argument is that institutions guide organizational behavior. On the one hand, this reflects the point that neo-institutionalism is embedded in the wider context of interdisciplinary organizational research (Walgenbach and Meyer 2007; Greenwood et al. 2017). On the other hand, there is a systematic argument for this different starting point for the theory: historically, an ever-greater capacity for social action is being generated by and in organizations. The issue here is that modern societies are societies of organizations.

However, from the perspective of neo-institutional organizational theory this does not mean that organizations have become independent variables of societal development. Quite the opposite: organizational behavior and decision-making are not the result of autonomous choice. In fact, they would be inconceivable without recourse to their social environment and the predominating rules. In this sense, organizations—and equally individuals in traditional institutional theory—are rather "dependent variables" of the society and the institutions that surrounds them. These rather simple basic assumptions are to be found in two classical texts: Meyer and Rowan (1977) and DiMaggio and Powell (1983).

The starting point for Meyer and Rowan (1977) is a question that follows on from Max Weber, asking why organizations form formal-rational structures—such as defining responsibilities and channels of communication, or bookkeeping and filing. The neo-institutional answer is that organizations do not do this to structure their internal action and decision-making processes as effectively and efficiently as possible. Instead, they follow socially institutionalized expectations. They do so to gain or to maintain legitimacy in their social environment. Therefore, formal structures in organizations—such as Weber's insignia of bureaucracy mentioned above as well as modern concepts of management—are primarily directed outwards.

Organizations have to meet societal expectations of rationality—described by Meyer and Rowan as "myths"—to guarantee their survival. However, this conformity with expectations can primarily be found at the level of formal structure. Whether the conformity can also be found at the level of actual behavior of and in organizations is a completely different question. Meyer and Rowan assume that it is quite common for formal structures and actual behavior to be decoupled or only loosely coupled. We are thus dealing with two levels of organizational reality. While at the level of formal structures it is possible to quickly and almost ritually adapt to environmental expectations, at the level of actual behavior it is "business as usual".

The Meyer and Rowan approach was used to analyze technology transfer offices at German universities (Krücken 2003). The study was based on semi-structured interviews, statistical data and the analysis of text documents. It was shown that technology transfer offices only play a minor role in the actual transfer activities of universities and academics.

Transfer offices were set up in the 1980s at German higher education institutions nationwide. They are specialized organizational units aimed at accelerating the transfer of knowledge and technology between higher education institutions and corporations. However, in the state in question, transfer offices were not established as an attempt by higher education institutions to improve the transfer process themselves. Instead, the stimulus clearly came from the environment, in particular from the state's ministry of science. It was the ministry that wanted and expected more transfer activities from higher education institutions. In line with the arguments advanced by Meyer and Rowan, higher education institutions reacted in a certain way: they established visible formal structures, namely organizational transfer units. At the level of actual behavior, "business as usual" continued in two respects. Firstly, university leaders did not give any indication that transfer activities were more important than before. The "third academic mission" associated with transfer activities remained relatively insignificant compared to the traditional missions of research and teaching. Secondly, the large number of transfer-oriented academics in applied natural sciences and engineering usually ignored the transfer offices. Instead, they continued to rely on their personal relationships to companies. As such, this formal structure known as "transfer office" protected university leaders' low level of interest in transfer activities and the actual transfer activities of transfer-oriented academics from external observation and monitoring.

Although some of the study's findings have changed over time, particularly in terms of the interest shown by university leaders, the bulk of transfer activities at German universities are still not conducted through transfer units (Kloke and Krücken 2010).

The study clearly shows that expectations emanating from the environment of higher education organizations do not have an unfiltered effect on actual behavior in higher education institutions. Formal structures such as transfer offices represent an important buffer for higher education institutions. They provide the means to react to constantly increasing environmental expectations without directly changing actual behavior.

It can be assumed that such processes also take place when implementing other expectations placed on higher education institutions. Using Meyer and Rowan's (1977) terms, it is possible to see calls for "diversity", the "entrepreneurial university" and "gender equality" as institutionalized myths in the social environment of higher education institutions. Meeting these expectations is highly crucial for environmental legitimation. However, one has to reckon with the possibility that only formal structures will change and that, at the level of actual behavior, business will continue as usual.

Meyer and Rowan (1977) have established a clearly society-oriented perspective on organizations. With regards to organizational theory, DiMaggio and Powell (1983) have added important deeper insights to the neo-institutional theory. Firstly, they provide further clarification regarding the concept of social environment. Secondly, they added some missing details concerning the mechanisms that lead organizations to adapt to environmental expectations.

DiMaggio and Powell replaced the somewhat fuzzy concept of social environment with the much clearer concept of organizational fields.[11] The basic idea is that every organization is part of an organizational field and that the organizational field is the relevant social environment for an organization. Organizational fields are a "collection of diverse, interdependent organizations that participate in a common meaning system" (Scott 2014, 106). For example, the organizational field of a business organization comprises competing companies, suppliers and political/regulatory instances. Therefore, the field concept provides some important clarifications. Firstly, the relevant social environment of organizations is other organizations. Secondly, organizations that form an organizational field are connected. Thirdly, organizational fields have a common meaning system. Another clarification is not so obvious but also important: the relevant social environment for an organization is defined by the organization. The concept of organizational fields makes it clear that not all expectations held by the environment for an organization have an impact on the organization. Only expectations that are part of the organizational field have.

In the DiMaggio and Powell paper, the concept of organizational fields is then combined with an empirical observation: over time the formal structure of organizations in an organizational field becomes more and more similar. One part of the explanation for this process of "institutional isomorphism" is provided by Meyer and Rowan: Organizations in one field face the same expectations from their relevant social environment and react to them by establishing formal structures. However, the answer to the question why the organizations establish similar formal structures which leads to the process of "institutional isomorphism" is an open one. In their paper, DiMaggio and Powell identified three mechanisms that explain "institutional isomorphism": the coercive, the mimetic and the normative mechanisms.

Coercive isomorphism describes homogenizing processes based on "formal and informal pressures exerted on organizations" (DiMaggio and Powell 1983, p. 150). There are a wide range of organizational formal structures that are necessary by law: the governance bodies in different legal forms of companies, the requirement to keep accounts imposed by taxation law or the need for insurance protection required by liability law. These are traditional aspects of organizational legislation. However, there are other, more recent, developments that accelerate isomorphism by law. In particular this includes anti-discrimination laws with regard to gender, minorities or sexual orientation. A widespread reaction of organizations is to establish organizational units to deal with this expectation.

Homogenization by means of mimetic processes occurs because an organization mimics structures and processes of another organization which is perceived as successful or better adapted to its institutional environment. The probability of mimetic homogenization processes increases in organizations firstly when other

[11] For an extension and application of that concept in relation to European universities see Hüther and Krücken (2016).

organizations are perceived as superior or more successful; and secondly "when goals are ambiguous, or when the environment creates symbolic uncertainty" (DiMaggio and Powell 1983, p. 151). Particularly successful and legitimate models quickly diffuse within and across organizational fields and serve as a blueprint for organizations in the field, basically effectuating their convergence.

Normative pressure is the third mechanism to generate isomorphism. Here, supra-organizational professionalization processes lead to increasing homogenization among organizations. If the organizations in a field draw on members of a profession in a certain area, then homogenization occurs in this area because the professionals "tend to view problems in a similar fashion, see the same policies, procedures and structures as normatively sanctioned and legitimated, and approach decisions in much the same way" (DiMaggio and Powell 1983, p. 153).

The DiMaggio and Powell approach was used to analyze the driving forces behind, and the dynamics of, the early stages of the conversion to bachelor/master degrees in Germany (Krücken 2007). The speedy conversion to bachelor/master programs is a striking example how the coercive, mimetic and normative mechanisms work in an organizational field.

This study deployed a combination of semi-structured interviews, statistical data and the analysis of text documents. The findings showed that only a few of the higher education institutions studied set up bachelor/master degree programs from the bottom up. Rather, many different interview partners stated that coercive pressure from the state played the key role in the conversion process. Mimetic processes were also important: on the one hand, for the direct coordination between higher education institutions in specific regional settings; on the other, observation and mimetic processes can be seen at the level of disciplines. At this level there was a strong orientation towards trendsetters. Normative pressure was also important and was exercised by the newly-created accreditation agencies. However, this pressure was not seen as an alternative but as a supplement to the coercive pressure from the state.

Both example studies presented (transfer offices, bachelor/master conversion) show how strongly the German higher education system and its higher education organizations are still characterized by the state as the key actor in the environment. Other conceivable environments, such as business companies when setting up transfer offices, or potential students when converting to bachelor/master programs only play a minor role. Most neo-institutional studies that work with the concept of DiMaggio and Powell (1983) emphasize the particular significance of mimetic processes between organizations (e.g. Mizruchi and Fein 1999). In contrast, in the organizational field of German higher education institutions it is the coercive mechanism via direct state regulation that is of central importance.

Our two examples highlighting the relevance of the neo-institutionalist perspective for the analysis of recent developments at German higher education institutions referred to the early stages of institutionalization processes. However, it is also important to take a long-term perspective of such processes. An example of this is a study by Blümel (2015, 2016) on changes to the position of chancellor at German higher education institutions.

The theoretical starting point of the study is the concept of "institutional logics". This concept arose from criticism within neo-institutionalism of the two fundamental works sketched out above. Key concepts such as "institutional entrepreneur" (Hardy and Maguire 2008), "institutional work" (Lawrence et al. 2009) and not least "institutional logic" (Thornton and Ocasio 2008) emphasize that organizations can also influence their environment and that environmental expectations are very heterogeneous and contradictory. All these concepts point to strategic choices of organizations with regard to environmental expectations, while rejecting a model that purely advocates adaptation (see for example the contributions in Greenwood et al. 2017; Krücken et al. 2017).

Based on a variety of sources (higher education acts, job descriptions, quantitative surveys, résumés), Blümel shows that there is transition from an academic-bureaucratic "administrative logic" to a post-bureaucratic "management logic" on the part of chancellors at German higher education institutions. The transition is closely intertwined with the new public management reforms. As a result of the NPM reforms, a primarily managerial role emerges in which the importance of organizational success and efficiency are crucial, rather than the traditional orientation towards legal rules. However, given the long-term nature of the analysis and the diversity of the sources used, Blümel (2015) shows a very differentiated picture. What initially appears to be a paradigm shift in which one logic is replaced by another, proves to be much more complex. His historical-sociological study shows that there is very often a coexistence of both institutional logics with a variety of ambivalent effects.[12]

5.2 Specific Organization Theories Relating to Higher Education Institutions

So far, our description of general organization theories has concentrated on the commonalities of different organizations. The aim was to illustrate some fundamental concepts of theories of organizations and their relevance for higher education institutions in Germany. However, with regard to higher education institutions, we also find approaches in organization research that focus more strongly on the peculiarities of the higher education institution as an organization and which thus highlight differences to other organizations.

In order to capture the peculiarities of higher education institutions as organizations, traditionally three specific approaches are applied: higher education institutions as loosely coupled systems, higher education institutions as professional organizations and higher education institutions as organized anarchies. All three

[12]On the tensions between different institutional logics in universities see also the contributions in Frost et al. (2016).

approaches draw attention to key differences between higher education institutions and the model of the formal-bureaucratic organization in the sense of Max Weber's bureaucracy model (Weber 1976 [1922]).

Weber's bureaucracy model describes organizations as social units that are particularly dominated by formal rules. The formal rules determine, for example, how tasks have to be fulfilled, who has to fulfill which tasks and who can give whom instructions, or who can control whose work. In Weber's model, all these formal rules lead to a rational and functional coordination within the organization and ensure that organizational goals are achieved as efficiently as possible.

The loose coupling approach, the description of professional organizations and the organized anarchy approach show, however, that descriptions of "organizations as rational systems" (Scott and Davis 2007, 35) hardly apply to higher education institutions. In order to capture the peculiarities of higher education institutions as organizations, we describe the three approaches and apply them to the German system.

Whereas loose coupling, professional organizations and organized anarchy emphasize that higher education institutions are specific organizations, more recent publications put this in a new perspective. This new perspective is basically associated with the international NPM reforms in higher education since the early 1980s and is currently discussed under the heading of the construction of complete organizations. The final section of this chapter is dedicated to this latest approach and to the question of how specific the German higher education institutions still are in the wake of the multiple reforms during the last two decades.

5.2.1 Higher Education Institutions As Loosely Coupled Organizations

While organization research usually uses and/or focuses on one or several of Scott's elements of organizations as its starting point, this is not the case with the loose coupling approach. Instead, the focus here is on the nature of the connection between the elements of an organization. Whereas the relations between the elements in Scott's model are indicated by arrows, thus implicitly establishing connections, Weick (1976) subjects these implicit assumptions to much more rigorous observation.

Based on the preparatory work by Thompson (1967) and Glassman (1973), Weick (1976) drafted what at that time was a new picture of the organization. The main focus was on the fact that elements of organizations are not always tightly connected and that this loose coupling could be advantageous for organizations.[13]

[13]As part of the neo-institutional organization theory presented above, we saw an example of the decoupling of formal structures and activity structures. This decoupling is advantageous because it secures and/or generates legitimacy for the organization and prevents the potentially negative impact of expectations arising from the environment on operational processes.

Weick did not discover the notion of loose coupling between elements of an organization. This has also played a role in other theories. However, these loose couplings were largely viewed as irrational, or dysfunctional for organizations.

The new picture of loosely coupled organizations is an alternative draft to a picture of the organization viewed as a rational and functional structure with fixed and continuous relations between elements of the organization based on Weber's concept of bureaucracy. Although Weick states that there are parts in organizations that correspond to the bureaucratic-rational system, other parts of the organization have not been sufficiently well described by the bureaucratic organizational concept. In addition, the relation of tight and loose couplings varies between organizations. To illustrate his point, Weick argues that educational organizations such as schools and higher education institutions are characterized by a high number of loose couplings, yet still manifest a high degree of stability and legitimacy.

How can one identify whether an element is, or which elements are, loosely or tightly coupled? Couplings represent fundamental relations between elements, structures or processes within organizations. If elements or structures are in a relation to each other, Weick applies the nature of this relationship and/or the mechanism that establishes the connection. The three mechanisms that facilitate a tight coupling according to Weick are technical core of the organization, authority of office and control.

Technical Core of the Organization

According to Weick, this coupling mechanism connects elements within an organization to each other through their function and/or their functional interdependencies (Weick 1976, 4). Only through this tight coupling of elements can the main function—one could also say the primary goal—of the organization be achieved.

Higher education institutions, however, rarely manifest tight couplings in relation to functions being fulfilled. Through Clark (1983, 14), these loose couplings at higher education institutions can be explained by the fact that in higher education academic specialization has led to a gathering of a multitude of disciplines and subjects, and that these disciplines and subjects autonomously process knowledge. In this sense, higher education institutions do not have a primary goal that forces the different units to work together. Thus, research and teaching in history is independent of research and teaching in physics. In view of the pursuit of organizational goals of research and teaching, both areas are not dependent on each other, but are loosely coupled. Moreover, within a department or a discipline, the core functions of research and teaching are only loosely coupled. Knowledge relevant in the research process is much more advanced and open-ended than knowledge conveyed in teaching. This loose coupling of function ultimately emerges from the fact that the raw material of higher education institutions is highly-specialized knowledge.

Authority of Office

With this coupling mechanism, elements are connected to each other by a hierarchical superordination and subordination (Weick 1976, 4). Here too, we find fewer tight couplings in higher education institutions compared to other organizations. Normally, professors enjoy a great deal of autonomy in their work, and hierarchical instructions from presidents or deans are extremely rare. In particular, professors are free to choose their research areas and the methods applied to generate new knowledge. Ultimately, the loose coupling in the structure of authority can also be explained by the processes of working with specialized knowledge. From this perspective, dealings, or work, with specialist knowledge is overtaxing for superordinate positions. Although superordinates are capable of making decisions, they often do not have the specialist knowledge—there is an information deficit—and decisions run the risk of missing their objective. In such situations, organizations tend to delegate authority downwards and allow decisions to be made where there is the necessary knowledge. We are aware of this circumstance as an information problem in hierarchical coordination (see Chap. 3).

Control

A coupling mechanism connected with "authority of office" is control. If controls occur between elements in an organization, tight couplings will be established. With regard to control, two areas are particularly interesting for Weick (Weick 1976, 11): firstly "inspection" (how well is the work done?) and secondly "certification" (who does the work?). Thus, controls can refer to the quality of work or access to certain positions.

In higher education institutions there are only weak inspection controls in respect of professors. Besides aspects of power and status, this is because it is difficult to control dealings with specialized knowledge when the controller him/herself does not have this knowledge. In other words, dealing with specialist knowledge within higher education institutions also strengthens the control problem inherent in hierarchical coordination (see Chap. 3).

In contrast, control mechanisms for access, defining functions and the respective rights of the higher education members are being emphasized (Weick 1976, 11–12) as can clearly be seen by the cumbersome procedures for appointing professors (Musselin 2010). Such procedures are justified by the weak coupling within higher education institutions in terms of the function, the structure of authority and the monitoring of the inspection. Here, the organization is attempting to elicit some kind of compensation through complex access and recruitment procedures.

Overall, we can conclude that coupling mechanisms typical of bureaucratic-rational organizations are only of minor significance for higher education institutions. Nonetheless, these are still stable organizations. This stability cannot be explained from the perspective of the formal-bureaucratic organizational model because loose couplings are viewed as problematic when it comes to achieving goals. This

stability can therefore only be explained by the fact that loose couplings have benefits for an organization that have not been observed in the traditional formal bureaucratic model (Weick 1976, 4).

According to Weick, one of these benefits is that it is possible for loosely coupled units to adapt to changing environmental conditions in a variety of ways without this affecting the whole organization. Many smaller and speedier adaptations can take place in loosely coupled organizations. This is only possible because they do not have any direct impact on the other units that are loosely coupled with this unit. This facilitates a multitude of local innovations, such as in teaching, because experimenting with new forms of teaching/learning frequently only affects a subject or just a particular course. Related to this is the fact that should an adaptation in a unit prove dysfunctional, it will not spread to the whole organization. Shoddy teaching and/or research in physics will not have an impact on sociology, and vice versa.

Another benefit of loosely coupled organizations refers to the greater satisfaction of members. This can arise through fewer controls and the greater latitude for decision-making that usually accompanies this situation. In addition, the increased readiness of members to identify with the organization is not only a benefit in itself, it can also lead to greater stability for the organization (for a systematic analysis of other possible benefits see Orton and Weick 1990).

We apply the loose coupling approach to the German system in two respects. Firstly, we will be asking whether there are systemic differences between German and other higher education institutions in relation to the coupling of elements, and secondly how the approach can be used to analytically assess the more recent reforms in Germany.

In comparison to a range of other organizations, higher education institutions exhibit a greater proportion of loose couplings. Nevertheless, even between higher education institutions we can find considerable differences in relation to the proportion of loose couplings and in relation to the elements that are loosely coupled. A key difference between the German and the American system, for example, is that chairs in Germany—as has been the case for more than a 100 years—are the most important decentralized unit at universities. By way of contrast, the department is the most important decentralized unit at universities in the American system and in a range of other countries. In Germany, therefore, the center of power at universities is found at the level of chairs, and chairholders (full professors) enjoy a broad range of privileges and resources of power. This also includes the fact that departments are not units that exercise "vertical control", but are merely "a source of horizontal linkage" (Neave and Rhoades 1987, 215). This is also clear because deans are elected by the individual professors and hardly have any power over the individual chairholders (Hüther 2008). Unlike in American universities with a department system, in Germany, with its chair system, we find a much looser coupling between the professors in a department, but also between the department and the individual professors.

There is another important difference: within the chairs in Germany we do not find a loose, but rather a tight coupling.[14] On the one hand, the chairholder has authority of office and is thus the "boss" of the other chair staff, deciding among other things on appointments and contract extensions totally independently of other chairholders or the dean. On the other hand, we often find a coupling in respect of functional dependency because chairholders and staff often work on one project, publish together, or at least work on similar issues. There is also a tight coupling in relation to control because the chairholder is in a good position to assess how well a member of staff is doing his/her work. Typically, the chairholder will also have to submit a report on the work of the chair staff members because the chairholder not only supervises the doctoral/post-doctoral work of the employee, but is also the primary reviewer in doctoral and post-doctoral ("habilitation") procedures. If we see that over 80% of scientific employees at German higher education institutions are assigned to a chairholder (see Chap. 3) and if there is no loose coupling within the chair, the result is that the proportion of loose couplings at German higher education institutions and at institutions in other countries that do not have a chair structure differ profoundly.

Overall, this shows that the loose coupling in relation to the relatively small group of chairholders is clearly more marked at German universities than is the case at American universities, for example, but that all other academics below the professorship level are tightly coupled to the chairs. The all too simple assertion that all universities are loosely coupled systems regardless of their national characteristics masks this central difference.

The loose coupling approach can also be gainfully utilized to understand what recent reform attempts in Germany have tried to change. For example, the internal hierarchization of higher education institutions targeted as part of the NPM reforms can be interpreted as an attempt to establish a tighter coupling of departments, institutes and professors by strengthening the authority of office.

On the other hand, the multifaceted new instruments used to evaluate higher education institutions reveal that attempts are being made to increase control using the "inspection" mechanism. This can be seen, for example, in the target and performance agreements between higher education institutions and the state, between higher education leadership and the departments but also between higher education leadership and individual professors. In addition, the broad introduction of teaching evaluation can be seen as an attempt to exercise increasing control over how well work is being done.

The loose coupling approach can also be used in relation to the introduction of the bachelor/master system. Requirements on module descriptions, the combining

[14]For a long time, this was a significant difference to universities of applied sciences. As described in Chap. 3, for a long time universities of applied sciences had virtually no mid-level academic staff and, thus, hardly any university-like chair structures. However, in Chap. 3 we also described how this mid-level academic staff at universities of applied sciences has developed in recent years. This development is based on these university-like chair structures and thus upholds the traditional German chair structure described below.

of taught courses into modules and the award of credit points have all led to increased coupling of content and courses. In terms of teaching, a stronger functional dependency is being established because courses within a module and modules overall are oriented towards a defined goal. Although this is nothing completely new—just think of traditional curricula—dependency is strengthened by both the comprehensive documentation of courses and by external auditing which forms part of the accreditation. This strengthening does not refer to higher education institutions overall, but to study programs as relevant elements of these institutions.

This loose coupling perspective shines the spotlight on the impact of reforms on relations between elements. Adopting a metaperspective helps us to observe the various and obviously unconnected reforms under a common aspect: the impact on couplings within the organization. It then becomes evident that reforms can be interpreted as an attempt to change the configuration of couplings in higher education organizations.

5.2.2 Higher Education Institutions as Professional Organizations

The starting point for this approach is that there are some organizations in which professions play a key role for the organization and that the structure of these organizations differs from the bureaucratic organizational model. Professions are specific occupational groups that are distinguished among other things by their ability to solve complex problems and a high degree of autonomy in their working processes. Traditional examples of professions are doctors, lawyers and also professors. As a result, hospitals, law firms and higher education institutions are typical examples of professional organizations.

If we also try to link this perspective to Scott's organizational model we see that because professional organizations manifest a self-evident dominance of professions in the "members" element, this will also have an impact on other elements in the organization. As we will show, the social structure changes because the specific standards and values of a profession play an important role in the organization. At the same time, the environmental reference of the organization will also change because the profession itself becomes one key environmental reference.

However, before we can come to a description of the professional organization, we first have to explain—albeit briefly—just what a profession is, what professionals are and why their membership also changes other elements of the organization.

5.2.2.1 Professions

Professions are certain occupational groups within the occupational system that manifest specific features and structures. Initially we can assume that professions render services that are "of vital importance" (Scott 2005, 120) for recipients, they see the service as a matter of life and death, or as salvation. To render their services, professionals use an abstract structure of knowledge and only these professionals have the capability of properly applying this knowledge. The knowledge is not simply deducible, but includes a wide margin of discretion that the professional can apply. For this reason, actions are not determined by standardized or formalized processes that can simply be transferred to various situations, but are aimed at the individual and flexible treatment of individual cases. In professional contexts, therefore, the standardization and bureaucratization of working processes are subject to tight limits. In comparison to other occupational groups, professionals are thus distinguished by a high degree of autonomy in the working process.

Instead of controlling work through standardization and bureaucratization, in professional contexts there is much more reliance on self-control and the mutual control of professionals. The basis of self-control is that professionals not only acquire knowledge, but also learn about standards, programs, norms and values in the course of their training. The whole training phase for professionals is not only characterized by the knowledge to be learned, but also by the "socialization into a professional group" (Stichweh 1994, 357) that aims at internalizing the group's norms, values and standards. In this connection, Mintzberg also speaks of "indoctrination" (Mintzberg 1989, 176). These internalized standards, norms and values then lead to self-control or, with Foucault (1977), to the "self-disciplining" of professionals (see also Martin et al. 1993).

Besides self-control, an orientation toward other members of the profession is also seen as an aspect of control. Such an orientation emerges because reputation conferred by other professionals is very important for a professional career and because the labor market is controlled by the profession. Only when self-control and the adaptation mechanism of orientation break down and when a professional infringes the standards and norms of the profession can the professional be sanctioned. However, this sanctioning is carried out primarily by other members of the profession and only in extreme cases are non-members entitled to perform sanctions. In addition, in professional settings, the dominating power is not the authority of office, but the authority of knowledge (Mintzberg 1989, 175).

In contrast to other occupational groups, the self-organized control of professionals is normally legally protected by the state (e.g., through the introduction of lawyers associations or medical councils). In addition, the state often secures a monopoly position for the professions. This means, for example, that only doctors are allowed to perform medical interventions, but also that in certain legal proceedings defense pleas may only be submitted by a lawyer or that a defense lawyer is mandatory. Professions are reliant on being recognized by state bodies.

This rather traditional understanding of professions was later criticized within the sociology of professions as functionalistic and idealizing because all the characteristics of professions were explained by the fact that they are necessary to meet a key function for society or for the individual client as well as possible (Scott 2005, 121). In contrast, the continuing discussion strengthened the power theory perspective for professions (Larson 1979; Freidson 1970). The emphasis here is not so much on the notion that professions receive autonomy or prominent social status because they fulfill a key function necessary for society, but that professions gain advantages because they have managed to convince society that the advantages are needed to fulfill their function.

Despite these not inconsiderable differences, we can identify a common characteristic of both functionalistic and power theory approaches: in both theories, professions generally and individual professionals specifically enjoy a high degree of autonomy in their respective working contexts. The control of professionals is secured by the profession itself. The coordination of actions via professions is therefore an alternative to coordination via organizations and the markets which is why Freidson (2001) views professions as the "third logic" of coordination. In terms of the basic coordination mechanisms described above (see Chap. 4), professions can best be seen as communities whose members' common feature is to exercise a prominent occupational activity.

The question however remains: What can be viewed as a profession in higher education? Do academics at higher education institutions overall represent a profession, or is there a multitude of professions grouped around individual subjects and disciplines?

In the literature we find both conceptualizations (Mieg 2003, 19–20). On the one hand the literature makes use of the concept of "academic profession", whereby—more often implicitly than explicitly—it is assumed that academics form a common profession with their focus on the overarching scientific norms and values (e.g. Boyer et al. 1994; Enders and Teichler 1995; Schimank 2005; Teichler et al. 2013). Other authors (e.g. Clark 1987; Musselin 2007; Becher and Trowler 2001) assume—again more implicitly than explicitly—that it is less the overarching system, its norms and values that are important, but more the specific and mainly disciplinary subject community, with academics in a particular subject forming a profession. There are good reasons for both conceptualizations. In our opinion, the choice between the two depends on the respective issue at hand.

5.2.2.2 Professional Organizations

Let us now come to professional organizations. Many organizations employ professionals—whether as counsel in a legal department or as a company doctor. However, not every organization is a professional organization. It is important to

distinguish between organizations that require the work of professionals for a small proportion of the time and organizations in which professionals dominate the operational core of the organization in quantitative and/or qualitative terms (Scott 1965, 65; Ortmann 2005, 290).

Professional organizations are created when highly complex tasks have to be performed within an organization that are not suited to being performed by a bureaucratic division of labor. In such organizations, there is important restructuring within the organizational control system. A professional organization "hires duly trained specialists—professionals—for the operating core, then gives them considerable control over their own work" (Mintzberg 1989, 175). In addition, decision-making processes in professional organizations are different than in formal-bureaucratic organizations.

Although formal-bureaucratic elements are not completely suppressed in professional organizations (Waters 1989, 1993), there are considerable deviations to model concepts of bureaucratic organizations. These deviations are associated with fundamental control and information problems of hierarchical coordination described in Chap. 4. Both the control and the information problems of hierarchical coordination are exacerbated by the application of specialist knowledge in the working processes of professionals, which is why they have to draw on other mechanisms of coordination.

Let us begin with control structures. Professional organizations are confronted with the fundamental problem that standard instruments deployed in formal-bureaucratic organizations are only of limited use when controlling professionals. It is hardly possible for superordinates who do not belong to the profession themselves to monitor working processes directly. This is a matter of the complex structure of knowledge of the profession. A university president, who may be a physicist for example, is hardly capable of judging whether experiments conducted by a biologist in a laboratory are right or wrong, meaningful or not.

In organizations we normally find two systems of control: control via direct supervision and control via standardizations.

In terms of direct supervision we usually only find control in respect of resources in professional organizations. Successful professionals get more resources than less successful professionals. This control mechanism does not require an understanding of individual working processes: instead, the results of the work are regarded as the relevant indicator of success. Within professional organizations this control mechanism, however, is not without its problems because "the outputs of professional work cannot easily be measured" (Mintzberg 1989, 176). Therefore, success is not easy to determine.[15]

Alongside direct supervision, we often see control via standardizations in organizations that affect all members overall and less the monitoring of a particular member by superordinates. Such control using standardization usually concerns working processes and results. Also, this type of control is only available to

[15]The standard example for this is: The operation was a success, the patient died.

professional organizations to a limited extent. Professionals apply their knowledge on a case-by-case approach making it virtually impossible to standardize working processes. As the success of the application is always bound to a degree of uncertainty, the results of work can hardly be standardized either (Mintzberg 1989, 176). When standardizing results, the same problem emerges as with direct supervision via resources: the achievement of goals and performance has to be measured which is not easy to manage in professional contexts. Discussions on performance criteria for academics—which can vary significantly depending on the (sub-)discipline and the topic, especially in the field of research—are an eloquent example of this (e.g. Jansen et al. 2007; Matthies and Simon 2008; Welpe et al. 2015).

In terms of the operating core, professional organizations have to therefore fall back on the control patterns of the profession, described above: self-control and the mutual control of professionals. The problem of this type of control for professional organizations is that the standards, programs, norms and values that form the basis of the two professional control mechanisms are defined by the professions—i.e., the overarching academic profession or the scientific community for the specific subject or discipline. In contrast, the organization leadership has very little, or no, influence.

Unlike the formal-bureaucratic model, neither the control system nor the decision-making structures are dominated by hierarchy. As a rule, we find profession-based patterns of decision-making in professional organizations. At least in some sub-areas the dominant coordination mechanism is that of negotiations and not hierarchy. Here, the dominant decision-making mode in professions—negotiations among equals—is integrated into the organization. Thus, in many higher education institutions we find committees in which professors have the majority and in which key decisions are made. Regardless of whether this is justified by claiming that decisions concerning the working processes of professionals cannot be made by non-professionals who lack the appropriate knowledge and information, or whether status or power theory arguments are raised, profession-based decision-making structures are not easily changeable dimensions.

The uniqueness of professional organizations in relation to the control and decision-making structures described above shows that potential conflicts can emerge within these organizations between formal-bureaucratic and professional arrangements. For example, it is likely that professionals would resist any movement to introduce new bureaucratic rules or to counter bureaucratic control (Scott 1965; Sorensen and Sorensen 1974). This resistance will probably be greater if the bureaucratic rules are inconsistent with the norms and values of the professions. However, these conflicts can be minimized by separating areas of influence, for example. While the profession dominates in one area, the formal-bureaucratic model is more important in another (Scott 1982, 230–236, 2005, 122–123; Leicht and Fennell 2008, 432).

In the following, we will again use the professional organization approach to observe key differences between German and other higher education institutions. Additionally, we will ask what we see when the recent higher education reforms in Germany are viewed from the perspective of the professional organization approach.

A comparison of German higher education institutions with other higher education institutions using the professional organization approach highlights a very particular feature of German institutions. In abstract terms we can see a significantly stronger involvement of the state to protect the interests of professionals in the organization; in concrete terms this refers to the constitutional guarantee of the freedom of research and teaching. Article 5.3 of the German constitution states: "Arts and sciences, research and teaching shall be free." This sentence has immense consequences not only, but also, for higher education institutions as organizations.

As described in Chap. 2, here we see again the influence of the Federal Constitutional Court on the German higher education system. First and foremost, the Federal Constitutional Court has interpreted this freedom of research and teaching as an individual right. This initially protects individual academics from state and organizational intervention. This interpretation as an individual right can only be understood in the light of the country's experience with the Nazi dictatorship. During that period, German universities actively supported the expulsion of their academics for racial or political reasons from 1933 onwards and assisted the utilization of research for Nazi goals. Thus, it was not only state bodies, but also the universities themselves who violated scientific freedom. And this is precisely why—as is the broad assumption in Germany—scientific freedom has to be protected from the interventions of the organization.

This protection has been implemented in a number of judgements of the Federal Constitutional Court stating that, in the eyes of the court, specific organization structures of higher education institutions represented a risk for scientific freedom, and were thus unconstitutional and had to be changed. In order to better comprehend the requirements for organization structures that the Federal Constitutional Court deduced from the constitution, we will take a look at two key judgements.

The first, and older, judgment was passed in 1973 and concerned the introduction of group universities in Lower Saxony (BVerfG 1973). The key feature of the group university is that various university groups (professors, non-professorial academic staff, students, administrative and technical personnel) each conduct internal elections to send representatives to academic committees (e.g., departmental councils, academic senate). As all key decisions are made in these committees, all groups are involved in the decisions. The aim here was to strengthen the influence of other groups vis-à-vis professors and to contribute to the "democratization" of higher education institutions. The question of how much influence academic staff and students should have was the subject of the proceedings in 1973. The main point of the dispute concerned who legally belonged to the group of professors and which weighting the votes of the individual groups should have in academic committees.

The first point of contention established that, under state law, the group of professors was defined very broadly and included senior academic staff and private lecturers, for example. Such a broad definition of the group of professors would have hugely reduced the influence (in terms of numbers) of chairholders within the

group of professors. The Federal Constitutional Court declared this broad definition as unconstitutional and insisted that the group of professors had to be homogeneous and clearly distinguished from other groups. This secured the influence of chairholders within the group of professors under constitutional law.

The second point of contention considered whether the two groups of academic staff and students were entitled to form a majority in academic committees and thus be capable of overruling the group of professors in matters of teaching and research. The court decided that the group of professors had to have 50% of the voting rights in matters directly relating to teaching. In matters relating to research and the appointment of professors, professors had to have more than 50% of the voting rights, otherwise this would represent a threat to their scientific freedom. This judgment from 1973 clearly defined the limits to group universities and upheld the dominant influence of professors in the organization under constitutional law.

The second judgment comes from 2010 and dealt with the question of whether organization structures oriented on the NPM model were unconstitutional because they were a threat to scientific freedom (BVerfG 2010). The object of the dispute was one of the 16 state higher education acts—the Hamburg Higher Education Act of 2001. The Act stated that deans were to be selected by the presidents and their appointment merely confirmed by the departmental council where professors held the majority. Traditionally, deans would be selected by the departmental council without the presidents having any say in the matter. In addition, the 2001 Act gave presidents the right to discharge deans, which departmental councils were not entitled to do, nor were they in a position to hinder presidents in such decisions. These provisions clearly strengthened the position of presidents in the selection and removal of deans and corresponded to the notion of strengthening the managerial hierarchy contained in the NPM model. Moreover, the dean was given wide-ranging rights to make decisions—such as in matters relating to the allocation of funds and the appointment of professors—which had previously been the preserve of the departmental councils. This is thus a further strengthening of managerial hierarchical powers, in line with the NPM model. However, the constitutional court held that these provisions infringed scientific freedom. Expressed simply, the constitutional court highlighted two possible alternatives in its *obiter*. Either deans have no, or only minor, decision-making powers; in this case they could be voted for and discharged pursuant to the Hamburg Act. Or deans have a range of decision-making rights; here both the election and voting out of deans is then principally a matter for academic committees in which professors are in the majority. The more rights were to be concentrated on the presidents or deans, the more control rights academic committees must have to counter the risk that presidents or deans could restrict professors' fundamental right to scientific freedom.

The combination of both judgments highlights the fact that the influence of professors at German higher education institutions has been protected by constitutional law—both vis-à-vis other groups as well as vis-à-vis university leadership. At German

higher education institutions, neither the democratization ambitions of the 1960s and 1970s nor the recent management ambitions have proved viable because, from the perspective of the constitutional court, both are said to jeopardize the fundamental right to scientific freedom. This is irrespective of how meaningful or functional such structures might have been. The organizational position of the academic profession, or to be more precise of professors, at German higher education institutions is thus fundamentally different to institutions in other countries. The dominance of the profession in the organization and academic self-governance of decision-making in Germany are not open for debate—at least not in the current state of affairs.

Despite this fundamental limitation, a look at the latest reforms in Germany shows that attempts are still being made to roll back the properties of professional organizations. It can be clearly seen that attempts are being made to strengthen formal-bureaucratic elements in higher education institutions. We see this expressed, for example, in the shift of formal decision-making competence from bodies of academic self-administration in the direction of higher education leadership. However, we first need to point out that presidents and deans in Germany are virtually solely recruited from the group of professors and are thus part of the profession. Secondly—as shown above in reference to the Federal Constitutional Court's judgment on the Hamburg Higher Education Act—the influence of professors on the election and voting out of presidents and deans has to be considerable, and actually is. Not least therefore, we frequently find—as described above in Chap. 4—a dominance of profession-based patterns of decision-making at German higher education institutions.

Even in terms of the control dimension attempts are being made to increase the organization's monitoring of the operating core with regard to standardization and formalization as well as to direct supervision. Thus, resources are increasingly being allocated by means of formalized and standardized indicator models. Likewise, target agreements—negotiated between presidents, deans and individual professors—have strengthened the direct supervision mechanism. What impact these attempts will actually have still remains to be seen.

Overall, the reforms are attempting to achieve change in the two dimensions in which professional organizations are distinguished from formal-bureaucratic organizations, namely patterns of decision-making and control. From the professional perspective, considerable conflict is to be expected from such interventions given that this strengthened hierarchy and increasing control infringe professionals' claims to autonomy. Research findings discussed above in the chapter on governance—in which new informal decision-making committees at higher education institutions have been set up and presidents, vice presidents and deans are only making very limited use of their formal decision-making rights—are to be seen in the light of the fact that the considerable counter-power potential of academics should be channeled, or has to be channeled (Breisig and Kahl 2000, 218; Hüther and Krücken 2013). Presidents and deans are trying to avoid an open battle for power between professional logic and organizational logic not least because the

outcome of such a battle would be significantly more open than in other higher education systems—even if the political voice is currently in favor of the organizational logic. We have already tried to explain why this is so: behind day-to-day decisions at higher education institutions and in higher education politics we have the protection of scientific freedom under constitutional law, guaranteed by the Federal Constitutional Court.[16]

5.2.3 *Higher Education Institutions as Organized Anarchies*

In a widely acclaimed article by Cohen et al. (1972), higher education institutions are described as typical examples of organized anarchies in which many decision-making processes do not conform to any rational weighing up of alternative problem solutions (for a recent discussion of the concept see Lomi and Harrison 2012). Instead, we rather find an incidental encounter of problems and solutions, and also of decision makers and decision situations (called the garbage can model). For Cohen et al., it is not so much about characterizing the organization "higher education institution" in detail, but about describing decision-making processes within organizations, and especially within higher education institutions.

The concept of organized anarchy is based on the observation of three of the five elements of organization presented by Scott: goals, technology, social structure.

Problematic Preferences

In terms of the element "goals", in organized anarchies we find problematic preferences, i.e., neither the goals of the organization nor the goals in the decision-making situation are coherent, instead they are imprecise or inconsistent. This problem can arise when a set goal is too abstract and thus ambiguous, but also when there are several goals in the organization, or are relevant in the situation, and are in conflict with each other. We have already seen such a constellation in the above description of the five elements of organization. In higher education institutions, teaching and research goals are in constant conflict with each other due to time restrictions (Krücken and Wild 2010). In contrast, the task of conveying knowledge is too abstract to deduce clearly defined assignments (e.g. Lüde et al. 2003, 15).

[16]The everyday impact can be vividly illustrated with the help of a concrete example—albeit an extreme one. At a university, the president was attempting to exert his formal decision-making competence on the departments. When conflict arose, a counterstrategy from the departments was to present legal opinions showing that the formal decision-making competence of the university leadership was unconstitutional. This threat of legal action before the Federal Constitutional Court was deployed as an organizational resource of power at this institution for a whole range of controversial decisions.

Unclear Technology

In terms of "technology", the "mechanism for transforming inputs into outputs" (Scott 1981, 17) within the organization, there is ambiguity in organized anarchies which means that ongoing processes are not completely understood. Prior to an action, members are often not clear what impact a certain action will have and, consequently, do not know which actions will have the greatest chance of succeeding in achieving the set goal. It is not possible for members to weigh up matters rationally which means that actions are subject to "trial-and-error procedures" (Cohen et al. 1972, 1). Thus, for example, there is no procedure to ensure that new knowledge is produced. In this context, the British chemist and theorist of science Polanyi (1966) coined the phrase "tacit knowledge". This knowledge is strongly related to people and situations and can only be tapped into during the specific practice of research activities. Research is thus a daisy chain of trial and error. Conveying knowledge is also not subject to any standard procedure. Luhmann and Schorr (1982) speak here of a "technology deficit" in the education system because teaching and learning processes can hardly be expressed in clear chains of cause and effect and cannot be controlled. In this sense, situational and person-related aspects dominate teaching/learning processes.

The two main goals of higher education (teaching and research) are thus connected with unclear technologies which clearly pushes them in the direction of organized anarchy.

Fluid Participation

In terms of "social structure", organized anarchies are characterized by the fact that in decision-making situations, the actual behavior of members is shaped by fluid participation. This can arise from several sources.

One possibility is that participants in a decision-making situation are not stable over time. If there are decision-making arenas in the organization, for example, in which anyone can participate, participation is very much dependent on the interest of the respective members. It is also possible that participation in the decision-making arena is not open, but that rules of participation envisage the frequent change of members (a rotation procedure). However, it is not only the rotation of participants in the decision-making situation that can lead to fluctuating participation. This can also arise with stable participants in a decision-making situation who actively take part in certain decisions, but not in others. Likewise, it is possible for participants to change their active involvement in decision-making processes over time; in other words they might not be active at the beginning of the decision-making process, but suddenly become active shortly before a decision is taken. By doing so, such participants can fundamentally change the decision-making situation. Both types of fluid participation (fluid involvement and fluid activity of participants) can appear separately, or together (Cohen et al. 1972).

Organized anarchies are therefore characterized by problematic preferences, unclear technology and fluid participation. These structural features have some important

consequences for decision-making processes in the organization: In organized anarchies the traditional rational model of decision-making can only be found to a limited extent. This rational decision-making model assumes that solution options are searched for and the best solution is selected based on a recognized and defined problem. Problem solving is modeled in a fixed sequence. Cohen et al. (1972, 2) note that in organized anarchies such sequences are rarely seen. The sequential model is then compared to the garbage can model in decision-making. In this latter model, we no longer speak of a sequence to problem solving. Instead, problems, solutions, participants and situations are uncoupled (Cohen et al. 1972, 2).

The garbage can is then a decision-making opportunity in which different problems and solutions are stored by (changing) participants where they wait for a decision. Thus, solutions are discovered for problems that do not even exist and these are temporarily parked in the garbage can. If a problem emerges that can be solved by a solution that already exists, and if the problem is also coincidently in the garbage can with the solution, the decision can be made that links the new problem with the solution that may have already existed for some time. The sequence here is not problem—solution, but solution—problem.

Cohen, March and Olsen have replicated the decision-making process in a computer simulation to examine which organization structures entail which type of decision-making mode. They found that both decisions made in line with the traditional rational model as well as decisions made in accordance with the garbage can model appear in all organizational models.[17] This suggests that decision-making processes in organizations can be characterized by both modes, in other words: No organization makes decisions solely in the rational problem-solving mode (Cohen et al. 1972, 9).

However, the proportion of types of decision varies depending on the organization structures modeled. The organized anarchy structure described above leads to a greater proportion of decisions that are not characterized by rational problem solving (Cohen et al. 1972, 11). As higher education institutions—as described above—can be seen as organized anarchies (Cohen et al. 1972, 11), it follows that, in comparison to organizations with other structures, we more often find decisions in higher education institutions that are not in line with the rational model.

We can attempt to illustrate and specify these quite abstract observations using examples from German higher education institutions. First, let us turn to the decision-making processes in higher education institutions. Anyone who has sat on an academic committee will have noticed that when it comes to a long or lively discussion on a matter, a working group is often set up to look into the matter, or decisions are postponed until the next meeting (and often only crop up again

[17]The simulation distinguished between three types of decision: “decision by resolution”, “decision by oversight” and “decision by flight”. For the sake of simplicity, we describe the first type of decision as rational decision-making and the two other types as decision-making in garbage can mode.

months later). In the first case, the decision is postponed and thanks to the new working group we have a new garbage can in which the problem (for which no solution was found) is temporarily stored.

The interesting question is now who are the members of the working group. If the working group comprises people who are particularly interested in the topic, it might meet often, various options will be enthusiastically discussed and, wherever possible, a decision reached that can be presented to the original committee. It is not unusual for such solutions to imply—as with all negotiations—that the costs of the solution (for instance, temporal resources) are "externalized" to those who were not involved in the negotiations. This can also mean members of the original committee who, given the potential of incurring costs themselves, now become more interested in the problem and the decision. This is what we mean by fluctuating activity of participants, who can completely alter the decision-making situation. Consequently there will be more discussions that again have to be unraveled. Typically, the composition of the working group will change, or a new working group is set up and the game starts again from the beginning.

However, something else can happen if the working group is composed of people who are not particularly interested in the problem. Sometimes, the selection rules for working group members mean that people are selected who "move" first: physical movement is often interpreted as interest in disagreeable tasks. It is quite plausible to assume that working groups composed in such a manner will not meet particularly often, or enthusiastically, and will only work on the problem with the minimum of commitment. The additional work can only be terminated when some kind of solution is found; whether the problem will actually be solved with the solution is somewhat secondary because the main goal of the members is to ditch the garbage can and the work associated with it as quickly as possible. Thus, the idea is to dock any solution onto the problem and to hand it back to the original committee.

This illustration of internal decision-making processes at (German) higher education institutions may well be overstating the case somewhat, but it does highlight just what kind of circumstances internal to the organization can be captured and explained by the organized anarchies approach.

The fact that decisions are not only made by (higher education) organizations in this garbage can mode, but that political reform processes often also follow a garbage can mode can be illustrated by the introduction of bachelor/master degrees in Germany. The quality of teaching at higher education institutions, the length of study programs, the allegedly high drop-out rates and the alleged lack of practical relevance of programs were widely discussed in the 1990s, but either no solutions were found to these problems, or solutions were held to be unenforceable. Consequently, problems were waiting or were being processed in various garbage cans—quite often in working groups—looking for a solution. Interestingly, with the Bologna Process—whose main aim was to facilitate the international comparability of higher education degrees and improve international mobility—a solution

emerged that could be married to all the ongoing problems of teaching and training at German higher education institutions. Thus, problems wandered into the decision-making garbage cans of bachelor/master reforms before being assigned to a "solution" that was originally conceived of to achieve totally different goals. The fact that such decision-making processes lead to subsequent problems and transintentional effects in the future is not really surprising.

In the following we apply the ideas of organized anarchies to German higher education institutions: we firstly examine specific features of German institutions and follow this up by taking a look at recent reforms from the perspective of higher education institutions as organized anarchies.

If we consider decision-making structures at German higher education institutions, the most striking feature is that the structures are characterized by an overlapping and mixing of three fundamentally different models of higher education. We can find elements of the university of professors, the group university and the managerial model. This overlapping developed historically, with the models being introduced at different points in time; key elements of the previous model were not dismantled or abolished, but were in fact retained.

While decision-making structures were shaped by the university of professors up to the 1960s, from then on they were supplemented by elements of the group university. As we described above, however, the Federal Constitutional Court prevented the complete conversion of decision-making structures toward the model of group universities. Instead, decision-making committees were created in which professors, non-professorial academic staff, students and technical/administrative personnel were represented. Key elements of the university of professors were, however, retained: firstly, because professors had to have a majority in these committees; secondly, because the prominent position of professors was secured by retaining the chair system.

Over the course of time it became clear that, following the controversial conflicts of the 1970s that dealt with the question of whether decisions should be taken in line with the group university model or the university of professors, these conflicts abated significantly because professors ultimately prevailed. Nevertheless, this should not be equated with a simple return to the university of professors. Firstly, legitimation requirements for decisions had fundamentally changed. The involvement of all groups—at least on the surface—became a key requirement for legitimizing decisions. Secondly, the narrow majority of professors in committees led to a "truce" between the professors, thus precluding professors from collaborating with other groups to overrule the other professors. From the 1980s therefore, we find a "non-aggression pact" between professors at higher education institutions, ultimately leading to the maintenance of the status quo. From the 1990s, this strong status quo orientation was increasingly discussed as incapacity of higher education institutions to adapt to environmental change. This discussion was a key trigger for

some NPM reforms in Germany, like the strengthening of formal decision-making powers of university leaders or the introduction of university boards of governors.

The management model favored by politics during the 1990s did not replace the previous decision-making structures, but some elements of the model were introduced with parts of the previous structures being retained. Again, we have already seen a key reason for this: the Federal Constitutional Court hindered a complete change in the decision-making structures due to risks to scientific freedom. The current decision-making structures at German higher education institutions therefore contain elements of all three models. We can find a prominent position of professors (university of professors), representation of different groups in academic committees (group university) and formally strengthened roles of presidents, vice presidents and deans (managerial model).

The impact of this specifically German hybridization of various models at both the formal and informal level has been somewhat patchy (Kleimann 2015; Hüther and Krücken 2015; Bieletzki 2018). The shifting of decision-making into informal structures appears to be an overriding effect. Frequently, the talk is of "kitchen cabinets" consisting of deans, research-intensive professors and other key "veto players". Membership in these "kitchen cabinets" is mostly situational and although decisions relevant to higher education are not formally made there, they are sufficiently well prepared that the actual decision is just a matter of form. Furthermore, the distribution of tasks and responsibilities among the various bodies—in particular higher education presidency, boards of governors and academic senate—has not always been settled satisfactorily. In "normal mode", this is somewhat latent, but becomes clearer in unforeseen conflict situations, such as the premature voting out of a president.

All in all, it is not clear how, given these structural conditions, decisions in a rational mode can be become more likely, even if this has been a key goal of the reshaping of decision-making structures since the 1990s.

Using the perspective of organized anarchies to review recent reforms in German higher education institutions provides some truly interesting observations. In particular, we can observe which structural properties of organized anarchies are being targeted by higher education reforms to increase the proportion of rational problem solving at higher education institutions.

In terms of the problematic preferences, both profile building and the targeted differentiation of higher education institutions play a role, for example. Here, attempts are being made to establish clearer preferences at the organization level. However, there are also contradictory trends. Thus, for example, further education or diversity management are defined as new tasks for higher education institutions. Therefore goals and preferences are becoming more various or more problematic. On the one hand, attempts are being made to give more structure to the bundle of goals; on the other hand, there is a developing "cluttering of goals" (Schimank 2001a, 224–229) at higher education institutions.

Attempts are also being made to counter the effects of fluid participation. Higher education reforms are at least trying to exert an influence on the structural matters affecting fluid participation. On the one hand, formal hierarchization is attempting

to reduce the extent of potential fluid participation by limiting participants in a given decision-making situation. And the trend towards a much clearer formal definition and differentiation of responsibilities in new higher education legislation and regulations indicates that problems should only be formally processed in certain decision-making situations. This also has reduced the potential of fluid participation by limiting participants. In addition, problems can no longer simply wander from one decision-making opportunity to another. However, that there are great differences between formal and actual decision-making structures is something we have discussed multiple times.

From the perspective of organized anarchies, reforms can be interpreted as attempts to minimize the features of organized anarchies at German higher education institutions and, at the same time, to increase the proportion of rational problem-solving decision-making.

5.2.4 Complete Organizations, or How Specific Are Higher Education Institutions as Organizations?

Whereas the three organization perspectives presented above emphasize that higher education institutions are specific organizations, more recent publications have questioned this. This new perspective is fundamentally connected to the international reforms in higher education from the beginning of the 1980s. In a key paper from 2000, Brunsson and Sahlin-Andersson argue that the reforms can be interpreted as an attempt to construct public administration and higher education institutions as complete organizations (Brunsson and Sahlin-Andersson 2000, 723–727, 729–730, 734–735; see also Meier 2009; de Boer et al. 2007; Krücken and Meier 2006; Hüther and Krücken 2011). According to Brunsson and Sahlin-Andersson, since complete organizations are mainly to be found in the business world, this represents an alignment of higher education institutions with corporations.

The notion that organizations become more similar is something we have already seen in neo-institutional organization theory. This trend towards convergence was described as isomorphism and is based on the three mechanisms "coercion", "mimesis" and "normative pressure". All three mechanisms play a role in the construction of complete organizations. Large parts of the NPM model are standardized through legislation, thus establishing "coercion" for higher education. Simultaneously, we also find mimetic trends at higher education institutions with particular reference to the perception of research universities in the USA. In German higher education discourse, it is frequently suggested that the American research universities resemble corporations in terms of their internal coordination (stronger hierarchy) and coordination between each other (market). Thus, imitating

the perceived American research university will also be replicating elements of corporations. In contrast, convergence by means of normative expectations is mainly driven by a commonly shared image of the "profession" of higher education managers.

However, we should not assume that the construction of complete organizations follows any master plan for change in higher education. Instead, this trend emerges from multifaceted single reforms, which are often not connected. Therefore, the construction of complete organizations is more likely to be a transintentional effect, arising from the interplay of the various reforms (Brunsson and Sahlin-Andersson 2000, 736).

But what are complete organizations? Complete organizations are characterized by identity (autonomy, collective resources, boundaries, being an organization, being special), hierarchy (coordination and control, management) and rationality (setting objectives, measuring results and allocating responsibility). These characteristics are very different from our previous descriptions of higher education organizations: higher education institutions are loosely coupled systems without any particularly strong identity across the whole organization, hierarchy contradicts the principle of academic self-governance emphasized in the profession perspective and rationality is not compatible with the description of organized anarchies whose processes are not typically rational. In the light of these descriptions, higher education institutions are indeed "incomplete organizations".

Below, we will demonstrate that in terms of the three dimensions—identity, hierarchy and rationality—there has been some movement towards complete organizations for German higher education institutions.

Identity

A series of reforms have strengthened the identity of higher education organizations. The increasing autonomy of higher education institutions in Germany has led to the state addressing the institution as a single and coherent unit, for example. Higher education institutions have to react to this new approach by developing a stronger sense of identity. The introduction of global budgets or block grants has the same effect. Instead of the cameralistic, or single-entry, accounting system, which assigns a budget based on individualized itemizations, block grants address higher education institutions as a unit. Block grants are collective resources that have to be allocated by the organization. In order to do so, the organization needs to see itself at least in part as a unit. In this vein, in recent years we have also seen an increase in mission statements of higher education institutions (Kosmützky 2012, 2016; Kosmützky and Krücken 2015). Even if sceptics only see mission statements as inconsequential "window dressing" for the organization, we can still view them as an attempt to strengthen identity at the level of the whole organization.

Overall, one can see that some reforms are pushing higher education institutions in Germany to strengthen their identity. Therefore, one can see a development toward a complete organization.

Hierarchy

Managerial hierarchy at German higher education institutions is being strengthened by the formal transfer of decision-making competence from state actors and academic self-organization units towards higher education leadership. This is a matter we dealt with in more detail in our chapter on governance (Chap. 4). At the same time, there are trends toward making higher education leadership and administrative management more professional (Krücken et al. 2009, 2013). This can be seen not only for top management by extending the terms of office for presidents and deans (Hüther 2011), but also for the whole administrative machinery. The latter is expressed in the fact that higher education institutions are expanding their organizational responsibility to more and more areas—from technology transfer and equal opportunities to personnel development. There is also a clear change in the self-perception of administrative staff: the orientation toward bureaucratic rationality is increasingly transforming into that of independent, decision-focused facilitators.

To sum up: there are some clear signs in German higher education institutions that there is a strengthening of hierarchy and management; thus giving support to the trend towards complete organizations.

Rationality

Greater rationality at German higher education institutions can be deduced from the multifarious expansion of performance reviews and evaluation that ultimately assume that the units under review are themselves responsible for the results. This includes evaluation of research and teaching or benchmarks between higher education institutions. It also includes placing accountability for mistakes with the whole organization or clearly defined organizational units.

Accordingly, in all three areas—identity, hierarchy, rationality—we find developments that, especially in their interaction, point to the formation of complete organizations. These developments—not only in Germany, but in many European countries—are the basis for discussions concerning the construction of complete organizations. The discussions show that within organization research, there is a tendency to replace the view that higher education institutions are different or specific organizations. However, the question needs to be asked whether the developments described above are foremost at the formal structural level or at the behavioral level. The question therefore is: "Are universities still specific organizations?" (Musselin 2007).

The answer is clearly "yes" and can be derived from the previous descriptions of higher education institutions as organizations.

- As seen in the section on loose coupling, there are only minor functional dependencies in research and teaching between academics within higher education institutions. As Musselin notes: "in few other work places (....) is it as

frequent to ignore colleagues seated next door and observe so little influence of the activities of those colleagues on one's own tasks" (Musselin 2007, 70). As long as highly specialized knowledge is the primary working material of higher education institutions, this loose coupling will change little and the uniqueness of these institutions will be retained. Nothing will fundamentally change as a result of the stronger internal coordination of teaching related to the introduction of the bachelor/master system.

- According to Cohen et al. (1972), the two main goals of research and teaching continue to be linked to unclear technology: "because teaching and research are difficult to describe and difficult to prescribe, they are difficult to reproduce" (Musselin 2007, 72). There are still no procedures to ensure that new knowledge is produced and that students learn successfully. The two goals cannot be connected to the actions of academics by a cause-effect model. Even the newly created administrative positions in higher education cannot change this.
- Higher education institutions will continue to be characterized by having multiple goals that mask a multitude of conflicts despite the building of profiles. Accordingly, it is still difficult for the whole organization to define preferences and provide order to them.
- The many different discipline-based and subject-related identities within higher education institutions run counter to attempts to build an identity for the whole organization, especially because academics feel primarily bound to their discipline and subject.
- Higher education institutions remain professional organizations. Internal fragmentation and the external focus of academics will continue to remain important structural features of higher education institutions—at least as long as science is structured in disciplines and subjects.
- Closely connected to the professional organization and the processing of specialist knowledge is also the effect that higher education institutions cannot completely abstain from academic self-governance patterns.

The uniqueness of the higher education institution as an organization comes from the interplay of these six aspects. While each single aspect may well apply to a whole range of organizations, the combination of all six aspects is only found in very few organizations. In addition, these aspects primarily emerge from the basic operations (research and teaching) and are therefore very stable.

It should also be clear that higher education institutions in various countries manifest deviations of varying magnitude with regard to some of these aspects. Therefore, the hurdles to constructing complete organizations can be high or low. In the case of Germany, the hurdles are particularly high. Given the heavy dependence on state bodies in relation to the goals to be followed, German higher education institutions actually pursue a wide range of multiple goals that have to be addressed, at least in the formal structure. Higher education institutions aim to not only pursue excellence in research and teaching, but also aim to improve the integration of women (especially in certain subjects and higher academic positions), migrants (most recently also refugees), students from less well-educated families, students

who have matriculated through second-chance education and students with disabilities. Higher education institutions also aim to render direct services for regional and national development (the third mission). In the course of time, it can be seen that state bodies are constantly expanding the bundle of goals for higher education institutions and German higher education institutions have to comply—at least symbolically. Perhaps an even stronger key discrepancy to higher education institutions in other countries can be seen in relation to academic self-organization. As we have described above, this protection is anchored in the German constitution, whose basic principles are inalterable[18] and whose amendments are subjected to very strict limitations. Thus, anyone wishing to implement strong hierarchy and management in German higher education institutions only has one option: a completely new constitution has to be passed. Such an event is not to be expected in the foreseeable future: even German reunification was not a sufficiently momentous occasion to warrant a new constitution.

References

Barnard, C. I. (1938). *The functions of the executive*. Cambridge, MA: Harvard University Press.

Becher, T., & Trowler, P. R. (2001). *Academic tribes and territories: Intellectual enquiry and the culture of disciplines*. Philadelphia: Open University Press.

Bieletzki, N. (2018). *The power of collegiality. A qualitative analysis of university presidents' leadership in Germany*. Wiesbaden: VS Verlag.

Bleiklie, I., Enders, J., & Lepori, B. (Eds.). (2017). *Managing universities: Policy and organizational change in a western European comparative perspective*. London: Palgrave Macmillan/Springer.

Blümel, A. (2015). *Von der Hochschulverwaltung zum Hochschulmanagement: Wandel der Hochschulorganisation am Beispiel der Verwaltungsleitung*. Wiesbaden: VS Verlag.

Blümel, A. (2016). (De)constructing organizational boundaries of university administrations: Changing profiles of administrative leadership at German universities. *European Journal of Higher Education, 6*(2), 89–110. https://doi.org/10.1080/21568235.2015.1130103.

Boyer, E. L., Altbach, P. G., & Whitelaw, M. J. (1994). *The academic profession: An international perspective. A special report*. Princeton: Carnegie Foundation for the Advancement of Teaching.

Braun, D., & Merrien, F.-X. (1999). Governance of universities and modernisation of the state: Analytical aspects. In D. Braun & F.-X. Merrien (Eds.), *Towards a new model of governance for universities? A comparative view* (pp. 9–33). London/Philadelphia: Jessica Kingsley Publishers.

Breisig, T., & Kahl, H.-J. (2000). Personalentwicklung an Hochschulen. In A. Hanft (Ed.), *Hochschulen managen? Zur Reformierbarkeit der Hochschulen nach Managementprinzipien* (pp. 213–232). Neuwied: Luchterhand.

Bromley, P., & Meyer, J. W. (2015). *Hyper-organization: Global organizational expansion*. Oxford: Oxford University Press.

[18]Parts of the German constitution are subject to a so-called *Ewigkeitsklausel*—an eternity clause—defined in Article 79.3 of the constitution. Among other things, this states that principles contained in Articles 1–20 may never be changed.

Brunsson, N. (1989). *The organization of hypocrisy. Talk, decisions and actions in organizations*. Chichester/New York: John Wiley.
Brunsson, N., & Sahlin-Andersson, K. (2000). Constructing organizations: The example of public sector reform. *Organization Studies, 21*(4), 721–746. https://doi.org/10.1177/0170840600214003.
BVerfG. (1973). 1 BvR 424/71; 1 BvR 325/72 vom 29.05.1973.
BVerfG. (2010). 1 BvR 748/06 vom 20.7.2010.
Clark, B. R. (1983). *The higher education system. Academic organization in cross-national perspective*. Berkeley: University of California Press.
Clark, B. R. (Ed.). (1987). *The academic profession. National, disciplinary and institutional settings*. Berkeley: University of California Press.
Cohen, M. D., March, J. G., & Olsen, J. P. (1972). A garbage can model of organizational choice. *Administrative Science Quarterly, 17*(1), 1–25. https://doi.org/10.2307/2392088.
Coleman, J. S. (1973). *Power and the structure of society*. New York: Norton.
Coleman, J. S. (2000). *Foundations of social theory*. Cambridge, MA: Harvard University Press.
Cyert, R. M., & March, J. G. (1992 [1963]). *A behavioral theory of the firm* (2nd ed.). Cambridge, MA: Blackwell Business.
Davis, G. F. (2006). Mechanisms and the theory of organizations. *Journal of Management Inquiry, 15*(2), 114–118. https://doi.org/10.1177/1056492605280238.
de Boer, H., Enders, J., & Leisyte, L. (2007). Public sector reform in Dutch higher education: The organizational transformation of the university. *Public Administration, 85*(1), 27–46. https://doi.org/10.1111/j.1467-9299.2007.00632.x.
de Ridder-Symoens, H. (Ed.). (1992). *A history of the university in Europe. Vol. I: Universities in the middle ages*. Cambridge: Cambridge University Press.
de Ridder-Symoens, H. (Ed.). (1996). *A history of the university in Europe. Vol. II: Universities in early modern Europe (1500–1800)*. Cambridge: Cambridge University Press.
DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and the collective rationality in organizational fields. *American Sociological Review, 48*(2), 147–160. https://doi.org/10.2307/2095101.
Enders, J., & Teichler, U. (Eds.). (1995). *Der Hochschullehrerberuf. Aktuelle Studien und ihre hochschulpolitische Diskussion*. Neuwied: Luchterhand.
Fayol, H. (1916). *Administration Industrielle et Générale; Prévoyance, Organisation, Commandement, Coordination, Controle*. Paris: H. Dunod et E. Pinat.
Foucault, M. (1977). *Discipline & punish*. London: Allen Lane.
Freidson, E. (1970). Professional dominance: The social structure of medical care. In *New Brunswick*. London: Atherton Press.
Freidson, E. (2001). *Professionalism. The third logic*. Chicago: University of Chicago Press.
Frost, J., Hattke, F., & Reihlen, M. (Eds.). (2016). *Multi-level governance in universities: Strategy, structure, control*. Dordrecht: Springer.
Fumasoli, T., & Stensaker, B. (2013). Organizational studies in higher education: A reflection on historical themes and prospective trends. *Higher Education Policy, 26*(4), 479–496. https://doi.org/10.1057/hep.2013.25.
Glassman, R. B. (1973). Persistence and loose coupling in living systems. *Behavioral Science, 18*(2), 83–98. https://doi.org/10.1002/bs.3830180202.
Goffman, E. (1961). *Asylums: Essays on the social situation of mental patients and other inmates*. Garden City: Anchor Books.
Greenwood, R., Oliver, C., Lawrence, T.B., & Meyer, R.E. (Eds.). (2017). *The SAGE handbook of organizational institutionalism*. 2nd. Edition. Los Angeles/London: Sage Publ.
Habermas, J. (1989). *The theory of communicative action. Volume 2, lifeworld and system. A critique of functionalist reason*. Boston: Beacon Press.
Hardy, C., & Maguire, S. (2008). Institutional entrepreneurship. In R. Greenwood, C. Oliver, R. Suddaby, & K. Sahlin (Eds.), *The SAGE handbook of organizational institutionalism* (pp. 198–217). Los Angeles/London: Sage Publ.

Hüther, O. (2008). Starke Dekane – Schwache Professoren? Vergleich und Analyse der deutschen Landeshochschulgesetze. *Hochschulmanagement, 3*(1), 23–27.
Hüther, O. (2011). New Managerialism? Gemeinsamkeiten und Differenzen der Leitungsmodelle in den Landeshochschulgesetzen. *die hochschule, 20*(1), 50–72.
Hüther, O., & Krücken, G. (2011). Wissenschaftliche Karriere- und Beschäftigungsbedingungen. Organisationssoziologische Überlegungen zu den Grenzen neuer Steuerungsmodelle an deutschen Hochschulen. *Soziale Welt, 62*(3), 305–325. https://doi.org/10.5771/0038-6073-2011-3-305.
Hüther, O., & Krücken, G. (2013). Hierarchy and power: A conceptual analysis with particular reference to new public management reforms in German universities. *European Journal of Higher Education, 3*(4), 307–323. https://doi.org/10.1080/21568235.2013.850920.
Hüther, O., & Krücken, G. (2015). Incentives and power: An organizational perspective. In I. M. Welpe, J. Wollersheim, S. Ringelhan, & M. Osterloh (Eds.), *Incentives and performance* (pp. 69–86). Cham/Heidelberg: Springer.
Hüther, O., & Krücken, G. (2016). Nested organizational fields: Isomorphism and differentiation among European universities. In E. Popp Berman & C. Paradeise (Eds.), *The university under pressure* (pp. 53–83). Bingley: Emerald.
Jansen, D., Wald, A., Franke, K., Schmoch, U., & Schubert, T. (2007). Drittmittel als Performanzindikator der wissenschaftlichen Forschung. *Zum Einfluss von Rahmenbedingungen auf Forschungsleistungen. Kölner Zeitschrift für Soziologie und Sozialpsychologie, 59*(1), 125–149. https://doi.org/10.1007/s11577-007-0006-1.
Jaspers, K. (1946). *Die Idee der Universität*. Berlin: Springer.
Kieser, A., & Ebers, M. (2006). *Organisationstheorien*. Stuttgart: Kohlhammer.
Kieser, A., & Walgenbach, P. (2010). *Organisation*. Stuttgart: Schäffer-Poeschel.
Kleimann, B. (2015). *Universität und präsidiale Leitung. Führungspraktiken in einer multiplen Hybridorganisation*. Wiesbaden: VS Verlag.
Kloke, K., & Krücken, G. (2010). Grenzstellenmanager zwischen Wissenschaft und Wirtschaft. Eine Studie zu Mitarbeiterinnen und Mitarbeitern in Einrichtungen des Technologietransfers und der wissenschaftlichen Weiterbildung. *Beiträge zur Hochschulforschung, 32*(3), 32–52.
Kosmützky, A. (2012). Between mission and market position: Empirical findings on mission statements of German higher education institutions. *Tertiary Education and Management, 18*(1), 57–77. https://doi.org/10.1080/13583883.2011.617466.
Kosmützky, A. (2016). Mission statements and the transformation of German universities into organizational actors. *Recherches Sociologiques et Anthropologiques, 47*(47–1), 41–66.
Kosmützky, A., & Krücken, G. (2015). Sameness and difference. *International Studies of Management & Organization, 45*(2), 137–149. https://doi.org/10.1080/00208825.2015.1006013.
Krücken, G. (2003). Learning the "new, new thing": On the role of path dependency in university structures. *Higher Education, 46*(3), 315–339. https://doi.org/10.1023/a:1025344413682.
Krücken, G. (2007). Organizational fields and competitive groups in higher education: Some lessons from the bachelor/master reform in Germany. *Management Revue, 18*(2), 187–203.
Krücken, G. (2008). Lässt sich Wissenschaft managen? *Wissenschaftsrecht, 41*(4), 345–358.
Krücken, G., & Drori, G. S. (Eds.). (2009). *World society: The writings of John W. Meyer*. Oxford: Oxford University Press.
Krücken, G., & Meier, F. (2006). Turning the university into an organizational actor. In G. S. Drori, J. W. Meyer, & H. Hwang (Eds.), *Globalization and organization. World society and organizational change* (pp. 241–257). Oxford: Oxford University Press.
Krücken, G., & Röbken, H. (2009). Neo-institutionalistische Hochschulforschung. In S. Koch & M. Schemmann (Eds.), *Neo-Institutionalismus in der Erziehungswissenschaft* (pp. 326–346). Wiesbaden: VS Verlag.
Krücken, G., & Wild, E. (2010). Zielkonflikte. Herausforderungen für Hochschulforschung und Hochschulmanagement. *Hochschulmanagement, 5*(2), 58–62.

Krücken, G., Blümel, A., & Kloke, K. (2009). Towards organizational actorhood of universities: Occupational and organizational change within German university administrations. In *FÖV discussion paper 48*. Speyer: FÖV.

Krücken, G., Blümel, A., & Kloke, K. (2013). The managerial turn in higher education? On the interplay of organizational and occupational change in German academia. *Minerva, 51*(4), 417–442. https://doi.org/10.1007/s11024-013-9240-z.

Krücken, G., Mazza, C., Meyer, R., & Walgenbach, P. (Eds.). (2017). *New themes in institutional analysis. Topics and issues from European research*. Cheltenham: Edgar Elgar.

Kühl, S. (2011). *Organisationen. Eine sehr kurze Einführung*. Wiesbaden: VS Verlag.

Larmann, V. (2013). *Kleine Hochschulen in strukturschwachen Lagen: Fallstudien aus Perspektive des Ressourcenabhängigkeitsansatzes*. Flensburg: Universität Flensburg.

Larson, M. S. (1979). Professionalism: Rise and fall. *International Journal of Health Services, 9* (4), 607–627. https://doi.org/10.2190/68jg-4bt4-jdw9-0lhr.

Lawrence, T. B., Suddaby, R., & Leca, B. (2009). *Institutional work: Actors and agency in institutional studies of organizations*. Cambridge: Cambridge University Press.

Leavitt, H. J. (1965). Applied organizational change in industry: Structural, technological and humanistic approaches. In J. G. March (Ed.), *Handbook of organizations* (pp. 1144–1170). Chicago: Rand McNally.

Leicht, K. T., & Fennell, M. L. (2008). Institutionalism and the professions. In R. Greenwood, C. Oliver, R. Suddaby, & K. Sahlin (Eds.), *The SAGE handbook of organizational institutionalism* (pp. 431–448). Los Angeles/London: Sage.

Leišytė, L., & Wilkesmann, U. (2016). *Organizing academic work in higher education: Teaching, learning and identities*. Milton Park: Routledge.

Lomi, A., & Harrison, R. J. (Eds.). (2012). *The garbage can model of organizational choice: Looking forward at forty*, *Research In the Sociology of Organizations* (Vol. 36). Bingley: Emerald.

Lüde, R. von, Valk, R., & Daniel, M. (2003). *Sozionik – Modellierung soziologischer Theorie*. Münster: LIT Verlag.

Luhmann, N. (1964). *Funktionen und Folgen formaler Organisation*. Berlin: Duncker & Humblot.

Luhmann, N. (1997). *Die Gesellschaft der Gesellschaft*. Frankfurt am Main: Suhrkamp.

Luhmann, N., & Schorr, K. E. (1982). Das Technologiedefizit der Erziehung und die Pädagogik. In N. Luhmann & K. E. Schorr (Eds.), *Zwischen Technologie und Selbstreferenz: Fragen an die Pädagogik* (pp. 11–41). Frankfurt am Main: Suhrkamp.

Maassen, P. A., & Olsen, J. P. (Eds.). (2007). *University dynamics and European integration*. Dordrecht: Springer.

Martin, L. H., Gutman, H., & Hutton, P. H. (Eds.). (1993). *Technologien des Selbst*. Frankfurt am Main: S. Fischer.

Matthies, H., & Simon, D. (Eds.). (2008). *Wissenschaft unter Beobachtung. Effekte und Defekte von Evaluationen*. Wiesbaden: VS Verlag.

Meier, F. (2009). *Die Universität als Akteur. Zum institutionellen Wandel der Hochschulorganisation*. Wiesbaden: VS Verlag.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology, 83*(2), 340–363. https://doi.org/10.1086/226550.

Michels, R. (1915 [1911]). *Political parties. A sociological study of the oligarchical tendencies of modern democracy*. London: Jarrold.

Mieg, H. (2003). Problematik und Probleme der Professionssoziologie. Eine Einleitung. In H. Mieg & M. Pfadenhauer (Eds.), *Professionelle Leistung – Professional performance. Positionen der Professionssoziologie* (pp. 11–46). Konstanz: UVK Verlagsgesellschaft.

Mintzberg, H. (1983). *Structure in fives. Designing effective organizations*. Englewood Cliffs: Prentice-Hall.

Mintzberg, H. (1989). *Mintzberg on management. Inside our strange world of organizations*. New York: Free Press.

Mizruchi, M. S., & Fein, L. C. (1999). The social construction of organizational knowledge: A study of the uses of coercive, mimetic, and normative isomorphism. *Administrative Science Quarterly, 44*(4), 653–683. https://doi.org/10.2307/2667051.

Müller-Jentsch, W. (2003). *Organisationssoziologie. Eine Einführung*. Frankfurt am Main/New York: Campus.

Musselin, C. (2007). Are universities specific organizations? In G. Krücken, A. Kosmützky, & M. Torka (Eds.), *Towards a multiversity? Universities between global trends and national traditions* (pp. 63–84). Bielefeld: Transcript.

Musselin, C. (2010). *The market for academics*. New York: Routledge.

Neave, G., & Rhoades, G. (1987). The academic estate in Western Europe. In B. R. Clark (Ed.), *The academic profession. National, disciplinary and institutional settings* (pp. 211–270). Berkeley: University of California Press.

Nienhüser, W. (2012). Academic Capitalism? Wirtschaftsvertreter in Hochschulräten deutscher Universitäten. Eine organisationstheoretisch fundierte empirische Analyse. In U. Wilkesmann & C. J. Schmid (Eds.), *Hochschule als Organisation* (pp. 89–112). Wiesbaden: VS Verlag.

Ortmann, G. (2005). Organisation, Profession, bootstrapping. In T. Klatetzki & V. Tacke (Eds.), *Organisation und Profession* (pp. 285–298). Wiesbaden: VS Verlag.

Orton, D. J., & Weick, K. E. (1990). Loosely coupled systems: A reconceptualization. *Academy of Management Review, 15*(2), 203–223. https://doi.org/10.2307/258154.

Parsons, T. (1960). *Structure and process in modern societies*. Glencoe: Free Press.

Perrow, C. (1991). A society of organizations. *Theory and Society, 20*(6), 725–762. https://doi.org/10.1007/bf00678095.

Perrow, C. (1993). *Complex organizations. A critical essay*. New York: McGraw-Hill.

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York: Harper & Row.

Polanyi, M. (1966). *The tacit dimension*. Garden City: Doubleday and.

Popp Berman, E., & Paradeise, C. (Eds.). (2016). *The university under pressure*. Bingley: Emerald.

Preisendörfer, P. (2011). *Organisationssoziologie: Grundlagen, Theorien und Problemstellungen*. Wiesbaden: VS Verlag.

Roethlisberger, F. J., & Dickson, W. J. (1939). *Management and the worker: An account of a research program conducted by the western electric company, Hawthorne works, Chicago*. Cambridge, MA: Harvard University Press.

Rüegg, W. (Ed.). (2004). *A history of the university in Europe. Vol. III: Universities in the nineteenth and early twentieth centuries (1800–1945)*. Cambridge: Cambridge University Press.

Rüegg, W. (Ed.). (2011). *A history of the university in Europe. Vol. IV: Universities since 1945*. Cambridge: Cambridge University Press.

Schelsky, H. (1963). *Einsamkeit und Freiheit*. Reinbek: Rowohlt.

Schimank, U. (2001a). Festgefahrene Gemischtwarenläden – Die deutschen Hochschulen als erfolgreich scheiternde Organisationen. In E. Stölting & U. Schimank (Eds.), *Die Krise der Universitäten* (pp. 223–242). Wiesbaden: Westdeutscher Verlag.

Schimank, U. (2001b). Organisationsgesellschaft. In G. Kneer, A. Nassehi, & M. Schröer (Eds.), *Klassische Gesellschaftsbegriffe der Soziologie* (pp. 279–307). München: Fink.

Schimank, U. (2005). "New public management" and the academic profession: Reflections on the German situation. *Minerva, 43*(4), 361–376. https://doi.org/10.1007/s11024-005-2472-9.

Scott, R. W. (1965). Reactions to supervision in a heteronomous professional organization. *Administrative Science Quarterly, 10*(1), 65–81. https://doi.org/10.2307/2391650.

Scott, R. W. (1981). *Organizations: Rational, natural, and open systems*. Englewood Cliffs: Prentice-Hall.

Scott, R. W. (1982). Managing professional work: Three models of control for health organizations. *Health Services Research, 17*(3), 213–240.

Scott, R. W. (2005). Evolving professions: An institutional field approach. In T. Klatetzki & V. Tacke (Eds.), *Organisation und Profession* (pp. 119–141). Wiesbaden: VS Verlag.
Scott, R. W. (2014). *Institutions and organizations: Ideas, interests, and identities*. Thousand Oaks: Sage.
Scott, R. W., & Davis, G. F. (2007). *Organizations and organizing. Rational, natural, and open system perspectives*. New York/London: Routledge.
Sorensen, J. E., & Sorensen, T. L. (1974). The conflict of professionals in bureaucratic organizations. *Administrative Science Quarterly, 19*(1), 98–106. https://doi.org/10.2307/2391790.
Stichweh, R. (1994). Akademische Freiheit, Professionalisierung der Hochschule und Politik. In R. Stichweh (Ed.), *Wissenschaft, Universitäten, Professionen. Soziologische Analysen* (pp. 337–361). Frankfurt am Main: Suhrkamp.
Taylor, F. W. (1911). *The principles of scientific management*. New York: Harper & Brothers.
Teichler, U., Arimoto, A., & Cummings, W. K. (Eds.). (2013). *The changing academic profession: Major findings of a comparative survey*. Dordrecht: Springer.
Thompson, J. D. (1967). *Organizations in action. Social science bases of administrative theory*. New York: McGraw-Hill.
Thornton, P. H., & Ocasio, W. (2008). Institutional logics. In R. Greenwood, C. Oliver, R. Suddaby, & K. Sahlin (Eds.), *The SAGE handbook of organizational institutionalism* (pp. 99–129). Los Angeles/London: Sage Publ.
Türk, K., Lemke, T., & Bruch, M. (2006). *Organisation in der modernen Gesellschaft: Eine historische Einführung*. Wiesbaden: VS Verlag.
Walgenbach, P., & Meyer, R. E. (2007). *Neoinstitutionalistische Organisationstheorie*. Stuttgart: Kohlhammer.
Waters, M. (1989). Collegiality, bureaucratization, and professionalization: A Weberian analysis. *American Journal of Sociology, 94*(5), 945–972. https://doi.org/10.1086/229109.
Waters, M. (1993). Alternative organizational formations: A neo Weberian typology of polycratic administrative systems. *The Sociological Review, 41*(1), 54–81. https://doi.org/10.1111/j.1467-954x.1993.tb02954.x.
Weber, M. (1976 [1922]). *Wirtschaft und Gesellschaft. Grundriß der verstehenden Soziologie* (5., rev. Aufl. ed.). Tübingen: Mohr.
Weick, K. E. (1976). Educational organizations as loosely coupled systems. *Administrative Science Quarterly, 21*(1), 1–19. https://doi.org/10.2307/2391875.
Welpe, I. M., Wollersheim, J., Ringelhan, S., & Osterloh, M. (Eds.). (2015). *Incentives and performance*. Heidelberg: Springer.

Chapter 6
Research on Actors and Groups of Actors at Higher Education Institutions

In contrast to earlier chapters, this chapter will not be looking at the macro or meso level of the German higher education system. Instead, we will be focusing on the micro level and will present some research findings relating to individual actors and groups of actors. Decisions made by students, career paths of academics and developments in the composition of administrative staff are the main themes of this chapter. In terms of students and academic staff, we organize our analysis according to different phases: for students, we will begin with the higher education entry phase, looking then at the duration of study before examining the final phase, the transition of graduates to the labor market; for academics, we will begin with the PhD phase, then we will present some findings on the German postdoc phase and examine the transition to full professorship. There are no comparable phases for administrative staff at higher education institutions. Thus, we will be focusing on developments in the last two decades for this group.

6.1 Students: From University Entrance to Graduation

A great deal of research on students in Germany focuses on decisions made by students.[1] This can include decisions to follow a study program, decisions on where to study and also the decision to drop out of a program. These decisions are not necessarily marked by a rational, conscious weighing up of alternatives. They may also be characterized by a focus on conventions and traditions as well as on

[1] Another important theme is student learning (e.g. Braun and Hannover 2012; Wild and Möller 2015). Throughout the book, our interest lies more in the structural developments of the German higher education system, while the vast majority of research on student learning is not concerned with such structural developments. Therefore, student learning plays only a minor role in the following.

O. Hüther, G. Krücken, *Higher Education in Germany—Recent Developments in an International Perspective*, Higher Education Dynamics 49,
https://doi.org/10.1007/978-3-319-61479-3_6

decision-making heuristics (rules of thumb) (Weber 1976 [1922], 12–15; Schütz and Luckmann 1975; Goffman 1974; Kahneman et al. 1982; Gigerenzer et al. 2011). This distinction is important since any practical interventions would differ fundamentally depending on whether underlying assumptions are based on rational deliberations or on tradition and decision-making heuristics.

As with other parts of the book, we will not be attempting to present a complete review of all research topics and results, but to present key questions and selected findings. However, we are very much aware that, in terms of research on students in Germany, it is only possible to present a rough picture of the situation.

6.1.1 Motivation for Taking Up a Study Program, the Choice of Subject and the Choice of Location/Higher Education Institution in Germany

Modern societies provide career opportunities foremost through formal educational qualifications. In addition, OECD data show that not only does the risk of unemployment drop and income level rise with the level of education, but people also feel healthier and are more likely to trust others (OECD 2014, 114–151, 180–187). Although there are considerable differences between individual OECD countries, it is striking that in all countries graduates are among the "winners" when it comes to such factors. Therefore, there are many good reasons for studying at higher education institutions.

As far as Germany is concerned, however, we should note that the vocational education and training system (VET) (see Chap. 3) also offers a further, recognized path of education. The higher education system is thus in competition with another equally legitimate education system. The choice against taking up higher education study is usually coupled with a decision in favor of entering the VET system (Schindler 2014, 83). Therefore, we need to begin with the question: What benefits do those qualified to study expect from a higher education program in contrast to vocational training and vice versa?

Figure 6.1 shows the anticipated benefits of higher education study/vocational training for those qualified to study in 2010. It shows the percentage of respondents who gave either of the two highest categories of approval on a five-point scale.

The benefits of higher education study compared to vocational training can be seen first and foremost in the extrinsic expectations of potential students. These include expectations of better career opportunities (94% vs. 26%), gaining influential positions (91% vs. 17%), higher social status (91% vs. 33%) and higher income (87% vs. 16%). The structure of the expectations anticipated by potential students is therefore in line with the "objective" data on the benefits of higher education study.

In addition, expectations with regard to intrinsic goals such as the possibility of securing a job with high personal responsibility and pursuing one's own interests, clearly favor higher education study. The benefits of entering the VET system are

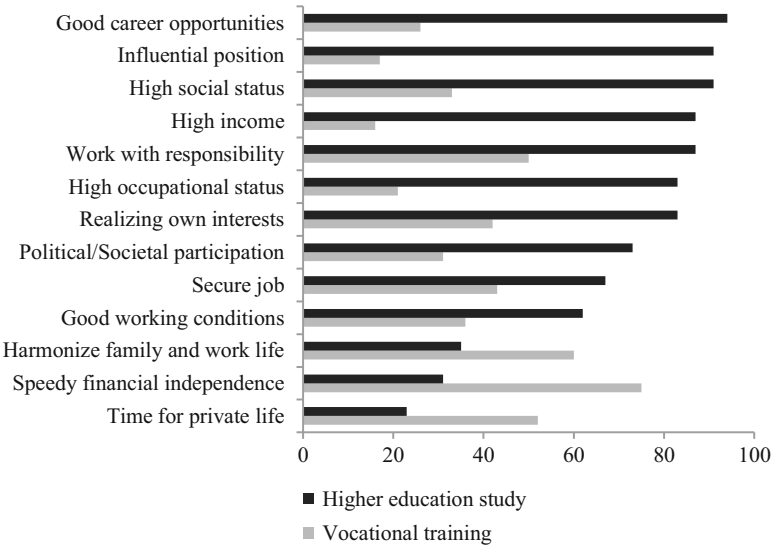

Fig. 6.1 Anticipated benefits of higher education study and vocational training rated by potential students 2010
Figures in percent; five-point scale from 1 "not at all" to 5 "highly", only scores of 4 and 5 are shown; source: Lörz et al. (2012, 70, 73), own calculations

seen in having earlier financial independence (75% vs. 31%), being able to better harmonize family and work life (60% vs. 35%) and having more time for private life (52% vs. 23%).

The expectations of potential students corroborate why the vast majority of those qualified to study actually enroll at a higher education institution in Germany. Since the 1990s the rate has remained relatively stable at 80% (Schindler 2014, 78).[2]

We hold that extrinsically motivated expectations such as career opportunities on the one hand, and intrinsic factors such as anticipated higher levels of personal responsibility are key to enrolling in higher education. What is the key motivation for choosing which subject to study? Here, we will be looking at the students' motivation for their choice of subject and at whether this has changed over time.

Figure 6.2 shows selected motivations for the choice of a certain program and their trends since 2001. The figures reveal a high degree of stability. Across all measurements, interest in the subject and assumed inclination/aptitude were the most important aspects. It is thus clear that intrinsic motivations and the concept of

[2]However, the problem here is that the more recent the data, the more uncertain measurements become. This is due to the fact that some of those qualified to study may only take up a study program some years after leaving school and this group is not included in the statistics of study rates. Estimates based on the survey, conducted 6 months after leaving school, tend to underestimate the real enrolment rate even when the survey takes account of students' intentions to study at a later time. Thus, the enrolment rate for 2008 of 80% mentioned above by Schindler was calculated after adjusting for late starters (Schindler 2014, 79).

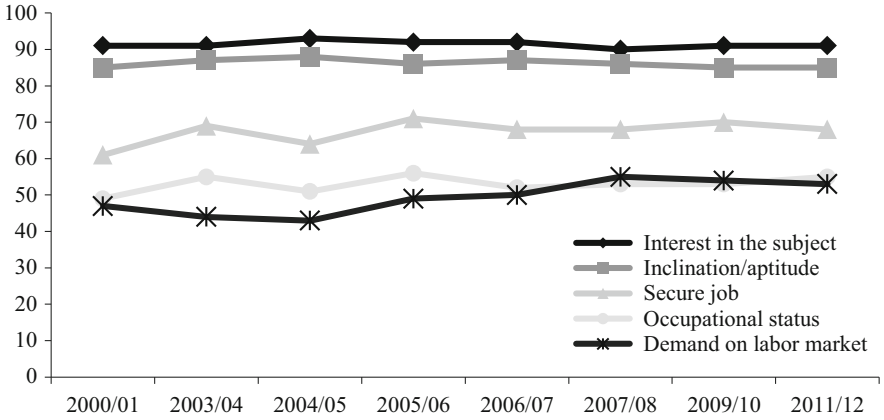

Fig. 6.2 Motivation for choice of study program 2000–2011
Figures in percent; five-point scale from 1 "very important" to 5 "unimportant", only scores of 1 and 2 are shown; source: Scheller et al. (2013, 79–81)

self are particularly important for the choice of subject. In contrast, although extrinsic motivations such as secure jobs, status and labor market opportunities also play a role, they are less dominant.

Figure 6.3 shows the motivation behind subject choice for individual subject groups for university entrants in 2011/12. Although intrinsic motivations are still most important across all subject groups, there are considerable differences in the importance of extrinsic motivations. Engineering students rate demand for graduates on the labor market significantly higher than law students, for example, whereas occupational status is a particularly important factor for studying law.

This draws attention to one particular issue: attempts to influence the subject choice of students in Germany have more or less failed. This is due to the dominance of intrinsic motivations. Subject choice is closely interwoven with students' concepts of self and identity. Any attempts to guide a significant number of students towards certain subjects, for example science or engineering, would need to change personal constructions of interest, inclination and aptitude. It is obviously extremely difficult to intervene in such complex personal constructs. Nonetheless, attempts have been made in recent years in Germany to foster interest in certain subjects at an early age. These may prove more promising than constant reminders prior to enrolling on just how popular and recognized certain subjects are.

In addition to deciding on whether to pursue higher education and choosing a subject, university entrants also have another decision to make: deciding on a specific higher education institution and the related location. In highly differentiated higher education systems, this is a key decision for future career prospects, which explains why there has been comprehensive research on the topic (see for example the overview for the US in John et al. 1996, 179–183). The situation in Germany is different from countries with highly differentiated higher education

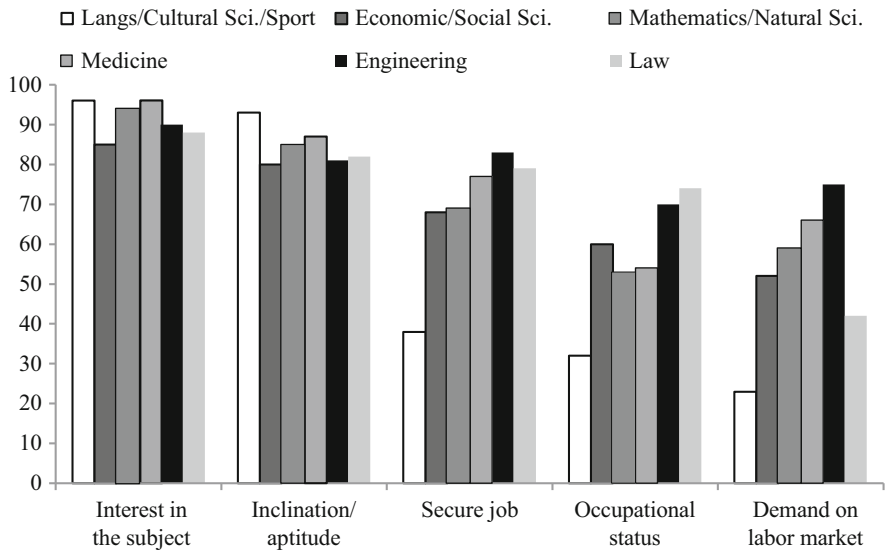

Fig. 6.3 Motivation for choice of subject by subject group 2011/12
Figures in percent; five-point scale from 1 "very important" to 5 "unimportant", only scores of 1 and 2 are shown; source: Scheller et al. (2013, 75–89)

systems. The choice of higher education institution, or location, has hardly had any structural effects on a student's later career opportunities. Unlike other national higher education systems, this is due to the fact that, on the whole, higher education institutions in Germany are still seen as equal in teaching quality (see Chap. 3). Attempts have been made to change this perception based on the quality of education (e.g. Bloch et al. 2014), but the effects of these have been minimal so far.

Nevertheless, Germany has witnessed some changes in the selection of higher education institution in recent years. This can be seen in the key motivation for selecting a particular institution, for example (for the following numbers see Scheller et al. 2013, 115–130). In 1998/99, only 35% of university entrants held institution-specific internal conditions to be the most important factor in their decision—a figure which had grown to 48% in 2011/12. These internal conditions include the higher education institution's reputation, good facilities or the fit of programs offered and student's specific subject interest. This "fit" is by far the most frequently mentioned key motivation in the selection of higher education institution (mentioned by 20% of students in 2011/12 for example). In the same period, the significance of the location fell from 40% to 34%. This includes aspects such as familiarity with the location, no tuition fees and favorable living conditions. Here, too, there is a dominant key motivation: proximity to the student's hometown (mentioned by 19% of students in 2011/12, for example).

We can therefore see that, at least in terms of the key motivation for selecting a higher education institution, vertical differentiation—the differentiation based on

reputation—only plays a minor role in the German system. This contrasts to horizontal differentiation, with the fit between program and student's specific subject interest being significant in the selection of higher education institution. As vertical differentiation in the German higher education system is not yet far advanced—at least when viewed internationally—it can come as no surprise that the regional mobility of university entrants in Germany is relatively low. Study programs that "fit" can often enough be found close to the student's hometown.[3] This is substantiated by the fact that in 2011/12, only 35% of students left the state in which they graduated from school (Middendorff et al. 2013, 62–63). And if we consider that students' attendance at institutions in neighboring states was also viewed as mobility, the proportion of students who actually left their region will be significantly lower. Even after 20 years of effort to generate greater differentiation and competitive focus in the German higher education system in terms of students and their choice of institution, it remains true that "[t]he German student is very much settled and only in a very few cases can be encouraged to be geographically mobile based on the quality of study program" (KMK 2002, 4).

6.1.2 Students Who Drop Out

In terms of the phase of study itself, we will mainly be exploring the research on students who drop out. We could, rightly, be accused of adopting a pessimistic approach by focusing on the lack of success (e.g. van Buer 2011). In our opinion, however, there is a reason for this: student dropout rates are a key aspect of current public and political discussion on tertiary education in Germany (e.g. Autorengruppe Bildungsberichterstattung 2014, 132).

Dropping out is not only a decision that has a considerable impact on the individual student: the total number of dropouts is also seen as a key factor that could jeopardize political goals, the most important one here being to raise the proportion of academics across the whole of society. From a macroeconomic perspective, investments in students who drop out of higher education are bad investments. Given that tuition fees are not raised in Germany and that places in higher education are financed by public funds, there is a strong tendency to view high dropout rates as a misallocation of public financial resources.

In Germany, the public debate on student dropouts is typically dominated by social "blame attribution" (Douglas 1992), a one-sided way of apportioning blame. Either students are deemed guilty because they are not capable or willing to study, or the higher education institutions are to blame because they have not created the structures necessary for a program to be successful, or have not looked after their students well enough.

[3]Complementing this, there is also a strong regional focus of numerous employers in Germany (Winterhager and Krücken 2015).

However, research on students who drop out shows that neither one nor the other explanation is appropriate. Instead, the decision to drop out is a complex decision, or rather a complex process, that can only be explained as the confluence of several factors.[4] Before we take a look at reasons and motives for students dropping out, we need to examine just how high the dropout rate at German higher education institutions actually is.

6.1.2.1 Student Dropout Rates

Any attempt to calculate the percentage of students in Germany not completing their study programs will inevitably become quickly entangled in considerable measurement problems. A key problem is that data on students in higher education in Germany is only gathered at the institutional level and the higher education institution usually only records that the student has left the institution. At the level of the higher education institution, the data is very fragmentary in supplying information on what students actually do once they have left the institution. However, leaving a higher education institution without a degree is not equivalent to dropping out: students could have changed institution, they could have changed the type of institution—from a university to a university of applied sciences, for example—or they could have completed their program abroad.

The data available for Germany does not allow any differentiation between students dropping out and mobility (Heublein and Wolter 2011, 216). Based on the figures from higher education institutions, we can only talk about an attrition rate at institution or subject level. But this attrition rate is not a dropout rate. Student dropout rates are not determined by fluctuation and mobility, but by students leaving the higher education system (not a higher education institution) permanently without graduating.

The measurement problems mentioned above mean that figures on student dropout rates in Germany are at best estimates[5] and, at worst, are based on an incorrect application of the construct of "students who drop out". This also explains why we have different dropout rates in various studies conducted at the same point in time. It also explains the difficulty in interpreting student dropout rates and their trends since the 1960s because it is not clear whether we are dealing with an actual development or with statistical inconsistencies or artefacts of the study (Heublein and Wolter 2011, 220).

However, studies cited by Heublein and Wolter (2011, 220) suggest that in comparison to the 1960s there was a rise in the student dropout rate in the 1980s

[4]Nevertheless, dropout rates appear as one of the indicators in the federal states' new indicator system on the distribution of funds, contributing to the trend of increasing accountability of higher education organizations described in Chap. 2.

[5]A description of different estimating procedures deployed by research institutions and the Federal Statistical Office can be found in Heublein and Wolter (2011, 218–219).

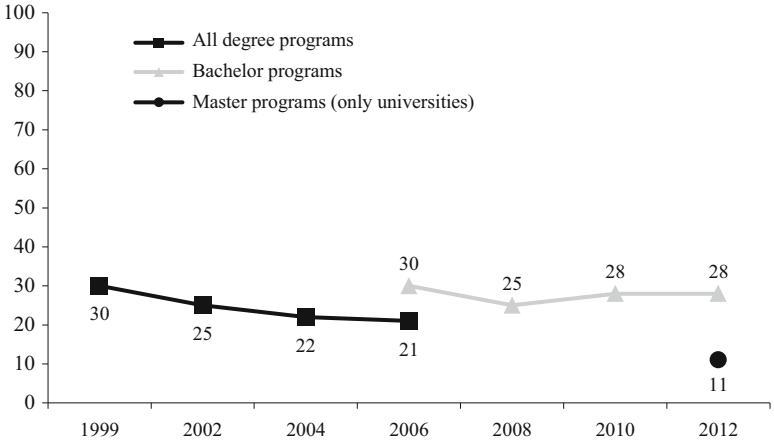

Fig. 6.4 Student dropout rates for programs completed from 1999 to 2012
Figures in percent; source: Heublein and Wolter (2011) and Heublein et al. (2014)

(16% vs. 25–27% dropout rate). Below we present more recent developments regarding dropout rates based on estimates provided by HIS (Hochschul-Informations-System GmbH) and its successor the German Centre for Higher Education Research and Science Studies (*Deutsches Zentrum für Hochschul- und Wissenschaftsforschung* – DZHW) (for the estimation procedure see Heublein et al. 2014, 13–14). While there are undoubtedly uncertainties in estimating the overall rate of student dropout, the data can nevertheless be interpreted over time with a degree of confidence given that the studies deployed the same methods.

Figure 6.4 shows that the German Centre for Higher Education Research and Science Studies estimates the dropout rate of programs completed from 1999 to 2006 dropped from 30% to 21%. This means that 30 of 100 students who enrolled in 1992 to 1994 left the higher education system without graduating. In contrast, only 21 of 100 students enrolling from 2001 to 2003 failed to graduate.

Since 2006, dropout rates have also been assessed for bachelor students. Contrary to political intentions, these do not reveal any positive effects of the bachelor/master reforms that came with the Bologna Process. Instead, since 2006 the dropout rates have always been higher than the dropout rates of the old programs from 2004 and 2006. In addition, we also need to take account of dropout rates of master students, estimated for the cohort of graduates from university masters' programs. Here, the dropout rate stood at 11% in 2012. To date, the goal of cutting dropout rates through the introduction of bachelor/master programs has clearly not been achieved.

However, it can be seen that bachelor students drop out earlier than students of more traditional programs. On average, bachelor students drop out after three semesters, whereas students of all types of courses drop out on average after 6.3 semesters (Heublein and Wolter 2011, 222–223). The introduction of bachelor/

master programs has not reduced the proportion of students dropping out, but has led to students dropping out earlier.

It can also be seen that the dropout rates between universities and universities of applied sciences as well as between subjects can vary greatly. Thirty-three percent of university students dropped out before their programs were completed in 2012 while only 23% of students attending universities of applied sciences dropped out. However, whereas the dropout rate at universities had fallen slightly compared to programs ending in 2010 (35% vs. 33%), the figure for universities of applied sciences had risen (19% vs. 23%) (Heublein et al. 2014, 3–6).

At the level of subject groups there are also considerable differences in the dropout rates for universities and for universities of applied sciences. For university bachelor programs ending 2012, the dropout rate in engineering was 36%, in mathematics and natural sciences 39%, but only 27% in law, economics and the social sciences (Heublein et al. 2014, 4).

The picture is similar—albeit at a lower level—at universities of applied sciences. Dropout rates are relatively high for engineering (31%) and for mathematics and natural sciences (34%), with only 15% of students in law, economics and social sciences dropping out (Heublein et al. 2014, 6).

If we compare these current figures with those for 2004–2006, it can be seen that the conversion to bachelor programs has led to lower dropout rates in some subjects (such as economics and social sciences), while the dropout rate in other subjects has risen markedly (engineering, natural sciences, mathematics).

Although there is no uniform trend in the dropout rate across subjects, there has been no general reduction (Autorengruppe Bildungsberichterstattung 2014, 138). It will be interesting to see whether these dropout rates and trends for bachelor and master students will continue in the coming years, or whether the levels measured to date will still be regarded as transitional.

6.1.2.2 Reasons for Students Dropping Out

In the last few decades, a range of studies[6] have examined the reasons for students dropping out (for the German discussion see for example Schröder-Gronostay and Daniel 1999; Bargel 2003; Fellenberg and Hannover 2006; Schiefele et al. 2007; Georg 2008; Blüthmann et al. 2008; Heublein 2010; Blüthmann et al. 2011, 2012; Pohlenz et al. 2012; for the international discussion see for example Tinto 1975; Bean and Metzner 1985; John et al. 1996; Bean and Eaton 2001; Pascarella et al. 2004; Mäkinen et al. 2004; Chen 2012; Kehm 2014).

[6]In Germany, such studies are relatively new. In contrast, in the USA research on the topic has been ongoing for decades and is dealt with in detail in a dedicated journal, the Journal of College Student Retention: Research, Theory & Practice. Case studies from various European countries can be found under the issue of "Dropout from University" in the European Journal of Education (Kehm 2014).

In terms of these individual studies, it should however be noted that, in part, they are not based on actual students dropping out. Instead they examine factors that increase/decrease the propensity to drop out (e.g. Fellenberg and Hannover 2006; Hadjar and Becker 2004; Blüthmann et al. 2011; Georg 2008). For Germany, this procedure can be explained by the difficulty in surveying actual students who have dropped out given the problems encountered in actually identifying them. However, this propensity is not to be equated with actual dropouts.

In addition, a series of studies have concentrated on the first year of a higher education program and have captured the particular reasons for dropping out of a program at an early stage (e.g. Mäkinen et al. 2004; one counterexample is Schiefele et al. 2007). It can be assumed that the reasons for dropping out in the first semester differ to those in the sixth semester (Tinto 1988; Schiefele et al. 2007).

The literature highlights two particular theoretical approaches to explaining why students drop out: the sociological-institutional approach and the psychological-individual approach. The first approach includes models offered by Spady (1970) and Tinto (1975).[7] Both models emphasize the point that during the transition to tertiary education, students have to be integrated in the higher education institution. If this integration fails, it is likely that students will drop out. In a paper published later, Tinto also draws on the socio-anthropological concept proposed by van Gennep (1960) who, among other things, describes various passages and rites for the integration of new members in traditional societies. In this sense, Tinto sees the transition to the higher education system as "moving from one community or set of communities (...) to another" (Tinto 1988, 442). Tinto uses this concepts to both better capture the various passages of integration into the academic and social world of higher education and to emphasize the dimension of time with regards to the respective integration (Tinto 1988). Accordingly, students first have to separate from their current contexts, pass through a transition to then become fully incorporated. Research focusing on the sociological-institutional approach is mainly interested in factors that promote or hinder the integration of students at higher education institutions.[8]

In contrast, psychological-individual models focus on the significance of individual factors such as the concept of self, cognitive skills and motivation (e.g. Bean and Metzner 1985; Bean and Eaton 2001; Mäkinen et al. 2004; Fellenberg and Hannover

[7]The sociological-institutional models include attempts to use Bourdieu's capital concept to explain why students drop out (e.g. Longden 2004).

[8]The outstanding importance of Tinto's works in the discussion is manifested in the fact that they are used as the foundation of an independent study that exclusively deals with journal papers validating Tinto's theory (Braxton et al. 1997). Here, the authors conclude that although there is support for Tinto's theory for traditional students at residential colleges and universities, the steadily growing numbers of non-traditional students represented a considerable challenge and has led to significant modifications of the theory.

2006; Schiefele et al. 2007). Students are more likely to drop out when they do not feel capable of meeting the demands of a program, when motivation to learn is low or when they are using improper learning strategies.

Empirical studies on student dropout use the two theoretical models to derive the variables included in the statistical models and the relationship between the variables. There are also some studies that have attempted to integrate both models by using psychological factors, for example, to explain the integration of students into the academic and social environments of higher education institutions (e.g. Bean and Metzner 1985).

Overall, the studies highlight a very complex picture of influencing factors and conditions. In other words, the decision to drop out of a program of study cannot be seen as a monocausal decision-making process (e.g. Sarcletti and Müller 2011; Heublein and Wolter 2011; John et al. 1996). For Germany, Heublein (2010), for example, shows that performance problems—in particular, a lack of self-motivation—and financial concerns can move students to drop out.[9] This clearly shows that variables that are not directly related to the content of a program of study (such as finances) as well as factors that are closely connected to a program (performance problems, self-motivation) can be factors swaying a decision to drop out in Germany.

In terms of performance problems, both institutional factors and psychological factors play a role. Performance problems can arise through the perception of high requirements but also poor conditions for study. A key factor in respect of performance is self-motivation, itself a concept that is subject to a range of factors: motivation in the choice of subject, opportunities on the labor market from gaining a degree. While performance problems and self-motivation play a key role particularly among early dropouts, students dropping out later more often cite a difficult financial situation as the key reason for dropping out.[10]

Overall, the research reveals a variety of direct and indirect effects in relation to integration into higher education institutions, psychological predispositions and organizational-institutional factors. Such effects have to be seen against the backdrop of changes in the German higher education system, in particular the expansion of the system, and the introduction of bachelor/master programs that came with the Bologna Process.

[9]Cf. Blüthmann et al. (2012) who used a cluster analysis to study early ex-matriculated bachelor students at a university and found four different clusters (overburdened, disappointed, wrong choice, changing strategy). In qualifying this, we need to point out that ex-matriculation does not necessarily equate to dropping out.

[10]Social background also plays an indirect role because students from lower social strata receive less financial and other support from their parents, more often rely on public funding and more often have to invest more time in part-time employment.

6.1.3 The Graduates

Another important subject of research on students in Germany concerns the question of what happens to them once they have successfully graduated. This question is explored in terms of graduate surveys: standardized, quantitative, questionnaire-based studies focusing on a particular population of graduates (Falk et al. 2009, 5). Information is gathered on the perception of the study program, the transition to the labor market and students' current employment situation (for a current overview see for example Flöther and Krücken 2015).

Graduate surveys can be designed to question graduates just once, or by means of a panel design, i.e., graduates are surveyed multiple times over a longer period of time.[11] Larger studies in Germany make use of this panel design.[12] As a rule, students are surveyed after 18 months and 5 years following graduation. The benefit of repeated surveys is that they allow more in-depth observations of a student's professional career and also the scope of the influence of the program of study.

6.1.3.1 The Development of Graduate Surveys in Germany

Over the course of time, we can see that the key focus of graduate surveys in Germany has changed (Teichler 2002; Janson 2014; Teichler 2015; Janson 2015). The first studies on graduates in Germany in the 1970s and 1980s concentrated on the issue of over-qualification prevalent at the time and the increasing mismatch between higher education and the requirements of the labor market (e.g. Schomburg et al. 2005, 29).[13] There was a troublesome expectation that an "academic proletariat" could emerge, characterized by high unemployment of academics and by job availability that did not match graduate qualifications (Teichler 2002). This discussion was the key trigger to focus on what was actually happening with higher education graduates. Thus, the focus of earlier studies was principally on the employment situation and the time it took to find a job.

It is particularly striking that until well into the 1990s, graduate surveys in Germany were predominately conducted on individual universities and for individual subjects (Burkhardt et al. 2000). In terms of their findings, these very differing studies did not lend themselves to comparison. For a long time there was no

[11] An early example of such a panel design is the study conducted by Teichler et al. (1992) in the 1980s and 1990s.

[12] Such a panel design is used as part of the graduate surveys conducted by the German Centre for Higher Education Research and Science Studies (DZHW), the Bavarian State Institute for Higher Education Research (IHF) and the International Centre for Higher Education Research, Kassel (INCHER-Kassel).

[13] This discussion was also held during the Weimar Republic and the Nazi era. It is also a discussion increasingly held today.

research on graduates that allowed conclusions to be drawn at national, subject and at institution level regarding higher education graduates.

Since the beginning of the 1990s, the German Centre for Higher Education Research and Science Studies has carried out a representative survey of graduates of German higher education institutions across all subjects in selected years. This survey is representative of graduates and subjects. However, it does not permit inferences about individual institutions. These studies principally address politics and higher education research, but not the individual higher education institutions themselves.

The absence of regular, systematically conducted studies on graduates that can be used by individual higher education institutions and relate to their programs has increasingly been seen as a major shortcoming since the 1990s. By now, most higher education institutions regularly and systematically survey their graduates. As part of the KOAB project (*Kooperationsprojekt Absolventenstudien*—The German Tracer Studies Co-Operation Project) at the International Centre for Higher Education Research in Kassel, graduate surveys are being planned and coordinated for 60–70 higher education institutions (for the KOAB project see also Flöther and Krücken 2015). The Bavarian Graduate Panel (BAP) at the Bavarian State Institute for Higher Education Research and Planning (IHF) is another example. The BAP regularly conducts graduate surveys for all higher education institutions in Bavaria. The study has been conceived in such a manner to facilitate observations at program level, for individual institutions and for the whole of Bavaria (for the BAP project see also Falk 2007; Falk et al. 2009).

What are the reasons for this development over the last 15 years or so? First of all, there has been a significant shift in the nature of discussions on graduate surveys (e.g. Grühn and Hecht 2007, 5–6). Whereas in the 1970s and 1980s we saw macroeconomic/macrosociological discussions on the emergence of an "academic proletariat", current discussions focus more strongly on the institutional level. The emphasis now is on the responsibility of individual higher education institutions for their graduates and on applying graduates' experience to improve programs of study.

We are already aware of one central reason for this striking shift in the discussion: the tendency to construct higher education institutions as accountable actors. A key dimension to this accountability lies in ensuring that graduates are accepted on the labor market. To be able to assess this, regularly and systematically gathered data on graduates is required for the individual higher education institutions and their programs.

Besides this somewhat abstract background, there is also a much more specific reason for the shift in the discussion: the introduction of bachelor/master programs. These new programs have emphasized the notion of employability[14]—particularly

[14]Tomlinson (2012) provides a good overview of the notion and the related discussion.

of bachelor graduates—which is now increasingly dominating discussions (e.g. Janson 2014, 15; Teichler 2011, 5). The bachelor degree is seen as the first professional qualification: after 3 years, students should be employable when they leave higher education institutions.

The employability discussion has led to a re-evaluation of graduate surveys that facilitate an assessment of employability. In addition, the specific shaping of bachelor/master programs in Germany was wholly in the hands of the individual departments, giving rise to considerable differences among them (e.g. Witte et al. 2011). Whether a program has been successful in terms of employability can only be assessed using data at institution/program level. This is a crucial driver in shifting the discussion on graduate surveys from national level to the level of individual institutions.

The accreditation system introduced as part of the conversion to bachelor/master degrees is also driving this development.[15] Programs have to be accredited by independent agencies and re-accredited at regular intervals. The re-accreditation process requires that higher education institutions also gather information on their graduates (e.g. Janson 2014, 11–12) to assess whether programs actually achieve their employability goals.

This shift in the level of analysis has also brought about a shift in the objectives of graduate surveys. As graduates' retrospective assessments of course content and structure now refer to specific programs and institutions, these can be used to evaluate and improve specific programs and establishments. This objective assigns a strong evaluative character to graduate surveys for individual higher education institutions and programs.

Therefore, graduate surveys are increasingly used as instruments of quality assurance for higher education institutions and their departments. Connected to this is the hope, or the expectation, that higher education institutions will use graduate surveys to improve their programs and their services (Janson 2014, 12; similar Schomburg 2008, 84–87; Falk et al. 2009, 8–10; Janson 2015). However, studies on the actual application of findings from graduate surveys at German higher education institutions show that this expectation has hardly been put into practice—at least to date (e.g. Janson 2014; Kaufmann 2009).[16] Janson (2014, 269) notes that graduate surveys have hardly been used at all to improve programs or services. Janson has elaborated a number of reasons for this. Let us take a look at just one of these: in terms of their organization, graduate surveys are often conducted centrally, in the hands of higher education management. Given the specifics of the higher education institution as an organization described in Chap. 5, there are problems when conducting them at a centralized level. On the

[15]In addition, some ministries for education and research have included a provision in their higher education acts or in their target and performance agreements with higher education institutions that the institutions have to survey their graduates.

[16]However, this does not appear to be just a German problem, it can also be found in the UK (Brennan et al. 2005).

one hand, these problems emerge through the loose coupling between central and decentralized levels; on the other hand by the fact that graduate surveys are seen as a centrally managed bureaucratic instrument of control by the academic staff (Janson 2014, 275).[17]

6.1.3.2 Career Starts and the Suitability of Employment

In this section, we will be presenting some key results of German[18] research on graduates that examine questions of career starts and the suitability of employment.[19]

If we compare the empirical results on graduates with the discussions from the 1970s, it is clear that the feared "academic proletariat" has simply never emerged. Instead, the unemployment rate among academics in Germany is much lower than that among less qualified people (Reinberg and Hummel 2007; for the early discussion see Tessaring 1977). It is also striking that the differences between academics and others have grown over time (Reinberg and Hummel 2007, 18). This relationship remains unchanged regardless of the different subjects, i.e., a degree in whatever subject reduces the risk of unemployment in Germany (e.g. Reisz and Stock 2013).

Thus, the employment system in Germany[20] has, by and large, been capable of integrating an increasing number of academics over time (Reisz and Stock 2013, 138). While this insight can be gained with the help of official labor market statistics, graduate surveys show other and more detailed findings. We can see

[17]Kloke (2014) and Kloke and Krücken (2012) have also arrived at similar results in relation to quality management in teaching.

[18]There are also some international comparative studies on higher education graduates. The largest of these is the CHEERS study (Careers after Higher Education: A European Research Survey) that examined graduates across 12 countries who gained their degrees in 1995 (for results of this study see for example Paul et al. 2000; Schomburg and Teichler 2007). Secondly, in 2005, the REFLEX project (The Flexible Professional in the Knowledge Society) surveyed graduates from the year 2000 in 16 countries (for results of this study see for example Allen and van der Velden 2011; Little and Arthur 2010). A comparison of the key results of both studies can be found in Schomburg and Teichler (2012). Both studies primarily focus on differences in entering the labor market and the employment situation of those surveyed. In addition, Hölscher (2012) used the REFLEX data for analysing differences in graduates competencies, and fit of study program and later employment between UK and Germany.

[19]For reasons of space, we will not look any further into the other key function of graduate surveys mentioned above—namely, gaining retrospective information on graduates' assessments of their program. For further information on this, see Plasa (2015) on the evaluation of the infrastructure for their studies by natural sciences and mathematics graduates, and Wolf (2015) on teacher training students.

[20]Although the integration into the labor market in other OECD countries was less effective, it should be pointed out that the unemployment rate among academics in 2012 was below the average unemployment rate for 25–64 year-olds across nearly all OECD countries (OECD 2014, 122).

that the transition to the employment system has become more difficult and protracted compared to the 1970s (Teichler 2002, 19). This can be seen by the fact that, over time, job search paths have become much more differentiated (e.g. Rehn et al. 2011, 261–272) and that students have to start their job searches earlier. More than 50% of graduates from 2009 started searching for jobs before completing their degree programs (Rehn et al. 2011, 222–223). The period of time between completing a degree and securing the first regular job increased between the 1970s and the 2000s.

However, data from 2009 also show that there are considerable differences between subjects (Rehn et al. 2011, 175–180). Nearly all medical, IT and engineering graduates find regular employment within a year; not so with humanities and social science graduates: only roughly 70% of these graduates find regular employment within a year (Rehn et al. 2011, 179). This does not mean that the remaining 30% are officially unemployed. Instead, nearly all of them find transitional jobs, internships or study towards further qualifications. Only 5% of 2009 graduates in these subject groups were unemployed 1 year after graduating (Rehn et al. 2011, 209).

A variety of studies have examined the factors that have a negative/positive impact on the time between graduating and first job (e.g. Sarcletti 2009; Kühne 2009; Salas-Velasco 2007; Falk and Reimer 2007; Schomburg 2001; Biggeri et al. 2001; Franzen and Hecken 2002; Müller 2015). Alongside the subject itself, macroeconomic factors (for instance a recession, the overall unemployment rate), the final grade, the intensity of the job search, work experience prior to the degree program, internships, work during the degree program, social background and gender all exert an influence.

Graduate surveys also reveal a further important aspect (e.g. Heine 2012; Rehn et al. 2011): 1 year after completing their bachelor degrees, a considerable number of university and university of applied sciences graduates had started a master's program. This was the case for 50% of university of applied sciences graduates and 73% of university graduates.

Here again, there were considerable differences from subject to subject, with 69% of university of applied sciences graduates in architecture/spatial planning continuing on to a master's degree, while 100% of university graduates in physics did so (Rehn et al. 2011, 160). But it is not only the subject itself which determines the proportion of graduates taking up a master's program. A logistic regression analysis shows, for example, that graduates with academic parents who start higher education study directly after completing secondary education are more likely to take a master's degree. Equally, the likelihood of continuing with a post-graduate program increases if students have worked at university as undergraduate assistants during their bachelor program. In contrast, bachelor graduates are more likely to seek employment if they have encountered problems in their studies, if the regional labor market offers employment oportunities and if students have gained employment experience prior to, or during, their study programs (Rehn et al. 2011, 168–171).

When graduates are asked for their reasons for starting a master's program (Rehn et al. 2011, 145–149), on the one hand they indicate their desire for personal development (university of applied sciences: 91%, university: 88%) or that their specialist/professional inclinations can better be served by pursuing a master's program (university of applied sciences: 85%, university: 88%). On the other hand, by continuing to study graduates are looking to improve their job prospects (university of applied sciences: 94%, university: 90%). The latter should be seen in the light of the fact that a considerable number of graduates have little faith in the occupational opportunities available on the basis of the bachelor degree alone (university of applied sciences: 39%, university: 57%). We are thus witnessing significant repercussions of the conversion to bachelor/master degrees: the mistrust of the bachelor degree. We are also seeing that the political goal of making the bachelor degree the standard degree is not working in reality.

In the German discussion on the "academic proletariat" that took place in the 1970s, unemployment and the difficulties in transitioning to working life were just one aspect. Another key feature was the type of employment. The argument here was that graduates would not be able to find employment that matched their higher education training: a further academization of society would therefore be a misallocation of resources. A key aspect of graduate surveys in Germany remains the nature of employment (e.g., temporary contracts, part-time) and the suitability of employment in terms of what was studied.[21]

In the following we describe some key findings on the suitability of university graduates' employment 5 years after graduating from surveys carried out in 1993, 1997, 2001 and 2005. Suitability is mostly classified using self-assessment procedures. It is therefore a subjective assessment[22] by graduates and implies specific measurement problems (e.g. Fehse and Kerst 2007, 74–75; Plicht and Schreyer 2002; Jensen et al. 2006).

In terms of the suitability of employment, we can distinguish between vertical and horizontal adequacy (e.g. Teichler 2002). There are three aspects related to vertical adequacy. The first refers to whether a study program at a higher education institution is required for the job. Secondly, there is the question of whether the position corresponds to a higher level of education. Thirdly, whether the level of actual work undertaken as part of the job reflects skills required at higher education. Horizontal adequacy refers to whether the specific subject studied is required for the job. In other words, whether the skills and knowledge acquired are relevant for the

[21]Teichler (2002) rightly points out that even given high levels of temporary contracts or part-time work, or the unsuitability of the job, to conclude that this equates to graduate failure or a misallocation of resources is only one possible interpretation. Alternatively, such processes could reflect changing attitudes to the world of work, or be a "sign of an open employment system" (Teichler 2002, 14)—which might also be seen as a desirable development.

[22]There are also studies in which suitability is measured using objective data, or using a mixture of procedures. However, these are also subject to considerable measurement problems (see for example Jensen et al. 2006; Boll and Leppin 2013, 16–18).

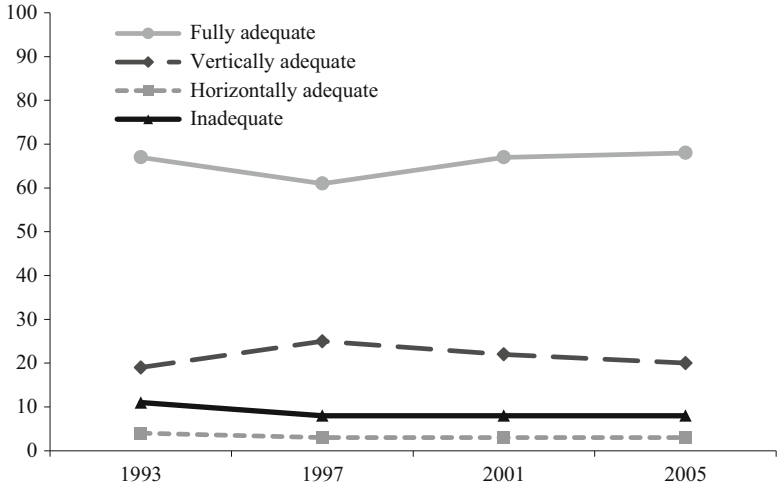

Fig. 6.5 Vertical and horizontal adequacy of current/last employment of university graduates from 1993, 1997, 2001 and 2005 5 years after graduating
Figures in percent; source: Grotheer et al. (2012, 140)

job (Fehse and Kerst 2007, 74). A specific job can therefore be described as fully adequate, vertically adequate, horizontally adequate or inadequate.[23]

Overall, Fig. 6.5 shows that levels of adequacy of employment 5 years after graduating has largely remained constant over the years. Despite the rising numbers of graduates since 1993, there has basically been no worsening of the situation. This also suggests that the German employment system has done a relatively good job of integrating the growing number of graduates.

However, there are some—in part—considerable differences by subject (Grotheer et al. 2012, 140). The proportion of inadequate employment was particularly high for 2005 graduates in pedagogics (not teacher training) from universities (21%), economics graduates from universities of applied sciences (18%), and agriculture and nutrition graduates from both universities and universities of applied sciences (each 15%).

Nevertheless, it should be noted that the relation between subject and occupation plays an important role, especially in regard to horizontal adequacy—i.e., the fit between employment and specialist background. As this relation is a very loose one for a range of subjects, it is hardly surprising that there is a poor fit between program content and later employment.[24] We can distinguish between subjects that manifest

[23]For the precise operationalization of these four dimensions for questioning graduates, see Fehse and Kerst (2007).

[24]Hölscher (2012, 2016) shows that there are relevant differences in horizontal adequacy between liberal market economies (e.g., USA, UK) and coordinated market economies (e.g., Germany, France). In coordinated market economies the fit between study program and later employment (horizontal adequacy) is higher. For the concepts of liberal market economies and coordinated market economies see Hall and Soskice (2001).

a clear affinity to certain professions and that are strongly regulated by the state (such as medicine, law, school teaching). Secondly, there are subjects with a clearly defined field of activity but because they are less regulated reflect a more differentiated, more open career structure than the first group (for example, chemistry, engineering). Thirdly, there are subjects that do not exhibit any clear career fields (such as humanities and social sciences) (Wissenschaftsrat 1999, 19–22).

It must be said that these differences are partially related to traditional higher education qualifications in Germany. While the first group was often subject to state examinations, the traditional Magister degrees were awarded in the last group. It is therefore not surprising that the proportion of Magister graduates from 2005 whose employment is only vertically adequate is particularly high at 35% (Grotheer et al. 2012, 140).

We also find studies that attempt to elucidate which factors could positively or negatively influence graduates' professional success. Besides adequacy, criteria for occupational success may also include salary, attaining positions of leadership and/or job satisfaction (e.g. Fehse and Kerst 2007; Krempkow and Pastohr 2006; Kühne 2009; Büchel 1996; Jensen et al. 2006; Boll and Leppin 2013; Boll et al. 2014; Falk and Huyer-May 2011).[25]

Studies carried out to date show that the subject and the nature of the final degree influence professional success. Other factors repeatedly found to a greater or lesser extent in a variety of studies include the length of study, the final grade, the type of higher education institution (university of applied sciences or university), whether the first job was suitable or not, occupational experience, a continuous employment biography, gender and social background.

On the whole, we can say that higher education graduates are relatively well integrated into the German labor market and that fears of over-academization have not materialized. The fact that graduates have been well integrated is even more remarkable given the considerable increase in graduate numbers in Germany since the 1970s.

6.2 Academics: From Graduate to Professor

Academic staff are the second group we wish to present selected research findings on from a German context. This group also provides us with a myriad of various issues and research findings: there is research on how academic staff spend their working time (time budget studies), on how academic staff actually generate new knowledge (for example, laboratory studies conducted by sociologists of science), on how satisfied academic staff are with their working conditions, on the factors that

[25]Over time however, the influence of factors related to higher education study decline as professional experience and continuing education become more important than when starting a career directly after university.

affect whether academic staff provide good teaching, on the formal and practical differences between academic staff in relation to time budgets and status, and so on.

This variety requires us to concentrate on only some areas of research and specific issues. Our deliberations therefore focus on phases—phases of an academic career. In doing so, we shall deal in particular with career structures, academic labor markets and factors critical for a successful academic career.

Generally, it can be said that these issues are strongly influenced by the institutional structures of respective national higher education and science systems. Thus, career structures vary strongly in the national systems (Musselin 2010; Kreckel 2008; Enders 2000). One example of this is the existence of a habilitation system as compared to a tenure track system. In a habilitation system, there is a further phase of qualification following the doctorate. This is traditionally concluded with a further examination—the habilitation. Only after this examination is it possible to attain a position as full professor at another higher education institution. In a tenure track system in contrast, it is possible to acquire a position as a "lower level" professor directly or shortly after gaining a doctorate. Promotion to a "higher level" professorship usually follows within the same higher education institution.

Whereas the habilitation system is found in Germany, the USA—with its internal promotion opportunities from assistant to associate and ultimately to full professor—is a typical example of a tenure track system. The question of career structure influences a series of other relevant factors in relation to the academic staff. Examples of these include the proportion of academics who independently teach and research, which is lower in habilitation systems. This is largely due to the fact that in habilitation systems postdocs are at least formally assigned to a professor and are not completely free to decide about their teaching and research. Most postdocs in Germany[26] are therefore tied to a hierarchical chair structure. From Chap. 3 we are already familiar with one of the effects of this chair structure—a very high proportion of assisting staff, when compared internationally (e.g. Kreckel 2011a, b).

As Fig. 6.6 shows, an academic career in Germany is a multistage selection process stretching over more than a decade—mostly two decades.

Below, we outline the doctoral phase, the postdoc phase and the appointment procedure for a professorship. In a second step, we present research on the selection processes and criteria for a professorship.

[26]We use the postdoc phase and the concept of postdoc in a broad sense. The phase comprises the whole time from being awarded a doctorate until the call to full professor (W2 and W3). As a group of people, postdocs include all holders of doctorates who do not have a full professorship, including junior professors. This is a different understanding from that used in the American career system, for example, in which the concept of postdoc describes a period—mostly not longer than 2 or 3 years—between gaining a PhD and the first position as an assistant professor.

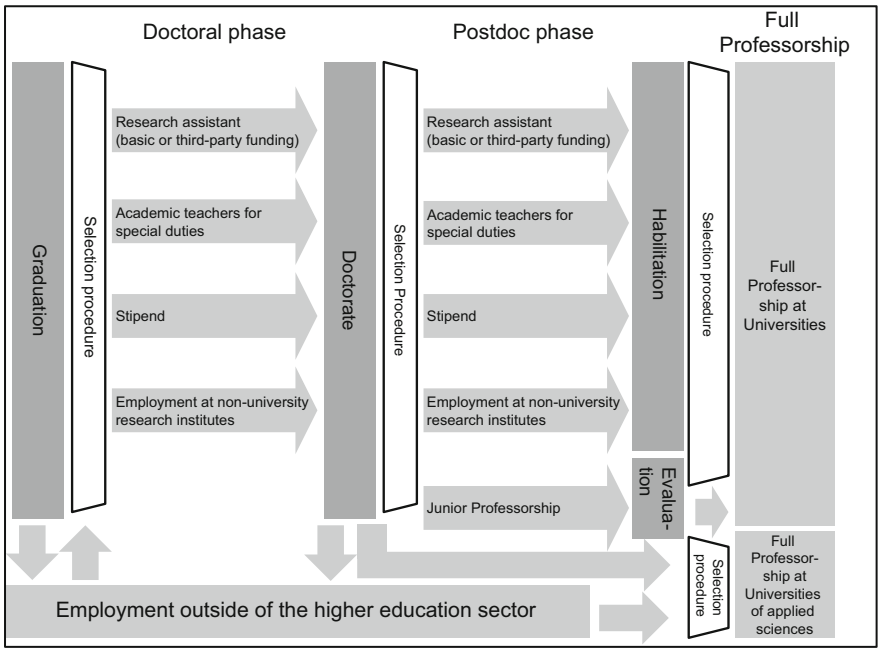

Fig. 6.6 Typical academic career paths in Germany

6.2.1 The Doctoral Phase

The first selection procedure on the path towards a professorship in Germany takes place following graduation and involves two decisions that are at least technically independent of each other. We can distinguish between the acceptance of a doctoral project and the procedure in respect of funding the doctoral phase. Both selection procedures can coincide in a series of constellations (professors usually accept the projects of those employed at their chair, but this is not always the case).

Let us first deal with selection in relation to the dissertation project. Usually, graduates who want to pursue a PhD need to find at least one professor to supervise their planned doctoral project. This first step in the doctoral phase is typically unstructured in Germany. In other words, there are hardly any formal guidelines or procedures and the selection is made by a professor. In recent years there have been attempts to structure this first selection step more strongly (through fixed application periods, guidelines for application documents, etc.) and to have the decision on the acceptance/rejection of a dissertation project made by several professors (e.g. Röbken 2007). Structured and regulated selection decisions can be found especially in the relatively new graduate schools. However, according to recent studies between 80 and 90% of doctoral students are still in the traditional unstructured format (Statistisches Bundesamt 2012, 23; see also Bosbach 2009; Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2017, 146–148).

The second selection decision refers to funding during the doctoral phase. In principle, there is a range of options, but in Germany funding is dominated by employment at a higher education institution. This usually means a university since universities of applied sciences do not have an independent right to award doctorates. According to the Federal Statistical Office, 63% of all doctoral students in Germany were employed at a higher education institution in the winter semester of 2010/2011 (Statistisches Bundesamt 2012, 40). Employment normally means a position at a chair (basic or third-party funded). The selection is again usually made by one professor.[27]

Nearly all positions for doctoral students at higher education institutions are fixed-term, part-time positions. Typically, they are limited to 2–3 years with an option to extend employment for a further 2–3 years. While a student is registered for his/her doctoral studies, basic-funded employment can last a maximum of 6 years.[28] Thereafter, employment can only be on a third-party funded basis. If a position is basic funded, doctoral students also have to teach undergraduates. If the position is full-time, two courses are taught per semester, with one course taught by part-timers. Employment at a higher education institution also includes other tasks alongside the doctoral studies. Often, typical part-time employment contracts do not envisage students writing their doctoral thesis during working time, but during non-paid "leisure" time. As we will soon see, these structures also have an impact on the duration of doctoral studies in Germany.

In terms of the acceptance of the dissertation project and employment at a higher education institution, an individual professor is the gatekeeper. These selection structures again show the prominent position of individual German professors and the German chair structure.

Empirical studies show the selection chances rise significantly when candidates and professors already know each other. Professors typically recruit from those graduates they taught in the past (Enders and Bornmann 2001; Berning and Falk 2006).

Unlike the doctoral examinations, which are well documented, there are no reliable figures on doctoral students in Germany. This is due, first of all, to the fact that there is no uniform collection of the data. Secondly, doctoral students in Germany do not always have to matriculate as doctoral students. Thus, official statistics for the winter semester 2010/11 record 104,000 registered doctoral students. However, based on a study, the Federal Statistical Office estimates there were around 200,000 doctoral students during the winter semester 2010/11 (Statistisches Bundesamt 2012, 5).

[27]Of all doctoral students in 2010, 6% were employed at a non-university research institute, 14% in industry and 17% were without employment. Besides seeking employment at a higher education institution, doctoral studies can be funded either in part or in full through a stipend. Around 26% of doctoral students in 2010 were funded through public doctoral stipends (Statistisches Bundesamt 2012, 39–41).

[28]These 6 years can be extended by 1–2 years for caring for each child.

As there are no reliable numbers of doctoral students over time, we know little about success rates. They can only be roughly estimated. It is estimated, for example, that only around two-thirds of doctoral projects, including medicine, are actually completed (Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2017, 155–156). However, the estimated completion rate differs considerable between subject groups. For example the estimated completion rate for the humanites is only 43%. The relatively high dropout rate is certainly related to the length of project time for a doctorate (the time required for work on the dissertation) and the length of the doctorate (the time between previous university degree and the doctorate). Research by Enders and Bornmann (2001, 65) revealed project time of 4.2 years and a whole doctoral period of 5.7 years, with these times varying considerably between subject groups (see also BMBF 2008, 54–56). It can be assumed that the doctorate in Germany still lasts between 4 and 5 years (Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2013, 273; 2017, 152–154).

The doctoral phase ends with a final examination: the doctorate. In 2010, students passing their doctorate were on average 32.7 years of age (Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2013, 162). The examination includes both a written and an oral part. Grades are given for each part with an overall grade awarded at the end. In order to pursue an academic career, candidates are normally expected to achieve either the grade summa cum laude (with highest honor) or magna cum laude (with honor). This is achieved by 67% of doctoral students. However, there are significant differences between subjects (in mathematics/natural sciences, for example, the figure is 78%; in human medicine/health sciences 52%). In comparison to 2000, the proportion of top grades for doctorates had increased (Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2013, 216–219).

In 2013, 27,707 doctorates were awarded by German higher education institutions. These, however, were not evenly distributed across subjects. Thirty-five percent were achieved in mathematics and natural sciences and 25% in human medicine/health sciences, but only 14% in law/economics/social sciences and 11% in the humanities (own calculations based on Statistisches Bundesamt 2014b).

The significant minority of all those having successfully completed a doctorate remains in the scientific sector and/or pursues a scientific career. Eighteen months after gaining their doctorates, only 27% are employed at higher education institutions and non-university research institutes. In addition, about one-third of these will leave their employment at higher education institutions over a period of 5 years (Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2013, 286). In Germany, therefore, it is more typical to leave the higher education/research system after gaining a doctorate. A variety of studies show how beneficial a doctorate is outside the academic world: there is a much lower risk of unemployment, better earnings, greater opportunities for gaining suitable employment and of obtaining a

leadership position (e.g. Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2013, 282–295; Flöther 2015).

6.2.2 The Postdoc Phase

After attaining a PhD, those aiming for a career in the academic world face another selection procedure at the beginning of the postdoc phase, i.e., the period following the doctorate and prior to obtaining the first full professorship. Here, too, there are various opportunities. A position at a higher education institution—in most cases at a university—is again the most frequent form of funding. This can be a non-professorial academic position (basic or third-party funded) or a junior professorship. The vast majority of non-professorial academic positions in Germany are assigned to a chair. The respective chairholder is responsible for selecting staff and functions once again as the gatekeeper for further academic qualifications. Therefore, personal acquaintance is again a relevant criterion in this selection process. It should be also no surprise that postdocs are often recruited from the same chair to advance their qualification after completing their doctorate (Enders 2008). There is at least a suspicion that these selection processes are not only driven by performance, but that elements of a patronage system also play a role.

Postdoc positions at higher education institutions are usually fixed-term full-time positions. Typically, employment here is also limited to 2–3 years with an option to renew a contract for a further 2–3 years. Basic-funded employment is limited to a maximum of 6 years.[29] Thereafter, employment can only be on a third-party funded basis. As a rule, one-third of working time is formally allocated to the postdoc's own qualification (habilitation), the rest of the time is envisaged for teaching, research at the chair and academic self-administration.

Traditionally, the postdoc phase also ends with an examination—the habilitation. The habilitation examination comprises a thesis and a lecture. Grades are not awarded: candidates either pass or fail the examination. Having passed the habilitation examination, the candidate is qualified to teach as a professor at a higher education institution (the *venia legendi* is bestowed).[30] In 2013, 1567 academics passed the habilitation examination in Germany. On average, academics were 41.1 years old when they passed the examination (Statistisches Bundesamt 2014a, 293).

[29]These 6 years can be extended by 1–2 years per child. In addition, it is possible to be employed longer if the doctoral phase lasted less than 6 years. The time "saved" can then be transferred to the postdoc phase.

[30]The venia legendi can be bestowed for a whole discipline, or for just part of a discipline (for example venia legendi for sociology or venia legendi for the sociology of organizations).

In 2002, the junior professorship was created as an alternative career path to full professorship in Germany. Accordingly, junior professors do not have to complete a habilitation to apply for a full professorship.[31] Junior professorships are limited to 6 years with an evaluation usually taking place after 3 years. Unlike the habilitation, this evaluation is not an examination: there is neither a research paper especially written for the evaluation, nor is there an oral lecture examination. Instead, the junior professor's performance in research, teaching and academic self-administration is evaluated. The evaluation usually involves members of the department, external assessors, the dean and the president. Not formally perhaps, but practically, a successful evaluation is the equivalent qualification to the habilitation.

The introduction of the junior professorship had two main aims: firstly, to facilitate the early independence of teaching and research; and, secondly, to make academic careers less uncertain. These professors are therefore not assigned to any other professors. There is no selection process conducted by individual professors. Instead, we find a comprehensive and formally structured application procedure. Besides the members of the appointment committee (professors, non-professorial academic staff, student representatives, equal opportunities officers and external members), decisions usually involve external assessors. In addition, there are other internal instances of control: department councils, the dean's office, the academic senate and presidents. In some states, the ministries of education and science make the final decision.

Whereas the more traditional postdoc positions at a chair are exposed to the risks of patronage, the junior professorship is a formal attempt to avoid such effects by drawing on a variety of measures. However, Federkeil and Buch (2007) show that 20% of junior professors were appointed to positions at higher education institutions where they received their doctorates, although they had not left the institution, or were away for no longer than 2 years. This could give rise to at least some suspicion that patronage has played a certain role in the appointments.

When appointed, junior professors are on average 35.3 years old, with fluctuations among subject groups (between 33.8 and 40.5 years) (Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2013, 174). In contrast to our simplified diagram in Fig. 6.6, it is interesting to note that junior professors are often not appointed directly after acquiring their doctorates, but on average 3.4 years after the doctorate. Between the doctorate and the appointment, these postdocs often take on a position at a chair (Federkeil and Buch 2007, 29; see also Burkhardt and Nickel 2015, 137).

[31]However, a large proportion of junior professors are planning to complete a habilitation or have already done so (30%), or are not sure whether they can do without the habilitation (30%) (Burkhardt and Nickel 2015, 237). These figures have hardly changed since 2007 (Federkeil and Buch 2007, 31). There is still a degree of uncertainty whether the junior professorship is sufficient for a full professorship, even though recent data show that most former junior professors did not need to pass habilitation examinations to become full professors (Nickel et al. 2014, 11). In addition, the data also show that in some subjects, such as medicine for example, the habilitation is particularly important (Burkhardt and Nickel 2015, 238; Federkeil and Buch 2007, 31).

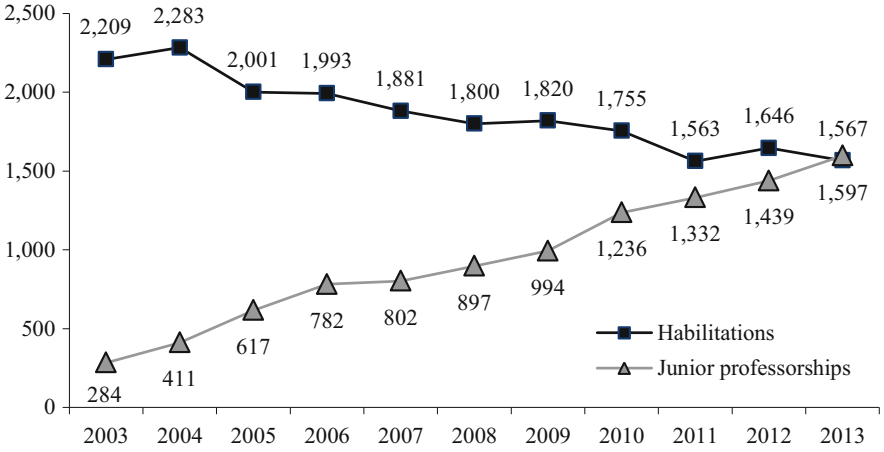

Fig. 6.7 Habilitations and junior professorships since 2003
Source: Statistisches Bundesamt: Personal an Hochschulen (annual publication)

Taking account of both alternative paths to professorship (see Fig. 6.7), it is clear that the habilitation has lost significance in recent years. The relatively continuous decline in habilitations since 2003 has been paralleled by an expansion in junior professorships.

6.2.3 The Appointment Procedure

Both for those who have completed their habilitation and for most of the junior professors, the appointment procedure represents a further selection procedure in becoming a full university professor. As a rule, candidates have to change the higher education institution because internal appointments are restricted by law. This is not a formal, strict ban. The provision states that only in substantiated exceptions is it possible to appoint from within the higher education institution.[32] However, this legal restriction is supported by the existence of an informal norm among professors to avoid appointing internally. This intermeshing of formal and informal norms has actually led in practical terms to an almost complete ban on internal appointments. The ban stems from the nineteenth century and was introduced to avoid appointing professors in a patronage system. Patronage in the appointment of professors is not only made difficult by enforcing a change of university, but also by the appointment procedure itself. As we have already

[32]A formal, strict ban on internal appointments would infringe Article 33.2 of the German constitution which only envisages selection criteria based on ability, aptitude and professional performance in appointments for public office.

described with junior professorships, in this procedure, the integration of external assessors and internal control instances at least make it considerably difficult to leverage patronage.

Such an application procedure in Germany usually proceeds as follows. Potential candidates apply to the higher education institution in response to a (increasingly international) job announcement. From these applications, the appointment committee selects promising candidates, requesting publications from them (articles and/or books). Based on these publications, some of the candidates are invited to give an oral presentation (sometimes with an additional lecture in order to assess teaching skills) and to an interview with the appointment committee. This face-to-face contact between applicant and committee does not normally last more than 90 min. With the help of publications, presentations and interviews in most cases three or four candidates are called upon to be evaluated by external assessors. Based on these evaluations the appointment committee then compiles a short list of typically three candidates who are best qualified for the professorship.

This list then has to be confirmed by academic bodies (department council and/or academic senate). Depending on the state, the presidents or the ministry usually invites the person placed first on the list to join the university.[33] This invitation is followed by negotiations between the appointed person and the higher education institution on salary and performance criteria, material and personnel resources for the professorial chair. If the appointed person accepts the position as professor following the negotiations, this would end proceedings. If the appointed person decides not to accept the position, the second-placed person is usually invited to join the university and again negotiations take place. At the latest when the third-placed person has not accepted the position will the procedure have to begin again with a job announcement for the professorship.

For a small proportion of junior professors it is also possible to gain promotion within the higher education institution at which they are employed. To do this they need a so-called tenure track option. If this is the case and given a positive evaluation, they can be promoted to a full professor after 6 years. Although the proportion is rising slowly, only a very few junior professors have such a tenure track option. While a study conducted by Federkeil and Buch (2007) revealed that only 8% enjoyed this tenure track option, a more recent survey reported a proportion of 15% (Burkhardt and Nickel 2015, 210). Despite this rise, the traditional appointment procedure described above remains the standard tool to appoint a full professor in Germany.

In contrast to the positions below professorships, German professors have a non-terminable employment contract of indefinate duration (until retirement), they are public officials, and they have no formal supervisors in regard to their work. In

[33]The ministry and/or the higher education leadership (presidents, vice presidents and deans) have the formal right not to appoint the first-placed person, but either another person on the list or, in extreme cases, persons not even on the list. The latter practically never occurs and the former is relatively rare.

other words: at least at the formal level, they have the greatest autonomy of all employees on the German labor market.[34]

In 2010, the average age of newly-appointed professors was 41.4 years for W2 professors and 42.3 for W3 professors. Again, there were considerable fluctuations between subject groups (between 37.0 and 46.3 years for W2 and between 39.0 and 50.0 years for W3 professors). It is worth noting that, despite the introduction of junior professorships, the average age of newly-appointed professors has only fallen by 0.5 years for W2 and by 0.3 years for W3 professors (Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2013, 178).

So far we have concentrated on the career paths of university professors. However, Fig. 6.6 also shows the career paths for professors at universities of applied sciences. The difference between the two career paths lies in the fact that although professorships at universities of applied sciences usually require a doctorate, such professors do not need the habilitation or a probationary period as a junior professor. Instead, they are required to have at least 5 years' professional experience in addition to their doctorate. At least three of these 5 years must include employment outside of higher education. This employment outside higher education can either have taken place after a degree program or after the doctorate (see the arrow in Fig. 6.6 pointing towards employment outside of higher education).

Depending on the course of an individual's career, professors can either be appointed directly following their doctorate or following a period of employment outside of higher education. In engineering, for example, it is most typical to recruit applicants with professional experience in industry. The selection procedures for professors at universities of applied sciences are not fundamentally different from the procedure to appoint a university professor. The typical appointment procedure described above also applies here, albeit that other criteria are used (especially the greater weighting of practical experience).

Our deliberations aim to point out that the process to become a full professor in Germany is a lengthy one, characterized by multiple qualifying examinations and selection decisions. We have also shown that employment below the level of professor is characterized by fixed-term contracts and strong, formal dependency on a professor. In the course of a career, there are also two distinct labor market logics: the labor market in the doctoral and the postdoc phase is an internal and external market, while the labor market for professors is virtually exclusively external because candidates normally have to change to another higher education institution (Musselin 2010).

At the same time, at each stage of qualification and each selection procedure there is the risk of failure. Therefore an academic career in Germany is still a "hazard" (Weber 1946 [1919], 132). This phenomenon has intensified in recent years because unlike the 1970s and 1980s the German system has become increasingly characterized by a concept of "all or nothing". In other words, the only possible and legitimately viewed aim is to become a professor. This is partly due

[34]Only judges have a similar formal autonomy in Germany.

to the fact that there are hardly any permanent positions below the level of professor for academics with a habilitation and for former junior professors. This intensification of competition can also be seen in the significant increase in untenured academic staff in recent years, although the number of positions for professors in Germany has remained relatively constant. Therefore, the likelihood of becoming a professor has dropped decidedly (Rogge 2015, see also Chap. 3).

Academics in Germany who are not appointed as a professor either have to leave the higher education system or accept being employed in fixed-term contracts in third-party funded projects, even at advanced age. If third-party funding dries up, employment has to be terminated. This structure means that, in comparison to employees in all other sectors of the German labor market, uncertainty on the academic labor market is extremely high below the level of professor. Moreover, this uncertainly has grown over the last two decades. Despite all the discussions that have taken place, there is no solution in sight for this structural problem.

6.2.4 Selection Criteria for Appointments in Academia

In the light of the deliberations above, one question arises: Who becomes a professor in Germany based on what performance? We will now take a closer look at this question.

Selection criteria in the filling of positions in research and science have been the subject of intensive study for decades, both in Germany and internationally. A clear focus in this research has been on the selection of professors.

As part of his deliberations on the academic ethos, Merton (1973, 267–278) describes an ideal universalistic norm that only recognizes academic performance as the selection criterion for success in research and science and excludes non-meritocratic criteria such as gender, social relations and social background. In contrast, others emphasize the point—much stronger than Merton—that research and science is a social system, or, according to Bourdieu (1988), a social field, in which non-meritocratic criteria also play a role. This would include, for example, communication networks, relations and recognition processes that are not necessarily related to academic performance, but could have an influence on the selection process. Nevertheless, the universalistic norm requires selection decisions to be legitimized by means of performance differences—even though non-meritocratic criteria play a role. Research is thus primarily concerned with the question of when and how non-meritocratic criteria play a role in selection and what this role is.

In doing so, studies show that there are two gateways for non-meritocratic criteria in selection processes in research and science. Firstly, it is hardly possible to measure academic performance directly. Instead, a variety of indicative criteria are drawn on: what these are and how these are weighted not only differs from subject to subject (e.g. Krais 2000, 37–38), but also among individual selection

decisions (Musselin 2010, 97). Decision-making bodies have considerable discretion in this respect which is hardly controllable. This provides an opportunity to integrate non-meritocratic criteria in the decision.

Secondly, in some cases the distinction between meritocratic and non-meritocratic criteria is problematic (Gross and Jungbauer-Gans 2007a, 456). Positive productivity effects of academics at universities or departments with a particularly strong reputation can be explained in a meritocratic sense because these establishments attract, select and train the better academics. Thus, the reason for the higher productivity is ultimately that these are high-performance academics. In contrast, if the higher productivity can be explained because publication opportunities for academics are higher if they are employed at a university or department with a strong reputation, this would infringe the meritocratic principle. The reputation of the university/department is an inert social construction relatively independent of the performance of the individual academic. Profiting from this reputation can therefore be seen as non-meritocratic (Allison and Long 1990, 469). In terms of individual academics, both explanations can be intricately mixed and it is not possible to separate them in a clear-cut fashion. It is then no longer clear whether the selection criterion is meritocratic or non-meritocratic.

The literature provides us with four types of study on the selection criteria of academics that are particularly relevant for the German system.

Firstly, there are studies based on surveys of (junior) academics, which compare these in an exclusively descriptive manner using a variety of features (e.g. Joas and Bochow 1987; Enders 1996; Berning and Falk 2006; Federkeil and Buch 2007). These consider, for example, the age, gender and social background of academics in full-time, part-time or in fixed-term contract positions. However, this pure distribution of factors does not necessarily provide any definitive information on whether non-meritocratic aspects have played a role in selection. Instead, this distribution would have to be placed in relation to the productivity of the academics, which most of the studies do not do. Nonetheless, these studies provide some reference point for specific aspects of the academic selection process and the criteria applied. For Germany, for example, it is well known that in order to launch an academic career path at higher education institutions or to start doctoral studies, personal contact to a professor is particularly relevant.

A second type of study looks at the criteria viewed as important by those making the selection (e.g. Gross and Jungbauer-Gans 2008; Musselin 2010; Zimmermann 2000). Gross and Jungbauer-Gans (2008), for example, report from interviews with professors of sociology, law, mathematics and engineering at German higher education institutions on the following criteria that are relevant for filling a vacant professorship position: the number of publications, the nature of the publication (monograph, article), location of the publication (publisher, journal), language of the publication, awards, performance in practice, third-party funding, teaching, international experience.

It is worth noting that very different criteria are used in the respective subjects. While in law, publications in English and peer reviewed journal articles carry very

little importance, these are the decisive criteria in sociology and mathematics. In engineering on the other hand, publications only play a subordinate role, with practical experience being a critical factor (Gross and Jungbauer-Gans 2008, 16). Overall, this shows that different performance criteria are applied and that the respective performance is measured using different indicators.

Those surveyed not only mentioned pure performance dimensions, but also the social capital of the candidates: not only is it beneficial to be included in networks, the presence of mentors with a strong reputation is also of advantage. This also shows that although social capital is important in all subjects observed, there are still considerable differences. Among other things, these refer to whether social capital is perceived as a non-legitimate criterion (such as patronage), or as a side effect of academic performance—network relations based on academic performance attributable to an individual.

Similar selection criteria as in the analysis by Gross and Jungbauer-Gans (2008) can be found in Musselin (2010, 94–134). Here, however, the selection process and the change in the relevance of the various criteria play a much stronger role in the course of the process. In addition, besides research and teaching, the social fit in the institution is emphasized in the sense of "can we live with this colleague?" (Musselin 2010, 114). Musselin also stresses that individual criteria are not decisive, but rather the overall picture of the candidate—at least in the latter stages of the selection process.

A third type of study on selection decisions consists in comparing selected persons with non-selected persons using certain quantitative features and to draw up selection criteria based on this comparison (e.g. Caplow and McGee 1958; Hargens and Hagstrom 1967; Crane 1970; Cole and Cole 1973; Long 1978; Allison and Long 1987; Lang and Neyer 2004; Plümper and Schimmelpfennig 2007; Leahey 2007; Jungbauer-Gans and Gross 2013; Lutter and Schröder 2014, 2016). This type of study is about reconstructing key selection criteria in retrospect to assess whether solely meritocratic or also other criteria were crucial to the decision.

With such retrospective studies, it is important to see which variables are viewed as crucial and how these are measured. Alongside typical sociostructural variables (age, gender, social background) these studies also examine, for example, the number of publications, the publications in the Science Citation Index (SCI) or comparable databases, the citation rate in the SCI, awards, reviews of books and social network effects. The data samples of such studies include survey data, a combination of survey data and database/internet research or pure database/internet research. Multivariate methods are used to analyze the data.

Lang and Neyer (2004) compare various doctoral cohorts in German psychology in respect of productivity and social network structures. They note that productivity is important in deciding whether postdocs remain in the academic system, but that this is no longer important 5 years down the road in determining whether the person becomes a professor or not. Instead, cooperative behavior and network capital become decisive.

Plümper and Schimmelpfennig (2007)[35] examine academics with habilitation degrees and the factors that lead to a speedy appointment in political sciences in Germany. Factors inhibiting appointments to professorships include the lack of strong publications and network connections. Differences between those appointed as professors and those not can also be seen in age and in whether they have children. In contrast, the study—which only observes one subject—notes that obtaining third-party funding for research hardly plays any role in appointments.

Jungbauer-Gans and Gross (2013) surveyed all those who had successfully completed their habilitation at a West German university between 1985 and 2005 in mathematics, law and sociology, and used this database to analyze the factors crucial to an appointment as a full professor. They found considerable differences among subjects, but overall scientific productivity was a central factor. A constant factor was that achieving the habilitation at an early age increased opportunities for being appointed. They also found that having a mentor with a particularly strong reputation increased such opportunities in mathematics and law. In addition, a better social background had a positive effect on opportunities for being appointed in both subjects. In sociology in Germany, if performance is identical, women have a better chance of being appointed to the position of professor.

This finding for sociology has also been confirmed by Lutter and Schröder (2014, 2016). Based on information on universities' internet pages and at two non-university research institutions, they reconstructed 77 sociological research facilities in Germany. All the sociologists employed there who did their doctorate after 1979 were listed in a dataset. The authors used this dataset to test which factors were/are important for an appointment as a professor. Publications in journals listed in the Social Science Citation Index (SSCI) and books had the greatest explanatory power. For each article published in an SSCI journal, the chances of being appointed increase by 10%, while chances rise by 13% for each book published. Other publications also increase the chances of appointment. Overall, high productivity—measured by the output of publications—increases the chances of being appointed. Lutter and Schröder (2014, 2016) also find an effect in relation to social capital. However, this is only slight in comparison to the output of publications.

Overall, this type of study confirms that, in Germany, scientific productivity is a decisive factor in the selection process for a professorship. However, the influence of non-meritocratic criteria such as the reputation of the mentor, gender and social background are found time and again. We examine the findings on social background and gender more closely in Chap. 7.

A fourth type of study uses mainly qualitative empirical designs and is primarily concerned with the construction of an academic personality or the embodiment of the academic habitus (e.g. Engler 2001; Beaufaÿs 2003; Zuckerman et al. 1991). This includes, for example, the notion that scientists need "passion" and "inner dedication" (Weber 2004 [1919], 8, 11) and pursue their work in "loneliness and

[35]For criticism of this study see Gross and Jungbauer-Gans (2007b).

freedom" (Schelsky 1963). It is clear that this picture targets the merger of science and the person. Research and science is not seen as a profession, but as a calling.

The successful embodiment of the academic habitus, or the convincing representation of an academic personality, is described as an important criterion for the selection of professors. However, as this criterion does not necessarily have to correlate with academic performance, there is always a suspicion that this is a non-meritocratic criterion. The criterion can be recognized when candidates are described as "will never be a professor", for example. Although this description refers to academic performance, it clearly also reflects on the habitus or the academic personality. Especially in relation to the under-representation of women in research and science, studies show again and again that the construct of the academic personality is in no way gender neutral. In other words, it connotes male attributes and therefore is preferential towards males. We shall also be taking a closer look at this when we deal with equal opportunity in Chap. 7.

All four types of study on selection criteria show the variety of criteria selectors can deploy based on different emphases. There are also significant differences between subjects. In nearly all studies, non-meritocratic criteria are shown to play a role in addition to meritocratic selection criteria. Both the variety of criteria and the contingency of selection decisions (Musselin 2010) mean that it is difficult to determine who will succeed in a given procedure. This leads to a great deal of uncertainty for junior academics and underlines again the perception of an academic career as a "hazard" as described by Weber (1946 [1919], 132). A specific feature of the German system is that this uncertainty peaks very late, mostly between the ages of 40 and 45 years.

6.3 Administrative Staff

Administrative staff at German higher education institutions are of particular interest especially in the light of the multitude of recent reforms in higher education described in this book. Our key concern is to discuss the effects of the governance reforms (see Chap. 4) and the development towards organizational actorhood (see Chap. 5) on higher education administration. The pressure for increased organizational accountability is leading to considerable change in higher education administration.

These effects are the subject of extensive and, in part, controversial discussions. Can a change from higher education administration to higher education management be observed? Has the increased staffing in administration been at the cost of academic staff? How have the professional backgrounds, skill profiles and the perceptions of the roles of administrative staff changed? Is higher education management on the way to becoming a new profession?

First of all, we can see that we are dealing with developments that are not restricted to Germany. Since the 1980s we have been witnessing considerable change in higher education administration across vastly different national higher

education systems. Overall, there is the assumption that higher education administration is being transformed into higher education management (e.g. Gornitzka and Larsen 2004; Whitchurch 2006).[36]

One indicator for such a development is the establishment or expansion of administrative units in German higher education institutions in recent years. These units only have little to do with the traditional German administration of higher education institutions. Surveys from 2008 and 2015 of chancellors[37] at higher education institutions in Germany show that there has been an expansion in areas such as quality management, career services, public relations, and knowledge and technology transfer (Krücken et al. 2010, 237; Blümel and Hüther 2015, 20).

Schneijderberg et al. (2013) also note a significant growth in "new higher education professions". These professions have their own basic and experience-based knowledge of the core areas of academic activity: teaching and research. Whereas the tasks of traditional German higher education administration were to regulate and control with the help of legal guidelines and formal standards, today there seems to be a fundamental change.

One indicator for such a change is that employees in the new or expanded fields have academic backgrounds that differ from those of traditional administrative staff in Germany. Most of the new employees have graduated in social sciences, economics and the humanities (Krücken et al. 2013; Schneijderberg et al. 2013; Kloke 2014). A legal background, which used to be standard for higher administrative positions in Germany, is rare. Furthermore, a degree in public administration studies is virtually of no importance.

If we take a look at the precise fields of activity and the skills required to perform them, there are also substantial differences to traditional administrative work.[38] The focus is clearly on information and advisory activities. In addition, internal and external networking is a key competence of the new employees. Interestingly, these are primarily what might be labeled as soft skills, while the transfer of instruments and tools from the business sector is only of minor importance.

Another lively and controversial discussion in Germany centers on the quantitative development of administrative staff. Especially from an academic point of view, it is often alleged that there is an increase in numbers of administrative staff at the cost of academic staff.

---

[36]We talk here of administrative higher education management to take account of the necessary ties to traditional administrative tasks and to distinguish this group from higher education leadership.

[37]The position of chancellor is the highest administrative position in German higher education institutions.

[38]Generally speaking, despite the differences sketched out here, flexibility and creativity should not be underestimated in practical administrative work that neither corresponds to the ideal Weberian model of bureaucracy nor to the caricature of bureaucracy in new public management. For a realistic estimate of internal administrative procedures, see the early work in the sociology of administration by Luhmann (1964).

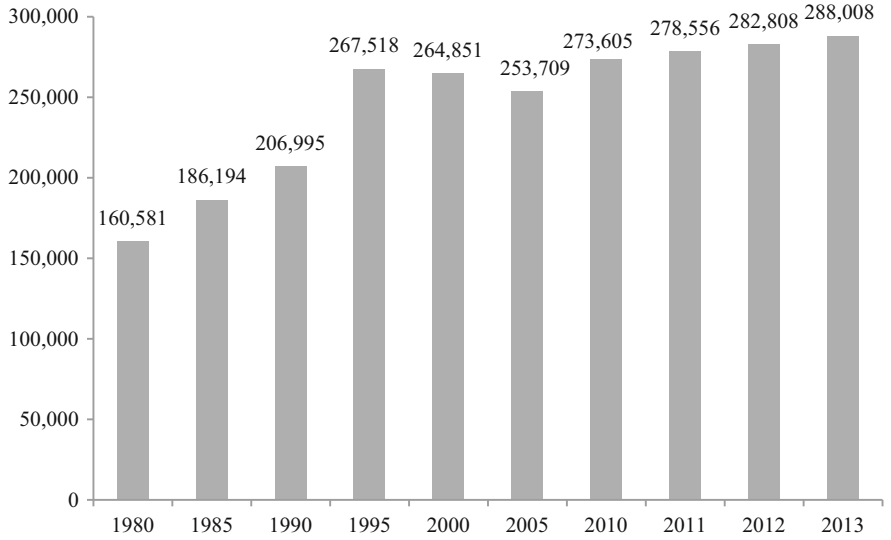

Fig. 6.8 Core administrative, technical and other staff at German higher education institutions since 1980
Prior to and including 1990 the figures apply only to former West Germany including West Berlin; source: up to 1990: Statistisches Bundesamt: Statistisches Jahrbuch (annual publication); 1995 onwards: Statistisches Bundesamt: Personal an Hochschulen (annual publication)

Figure 6.8 shows the development of core administrative, technical and other staff at German higher education institutions since 1980. It is particularly striking that since the many reforms in the late 1990s staff numbers have hardly risen. The only exception was between 1990 and 1995 due to the effects of German reunification.

The proportion of core administrative, technical and other staff of all core staff at higher education institutions has fallen from 65% in 1980 to 55% in 2013. Based on staffing numbers from the official statistics, the finding is that the considerable increase in core staff at higher education institutions is principally due to the growth in academic staff that we described above.

These findings are surprising and presumably contradict the perceptions and estimates of academics in German higher education institutions. We assume that this relates to the fact that not the number but the nature of administrative positions and the relations to academics have changed. There is now more direct contact with highly-qualified administrative staff, dealing with the core areas of academic activity such as teaching and research.

This assumption can be confirmed if we take a look at the formal positions of administrative employees in higher education institutions. There is a continuous

shift towards higher-level positions. The number of senior positions[39] has increased substantially, while lower and intermediate positions have decreased (Blümel et al. 2010). These higher-level positions mainly include the numerous new positions in administrative management in higher education.

Let us take a look at two further aspects: firstly, we will be asking whether we are witnessing the formation of a new higher education management profession in its own right; secondly, we will explore changes with regard to the top administrative position at higher education institutions, namely the position of chancellor.

First, we deal with the question of the development of a new profession. The sociological study by Kloke (2014) into professional profiles and the self-perceptions of employees in quality management at German higher education institutions reveals that this group can hardly be regarded as a new profession. Many traditional features of a profession (autonomy, self-regulation, clearly defined basis of knowledge and skills, and high status) are absent. Particularly striking is the understanding of service in relation to scientists and researchers, i.e., the academic profession. First and foremost, the status vis-à-vis professors is low and legitimation uncertain. In addition, there is a strong integration into the organization's hierarchical structure and a close orientation towards the presidents and deans. The latter is significant because without their support, status and legitimation towards the academic profession is too weak to even contemplate change processes in higher education institutions.

Another point is that we find a strong identification with the respective fields of work, but not with higher education management in general. Despite the development of some study programs on higher education management, there are no strong signs of the emergence of an overarching professional profile in higher education management that characterizes the higher education field and its organizations. Nevertheless, there are trends towards developing the profession, identified by the specific networking, conferences and learning and development events. However, these usually target specific activities within higher education management—quality management, knowledge and technology transfer, or public relations work—not the whole field itself.

In our opinion, at least in Germany, we see no signs towards the formation of a new profession. From an organizational perspective, this is probably not such a bad development: the often cited conflict in higher education research between

[39]Public service positions in Germany are differentiated into four main categories: lower, intermediate, upper-intermediate and higher service positions. In the following, we use the term senior public service positions for the highest category: higher service positions. The category normally requires a university degree or—since the introduction of the bachelor and master system—a master's degree.

academics and administration is not developing into a power struggle between various professions.[40]

Let us now take a look at the second aspect: What changes can be found in the top position of administrative management in German higher education? Generally, we can find changes in the structural integration of the top level of administration—usually under the title of chancellor—and in terms of his/her specialist background (e.g. Blümel 2015).

In terms of the structural position, we can see an ever-closer integration of chancellors in higher education institutions. The earlier Prussian *curator*—the precursor of the modern-day chancellor—was a representative of the ministry within the universities who was authorized to give directives to the universities in matters relating to the state (Wallerath 2004, 208). Correspondingly, until well into the 1960s, there were two areas of administration at universities: firstly, the administrative area responsible for the state tasks, headed by the chancellor; secondly, the administrative area responsible for academic tasks, headed by the rector.

This double administrative structure was dissolved in the 1970s. The chancellor's position became integrated in the so-called presidential constitution, with the president heading the state and the academic tasks. In the presidential constitution chancellors are mainly supervised by presidents and no longer by the ministry.

In the course of the transformation of higher education acts from 1998, the structural position of the chancellor again changed towards a stronger embeddedness in higher education institutions. In most state higher education acts, the chancellors form the leadership team together with the president and the vice presidents.

Simultaneously, two key changes were introduced: firstly, in nearly all states, there was a shift from a lifelong office to a term, or period, of office; secondly, the influence of the state ministries for education and research was significantly curtailed in terms of the selection of chancellors. Instead, most state higher education acts envisage the chancellor—as well as presidents and vice presidents—being essentially selected by the higher education institutions (academic senate, presidents and boards of governors) (Hüther 2010, 306–314).

The "standardization" or "normalization" of the chancellor position is not without its criticism (e.g. Wallerath 2004). Regardless of how these developments are seen, they can be interpreted as an increase in the autonomy of higher education institutions and are thus a further sign of the shift towards a complete organization (see Chap. 4).

[40]For a discussion on the conflict between faculty and administration, see the findings of the international comparative study in Lewis and Altbach (1996), who see this as "a universal problem". However, we cannot exclude the fact that another aspect of the increasing trend towards higher education management, i.e., the increased decision-making competences and authority of presidents, vice presidents and deans, bears a much greater potential for conflict than the changes in higher education administration described here.

As a result, a managerial role is emerging in which the importance of organizational success and the necessary economic and strategic competences are crucial, rather than an orientation towards legal provisions. It is hardly surprising therefore that the monopoly of law school graduates in chancellor positions has been broken in recent years. The proportion of chancellors with a legal background at German higher education institutions stood at 51% in 2008, but had fallen to 40% by 2015. However, there has not been a simple shift to a business or economics background (2008: 25 vs. 2015: 22%). Instead, chancellors now have much more diverse academic backgrounds (Blümel and Hüther 2015, 10; Hüther and Veit 2016).

To sum up our analysis of the administration at German higher education institutions, we clearly see some remarkable developments in this sector. There has been a shift in the qualification structure, there has been a shift in the subject background, and there has been a shift in work and task structures. However, there has been no significant expansion with regard to the sheer staffing numbers and there are no convincing signs towards the formation of a new higher education management profession.

References

Allen, J., & van der Velden, R. (Eds.). (2011). *The flexible professional in the knowledge society: New challenges for higher education*. Dordrecht: Springer.

Allison, P. D., & Long, J. S. (1987). Interuniversity mobility of academic scientists. *American Sociological Review, 52*(5), 643–652. https://doi.org/10.2307/2095600.

Allison, P. D., & Long, J. S. (1990). Departmental effects on scientific productivity. *American Sociological Review, 55*(4), 469–478. https://doi.org/10.2307/2095801.

Autorengruppe Bildungsberichterstattung. (2014). *Bildung in Deutschland 2014. Ein indikatorengestützter Bericht mit einer Analyse zur Bildung von Menschen mit Behinderungen*. Bielefeld: Bertelsmann.

Bargel, T. (2003). *Neigung zum Studienabbruch: Umfang und Gründe*. Konstanz: Arbeitsgruppe Hochschulforschung.

Bean, J., & Eaton, S. B. (2001). The psychology underlying successful retention practices. *Journal of College Student Retention, 3*(1), 73–89. https://doi.org/10.2190/6r55-4b30-28xg-l8u0.

Bean, J., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research, 55*(4), 485–540. https://doi.org/10.2307/1170245.

Beaufaÿs, S. (2003). *Wie werden Wissenschaftler gemacht? Beobachtungen zur wechselseitigen Konstitution von Geschlecht und Wissenschaft*. Bielefeld: transcript.

Berning, E., & Falk, S. (2006). *Promovieren an den Universitäten in Bayern. Praxis—Modelle—Perspektiven*. München: IHF.

Biggeri, L., Bini, M., & Grilli, L. (2001). The transition from university to work: A multilevel approach to the analysis of the time to obtain the first job. *Journal of the Royal Statistical Society: Series A (Statistics in Society), 164*(2), 293–305. https://doi.org/10.1111/1467-985x.00203.

Bloch, R., Kreckel, R., Mitterle, A., & Stock, M. (2014). Stratifikationen im Bereich der Hochschulbildung in Deutschland. *Zeitschrift für Erziehungswissenschaft, 17*(3), 243–261. https://doi.org/10.1007/s11618-014-0531-4.

Blümel, A. (2015). *Von der Hochschulverwaltung zum Hochschulmanagement: Wandel der Hochschulorganisation am Beispiel der Verwaltungsleitung*. Wiesbaden: VS Verlag.

Blümel, A., & Hüther, O. (2015). *Verwaltungsleitung an deutschen Hochschulen. Deskriptive Zusammenfassung der in 2015 stattgefundenen Befragung der Kanzlerinnen und Kanzler an deutschen Hochschulen*, *INCHER Working Paper 3*. Kassel: INCHER-Kassel.

Blümel, A., Kloke, K., Krücken, G., & Netz, N. (2010). Restrukturierung statt Expansion. Entwicklungen im Bereich des nicht-wissenschaftlichen Personals an deutschen Hochschulen. *die hochschule, 19*(2), 154–171.

Blüthmann, I., Lepa, S., & Thiel, F. (2008). Studienabbruch und -wechsel in den neuen Bachelorstudiengängen. Untersuchung und Analyse von Abbruchgründen. *Zeitschrift für Erziehungswissenschaft, 11*(3), 406–429. https://doi.org/10.1007/s11618-008-0038-y.

Blüthmann, I., Thiel, F., & Wolfgramm, C. (2011). Abbruchtendenzen in den Bachelorstudiengängen. Individuelle Schwierigkeiten oder mangelhafte Studienbedingungen? *die hochschule, 20*(1), 110–126.

Blüthmann, I., Lepa, S., & Thiel, F. (2012). Überfordert, Enttäuscht, Verwählt oder Strategisch? Eine Typologie vorzeitig exmatrikulierter Bachelorstudierender. *Zeitschrift für Pädagogik, 58* (1), 89–108.

BMBF. (2008). *Bundesbericht zur Förderung des wissenschaftlichen Nachwuchses*. Berlin: BMBF.

Boll, C., & Leppin, J. S. (2013). *Unterwertige Beschäftigung von Akademikerinnen und Akademikern: Umfang, Ursachen, Einkommenseffekte und Beitrag zur geschlechtsspezifischen Lohnlücke*, *HWWI Policy Paper, No. 75*. Hamburg: HWWI.

Boll, C., Leppin, J. S., & Schömann, K. (2014). *Who is overeducated and why? Probit and dynamic mixed multinomial logit analyses of vertical mismatch in East and West Germany*, *SOEPpapers on Multidisciplinary Panel Data Research, No. 661*. Berlin: SOEP.

Bosbach, E. (2009). *Von Bologna nach Boston? Perspektiven und Reformansätze in der Doktorandenausbildung anhand eines Vergleichs zwischen Deutschland und den USA*. Leipzig: Akademische Verlagsanstalt.

Bourdieu, P. (1988). *Homo Academicus*. Stanford: Stanford University Press.

Braun, E., & Hannover, B. (2012). Editorial. *Zeitschrift für Erziehungswissenschaft, 15*(2), 209–212. https://doi.org/10.1007/s11618-012-0278-8.

Braxton, J. M., Shaw Sullivan, A. V., & Johnson, R. M. (1997). Appraising Tinto's theory of college student departure. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 12, pp. 107–164). New York: Agathon Press.

Brennan, J., Williams, R., & Woodley, A. (2005). Alumni studies in the United Kingdom. *New Directions for Institutional Research, 2005*(126), 83–94. https://doi.org/10.1002/ir.150.

Büchel, F. (1996). Der hohe Anteil an unterwertig Beschäftigten bei jüngeren Akademikern: Karrierezeitpunkt- oder Strukturwandel-Effekt. *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, 29*(2), 279–294.

Burkhardt, A., & Nickel, S. (2015). *Die Juniorprofessur: Neue und alte Qualifizierungswege im Vergleich*. Baden-Baden: Nomos Verlagsgesellschaft.

Burkhardt, A., Schomburg, H., & Teichler, U. (2000). *Hochschulstudium und Beruf. Ergebnisse von Absolventenstudien*. Bonn: BMBF.

Caplow, T., & McGee, R. J. (1958). *The academic marketplace*. New York: Basic Books.

Chen, R. (2012). Institutional characteristics and college student dropout risks: A multilevel event history analysis. *Research in Higher Education, 53*(5), 487–505. https://doi.org/10.1007/s11162-011-9241-4.

Cole, J. R., & Cole, S. (1973). *Social stratification in science*. Chicago: University of Chicago Press.

Crane, D. (1970). The academic marketplace revisited: A study of faculty mobility using the Cartter ratings. *American Journal of Sociology, 75*(6), 953–964. https://doi.org/10.1086/224848.

Douglas, M. (1992). *Risk and blame*. New York: Routledge.

Enders, J. (1996). *Die wissenschaftlichen Mitarbeiter: Ausbildung, Beschäftigung und Karriere der Nachwuchswissenschaftler und Mittelbauangehörigen an den Universitäten*. Frankfurt am Main/New York: Campus.

Enders, J. (2000). Academic staff in the European Union. In J. Enders (Ed.), *Employment and working conditions of academic staff in Europe* (pp. 29–53). Frankfurt am Main: German Trade Union for Education & Science.

Enders, J. (2008). Professor werden ist sehr schwer, Professor sein dann gar nicht mehr? Ein Beitrag zur Personalstrukturreform an den Hochschulen. In H. Matthies & D. Simon (Eds.), *Wissenschaft unter Beobachtung. Effekte und Defekte von Evaluationen* (pp. 83–99). Wiesbaden: VS Verlag.

Enders, J., & Bornmann, L. (2001). *Karriere mit Doktortitel? Ausbildung, Berufsverlauf und Berufserfolg von Promovierten*. Frankfurt am Main/New York: Campus.

Engler, S. (2001). *In Einsamkeit und Freiheit? Zur Konstruktion der wissenschaftlichen Persönlichkeit auf dem Weg zur Professur*. Konstanz: UVK Verlagsgesellschaft.

Falk, S. (2007). Absolventenforschung für Hochschulen und Bildungspolitik: Konzeption und Ziele des "Bayerischen Absolventenpanels". *Beiträge zur Hochschulforschung, 29*(1), 6–33.

Falk, S., & Huyer-May, B. (2011). *Erfolgreich im Beruf. Bayerische Hochschulabsolventen fünf Jahre nach dem Studium*. München: IHF.

Falk, S., & Reimer, M. (2007). Verschiedene Fächer, verschiedene Übergänge: der Berufseinstieg und "frühe" Berufserfolg bayerischer Hochschulabsolventen. *Beiträge zur Hochschulforschung, 29*(1), 34–70.

Falk, S., Reimer, M., & Sarcletti, A. (2009). *Studienqualität, Kompetenzen und Berufseinstieg in Bayern: Der Absolventenjahrgang 2004*. München: IHF.

Federkeil, G., & Buch, F. (2007). *Fünf Jahre Juniorprofessur—Zweite CHE-Befragung zum Stand der Einführung*. Gütersloh: CHE.

Fehse, S., & Kerst, C. (2007). Arbeiten unter Wert? Vertikal und horizontal inadäquate Beschäftigung von Hochschulabsolventen der Abschlussjahrgänge 1997 und 2001. *Beiträge zur Hochschulforschung, 29*(1), 72–98.

Fellenberg, F., & Hannover, B. (2006). Kaum begonnen, schon zerronnen? Psychologische Ursachenfaktoren für die Neigung von Studienanfängern, das Studium abzubrechen oder das Fach zu wechseln. *Empirische Pädagogik, 20*(4), 381–399.

Flöther, C. (2015). At the Top? Die berufliche Situation promovierter Absolventinnen und Absolventen. In C. Flöther & G. Krücken (Eds.), *Generation Hochschulabschluss: Vielfältige Perspektiven auf Studium und Berufseinstieg. Analysen aus der Absolventenforschung* (pp. 107–129). Münster/New York: Waxmann.

Flöther, C., & Krücken, G. (Eds.). (2015). *Generation Hochschulabschluss: Vielfältige Perspektiven auf Studium und Berufseinstieg. Analysen aus der Absolventenforschung*. Münster/New York: Waxmann.

Franzen, A., & Hecken, A. (2002). Studienmotivation, Erwerbspartizipation und der Einstieg in den Arbeitsmarkt. *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 54*(4), 733–752. https://doi.org/10.1007/s11577-002-0107-9.

Georg, W. (2008). Individuelle und institutionelle Faktoren der Bereitschaft zum Studienabbruch: Eine Mehrebenenanalyse mit Daten des Konstanzer Studierendensurveys. *Zeitschrift für Soziologie der Erziehung und Sozialisation, 28*(2), 191–206.

Gigerenzer, G., Hertwig, R., & Pachur, T. (Eds.). (2011). *Heuristics: The foundations of adaptive behavior*. Oxford: Oxford University Press.

Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. Cambridge, MA: Harvard University Press.

Gornitzka, Å., & Larsen, I. M. (2004). Towards professionalisation? Restructuring of administrative work force in universities. *Higher Education, 47*(4), 455–471. https://doi.org/10.1023/b:high.0000020870.06667.f1.

Gross, C., & Jungbauer-Gans, M. (2007a). Erfolg durch Leistung? Ein Forschungsüberblick zum Thema Wissenschaftskarrieren. *Soziale Welt, 58*(4), 453–471.

Gross, C., & Jungbauer-Gans, M. (2007b). Replik: Wird man so tatsächlich Prof? Anmerkungen zum Forumsbeitrag von Thomas Plümper und Frank Schimmelpfennig. *Politische Vierteljahresschrift, 48*(3), 553–558. https://doi.org/10.1007/s11615-007-0091-9.

Gross, C., & Jungbauer-Gans, M. (2008). Die Bedeutung meritokratischer und sozialer Kriterien für wissenschaftliche Karrieren. Ergebnisse von Expertengesprächen in ausgewählten Disziplinen. *Beiträge zur Hochschulforschung, 30*(4), 8–32.

Grotheer, M., Isleib, S., Netz, N., & Briedis, K. (2012). *Hochqualifiziert und gefragt. Ergebnisse der zweiten HIS-HF Absolventenbefragung des Jahrgangs 2005*. Hannover: HIS.

Grühn, D., & Hecht, H. (2007). Absolventenstudien—warum und wofür? Teil 1. Bildungspolitische und -theoretische Hintergründe. In B. Berendt, H.-P. Voss, & J. Wildt (Eds.), *Neues Handbuch Hochschullehre. Lehren und Lernen effizient gestalten. [Teil] K. Entwicklung von Rahmenbedingungen und Studiensystemen. Studierendenforschung* (pp. K 1.2, 20). Berlin: Raabe.

Hadjar, A., & Becker, R. (2004). Warum einige Studierende ihr Soziologie-Studium abbrechen wollen. Studienwahlmotive, Informationsdefizite und wahrgenommene Berufsaussichten als Determinanten der Abbruchneigung. *Soziologie, 33*(3), 47–65.

Hall, P. A., & Soskice, D. (2001). *Varieties of capitalism: The institutional foundations of comparative advantage*. Oxford: Oxford University Press.

Hargens, L. L., & Hagstrom, W. O. (1967). Sponsored and contest mobility of American academic scientists. *Sociology of Education, 40*(1), 24–38. https://doi.org/10.2307/2112185.

Heine, C. (2012). *Übergang vom Bachelor- zum Masterstudium*. Berlin: Expertenkommission Forschung und Innovation (EFI).

Heublein, U. (2010). Ursachen des Studienabbruchs in Bachelor- und in herkömmlichen Studiengängen. In *Ergebnisse einer bundesweiten Befragung von Exmatrikulierten des Studienjahres 2007*. Hannover: HIS.

Heublein, U., & Wolter, A. (2011). Studienabbruch in Deutschland. Definition, Häufigkeit, Ursachen, Maßnahmen. *Zeitschrift für Pädagogik, 57*(2), 214–236.

Heublein, U., Richter, J., Schmelzer, R., & Sommer, D. (2014). *Die Entwicklung der Studienabbruchquote an den deutschen Hochschulen. Statistische Berechnungen auf der Basis des Absolventenjahrgangs 2012*. Hannover: DZHW.

Hölscher, M. (2012). Spielarten des Kapitalismus und Kompetenzen von Hochschulabsolventinnen und-absolventen. *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 64*(3), 479–505. https://doi.org/10.1007/s11577-012-0177-2.

Hölscher, M. (2016). *Spielarten des akademischen Kapitalismus: Hochschulsysteme im internationalen Vergleich*. Wiesbaden: VS Verlag.

Hüther, O. (2010). *Von der Kollegialität zur Hierarchie? Eine Analyse des New Managerialism in den Landeshochschulgesetzen*. Wiesbaden: VS Verlag.

Hüther, O., & Veit, S. (2016). Wie beeinflusst der Karrierehintergrund die Public Service Motivation und das Selbstverständnis von Spitzenbeamten? Eine empirische Analyse am Beispiel der Kanzlerinnen und Kanzler an deutschen Hochschulen. *der moderne staat, 9*(2), 353–379. https://doi.org/10.3224/dms.v9i2.26349.

Janson, K. (2014). *Absolventenstudien: Ihre Bedeutung für die Hochschulentwicklung. Eine empirische Betrachtung*. Münster/New York: Waxmann.

Janson, K. (2015). Die Bedeutung von Absolventenstudien für die Hochschulentwicklung. Zusammenfassung einer empirischen Studie. In C. Flöther & G. Krücken (Eds.), *Generation Hochschulabschluss: Vielfältige Perspektiven auf Studium und Berufseinstieg. Analysen aus der Absolventenforschung* (pp. 131–150). Münster/New York: Waxmann.

Jensen, U., Gartner, H., & Rässler, S. (2006). *Measuring overeducation with earnings frontiers and multiply imputed censored income data*. Nürnberg: IAB.

Joas, H., & Bochow, M. (1987). *Wissenschaft und Karriere: Der berufliche Verbleib des akademischen Mittelbaus*. Frankfurt/M./New York: Campus.

John, E. P., Paulsen, M. B., & Starkey, J. B. (1996). The nexus between college choice and persistence. *Research in Higher Education, 37*(2), 175–220. https://doi.org/10.1007/bf01730115.

Jungbauer-Gans, M., & Gross, C. (2013). Determinants of success in university careers: Findings from the German academic labor market. *Zeitschrift für Soziologie, 42*(1), 74–92. https://doi.org/10.1515/zfsoz-2013-0106.

Kahneman, D., Slovic, P., & Tversky, A. (Eds.). (1982). *Judgment under uncertainty: Heuristics and biases*. Cambridge: Cambridge University Press.

Kaufmann, B. (2009). *Qualitätssicherungssysteme an Hochschulen – Maßnahmen und Effekte*. Bonn: HRK.

Kehm, B. M. (2014). Editorial. *European Journal of Education, 49*(4), 453–456. https://doi.org/10.1111/ejed.12092.

Kloke, K. (2014). *Qualitätsentwicklung an deutschen Hochschulen: Professionstheoretische Untersuchung eines neuen Tätigkeitsfeldes*. Wiesbaden: VS Springer.

Kloke, K., & Krücken, G. (2012). Der Ball muss dezentral gefangen werden – Organisationssoziologische Überlegungen zu den Möglichkeiten und Grenzen hochschulinterner Steuerungsprozesse am Beispiel der Qualitätssicherung in der Lehre. In U. Wilkesmann & C. J. Schmid (Eds.), *Hochschule als Organisation* (pp. 311–324). Wiesbaden: VS Verlag.

KMK. (2002). *Die Mobilität der Studienanfänger und Studierenden in Deutschland von 1980 bis 2000*. Bonn: KMK.

Konsortium Bundesbericht Wissenschaftlicher Nachwuchs. (2013). *Bundesbericht Wissenschaftlicher Nachwuchs 2013. Statistische Daten und Forschungsbefunde zu Promovierenden und Promovierten in Deutschland*. Bielefeld: Bertelsmann.

Konsortium Bundesbericht Wissenschaftlicher Nachwuchs. (2017). *Bundesbericht Wissenschaftlicher Nachwuchs 2017. Statistische Daten und Forschungsbefunde zu Promovierenden und Promovierten in Deutschland*. Bielefeld: Bertelsmann.

Krais, B. (2000). Das soziale Feld Wissenschaft und die Geschlechterverhältnisse. In B. Krais (Ed.), *Wissenschaftskultur und Geschlechterordnung: Über die verborgenen Mechanismen männlicher Dominanz in der akademischen Welt* (pp. 31–54). Frankfurt/M./New York: Campus.

Kreckel, R. (Ed.). (2008). *Zwischen Promotion und Professur: Das wissenschaftliche Personal in Deutschland im Vergleich mit Frankreich, Großbritannien, USA, Schweden, den Niederlanden, Österreich und der Schweiz*. Leipzig: Akademische Verlagsanstalt.

Kreckel, R. (2011a). Universitäre Karrierestruktur als deutscher Sonderweg. In K. Himpele, A. Keller, & A. Ortmann (Eds.), *Traumjob Wissenschaft? Karrierewege in Hochschule und Forschung* (pp. 47–60). Bielefeld: Bertelsmann.

Kreckel, R. (2011b). Zwischen Spitzenforschung und Breitenausbildung. Strukturelle Differenzierungen an deutschen Hochschulen im internationalen Vergleich. In H.-H. Krüger, U. Rabe-Kleberg, R.-T. Kramer, & J. Budde (Eds.), *Bildungsungleichheit revisited* (pp. 237–258). Wiesbaden: VS Verlag.

Krempkow, R., & Pastohr, M. (2006). Was macht Hochschulabsolventen erfolgreich? Eine Analyse der Determinanten beruflichen Erfolges anhand der Dresdner Absolventenstudien 2000–2004. *Zeitschrift für Evaluation, 1*(2006), 7–38.

Krücken, G., Blümel, A., & Kloke, K. (2010). Hochschulmanagement. Auf dem Weg zu einer neuen Profession? *WSI Mitteilungen, 5*(2010), 234–241.

Krücken, G., Blümel, A., & Kloke, K. (2013). The managerial turn in higher education? On the interplay of organizational and occupational change in German academia. *Minerva, 51*(4), 417–442. https://doi.org/10.1007/s11024-013-9240-z.

Kühne, M. (2009). *Berufserfolg von Akademikerinnen und Akademikern*. Wiesbaden: VS Verlag.

Lang, F., & Neyer, F. (2004). Kooperationsnetzwerke und Karrieren an deutschen Hochschulen. Der Weg zur Professur am Beispiel des Faches Psychologie. *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 56*(3), 520–538. https://doi.org/10.1007/s11577-004-0076-2.

Leahey, E. (2007). Not by productivity alone: How visibility and specialization contribute to academic earnings. *American Sociological Review, 72*(4), 533–561. https://doi.org/10.1177/000312240707200403.

Lewis, L. S., & Altbach, P. G. (1996). Faculty versus administration: A universal problem. *Higher Education Policy, 9*(3), 255–258. https://doi.org/10.1016/s0952-8733(96)00016-5.

Little, B., & Arthur, L. (2010). Less time to study, less well prepared for work, yet satisfied with higher education: A UK perspective on links between higher education and the labour market. *Journal of Education and Work, 23*(3), 275–296. https://doi.org/10.1080/13639080.2010.484415.

Long, S. J. (1978). Productivity and academic position in the scientific career. *American Sociological Review, 43*(6), 889–908. https://doi.org/10.2307/2094628.

Longden, B. (2004). Interpreting student early departure from higher education through the lens of cultural capital. *Tertiary Education and Management, 10*(2), 121–138. https://doi.org/10.1080/13583883.2004.9967122.

Lörz, M., Quast, H., & Woisch, A. (2012). *Erwartungen, Entscheidungen und Bildungswege: Studienberechtigte 2010 ein halbes Jahr nach Schulabgang*. Hannover: HIS.

Luhmann, N. (1964). *Funktionen und Folgen formaler Organisation*. Berlin: Duncker & Humblot.

Lutter, M., & Schröder, M. (2014). *Who becomes a tenured professor, and why? Panel data evidence from German sociology, 1980–2013*. Köln: MPIfG.

Lutter, M., & Schröder, M. (2016). Who becomes a tenured professor, and why? Panel data evidence from German sociology, 1980–2013. *Research Policy, 45*(5), 999–1013. https://doi.org/10.1016/j.respol.2016.01.019.

Mäkinen, J., Olkinuora, E., & Lonka, K. (2004). Students at risk: Students' general study orientations and abandoning/prolonging the course of studies. *Higher Education, 48*(2), 173–188. https://doi.org/10.1023/b:high.0000034312.79289.ab.

Merton, R. K. (1973). *The sociology of science. Theoretical and empirical investigations*. Chicago: University of Chicago Press.

Middendorff, E., Apolinarski, B., Poskowsky, J., Kandulla, M., & Netz, N. (2013). *Die wirtschaftliche und soziale Lage der Studierenden in Deutschland 2012. 20. Sozialerhebung des Deutschen Studentenwerks durchgeführt durch das HIS-Institut für Hochschulforschung*. Berlin: BMBF.

Müller, L. (2015). Ehrenamtliches Engagement als Sozialkapital bei der Beschäftigungssuche? In C. Flöther & G. Krücken (Eds.), *Generation Hochschulabschluss: Vielfältige Perspektiven auf Studium und Berufseinstieg. Analysen aus der Absolventenforschung* (pp. 91–105). Münster/New York: Waxmann.

Musselin, C. (2010). *The market for academics*. New York: Routledge.

Nickel, S., Püttmann, V., & Duong, S. (2014). *Was wird aus Juniorprofessor(inn)en? Zentrale Ergebnisse eines Vergleichs neuer und traditioneller Karrierewege in der Wissenschaft*. Gütersloh: CHE.

OECD. (2014). *Education at a glance 2014*. Paris: OECD.

Pascarella, E. T., Pierson, C. T., Wolniak, G. C., & Terenzini, P. T. (2004). First-generation college students: Additional evidence on college experiences and outcomes. *The Journal of Higher Education, 75*(3), 249–284. https://doi.org/10.1353/jhe.2004.0016.

Paul, J.-J., Teichler, U., & van der Velden, R. (2000). Special issue: Higher education and graduate employment. *European Journal of Education, 35*(2), 139–249.

Plasa, T. N. (2015). Studienbedingungen in den Naturwissenschaften und der Mathematik aus Sicht von Absolventinnen und Absolventen. In C. Flöther & G. Krücken (Eds.), *Generation Hochschulabschluss: Vielfältige Perspektiven auf Studium und Berufseinstieg. Analysen aus der Absolventenforschung* (pp. 43–63). Münster/New York: Waxmann.

Plicht, H., & Schreyer, F. (2002). Methodische Probleme der Erfassung von Adäquanz der Akademikerbeschäftigung. In G. Kleinhenz (Ed.), *IAB-Kompendium Arbeitsmarkt-und Berufsforschung. Beiträge zur Arbeitsmarkt- und Berufsforschung* (pp. 531–545). Nürnberg: IAB.

Plümper, T., & Schimmelpfennig, F. (2007). Wer wird Prof und wann? Berufungsdeterminanten in der deutschen Politikwissenschaft. *Politische Vierteljahresschrift, 48*(1), 97–117. https://doi.org/10.1007/s11615-007-0008-7.

Pohlenz, P., Tinsner, K., & Seyfried, M. (2012). *Studienabbruch: Ursachen, Probleme, Begründungen*. Saarbrücken: AV Akademikerverlag.

Rehn, T., Brandt, G., Fabian, G., & Briedis, K. (2011). *Hochschulabschlüsse im Umbruch. Studium und Übergang von Absolventinnen und Absolventen reformierter und traditioneller Studiengänge des Jahrgangs 2009*. Hannover: HIS.

Reinberg, A., & Hummel, M. (2007). *Qualifikationsspezifische Arbeitslosigkeit im Jahr 2005 und die Einführung der Hartz-IV-Reform: Empirische Befunde und methodische Probleme. IAB-Forschungsbericht*. Nürnberg: IAB.

Reisz, R. D., & Stock, M. (2013). Hochschulexpansion, Wandel der Fächerproportionen und Akademikerarbeitslosigkeit in Deutschland. *Zeitschrift für Erziehungswissenschaft, 16*(1), 137–156.

Röbken, H. (2007). Postgraduate studies in Germany—How much structure is not enough? *South African Journal of Higher Education, 21*(8), 1054–1066. https://doi.org/10.4314/sajhe.v21i8.25759.

Rogge, J.-C. (2015). The winner takes it all? *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 67*(4), 685–707. https://doi.org/10.1007/s11577-015-0341-6.

Salas-Velasco, M. (2007). The transition from higher education to employment in Europe: The analysis of the time to obtain the first job. *Higher Education, 54*(3), 333–360. https://doi.org/10.1007/s10734-006-9000-1.

Sarcletti, A. (2009). *Die Bedeutung von Praktika und studentischen Erwerbstätigkeiten für den Berufseinstieg*. München: IHF.

Sarcletti, A., & Müller, S. (2011). Zum Stand der Studienabbruchforschung. Theoretische Perspektiven, zentrale Ergebnisse und methodische Anforderungen an künftige Studien. *Zeitschrift für Bildungsforschung, 1*(3), 235–248.

Scheller, P., Isleib, S., & Sommer, D. (2013). *Studienanfängerinnen und Studienanfänger im Wintersemester 2011/12. Tabellenband*. Hannover: HIS.

Schelsky, H. (1963). *Einsamkeit und Freiheit*. Reinbek: Rowohlt.

Schiefele, U., Streblow, L., & Brinkmann, J. (2007). Aussteigen oder Durchhalten. Was unterscheidet Studienabbrecher von anderen Studierenden? *Zeitschrift für Entwicklungspsychologie und pädagogische Psychologie, 39*(3), 127–140.

Schindler, S. (2014). *Wege zur Studienberechtigung—Wege ins Studium?* Wiesbaden: Springer.

Schneijderberg, C., Merkator, N., Teichler, U., & Kehm, B. M. (Eds.). (2013). *Verwaltung war gestern. Neue Hochschulprofessionen und die Gestaltung von Studium und Lehre*. Frankfurt am Main/New York: Campus.

Schomburg, H. (2001). Was bestimmt den Berufserfolg. In H. Schomburg, U. Teichler, M. Doerry, & J. Mohr (Eds.), *Erfolgreich von der Uni in den Job. Die große Absolventen-Studie* (pp. 177–193). Regensburg/Düsseldorf/Berlin: Fit for Business.

Schomburg, H. (2008). Implementierung von entscheidungsnahen Absolventenstudien an Hochschulen in Deutschland. In HRK (Ed.), *Aktuelle Themen der Qualitätssicherung und Qualitätsentwicklung: Systemakkreditierung—Rankings—Learning Outcomes* (pp. 81–92). Bonn: HRK.

Schomburg, H., & Teichler, U. (Eds.). (2007). *Higher education and graduate employment in Europe: Results from graduates surveys from twelve countries*. Dordrecht: Springer.

Schomburg, H., & Teichler, U. (2012). Hochschulabsolventen im internationalen Vergleich. In H. Schomburg, B. M. Kehm, & U. Teichler (Eds.), *Funktionswandel der Universitäten. Differenzierung Relevanzsteigerung, Internationalisierung* (pp. 75–90). Frankfurt am Main/New York: Campus.

Schomburg, H., Teichler, U., & Winkler, H. (2005). Steigende Erwartungen, aber keine einfache Auskunft. Potentiale der Absolventenforschung nach den Erfahrungen des Wissenschaftlichen Zentrums für Berufs- und Hochschulforschung Kassel. In M. Craanen & L. Huber (Eds.),

Notwendige Verbindungen. Zur Verankerung von Hochschuldidaktik in Hochschulforschung (pp. 29–41). Bielefeld: UniversitätsVerlagWebler.
Schröder-Gronostay, M., & Daniel, H.-D. (1999). *Studienerfolg und Studienabbruch: Beiträge aus Forschung und Praxis*. Neuwied: Luchterhand.
Schütz, A., & Luckmann, T. (1975). *Strukturen der Lebenswelt*. Neuwied: Luchterhand.
Spady, W. G. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange, 1*(1), 64–85. https://doi.org/10.1007/bf02214313.
Statistisches Bundesamt. (2012). *Promovierende in Deutschland 2010*. Wiesbaden: Statistisches Bundesamt.
Statistisches Bundesamt. (2014a). *Bildung und Kultur: Personal an Hochschulen 2013*. Wiesbaden: Statistisches Bundesamt.
Statistisches Bundesamt. (2014b). *Bildung und Kultur: Prüfungen an Hochschulen 2013*. Wiesbaden: Statistisches Bundesamt.
Teichler, U. (2002). Potentiale und Erträge von Absolventenstudien. *Sozialwissenschaften und Berufspraxis, 25*(1/2), 9–32.
Teichler, U. (2011). Bologna—Motor or stumbling block for the mobility and employability of graduates? In H. Schomburg & U. Teichler (Eds.), *Employability and mobility of bachelor graduates in Europe* (pp. 3–41). Rotterdam: Sense Publishers.
Teichler, U. (2015). Absolventenstudien—Ansprüche und potenzielle Leistungen für Entscheidungen im Hochschulsystem. In C. Flöther & G. Krücken (Eds.), *Generation Hochschulabschluss: Vielfältige Perspektiven auf Studium und Berufseinstieg. Analysen aus der Absolventenforschung* (pp. 15–41). Münster/New York: Waxmann.
Teichler, U., Schomburg, H., & Winkler, H. (1992). *Studium und Berufsweg von Hochschulabsolventen: Ergebnisse einer Langzeitstudie*. Bonn: BMBF.
Tessaring, M. (1977). Qualifikationsspezifische Arbeitslosigkeit in der Bundesrepublik Deutschland. *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, 10*(2), 229–242.
Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89–125. https://doi.org/10.2307/1170024.
Tinto, V. (1988). Stages of student departure: Reflections on the longitudinal character of student leaving. *The Journal of Higher Education, 59*(4), 438–455. https://doi.org/10.2307/1981920.
Tomlinson, M. (2012). Graduate employability: A review of conceptual and empirical themes. *Higher Education Policy, 25*(4), 407–431. https://doi.org/10.1057/hep.2011.26.
van Buer, J. (2011). Zur Fokussierung der empirischen Hochschulforschung auf das vorzeitige Ausscheiden aus dem Studium—warum wir so auf den Misserfolg blicken. In O. Zlatkin-Troitschanskaia (Ed.), *Stationen Empirischer Bildungsforschung* (pp. 463–475). Wiesbaden: VS Verlag.
van Gennep, A. (1960). *The rites of passage*. Chicago: University of Chicago Press.
Wallerath, M. (2004). Der Universitätskanzler in der Hochschulleitung. *Wissenschaftsrecht, 37*(3), 203–223.
Weber, M. (1946 [1919]). *From Max Weber: Essays in sociology*. New York: Oxford University Press.
Weber, M. (1976 [1922]). *Wirtschaft und Gesellschaft. Grundriß der verstehenden Soziologie* (5., Rev. Aufl. ed.). Tübingen: Mohr.
Weber, M. (2004 [1919]). *The vocation lectures*. Indianapolis: Hackett Publishing.
Whitchurch, C. (2006). Who do they think they are? The changing identities of professional administrators and managers in UK higher education. *Journal of Higher Education Policy and Management, 28*(2), 159–171. https://doi.org/10.1080/13600800600751002.
Wild, E., & Möller, J. (2015). *Pädagogische Psychologie. 2., vollständig überarbeitete und aktualisierte Auflage*. Berlin/Heidelberg: Springer.
Winterhager, N., & Krücken, G. (2015). The local "war for talent"—Recruitment of recent tertiary education graduates from a regional perspective: Some evidence from the German case. *European Journal of Higher Education, 5*(2), 127–140. https://doi.org/10.1080/21568235.2014.987303.

Wissenschaftsrat. (1999). *Stellungnahme zum Verhältnis von Hochschulausbildung und Beschäftigungssystem*. Würzburg: Wissenschaftsrat.

Witte, J., Sandfuchs, G., Mittag, S., & Brummerloh, S. (2011). *Stand und Perspektiven bayerischer Bachelor- und Masterstudiengänge*. München: IHF.

Wolf, V. (2015). Der Blick zurück. Wie beurteilen Lehramtsabsolventinnen und -absolventen das Studium? In C. Flöther & G. Krücken (Eds.), *Generation Hochschulabschluss: Vielfältige Perspektiven auf Studium und Berufseinstieg. Analysen aus der Absolventenforschung* (pp. 65–90). Münster/New York: Waxmann.

Zimmermann, K. (2000). *Spiele mit der Macht in der Wissenschaft: Passfähigkeit und Geschlecht als Kriterien für Berufungen*. Berlin: Edition Sigma.

Zuckerman, H., Cole, J. R., & Bruer, J. T. (Eds.). (1991). *The outer circle: Women in the scientific community*. New Haven: Yale University Press.

Chapter 7
Equality of Opportunity in the German Higher Education System

This chapter also deals with developments at the micro level of the German higher education system. However, in contrast to Chap. 6 we change the focus of our analysis to the question of equal opportunity in the German higher education system. Equal opportunity of students, academics and administrative staff is a recurring and controversial topic in Germany, as it is in other countries. It is heavily related to the macro level of the system and embedded in broader society. Especially when gaining a degree leads to a lower chance of unemployment or higher earnings, the question raised is whether the opportunity to secure these benefits applies to all. Moreover, equal opportunity is particularly significant in academic careers not least because the award of a professorship goes hand in hand with high social status, autonomy and a higher level of social security. On top of this, equal opportunity is a critical variable in higher education and the scientific system. Individual performance and meritocracy are central sources of legitimation for both systems. A systematic and obvious infringement of this has the potential to deprive both systems of their legitimacy (Etzkowitz et al. 1994, 54; Engels 2015, 19–20).

The concept of equal opportunity can be seen in a number of different ways (Coleman 1968; Hradil 2006, 131–133). A common assumption is that equal opportunities exist if individual performance alone is the deciding factor in a person's life chances. Opportunities are said to be equal if gender or social background play no role in the educational choices of persons of equal merit. The aim is then to achieve "equality of educational opportunity" (Hallinan 1988, 251). From this perspective, the various educational successes of social groups are not necessarily a result of social inequality because these could be based on various aspects of performance or merit and would then be legitimate.

This notion is, however, not without its critics: one argument is that educational output is based on an "inequality of input" (Hallinan 1988, 251). This means that people from different social backgrounds possess different skills, motivation structures and so on (Becker 2011, 89). Taking this into account, despite equality of opportunity, the system is likely to reproduce social inequality given the different

O. Hüther, G. Krücken, *Higher Education in Germany—Recent Developments in an International Perspective*, Higher Education Dynamics 49,
https://doi.org/10.1007/978-3-319-61479-3_7

starting conditions. In order to increase equal opportunity, compensatory measures need to be taken to ensure that the performance of various social groups begins to balance out. Equality of opportunity can then be said to have been achieved when, statistically, educational success is not dependent on group membership (Müller and Mayer 1976). The postulate then is that "both success and failure in the education system ... should not be predicable from the outset based on social background" (Becker 2011, 89). However, most researchers share the assumption that it is not possible to fully eliminate social inequality, but the aim is to reduce inequality (Coleman 1968, 22).

Drawing on selected data for the German higher education system, in the sections below we intend to examine whether equality of opportunity has increased and whether the integration of disadvantaged actors and groups of actors has been successful. In doing so, we will be focusing on inequality in relation to gender and social background.[1]

7.1 Gender

The integration of women in higher education is a key area that has often been the subject of research. In Germany, the issue keeps coming to the fore, not least in the light of various political programs at both national and state level. Here we could mention the Federal Ministry of Education and Research program for female professors (*Professorinnenprogramm*) or that concepts for equal opportunities play a role in the Excellence Initiative. Furthermore, there are programs designed to kindle young women's interest in study programs in natural sciences and engineering such as "Girls Day" for school students. The implementation of such programs is often accompanied by scientific research, leading to an abundance of new findings in recent years (for the Excellence Initiative see for example Engels et al. 2015; Zuber and Hüther 2013; Beaufaÿs et al. 2012a). In Germany, the discussion has tended to focus on the one hand on women's choice of subject and consequently the relatively low proportion of women in certain disciplines (in particular natural sciences and engineering), and, on the other hand, on the declining proportion of women following the path towards a professorship over time.

Official German statistics provide information on the proportion of female professors, non-professorial female academic staff or female students. There are no doubt large gaps in official statistics with regard to female participation in academia (Beaufaÿs et al. 2012b, 19). However, these refer less to the fact that the data for gender has not been gathered, but that no data has been gathered at all. For example,

[1]Social inequality in Germany is increasingly being discussed with respect to groups of migrants (e.g. Stanat and Edele 2011; Diefenbach 2009; Neusel and Wolter 2017; Autorengruppe Bildungsberichterstattung 2016) and to the interplay of several dimensions of disadvantage. In sociological terms, that interplay is not new (e.g. Dahrendorf 1965) and, recently, has been discussed under the concept of intersectionality (e.g. Winker and Degele 2011).

it is not possible to differentiate for non-professorial academic staff whether they have gained their doctorate or not. Therefore, in the following we also use some survey data. The advantage here, however, is that—unlike social background—gender is a standard variable and is hardly ignored in any social science survey. Overall, therefore, there is a relatively good database for our discussion below.

The next section deals first of all with equality of opportunity in relation to female students. In a second step we look at female academic staff. Thereafter, we consider female administrative staff.

7.1.1 Students

Statistics on the proportion of female students since 1910 show that, overall, the integration of women in higher education has been highly successful. The numbers shown in Fig. 7.1 reveal a continuous increase in the proportion of female students. However, it can also be seen that full integration has taken a long time.

The successful integration of women into the higher education system is also reflected in the proportion of women graduating. The proportion of women gaining higher education degrees (excluding doctorates) has been constantly above 50% since 2005. In 2013, 51.2% of degrees were awarded to women (own calculations based on BMBF 2017a, b).

The question now is whether the integration of women has also been successful in relation to the different types of higher education institution and to subject

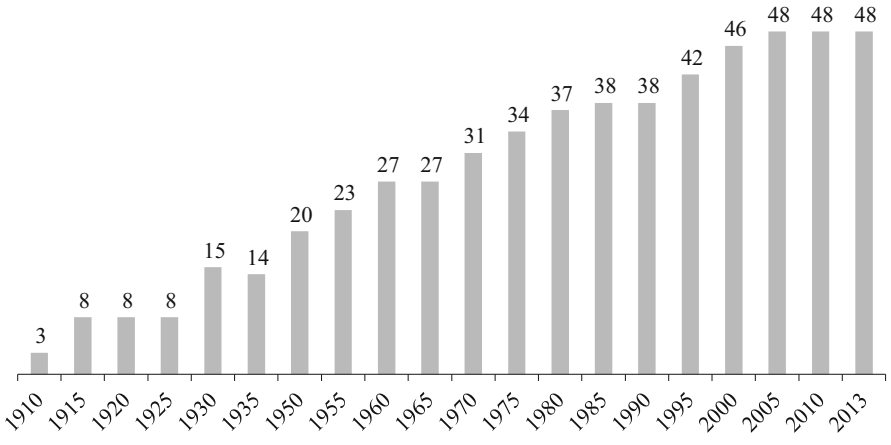

Fig. 7.1 The proportion of female students in Germany from 1910 to 2013
Figures in percent; between 1950 and 1990 only former West Germany including West Berlin; source: prior to 1950: GESIS (2014a), from 1950 onwards: BMBF (2017c, d), some own calculations

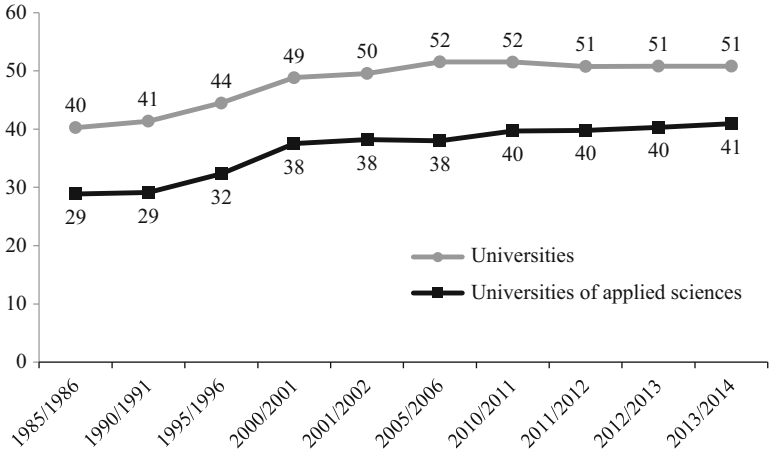

Fig. 7.2 The proportion of female students in the different higher education institutions from 1985 to 2014

Figures in percent; up to and including the winter semester 1991/92 only former West Germany and West Berlin; source: BMBF (2017c, d), own calculations

groups. In view of the types of higher education institution, it is interesting to note that the proportion of women at universities of applied sciences and at universities differs. As we have shown above (see Chap. 3), there are only minor differences in reputation between individual higher education institutions in Germany. Instead, the type of higher education institution is the most relevant dimension for reputational differences. Universities have a higher reputation than universities of applied sciences. In addition, university graduates are more likely to earn more and gain promotion easier than graduates of universities of applied sciences. Therefore, a lower proportion of women at universities of applied sciences would indicate that the integration of women is concentrated on higher education institutions with a lower reputation.

Figure 7.2 shows the proportion of women in the various institutions of higher education in Germany since 1985.

Remarkably, across the whole period the proportion of women at the more prestigious universities was higher than the proportion of women at universities of applied sciences. While the proportion of female students at universities stood at 40% in the winter semester of 1985/86, by the winter semester of 2013/14 it had risen to 51%. In contrast, the proportion of female students at universities of applied sciences stood at 29% in the winter semester of 1985/86, rising to 41% in the winter semester of 2013/14. Accordingly, there is a much higher integration of women in universities than in universities of applied sciences. In the light of these figures, there has been no negative selection with respect to higher education institutions with a stronger reputation.

The different ratios of women at universities and at universities of applied sciences might be an effect of subjects studied. Universities of applied sciences offer a smaller range of study programs and there are some subjects, in particular in

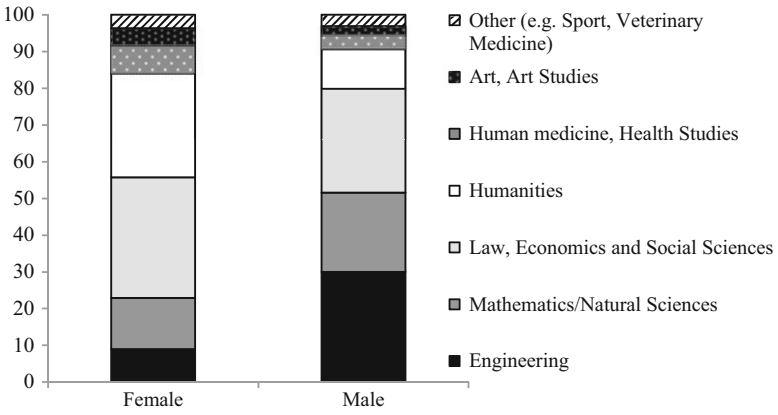

Fig. 7.3 Distribution of female and male students across subject groups in the winter semester of 2012/13
Figures in percent; source: Statistisches Bundesamt (2013), own calculations

the humanities (such as philosophy, German studies), in social sciences and jurisprudence (such as sociology and law) and in natural sciences (such as physics and chemistry) that can only be studied at universities. This raises the question of subject choice by women and men and whether there are differences here that directly impact the proportion of women at universities and at universities of applied sciences.

Figure 7.3 shows the distribution of male and female students in the various subject groups at German higher education institutions in the winter semester of 2012/13.

Here we can see that there is a considerable difference in the choice of program. Fifty-two percent of men, but only 23% of women, study subjects in engineering, mathematics and natural science departments. In contrast, 28% of women, but only 11% of men, study humanities. On the other hand, proportions are relatively balanced in law, economics and social sciences (33% of women vs. 28% of men). These figures also show that the proportion of women is often higher in subject groups in which average earnings are lower, while men tend to study subjects that promise a higher income on average.

Just how unequal the distribution of women and men is in individual subjects can also be seen in Fig. 7.4. This illustrates the proportion of female students in the various subject groups for the winter semester 2012/13 and the subjects within these groups with the highest/lowest proportion of women. This reveals that women are not necessarily avoiding certain subject groups, but rarely study certain subjects within these groups.

In the subject group covering the humanities, the highest proportion of women, 82%, can be found in special-needs education, whereas in philosophy it is down to 44%. While in the subject group for law, economics and social sciences, one is more likely to meet women in social work programs (77% of social work students are women), they tend to keep their distance from business engineering (just 25% are

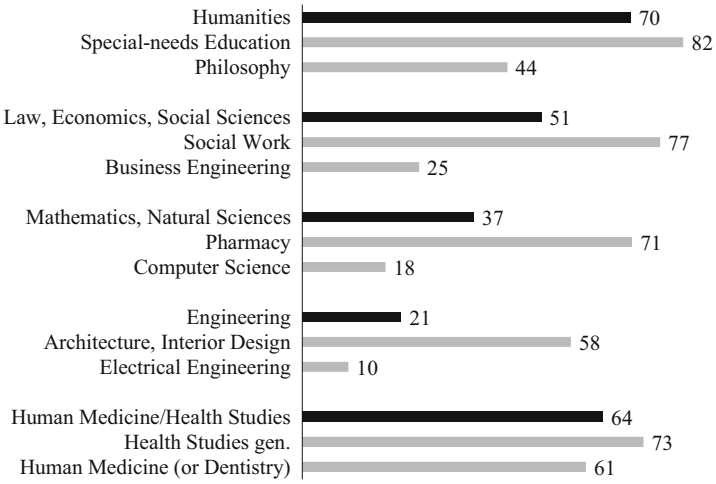

Fig. 7.4 Proportion of female students in selected subject groups and subjects in the winter semester 2012/13
Figures in percent; source: Statistisches Bundesamt (2013), own calculations

women). In the subject group comprising mathematics and natural sciences, there are subjects that are very popular for women such as pharmacy (where 71% of students are women), whereas computer science has a very low proportion of female students (18%). In engineering, (interior) architecture is a subject in which the majority of students are women (58%). In this subject group, by way of contrast, electrical engineering has the lowest proportion of female students—just 10%.

How can these widely different preferences in the choice of study programs be explained? In the literature we find a number of attempts (for an overview see for example Blickenstaff 2005).

One such explanation is that female students are less motivated by factors such as income and career perspectives than men, and thus choose different subjects. While 75% of male higher education entrants in Germany justify their choice of subject with reference to a secure professional position, only 61% of female students do. Seventy-six percent of male, but only 59% of female higher education entrants consider earnings potential to be very important or important. Even professional status and the demand for the subject on the labor market is more important for men in their choice of subject (Scheller et al. 2013, 76–77). This shows that higher percentages of men choose a subject in which anticipated income, status and demand on the labor market are rated higher.

The overall lower proportion of women in some engineering/natural science programs has aroused much interest in research and has been attributed to a "complex interaction of factors that tend to push girls and women away" (Blickenstaff 2005, 383). These factors include the fact that few schoolgirls choose technical/natural science (major) subjects/courses at school, a somewhat reserved attitude of schoolgirls towards technology and natural sciences, the absence of role

models for schoolgirls, the (sub-)conscious disadvantaging of schoolgirls and female students in technological/natural science issues (a "chilly climate") and the expectations of traditional roles in which women should study more "gentle" subjects rather than engineering and natural sciences. In addition, even when women do choose engineering/natural science programs, they tend to prefer broader, interdisciplinary programs and less so the respective core subjects (e.g. Wächter 2005; Schwarze 2006).

In terms of the integration of female students into the higher education system, although the picture is positive, in some subjects women are still under-represented, while in others they are in the clear majority. There is a tendency for women to be overrepresented in those subjects in which income prospects are low, while being under-represented in subjects that promise a higher income. However, we do need to point out that decisions on study programs—as described in Chap. 6 for all students—are strongly interwoven with the concept of self and with identity. Self-constructions of interest, of inclination and of aptitude are not open to direct influence—especially not at the level of higher education—because the foundations for these were already laid during childhood and adolescence.

7.1.2 Academic Staff

While the integration of women as students and graduates can be viewed as an overall success story, the same cannot be said for academic staff and the phases of an academic career on the path towards professorship. In order to highlight this, Fig. 7.5 shows the proportion of women completing doctoral and habilitation examinations, at the junior professor level, as newly appointed professors and as professors over time.

First of all, it is clear that over time the proportion of women has increased across all categories observed. The proportion of women graduating from doctoral studies rose from 24% in 1985 to 44% in 2013. At the habilitation level we find an increase from 7% in 1985 to 27% in 2013. In terms of junior professorships we also find an increase from 31% in 2003 to 40% in 2013.[2] Here, it can also be seen that, in comparison to the habilitation, junior professorships have achieved greater success in terms of a more effective integration of female academics. There is also a significant improvement in terms of new appointments of professors. As this particular statistic has only been analyzed by the German Federal Statistical Office since 1997, there are no data from the 1980s and the early 1990s. From 1997 to 2013, the proportion of new appointments of women doubled from 15% to 30%. We have also witnessed a continuous increase in the proportion of female professors, rising from 5% in 1985 to 21% in 2013.

[2]As described in Chap. 6, the junior professorship was introduced in 2002 and is a recognized alternative to the habilitation in order to qualify for a full professorship.

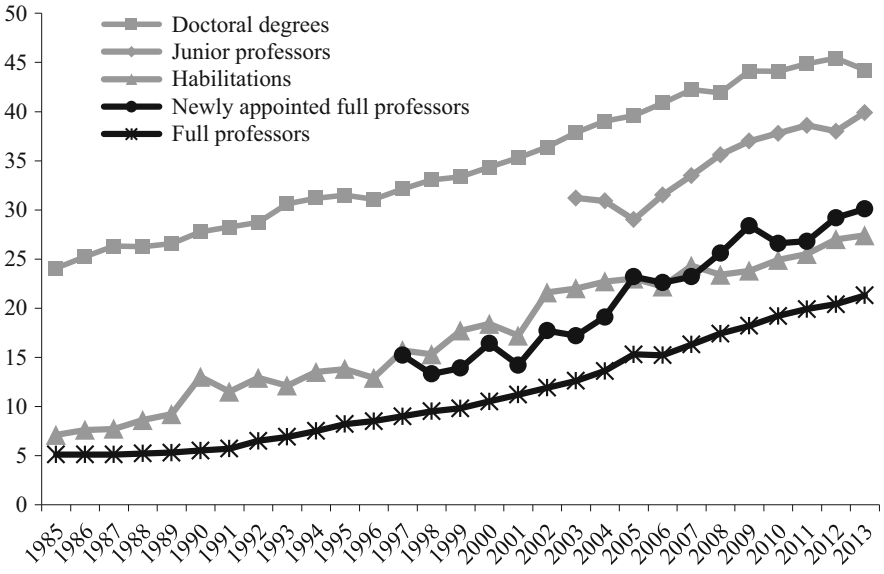

Fig. 7.5 The proportion of women at key points along the academic career path in Germany from 1985 to 2013

Figures in percent; source: Data on new appointments and postdoc studies: GESIS (2014c), data on doctoral studies BMBF (2017a, b), data on junior professors: Statistisches Bundesamt: Personal an Hochschulen (annual publication), some own calculations

As positive as these developments appear, it is also clear that the comprehensive integration of women into science and higher education has not been an overall success. The proportion of female graduates overall and of female university graduates (excluding teaching graduates, where the tendency to pursue doctoral studies is lower than in other subject groups) has been over 50% since 2005, however, the proportion of women graduating from doctoral studies stood at just 44% in 2013 (own calculations based on Statistisches Bundesamt 2014b). Even with junior professorships we can see proportions declining when compared with women with a PhD. Between 2003 and 2013, there is a difference of 11 to 4 percentage points between the proportion of female doctoral graduates and the proportion of female junior professors. It seems that from career step to career step we are witnessing the disappearance of women.

In order to highlight this relation, Fig. 7.6 shows the trend in the proportion of women in an ideal-typical career path for students enrolling between 1993 and 1995. Mapping the trend of a cohort in this way enables us to correctly observe effects over time in a meaningful way.

It is clear that the proportion of women diminishes particularly in relation to doctoral and habilitation graduates and even in terms of junior professorships. Although all the data show that the respective "disappearance rates" in the proportions of women has decreased over time and that the picture for later cohorts has

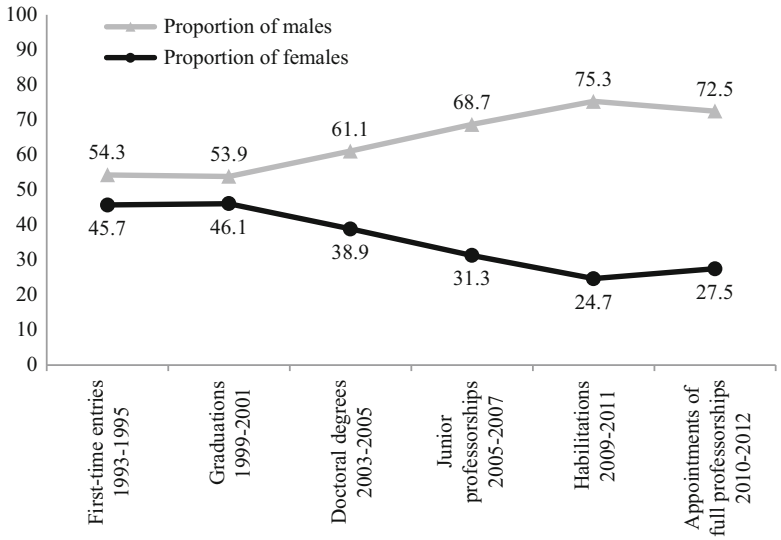

Fig. 7.6 The proportion of females and males in the course of their qualifications—an analysis of ideal-typical career paths from 1993 to 2012
Figures in percent; source: proportion of junior professorships: Statistisches Bundesamt: Personal an Hochschulen (annual publication); other data: GESIS (2014b), some own calculations

improved, it can still be seen that the proportion of women is lower at each career stage (Gemeinsame Wissenschaftskonferenz (GWK) 2014, 12).

The data gives us good reason to assume that the proportion of female professors will increase in the course of time. Nevertheless, it is worth noting that even if all women currently employed as junior professors or who have a habilitation degree were appointed to a full professorship, the rate of new appointments for women will hardly rise above 40% in the coming years. Given the time lag, it will still take some considerable time before the proportion of female professors tops 40%, whether due to the number of professorships that becomes available, whether due to the length of the career path. If we take the average increase in the proportion of female professors between 2000 and 2013 as a basis (+0.83% per year) and continue this trend, the proportion of female professors will only reach 40% in 2035. If the trend continues, a proportion of 50% will only be achieved in 2047. Even if the future trend can only be extrapolated to a limited extent from the past, this is still a rather sobering calculation.

Despite the indisputable improvement in the integration of women over the course of time, these figures still raise the question: Why does the proportion of women still fall in Germany with every step up the career ladder?

As is usual with such questions, there is no simple answer. Instead, the interplay of various factors is crucial (e.g. Metz-Göckel et al. 2010; Beaufaÿs et al. 2012a; Engels et al. 2015; Riegraf et al. 2010).

The decreasing proportion of women on the path towards a professorial position can be partly explained by the fact that women drop out of the academic system more often. They do not pursue their academic careers further because the virtually exclusive use of fixed-term contracts for positions below that of professor in Germany is not seen as desirable. Especially in the "rush hour" (Bittman and Wajcman 2000) of life, women seem to find the high degree of insecurity of an academic career less attractive than men (e.g. Metz-Göckel et al. 2010, 23). In addition, as described above, there are the mobility requirements on academics: the first appointment to the position of professor usually implies a change of university and thus a change in location.

Academic employment structures in Germany are geared in such a manner that favors people who have loose geographical or family ties or people who might have ties, but have a supportive environment (Beaufaÿs et al. 2012b, 18). Here, women are at a disadvantage compared to men because they are more often in partnerships in which two professional careers have to be reconciled (Rusconi and Solga 2007, 313; Hess et al. 2011; Engels et al. 2015).

A significant sign of this imbalance can be seen in the fact that more female German professors are childless compared to male professors. Whereas in 2006, only 34% of male professors did not have children, the same applied to 62% of female professors (Metz-Göckel et al. 2012, 248). Accordingly, the question "academic career or child(ren)?" appears to be significantly more critical for women than for men.

Therefore, one factor for the decrease in the proportion of women over the course of academic careers in Germany appears to be structural barriers to reconciling the academic career and working structures on the one hand with the private lifestyles and aspirations of women on the other. Whether the deterioration in working structures in the higher education system in recent years (increase in fixed-term contracts and third-party funding) is conducive to promoting the proportion of women at the various steps in their careers is at least open to doubt. Maybe it would be far more reasonable to generally improve career structures and working conditions (e.g. Beaufaÿs et al. 2012b, 19) instead of providing more and more training programs which aim to improve women's "skills",[3] as has been the main strategy to date.

But it is not only the "hard" career patterns and working structures in the higher education system that favor geographically and socially less embedded people, but also the construction described in Chap. 6 of what counts as a good academic (e.g. Engler 2001; Beaufaÿs 2003; Zuckerman et al. 1991). With this construction of an academic personality, a picture emerges of a good academic in which science and person merge. In other words, research is not construed as an occupational activity, but as a calling. Family obligations and pregnancies jeopardize the

[3]These skills highlight, on the one hand, generic "soft skills" such as successful communication, networking or leadership skills, and academic strategic skills such as publication and third-party funding strategies on the other.

construction of being such an academic personality, or as Kemelgor and Etzkowitz (2001, 243) say "many older male colleagues view pregnancy as a sign that a woman scientist is not serious about her work." Although the question of whether women adopt an academic personality less successfully than men, and/or are denied such recognition, or whether such an image of an academic personality may act as a deterrent may be interesting, both theoretically and empirically, the effect is the same: the reduction in the proportion of women over the course of an academic career.

Alongside working structures and the construction of an academic personality, the literature also discusses other factors that lead to a reduction in the proportion of women over the course of an academic career. One of these are gender-specific differences in academic performance profiles. Various studies show that, at least in the past, productivity—measured in terms of publications—varied between men and women. In terms of this gender difference in productivity, both American (Long and Fox 1995; Zuckerman et al. 1991) and German (Joas and Bochow 1987) women were observed to be less productive. This was explained by family obligations, weaker structural positions and resources, but also a shortage of supportive network involvement (Fox 2005; Xie and Shauman 1998; Leahey 2007). More recent studies show that the productivity of women and men scored in terms of publications has already become largely balanced and can only marginally explain the differences in career success (see the discussion in Engels et al. 2015, 195).

Another factor relates to early decisions made in respect of pursuing an academic career. It is well known that in order to launch an academic career, personal contact to a professor is particularly relevant in Germany (see Chap. 6). There is evidence that men are more often requested by professors to start doctoral studies and/or to apply for a vacancy (Joas and Bochow 1987, 83–85; Berning and Falk 2006, 47–52;146–154).

It should be clear that there is no simple explanation for the decline in the number of women along the academic career path. That also means that there is no simple recipe to trigger speedy improvements. However, as soon as the qualifications for a full professorship have been obtained by women, all current studies show that, when compared to men, women do not have worse prospects in being appointed to the position of professor (e.g. Lutter and Schröder 2014; Jungbauer-Gans and Gross 2013; Plümper and Schimmelpfennig 2007). Instead, at least in sociology the likelihood of women being appointed is significantly higher than for men (Jungbauer-Gans and Gross 2013; Lutter and Schröder 2016).

After having mainly dealt with the overall proportion of women in the academic world in Germany, we now intend to adopt a comparative perspective at two levels. On the one hand, we will examine the situation at a national level and distinguish between types of higher education institution and subjects. On the other, we will be making an international comparison, taking account of the proportion of women in various European countries. In doing so, we will focus on the end phase of an academic career, in other words we will be comparing the proportion of women at full professor level.

First of all, the national perspective. Here, it is important to note that the proportion of female professors varies considerably in terms of both the different

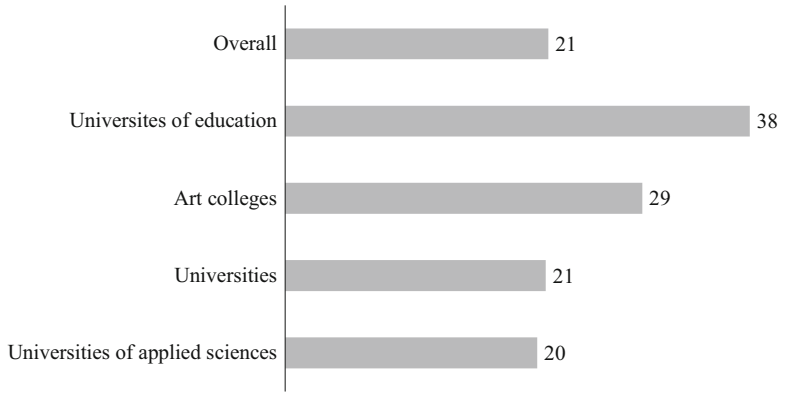

Fig. 7.7 The proportion of female professors at various higher education institutions 2013 Figures in percent; source: Statistisches Bundesamt (2014a), own calculations

types of higher education institution and specialist discipline.[4] Figure 7.7 illustrates the proportion of female professors across the various types of higher education institution.

Here, it is quite clear that the proportion of female professors at universities of education (*Pädagogische Hochschulen*) is significantly higher than at universities and universities of applied sciences. However, it must be stated that even for universities of education, the proportion of women professors still demonstrates insufficient integration when measured against the proportion of women as students. Furthermore, the proportion of female students at universities that has been higher for decades compared to universities of applied sciences (see Fig. 7.2) has hardly had any effect on the proportion of female professors. Instead, we hardly find any differences between universities and universities of applied sciences.

Figure 7.8 also makes it clear that not only does the proportion of female professors vary between types of higher education institution, it also fluctuates between subject groups and individual subjects.

In terms of the subject groups, we find the highest proportion of female professors (36%) in the humanities, and the lowest proportion (11%) in engineering. As with the proportion of female students, there are also considerable differences in the proportion of female professors in the individual subjects within a subject group. Thus, the proportion of female professors of social work, at 49%, is particularly high, whereas it is significantly lower in business engineering (11%). We also find considerable differences among women in other subject groups.

[4]There are also considerable differences in the proportion of female professors across the federal states. In 2013, for example, 31% of professors in Berlin were women, with the proportions for Hamburg and Lower Saxony at 27 and 25% respectively. In contrast, women accounted for only 17% of all professorships in Bavaria, Thuringia, Schleswig-Holstein and in Mecklenburg-Western Pomerania (own calculations based on Statistisches Bundesamt 2014a).

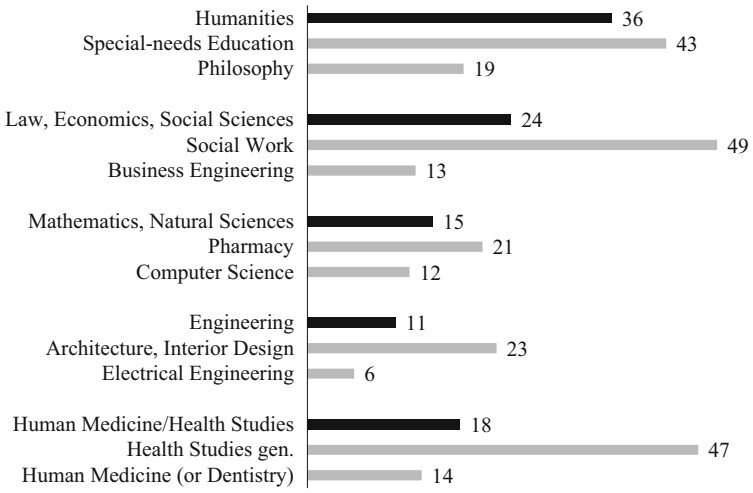

Fig. 7.8 The proportion of female professors in selected subject groups and subjects 2013 Figures in percent; source: Statistisches Bundesamt (2014a), own calculations

Let us briefly compare the proportion of female professors in Germany with proportions in other countries. For this we fall back on EU data and observe the proportions of women in "Grade A" positions. This is the "single highest grade/post at which research is normally conducted" (European Commission 2013, 87). In Germany this category corresponds to C4, or W3, professors.[5] Figure 7.9 indicates that in none of the countries listed does the proportion of women in the highest academic positions equal the proportion of women in the whole population. The highest value, 27%, is achieved by Finland; the lowest, 16%, by the Netherlands. Overall, it can be said that in 2013, no European country comes close to demonstrating the full integration of women. In 2013, the level in Germany was 17%. This is below the average across the 27 EU countries (21%).

Comparing 2013 figures with those for 2002, it is clear that the proportion of women in Grade A position has risen across all countries. In Germany, the proportion of women more than doubled over those 11 years.

However, despite these developments it is apparent that all higher education systems across Western Europe are having considerable problems in achieving any sort of balance between the proportion of women in senior positions in higher education and the proportion of women in the population as a whole. Across Western Europe, the proportion of women falls at each step along the academic career path: the general situation for Germany described above can also be found in other European

[5]Given the widely varying structures of academic staffing in the individual countries, such a comparison is most clearly demonstrated using data from this top position, especially considering the fact that in Germany, Grade B positions not only include lower level professors (C3/W2), but also some postdoc positions (e.g., European Commission 2013, 140).

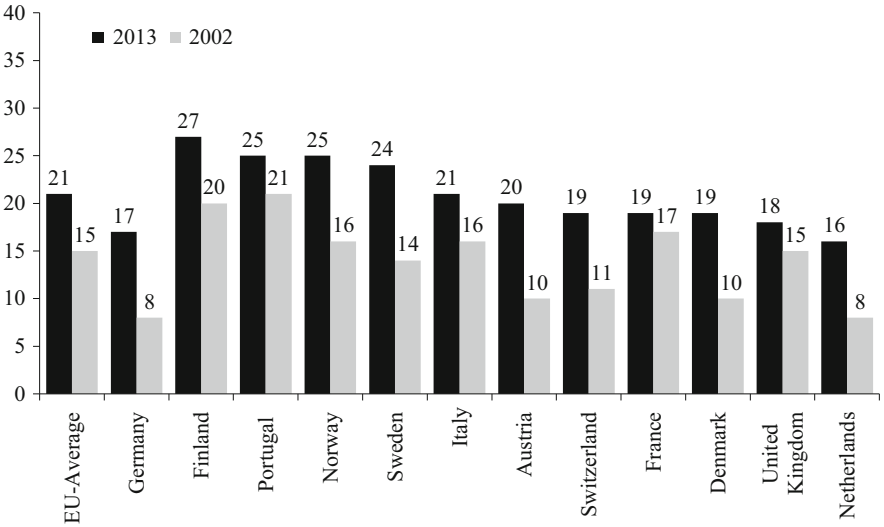

Fig. 7.9 The proportion of female professors in Grade A positions in selected countries 2013 v. 2002
Figures in percent; source: European Commission (2016, 129; 2013, 91)

countries (European Commission 2013, 88). Moreover, the distribution of female professors across subjects as described above for Germany has proven to be stable: women hold significantly fewer Grade A positions in natural sciences and engineering than in social sciences and the humanities (European Commission 2013, 93).

The data available on Grade A positions also indicates that differences between countries are not only attributable to differences in the career systems described briefly in Chap. 6. For instance, the proportion of women in habilitation systems such as in Switzerland and Germany are slightly above the proportion for the Netherlands with a tenure track system. In addition, the proportion in Switzerland is greater than in the UK, which also boasts a tenure track system. Even a comparison of positions below Grade A among countries with a habilitation system and a tenure track system does not yield a uniform picture (European Commission 2016, 129). Thus, this international comparison also points out that—apart from general patterns of social inequality in society—not only do specific working and career structures in the individual countries have an impact on the proportion of women in the highest positions, but that factors concerning the overall scientific system are also significant. Here, for example, we could again mention the construct of the academic personality.

7.1.3 Administrative Staff

As illustrated in Chap. 6, administrative management staff at higher education institutions are an important group in terms of both quality and quantity. Therefore, the issue of social inequality is also of interest for this particular group.

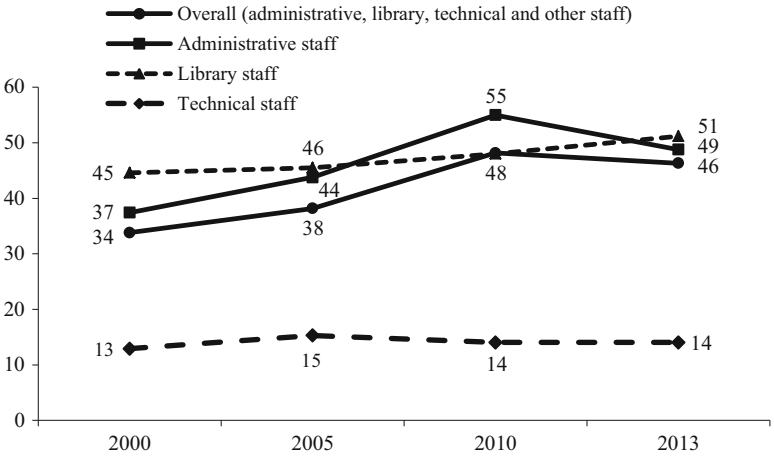

Fig. 7.10 The proportion of women in non-academic employment in senior service from 2000 to 2013*

Figures in percent; *excluding medicine and central facilities of university clinics; source: Statistisches Bundesamt: Personal an Hochschulen (annual publication), own calculations

While social background still remains largely unexplored, there are some interesting findings in terms of gender-specific differences. First and foremost, the question is whether the results presented above for academic staff also apply to administrative staff. Does administrative higher education management represent an alternative career path within higher education that would allow women in particular to gain access to top positions? Generally, it can be seen that the last few years have seen a disproportionately strong growth in non-academic staff in senior public service positions (e.g. Blümel et al. 2010b). For instance, the number of employees at the senior administrative level (excluding medical facilities) rose from 4007 in 2000 to 10,488 in 2013. This figure has more than doubled within 12 years. However, as the number of non-academic employees has only risen marginally in the same period—as described in Chap. 6—the changing qualification patterns of non-academic staff becomes evident.

Figure 7.10 shows, women have benefited most from this shift in qualification. The proportion of women in non-academic employment in the highest category of public service rose from 34 to 46% between 2000 and 2013. Similar trends have been noted in the subcategories of administrative staff (37 vs. 49%) and of library staff (45 vs. 51%). The only exception to this concerns technical staff in senior service employment where the proportion of women has constantly remained low over time and stood at just 14% in 2013. There has clearly been a feminization in respect of the rise of women in senior positions of administrative management in higher education. Here we can see an erosion of social inequality between men and women.[6]

[6]It is also striking that the high proportion of women in lower service levels (lower to upper-intermediate service levels) in administrative and library sectors has remained relatively constant

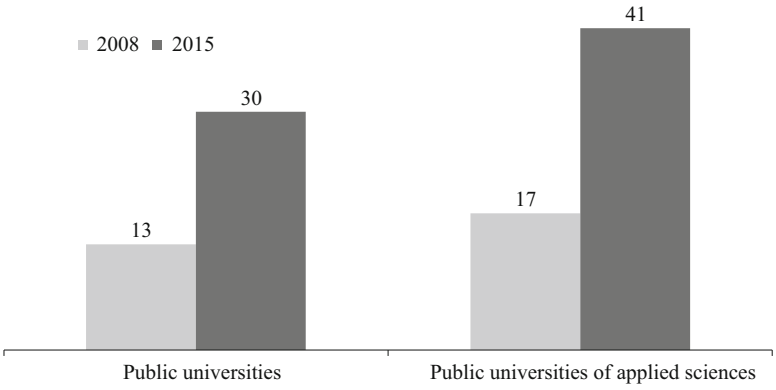

Fig. 7.11 Proportion of female chancellors by type of higher education institution 2008 v. 2015 Figures in percent; source: Chancellor survey 2008 and 2015

However, we should be careful not to overinterpret this finding. As already shown in Chaps. 5 and 6, administrative managers in the professional organization of higher education in Germany only have limited decision-making powers and are ranked much lower, especially with respect to the professoriate. Given this difference in status, administrative managers see themselves rather in a supporting/service providing role in Germany, where soft skills such as networking and communication are considered particularly relevant (e.g. Kloke 2014, 264–288). In this light, it is not a wild exaggeration to see gender-specific patterns and stereotypes at work that significantly put the apparently successful feminization of senior administrative positions into perspective.

Let us now observe the gender-related development with regard to the position of chancellor—the highest administrative position—at German higher education institutions. Between 1996 and 2013, the proportion of female chancellors rose from 10% to 29% (Gemeinsame Wissenschaftskonferenz (GWK) 2014, 27). The proportion of female chancellors is nearly twice as high as the proportion of female presidents/rectors, which stood at 15% in 2013 (Gemeinsame Wissenschaftskonferenz (GWK) 2014, 27).

Two surveys of chancellors conducted in 2008 and 2015 enable us to explore the proportion of female chancellors in relation to the type of higher education institution and size (for the 2008 survey see Blümel et al. 2010a; for the 2015 survey see Blümel and Hüther 2015).

Figure 7.11 highlights the proportion of female chancellors at public universities and public universities of applied sciences. Here we can see that the proportion of

(administration: 82% in 2000 vs. 84% in 2013; library: 78% in 2000 vs. 78% 2013). Only in respect of technical staff is there a contrasting trend, with the proportion of women here falling from 42 to 34%. In connection with the increased proportion of women in senior service, this speaks in favor of a significant feminization of non-academic employees at higher education institutions.

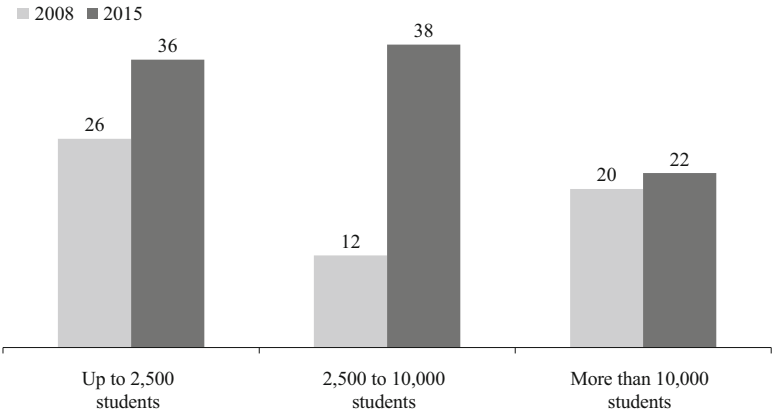

Fig. 7.12 Proportion of female chancellors by student population at higher education institutions 2008 v. 2015
Figures in percent; source: Chancellor survey 2008 and 2015

female chancellors at public higher education institutions has risen dramatically in recent years. It can also be seen that the proportion of female chancellors at universities of applied sciences with a lower reputation is higher than the proportion of chancellors at universities.

Other interesting insights arise when the proportion of female chancellors is considered in relation to the size of the higher education institution (measured by number of students) (Fig. 7.12).

Markedly, the rise in the proportion of female chancellors is almost exclusively at higher education institutions with a student population of less than 10,000. In particular, the rise at medium-sized higher education institutions (2500–10,000 students) is significant for the overall increase. In contrast, the proportion of female chancellors at larger higher education institutions has hardly risen at all since 2008. These results clearly show that questions of organizational status and size of higher education institutions influence the prospects of women filling the position of chancellor.

Overall, it can be seen that there is still a gap between the significant increase in women as highly-qualified staff in administrative higher education management and the top positions in higher education administration in Germany. In particular, the position at the top of higher education administration at large public universities is still by and large a domain for men. However, comparing 2008 and 2015, it is clear that more women have taken on this position, especially in smaller and medium-sized higher education institutions.

7.2 Social Background

Equal opportunity in respect of social background—here defined as economic, social and cultural status—is also an important subject of research in higher education. However, unlike the situation for women, there are no official statistics covering social background. As a result, our observations below draw mainly on survey data from social science research. Besides the response rates, there is also the problem that social background is measured and defined on the basis of different indicators.

First of all, social background can be measured by the educational background and/or occupational status of both parents. Mostly however, the highest level of education and/or occupational status of one of the parents is used. In some studies, social background is even solely measured by the level of education and/or occupational status of the father. The issue is compounded when time is brought into the equation, especially when education levels and/or occupational status are measured. Because both the level of education and the occupational status of the parents can change over time, some studies have assessed status when the child was 15 years of age. Accordingly, there is variance in the way social background is measured. Furthermore, studies sometimes change how data are measured, making long-term comparisons problematic (for example the survey "Befragung der Sozialerhebung des Studierendenwerkes" did change the measuring in 2013; see Middendorff et al. 2013, 12–13).

All this has an impact on the information presented below, partly because we have to fall back on a variety of studies and, unlike other considerations, there is less up-to-date data available. Nevertheless, the structures of equal opportunity in relation to social background are relatively straightforward and overall all studies reveal similar results and details. To begin with, we will be looking at equality of opportunity in relation to students before exploring the situation with academics. Given the lack of data, we shall not be examining the situation with regard to administrative staff.

7.2.1 Students

Social background has a considerable impact on participation in higher education in Germany. Figure 7.13 shows the first-time entry rates to higher education for children of fathers of various occupations up to 2007. This clearly shows that the proportion of working-class children who take up a place at higher education institutions is significantly below the proportion of children of salaried employees or public officials. Although the number of first-time students from the working class has nearly doubled over time, a look at the percentage differences, however, reveals that the 8 percentage points increase in the number of working-class students attending higher education is dwarfed by the 21 percentage points increase for children of public officials. It can be seen that the occupational status of the

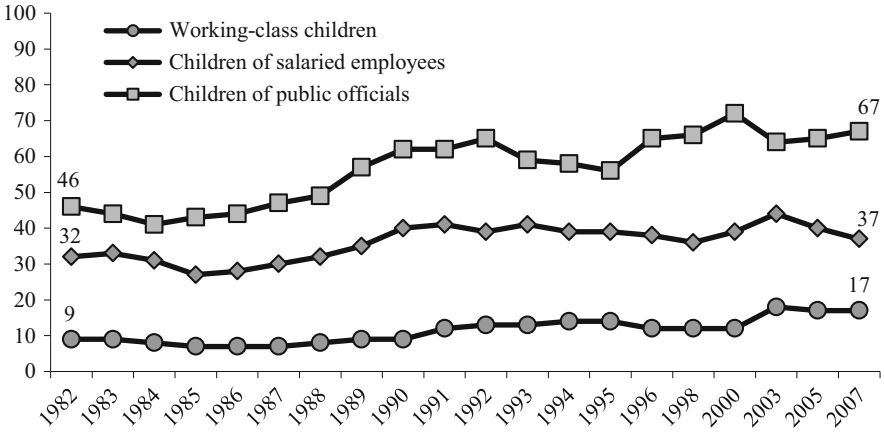

Fig. 7.13 First-time entry rates of students by their father's occupational status 1982–2007 Figures in percent; up to 2003 only former West Germany including West Berlin; source: up to 2005: GESIS-ZUMA 2014; for 2007: Isserstedt et al. (2010, 101)

father still has a considerable effect on whether their offspring attend higher education or not.

More recent data show that this fundamental situation has changed very little. According to the most recent social survey of economic and social conditions of students' life in Germany from 2012, 23% of children from a non-academic family take up higher education study compared to 77% of children from an academic home (Middendorff et al. 2013, 111).

It is not only a question of just higher education study: whether students attend a university or a university of applied sciences also hinges of social background. Students with lower social background more often attend the less reputational universities of applied sciences (e.g. Ramm et al. 2014, 58).

However, differences in first-time entry rates and their distribution across the types of higher education institution do not in the main emerge in the higher education system itself, instead social selection takes place in the preceding school system.

This can be demonstrated by comparing children with university entrance qualifications whose parents have different levels of education. In 2008, for example, about 35% of children of parents with no more than one lower secondary school qualification were entitled to study, while nearly 70% of children of parents with a higher education entrance qualification were (Schindler 2012, 13–14). In addition, the type of higher education entrance qualification in both groups varied enormously. Whereas slightly more than 10% of children of parents with a low level of education were qualified to study at university, over 50% of children from well-educated parents were. It is remarkable that although the number of children gaining a higher education entrance qualification from less educated households doubled between 1976 and 2008, this was by and large a qualification to study at a university of applied sciences (Schindler 2012, 13–14). This partly explains the

lower rate of children from less educated backgrounds at university—the proportion of students with a general university entrance qualification is lower.

Even if it can be assumed that social selection in Germany primarily takes place in the school system (e.g. Pietsch and Stubbe 2007), selection also takes place when entering the higher education system (Reimer and Pollak 2009; Müller et al. 2011; Becker and Hecken 2009; Hillmert and Jacob 2010; Blossfeld et al. 2015). Schindler (2012, 19), for example, refers to lower higher education enrolment rates—i.e., the relationship between those qualified to enter higher education and those who actually take up a study program at an institution of higher education—for people from less educated backgrounds. Whereas 80% of those who were qualified to study in 1976 and whose parents had no more than one lower secondary school qualification actually began a study program, by 2006 this had fallen to 50%. Although the higher education enrolment rates of students from well-educated families has also fallen over time, the decline is significantly smaller (from roughly 90% in 1976 to 80% in 2006).

The correlation between social background and higher education study is also made clear by the survey of potential students conducted by the German Centre for Higher Education Research and Science Studies (DZHW). Eighty percent of children from a family with at least one academic degree took up, or are planning to take up, a study program 6 months after acquiring a qualification to study. In contrast, the figure for children from a family without any academic degrees is 66%. It can be seen that potential students from less well-educated homes less frequently pursue a study program in higher education (Schneider and Franke 2014, 135). Potential students from less well-educated homes are more likely to be diverted from the higher education system and to enter the vocational education system (Becker and Hecken 2008, 2009; Müller and Pollak 2007).

Overall, it can be stated that although educational expansion has brought about an improvement in the integration of less well-educated social strata, there is, however, no evidence of any comprehensive integration.

What can explain these effects of social selection? Theoretically, the lower participation of students from less educated families is often explained by primary and secondary effects (Boudon 1974). Primary effects include distinct differences relating to social background concerning the probability of success and performance within the education system. The assumption is that children from lower social strata will have less chance of success because the home cannot impart certain skills as well as the homes of the more socially affluent. Such skills would include cognitive, linguistic and social competences. These less well-developed skills of children from lower educated families then lead to poorer educational performance. Primary effects have a long-term impact and explain the different performance levels of social strata in the education system.

In contrast, secondary effects are short-term and arise when educational decisions of parents and/or young people are connected to social status, with members of various social strata making different educational decisions for their children and/or themselves. These educational decisions are not only made on the basis of performance, but also depend on the anticipated costs and benefits of education.

Social strata differ considerably in their assessments of the costs and benefits of education, which then leads to a reproduction of social inequality. People from less educated backgrounds tend to under-estimate the benefits and overestimate the costs of education. In addition, the anticipated costs of tertiary education are higher in lower social strata because they have to overcome a greater social "distance" to access the system of higher education. Given the same level of performance in the education system, these secondary effects then lead to different educational decisions being made based on social strata. Both long-term primary and shorter-term secondary effects produce and reproduce social inequality in the education system.

The assumption here is that over the course of a young person's educational career the influence of primary effects will wane, with secondary effects gaining importance. This is of particular relevance when it comes to the question of whether the young person takes up a program of higher education study or not. At this stage, given the prior selection in the German education system, the primary effects of social background become less pronounced because only the high achievers from less educated families will have "survived" the previous selection process. In contrast, secondary effects remain influential. In particular, perceived higher costs and lower status achievement explain why potential students from lower social strata choose not to pursue higher education study (Müller et al. 2011, 322).[7] These effects also explain why social strata differences in Germany are reflected in the transfer from bachelor's to master's programs. In 2009, 66% of bachelor graduates from a home where at least one parent had a degree went on to study on a master's program, while only 58% of graduates from a home with no academic qualification did so (Rehn et al. 2011, 162). Thus, even this selection process of the newly-introduced bachelor/master system in Germany reflects the effects of social background (Lörz et al. 2015).

The primary and secondary effects described above may well be universal—at least in modern societies. However, to explain why other countries achieve greater success in integrating members of lower social strata, we need to take account of the influence of institutional factors in the respective education systems. The literature highlights two traditional institutional factors in Germany that impede the better integration of less educated groups (Müller and Pollak 2007; Pietsch and Stubbe 2007; West and Nikolai 2013). On the one hand, the early and more frequent selection that takes place in the school system is a crucial factor. With each educational decision, the secondary effects described above become more pronounced. Up until students enter higher education in Germany, there are several more or less clear and/or conscious selection decisions in the school system that each lead to children from less educated families dropping out. In addition,

[7]Becker and Hecken (2007, 113) rightly assume that the introduction of tuition fees tends to increase social selectivity due to anticipated higher costs. In addition, we presume that different approaches to risk are based on implicit and explicit calculations of costs that apply to all levels of society. Higher social classes would presumably be more prepared to accept the "fee paying higher education" risk than lower social classes, even when, statistically, the return on investment is likely to be positive overall for the latter.

traditionally the first selection usually takes place at the end of Grade 4, at the age of ten, setting an important course for future educational careers.[8]

The second institutional factor can be found in the German vocational education system, described in Chap. 3. The VET system is an alternative to higher education and provides specialist training in a shorter period of time with both risk and costs kept low. This alternative leads to a "diversion" for young people from less educated families in terms of gaining a higher education entrance qualification and/or taking up a program of higher education study (Becker and Hecken 2009; Hillmert and Jacob 2010; Müller and Pollak 2007).

The approach based on Boudon (1974) presumes, particularly when explaining secondary effects, that educational decisions are based on conscious and at least subjectively rational decisions. Another explanation that more strongly draws on embodied dispositions and incorporated values, standards and structures of meaning is Bourdieu's (1984) concepts of habitus and social field. Here, the various educational careers are not viewed as a result of conscious decisions, but as a result of more or less subconscious values, standards, attitudes and dispositions embodied through socialization and shaping the habitus of a person. Bourdieu argues that habitus is tied to an individual's social class, or rather, habitus depends on membership of a social class. As the pursuit of higher education is not such a natural part of the habitus in lower social classes than in higher social groups, it is one's values, standards, attitudes and dispositions that lead to different, usually nonconscious educational decisions.

In their study into higher education-related education decisions in the United Kingdom, Ball et al. (2002), drawing closely on Bourdieu, use qualitative and quantitative data to show that individual decision-making processes are so strongly characterized by shared norms and values that it would be a misnomer to speak of conscious decisions. For the majority of the middle class they argue that "[t]he decision to go to university is a non-decision" (Ball et al. 2002, 57). In addition, newly-founded, low-status higher education institutions are not even taken into consideration by this group. Complementarily, when members of lower social groups do actually take up a study program, they do not even perceive high-status universities as being part of the choice available.

Such patterns of behaviour continue throughout academic life. Thus, in an academic environment, it is more often the values, standards, attitudes and dispositions of higher social classes that are viewed as legitimate. This means that lower social classes have to adapt their habitus to meet the habitual requirements of the academic environment.[9] Even if this succeeds, Bourdieu argues that a feeling of estrangement from the new habitual requirements often remains, which can lead to students leaving

[8] As described above there have been some major changes in the German school system in recent years. For instance, in some states the first selection is made in Grade 6. Other states have introduced comprehensive schools (*Gesamtschulen*) where selection is more fluid. However, compared to other school systems the German system is still more selective than others.

[9] As Tinto (1988) and others have described, it is difficult for members of less well-educated families to integrate in the social and academic world of higher education (see Chap. 6).

the academic environment or not continuing beyond their first degree. Accordingly, these largely subconscious habitual factors and the continuation of estrangement from this academic habitus—despite endeavors to adapt—are used to explain the varying levels of participation of people from different social backgrounds.[10]

In summary, when it comes to the position of students, we can see that various effects of social background impinge on the higher education system. Consequently, in terms of the integration of students from lower social backgrounds there is—to put it mildly—room for improvement in Germany. However, several comparative international studies show that the integration of young people with lower social background is a challenge in many countries, not only in Germany (e.g. Shavit and Blossfeld 1993; Green et al. 2003; Bukodi et al. 2017).

7.2.2 *Academic Staff*

Although the data on the social background of students does reveal some gaps, it is still possible to gain a basic overview. The data problem with regard to academic staff is acute. The overall unsatisfactory data situation is exemplified by the fact that no data on social background has been gathered by the first two National Reports on Junior Scholars *(Bundesberichte zum wissenschaftlichen Nachwuchs)* (BMBF 2008; Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2013).[11] When these reports take up the issue of equality of opportunity, the focus is only on gender equality (e.g. Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2013, 113–114, 140–142, 195–206)—a thoroughly perplexing situation given the "PISA shock" (Fahrholz et al. 2002) and the accompanying broad discussion on equality of opportunity in the German education system.

However, it can be argued that social background has hardly been researched because barely any effects of social background are to be anticipated once the hurdles to successful higher education study have been removed. This corresponds to scholarly self-perception, which, based on the norm of universalism described by Merton (1973), states that only merit, not social background, is key to the career in academia.

Weighty arguments can be introduced to counter the assumption that there are no ongoing effects of social background. We have already seen a key counter-argument: the secondary effects—in other words, the influence of social

[10]Even if the approaches of Boudon and Bourdieu are, without dispute, the two most important approaches to explain social inequality in the higher education system, the underlying assumptions are not entirely without problems. Boudon's analyses are based on a model of rational choice that neglects key sociological and psychological insights into the complexity of individual decision-making processes to which we have referred above. Overall, Bourdieu's approach is quite static and by focusing on the reproduction of social inequalities is limited in its ability to capture the dynamism of social change in modern societies in a macrosociological sense.

[11]These reports are commissioned by the Federal Ministry of Education and Research (BMBF) and summarize research findings on junior scholars. The third report was published in early 2017.

background on educational decisions. Particularly in Germany, when, firstly, only two-thirds of all doctoral projects meet with success (Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2017, 155–156) and when, secondly, the long professional insecurity of junior academics is inherent in the system—and has been for a long time—it should come as no surprise that graduates from different social backgrounds make different decisions in the academic world. If this is the case, we can expect two relevant effects. Firstly, effects are to be expected in doctoral studies. As described above, a doctorate is not only required to advance one's academic career, it is usually also advantageous on the non-scientific labor market. PhD graduates earn more, are less often unemployed and are more likely to find adequate employment and secure leadership positions earlier (e.g. Konsortium Bundesbericht Wissenschaftlicher Nachwuchs 2013, 282–295; Jaksztat 2014; Flöther 2015). If there is social selectivity leading up to doctoral studies, this represents a considerable problem for equality of opportunity.

Secondly, effects are also expected in terms of academic staff. If social selection takes place at the doctoral phase, the composition of academic staff will also change in terms of social background. If such effects are also to be found along further stages of an academic career (habilitation, junior professorship, appointment as full professor), it could be assumed that the German professoriate must be socially relatively homogeneous, with people from a well-educated background significantly overrepresented.

In the following we will be discussing selected studies to try to shed light on the situation for the German higher education system.

Let us begin with doctoral students. The social background of doctoral students has been thoroughly investigated by Lenger (2008, 2009). He surveyed 1876 doctoral students employed at universities and non-university research institutes as well as doctoral students financed by a stipend. Figure 7.14 shows the educational background of the parents of doctoral students based on Lenger's study overall and for the subject area the students are pursuing.

It is striking that 63% of doctoral students come from families in which at least one parent has at least a higher education degree. In contrast, only 15% of doctoral students come from an educational background in which their parents have no more than a lower secondary school qualification. Overall, this shows how the social composition of doctoral students in Germany is starkly dominated by the educational background of their parents. This is made all the more clear by the fact that, in 2006, 0.9% of the population aged over 15 years held a doctoral degree (own calculations based on Statistisches Bundesamt 2007, 7, 17), whereas the proportion of doctoral students with parents holding a doctoral title stood at 16%. In other words, Lenger's study reveals that 16% of all doctoral students in Germany were recruited from children of the roughly 648,000 people holding a doctoral title in Germany.

In terms of subjects, it is clear that the dominance of well-educated families is stable across all subjects, with some subjects more, some less, pronounced. Whereas dominance in social sciences and business/management is relatively low at 60%, law comes in particularly high, with 77% of the parents of doctoral students holding at least a higher education degree.

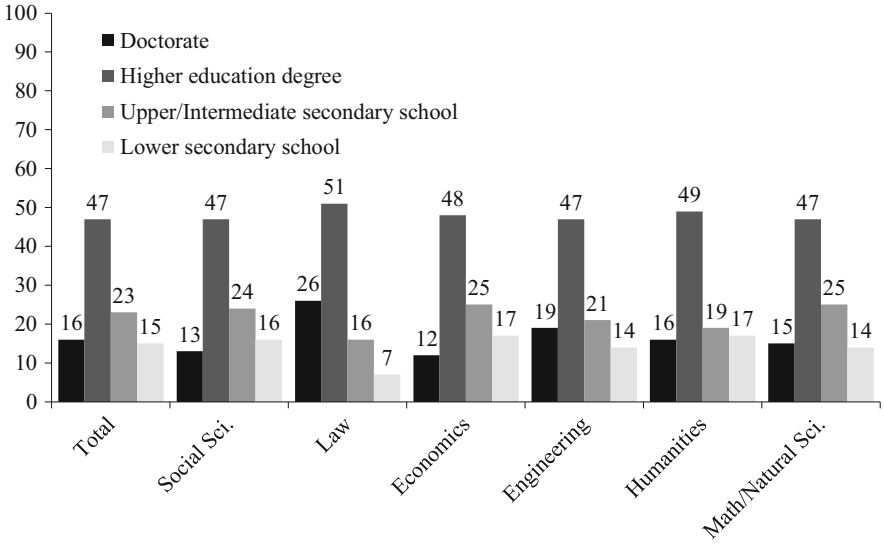

Fig. 7.14 The highest educational qualification of either parent of doctoral students by subject 2006

Figures in percent; highest educational qualification of either parent; source: Lenger (2009, 117), some own calculations

Although these data show high levels of social selectivity among doctoral students, it is not clear whether this composition has changed during the transition to the doctoral phase, or whether this reflects the social composition of higher education graduates. This gives rise to the question of whether additional effects generating social closure are evident during the transition to the doctoral phase.

Referring once again to Lenger's survey, this can be affirmed by comparing the composition of students based on the 17th Social Survey conducted by the German Student Services (DSW) (Isserstedt et al. 2004, 126) with the composition of doctoral students from 2006. While the proportion of students in 2003 whose parents had at least graduated from *Gymnasium* (upper secondary school) stood at 55%, the proportion of doctoral students in 2006 whose parents were similarly qualified stood at 69%. In contrast, the proportion of students whose parents did not graduate from *Gymnasium* stood at 45%, while the proportion of this group among doctoral students stood at just 31%.

A comparison of data from the Constance Student Survey from 2010 and data on doctoral students gathered by the ProFile panel of doctoral students maintained by the Institute for Research Information and Quality Assurance (*Institut für Forschungsinformation und Qualitätssicherung* – iFQ) from 2011, also makes this clear.

Figure 7.15 highlights the difference in the composition of doctoral students and bachelor and master students in terms of the educational qualifications of their parents. Significantly more students from a well-educated background start doctoral programs. This applies across the board, with the exception of engineering.

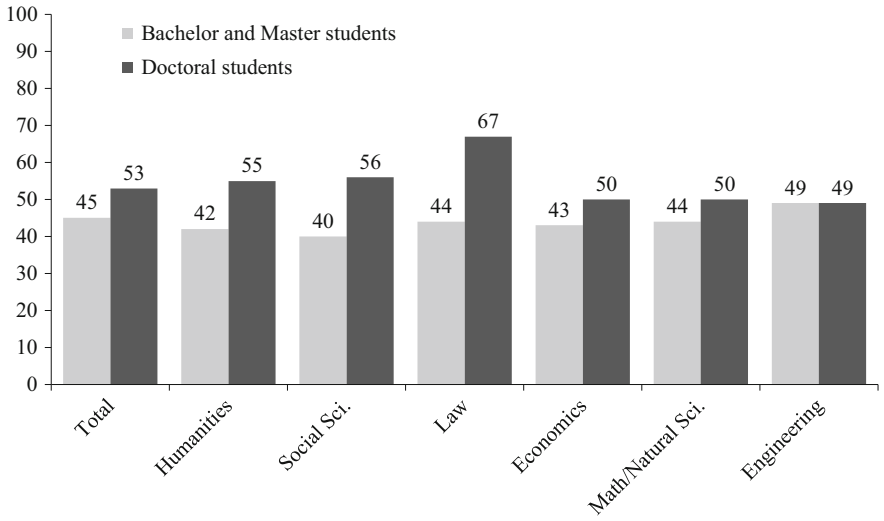

Fig. 7.15 The proportion of students and doctoral students with at least one parent holding a university degree
Figures in percent; source: Hauss et al. (2012, 67)

Jaksztat (2014) investigated the reasons behind the differences in composition of doctoral students and other students based on a survey of graduates from 2005 conducted 5 years after their graduation. Drawing on the findings of the survey, Jaksztat (2014) again shows that the likelihood of commencing doctoral studies increases with social background. Differences in students' inclinations to pursue a doctoral program, depending on background, can be attributed to various effects.

Firstly, there is a correlation between social background and the choice of subject studied at university. At the same time, there are broad differences between the subjects, i.e. how common it is to start a doctoral program. Graduates whose parents both have a higher education degree more often choose subjects in which it is more common to pursue doctoral studies (mathematics, computer science, natural sciences and medicine). They are therefore more likely to start a doctoral program. The difference between students overall and doctoral students is thus partially explained by differences in subject choice—a decision made well before starting the doctoral program.

Secondly, students from a higher social background have better examination grades and school diploma grades. As students with better examination and school diploma grades are more likely to start a doctoral program, even these differences in performance will have an effect on the composition of doctoral students. Here, we still see the primary effects of social background.

Thirdly, students from a higher educational background are overrepresented as student assistants or tutors. As this group of students more often starts doctoral programs, the proportion of doctoral students with a higher educational background also rises.

While Jaksztat's (2014) study delivers important insights on why there is a difference in the composition of doctoral students and students generally, the question

still remains why the composition is so skewed even in individual subjects. A study conducted by Bargel (2007) shows that, besides grades, other factors also play a role. Bargel researched the intentions of third-year undergraduates to continue on to a doctoral program. For our purposes, the most interesting aspect of the study is that the doctoral intentions of high performers—Grade A students, or students scoring between 1.0 and 1.4 in German intermediate examinations—differ according to educational background. Thus, only 25% of students from working-class backgrounds among these high performers aim for doctoral study. In contrast, 44% of students from the same group of high performers but an academic family intend to pursue doctoral studies (Bargel 2007, 41). In other words, despite comparable top-level performance, differences in students' intentions to study at doctorate level remain based on social background—a clear sign of the secondary effects of social background.

To date, no reliable studies have examined the factors researched by Jaksztat (2014) in combination with cost-benefit considerations or decision-making heuristics, or the confidence to complete a doctorate in relation to social background. This does mean that the influence of secondary effects remains largely undetermined. We can only assume that this would provide key insights into the differences in social composition of students and doctoral students, even within disciplines.

Jungbauer-Gans and Gross (2013) show that social background also has an effect on the later stages of academic careers. Even when controlling for self-reported productivity and the presence of a mentor, the chances of securing a professorship in mathematics increase with the "occupational prestige of the parents" (Jungbauer-Gans and Gross 2013, 85). Similar results can also be found in law. In contrast, social background plays no role in the appointment of professors in sociology.

To conclude our observations on the social background of academic staff, we now turn to professors where there is also a dearth of studies on the social composition of the profession. One exception is the study conducted by Möller (2013).[12] The study shows that the social composition of the professoriate is relatively selective. Möller draws on the four categories of social background from the social survey conducted by the German Student Services (Isserstedt et al. 2010). While the middle two social groups make up 55% of professors, only 11% of professors come from lower social backgrounds.[13] The single largest group, 34%, is made up of people from higher social backgrounds.[14] Given the observations presented above on social selectivity at higher education entrance and at doctorate level, this is not truly surprising. At the same time, it also comes as no surprise that social selectivity in law and life sciences is much more pronounced than in social sciences and the humanities.

[12]The study is based on an online survey of professors in the German state of North Rhine-Westphalia. In total, 1340 professors, or 26%, responded to the survey.

[13]Manual workers, employees in operational activities, officials at lower/intermediate level of public service; all of whom do not have a higher education degree.

[14]Employees in senior positions and with extensive managerial responsibilities, senior public officials, small and medium-sized independent companies, medium-income freelancers with a higher education degree, and high-income freelancers with and without a degree.

In addition, data provided by Möller (2013, 353) reveals increased social selectivity with junior professors: 62% of junior professors come from the highest social category while just 7% from the lowest. It can therefore be concluded that this premature selection procedure for professors particularly favors people from a higher social background. On the one hand, this can be due to the fact that there are social group differences in grades awarded at doctoral level. It is more likely, however, that this could reflect the stronger effects of the better "fit" of higher social groups with the professorial habitus in this phase of an academic career. In other words, the difference in habitus of the socioeconomic groups and their "fit" in an academic environment appear much stronger at this stage than some years later. One explanation for this is that lower socioeconomic groups may still require some decisive years of socialization in the academic world.

To sum up: equal opportunity in regard to social background has been a constant challenge in the German higher education system. No doubt, there have been some improvements, but overall the picture is disillusioning. The high level of social selectivity is then a key factor in explaining developments relating to the German higher education system that have been discussed in this book. It explains the limited legitimacy of tuition fees, for example, by lending support to the argument that these fees only exacerbate the already significant level of social selectivity. Social selectivity in the German higher education system is also a central argument against a widespread differentiation of the system based on reputation: in a system that already manifests a high level of social selectivity there is the risk that differentiation will intensify selectivity still further.

References

Autorengruppe Bildungsberichterstattung. (2016). *Bildung in Deutschland 2016. Ein indikatorengestützter Bericht mit einer Analyse zu Bildung und Migration*. Bielefeld: Autorengruppe Bildungsberichterstattung.

Ball, S. J., Davies, J., David, M., & Reay, D. (2002). "Classification" and "judgement": Social class and the "cognitive structure" of choice of higher education. *British Journal of Sociology of Education, 23*(1), 51–72. https://doi.org/10.1080/01425690120102854.

Bargel, T. (2007). *Soziale Ungleichheit im Hochschulwesen. Barrieren für Bildungsaufsteiger*. Konstanz: Arbeitsgruppe Hochschulforschung.

Beaufaÿs, S. (2003). *Wie werden Wissenschaftler gemacht? Beobachtungen zur wechselseitigen Konstitution von Geschlecht und Wissenschaft*. Bielefeld: Transcript.

Beaufaÿs, S., Engels, A., & Kahlert, H. (Eds.). (2012a). *Einfach Spitze? Neue Geschlechterperspektiven auf Karrieren in der Wissenschaft*. Frankfurt am Main/New York: Campus.

Beaufaÿs, S., Engels, A., & Kahlert, H. (2012b). Einleitung: Einfach Spitze? In S. Beaufaÿs, A. Engels, & H. Kahlert (Eds.), *Einfach Spitze? Neue Geschlechterperspektiven auf Karrieren in der Wissenschaft* (pp. 7–23). Frankfurt am Main/New York: Campus.

Becker, R. (2011). Entstehung und Reproduktion dauerhafter Bildungsungleichheiten. In R. Becker (Ed.), *Lehrbuch der Bildungssoziologie* (pp. 87–138). Wiesbaden: VS Verlag.

Becker, R., & Hecken, A. E. (2007). Studium oder Berufsausbildung? Eine empirische Überprüfung der Modelle zur Erklärung von Bildungsentscheidungen von Esser sowie von Breen und Goldthorpe. *Zeitschrift für Soziologie, 36*(2), 100–117. https://doi.org/10.1515/zfsoz-2007-0202.

Becker, R., & Hecken, A. E. (2008). Warum werden Arbeiterkinder vom Studium an Universitäten abgelenkt? Eine empirische Überprüfung der "Ablenkungsthese" von Müller und Pollak (2007) und ihrer Erweiterung durch Hillmert und Jacob (2003). *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 60*(1), 3–29. https://doi.org/10.1007/s11577-008-0001-1.

Becker, R., & Hecken, A. E. (2009). Higher education or vocational training? An empirical test of the rational action model of educational choices suggested by Breen and Goldthorpe and Esser. *Acta Sociologica, 52*(1), 25–45. https://doi.org/10.1177/0001699308100632.

Berning, E., & Falk, S. (2006). *Promovieren an den Universitäten in Bayern. Praxis – Modelle – Perspektiven*. München: IHF.

Bittman, M., & Wajcman, J. (2000). The rush hour: The character of leisure time and gender equity. *Social Forces, 79*(1), 165–189. https://doi.org/10.2307/2675568.

Blickenstaff, J. C. (2005). Women and science careers: Leaky pipeline or gender filter? *Gender and Education, 17*(4), 369–386. https://doi.org/10.1080/09540250500145072.

Blossfeld, P. N., Blossfeld, G. J., & Blossfeld, H.-P. (2015). Educational expansion and inequalities in educational opportunity: Long-term changes for east and West Germany. *European Sociological Review, 31*(2), 144–160.

Blümel, A., & Hüther, O. (2015). *Verwaltungsleitung an deutschen Hochschulen. Deskriptive Zusammenfassung der in 2015 stattgefundenen Befragung der Kanzlerinnen und Kanzler an deutschen Hochschulen. INCHER Working Paper 3*. Kassel: INCHER-Kassel.

Blümel, A., Kloke, K., & Krücken, G. (2010a). *Hochschulkanzler in Deutschland: Ergebnisse einer hochschulübergreifenden Befragung*. Speyer: Deutsches Forschungsinstitut für öffentliche Verwaltung Speyer.

Blümel, A., Kloke, K., Krücken, G., & Netz, N. (2010b). Restrukturierung statt Expansion. Entwicklungen im Bereich des nicht-wissenschaftlichen Personals an deutschen Hochschulen. *die hochschule, 19*(2), 154–171.

BMBF. (2008). *Bundesbericht zur Förderung des wissenschaftlichen Nachwuchses*. Berlin: BMBF.

BMBF. (2017a). *Datenportal. Hochschulabsolventinnen nach Prüfungsgruppen*. http://www.datenportal.bmbf.de/portal/Tabelle-2.5.44.html. Accessed 10 May 2017.

BMBF. (2017b). *Datenportal. Hochschulabsolventinnen und absolventen nach Prüfungsgruppen*. http://www.datenportal.bmbf.de/portal/Tabelle-2.5.43.html. Accessed 10 May 2017.

BMBF. (2017c). *Datenportal. Studierende insgesamt und deutsche Studierende nach Hochschularten*. http://www.datenportal.bmbf.de/portal/Tabelle-2.5.23.html. Accessed 10 May 2017.

BMBF. (2017d). *Datenportal. Weibliche Studierende insgesamt und weibliche deutsche Studierende nach Hochschularten*. http://www.datenportal.bmbf.de/portal/Tabelle-2.5.24.html. Accessed 10 May 2017.

Boudon, R. (1974). *Education, opportunity, and social inequality: Changing prospects in western society*. New York: Wiley.

Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste*. Cambridge, MA: Harvard University Press.

Bukodi, E., Eibl, F., Buchholz, S., Marzadro, S., Minello, A., Wahler, S., et al. (2017). Linking the macro to the micro: A multidimensional approach to educational inequalities in four European countries. *European Societies, Online First* (pp. 1–39). doi:https://doi.org/10.1080/14616696.2017.1329934.

Coleman, J. S. (1968). The concept of equality of educational opportunity. *Harvard Educational Review, 38*(1), 7–22. 10.17763/haer.38.1.m3770776577415m2.

Dahrendorf, R. (1965). *Bildung ist Bürgerrecht, Plädoyer für eine aktive Bildungspolitik*. Hamburg: Nannen-Verlag.

Diefenbach, H. (2009). Der Bildungserfolg von Schülern mit Migrationshintergrund im Vergleich zu Schülern ohne Migrationshintergrund. In R. Becker (Ed.), *Lehrbuch der Bildungssoziologie* (pp. 433–457). Wiesbaden: VS Verlag.

Engels, A. (2015). Einleitung: Chancengleichheit in der Wissenschaft. In A. Engels, S. Beaufaÿs, N. Kegen, & S. Zuber (Eds.), *Bestenauswahl und Ungleichheit. Eine soziologische Studie zu Wissenschaftlerinnen und Wissenschaftlern in der Exzellenzinitiative* (pp. 14–42). Frankfurt am Main/New York: Campus.

Engels, A., Beaufaÿs, S., Kegen, N., & Zuber, S. (2015). *Bestenauswahl und Ungleichheit. Eine soziologische Studie zu Wissenschaftlerinnen und Wissenschaftlern in der Exzellenzinitiative*. Frankfurt am Main/New York: Campus.

Engler, S. (2001). In Einsamkeit und Freiheit? In *Zur Konstruktion der wissenschaftlichen Persönlichkeit auf dem Weg zur Professur*. Konstanz: UVK Verlagsgesellschaft.

Etzkowitz, H., Kemelgor, C., Neuschatz, M., Uzzi, B., & Alonzo, J. (1994). The paradox of critical mass for women in science. *Science, 266*(5182), 51–54. https://doi.org/10.1126/science.7939644.

European Commission. (2013). *She figures 2012. Gender in research and innovation. Statistics and indicators*. Luxembourg: Publications Office of the European Union.

European Commission. (2016). *She figures 2015. Gender in research and innovation. Statistics and indicators*. Luxembourg: Publications Office of the European Union.

Fahrholz, B., Gabriel, S., & Müller, P. (Eds.). (2002). *Nach dem Pisa-Schock: Plädoyers für eine Bildungsreform*. Hamburg: Hoffmann und Campe.

Flöther, C. (2015). At the top? Die berufliche Situation promovierter Absolventinnen und Absolventen. In C. Flöther & G. Krücken (Eds.), *Generation Hochschulabschluss: Vielfältige Perspektiven auf Studium und Berufseinstieg. Analysen aus der Absolventenforschung* (pp. 107–129). Münster: Waxmann.

Fox, M. F. (2005). Gender, family characteristics, and publication productivity among scientists. *Social Studies of Science, 35*(1), 131–150. https://doi.org/10.1177/0306312705046630.

Gemeinsame Wissenschaftskonferenz (GWK). (2014). Chancengleichheit in Wissenschaft und Forschung. 18. In *Fortschreibung des Datenmaterials (2012/2013) zu Frauen in Hochschulen und außerhochschulischen Forschungseinrichtungen*. Bonn: GWK.

GESIS. (2014a). *Entwicklung des Studentinnenanteils in Deutschland seit 1908*. http://www.cews.org/informationsangebote/statistiken. Accessed 27 Dec 2014.

GESIS. (2014b). *Frauen- und Männeranteile im Qualifikationsverlauf: Analyse idealtypischer Karriereverläufe: Studienbeginn (1993) bis Berufungen (2010–2012)*. http://www.cews.org/informationsangebote/statistiken. Accessed 27 Dec 2014.

GESIS. (2014c). *Frauenanteile an Habilitationen, Berufungen, Professuren und C4/W3-Professuren, 1980–2013*. http://www.cews.org/informationsangebote/statistiken. Accessed 27 Dec 2014.

GESIS-ZUMA. (2014). Gesis-Zuma System sozialer Indikatoren (data base).

Green, A., Preston, J., & Sabates, R. (2003). Education, equality and social cohesion: A distributional approach. *Compare: A Journal of Comparative and International Education, 33*(4), 453–470. https://doi.org/10.1080/0305792032000127757.

Hallinan, M. T. (1988). Equality of educational opportunity. *Annual Review of Sociology, 14*(1), 249–268. https://doi.org/10.1146/annurev.soc.14.1.249.

Hauss, K., Kaulisch, M., Zinnbauer, M., Tesch, J., Fräßdorf, A., Hinze, S., et al. (2012). *Promovierende im Profil: Wege, Strukturen und Rahmenbedingungen von Promotionen in Deutschland. Ergebnisse aus dem ProFile-Promovierendenpanel*. Berlin: iFQ.

Hess, J., Rusconi, A., & Solga, H. (2011). "Wir haben dieselben Ziele . . .". Zur Bedeutung von Paarkonstellationen und Disziplinenzugehörigkeit für Karrieren von Frauen in der Wissenschaft. In W. Cornelißen, A. Rusconi, & R. Becker (Eds.), *Berufliche Karrieren von Frauen* (pp. 65–104). Wiesbaden: VS Verlag.

Hillmert, S., & Jacob, M. (2010). Selections and social selectivity on the academic track: A life-course analysis of educational attainment in Germany. *Research in Social Stratification and Mobility, 28*(1), 59–76. https://doi.org/10.1016/j.rssm.2009.12.006.

Hradil, S. (2006). *Die Sozialstruktur Deutschlands im internationalen Vergleich*. Wiesbaden: VS Verlag.

Isserstedt, W., Middendorff, E., Weber, S., Wolter, A., & Schnitzer, K. (2004). *Die wirtschaftliche und soziale Lage der Studierenden in der Bundesrepublik Deutschland 2003*. Bonn: BMBF.

Isserstedt, W., Middendorff, E., Kandulla, M., Borchert, L., & Leszczensky, M. (2010). *Die wirtschaftliche und soziale Lage der Studierenden in der Bundesrepublik Deutschland 2009*. Berlin: BMBF.

Jaksztat, S. (2014). Bildungsherkunft und Promotionen: Wie beeinflusst das elterliche Bildungsniveau den Übergang in die Promotionsphase? *Zeitschrift für Soziologie, 43*(4), 286–301. https://doi.org/10.1515/zfsoz-2014-0404.

Joas, H., & Bochow, M. (1987). *Wissenschaft und Karriere: Der berufliche Verbleib des akademischen Mittelbaus*. Frankfurt am Main/New York: Campus.

Jungbauer-Gans, M., & Gross, C. (2013). Determinants of success in university careers: Findings from the German academic labor market. *Zeitschrift für Soziologie, 42*(1), 74–92. https://doi.org/10.1515/zfsoz-2013-0106.

Kemelgor, C., & Etzkowitz, H. (2001). Overcoming isolation: Women's dilemmas in American academic science. *Minerva, 39*(2), 153–174. https://doi.org/10.1023/a:1010344929577.

Kloke, K. (2014). *Qualitätsentwicklung an deutschen Hochschulen: Professionstheoretische Untersuchung eines neuen Tätigkeitsfeldes*. Wiesbaden: VS Springer.

Konsortium Bundesbericht Wissenschaftlicher Nachwuchs. (2013). *Bundesbericht Wissenschaftlicher Nachwuchs 2013. Statistische Daten und Forschungsbefunde zu Promovierenden und Promovierten in Deutschland*. Bielefeld: Bertelsmann.

Konsortium Bundesbericht Wissenschaftlicher Nachwuchs. (2017). *Bundesbericht Wissenschaftlicher Nachwuchs 2017. Statistische Daten und Forschungsbefunde zu Promovierenden und Promovierten in Deutschland*. Bielefeld: Bertelsmann.

Leahey, E. (2007). Not by productivity alone: How visibility and specialization contribute to academic earnings. *American Sociological Review, 72*(4), 533–561. https://doi.org/10.1177/000312240707200403.

Lenger, A. (2008). *Die Promotion. Ein Reproduktionsmechanismus sozialer Ungleichheit*. Konstanz: UVK Verlagsgesellschaft.

Lenger, A. (2009). Ökonomisches, kulturelles und soziales Kapital von Promovierenden. Eine deskriptive Analyse der sozialen Herkunft von Doktoranden im deutschen Bildungswesen. *die hochschule, 18*(2), 104–125.

Long, S. J., & Fox, M. F. (1995). Scientific careers: Universalism and particularism. *Annual Review of Sociology, 21*(1), 45–71. https://doi.org/10.1146/annurev.soc.21.1.45.

Lörz, M., Quast, H., & Roloff, J. (2015). Konsequenzen der Bologna-Reform: Warum bestehen auch am Übergang vom Bachelor- ins Masterstudium soziale Ungleichheiten? *Zeitschrift für Soziologie, 44*(2), 137–155. https://doi.org/10.1515/zfsoz-2015-0206.

Lutter, M., & Schröder, M. (2014). *Who becomes a tenured professor, and why? Panel data evidence from German sociology, 1980–2013*. Köln: MPIfG.

Lutter, M., & Schröder, M. (2016). Who becomes a tenured professor, and why? Panel data evidence from German sociology, 1980–2013. *Research Policy, 45*(5), 999–1013. https://doi.org/10.1016/j.respol.2016.01.019.

Merton, R. K. (1973). *The sociology of science. Theoretical and empirical investigations*. Chicago: University of Chicago Press.

Metz-Göckel, S., Selent, P., & Schürmann, R. (2010). Integration und Selektion. Dem Dropout von Wissenschaftlerinnen auf der Spur. *Beiträge zur Hochschulforschung, 32*(1), 8–35.

Metz-Göckel, S., Möller, C., & Heusgen, K. (2012). Kollisionen – Wissenschaftler/innen zwischen Qualifizierung, Prekarisierung und Generativität. In S. Beaufaÿs, A. Engels, &

H. Kahlert (Eds.), *Einfach Spitze? Neue Geschlechterperspektiven auf Karrieren in der Wissenschaft* (pp. 233–256). Frankfurt am Main/New York: Campus.

Middendorff, E., Apolinarski, B., Poskowsky, J., Kandulla, M., & Netz, N. (2013). *Die wirtschaftliche und soziale Lage der Studierenden in Deutschland 2012. 20. Sozialerhebung des Deutschen Studentenwerks durchgeführt durch das HIS-Institut für Hochschulforschung*. Berlin: BMBF.

Möller, C. (2013). Wie offen ist die Universitätsprofessur für soziale Aufsteigerinnen und Aufsteiger? Explorative Analysen zur sozialen Herkunft der Professorinnen und Professoren an den nordrhein-westfälischen Universitäten. *Soziale Welt, 64*(4), 341–360. https://doi.org/10.5771/0038-6073-2013-4-341.

Müller, W., & Mayer, K. U. (1976). *Chancengleichheit durch Bildung? Untersuchungen über den Zusammenhang von Ausbildungsabschlüssen und Berufsstatus*. Stuttgart: Klett.

Müller, W., & Pollak, R. (2007). Weshalb gibt es so wenige Arbeiterkinder in Deutschlands Universitäten? In R. Becker & W. Lauterbach (Eds.), *Bildung als Privileg* (pp. 303–342). Wiesbaden: VS Verlag.

Müller, W., Pollak, R., Reimer, D., & Schindler, S. (2011). Hochschulbildung und soziale Ungleichheit. In R. Becker (Ed.), *Lehrbuch der Bildungssoziologie* (pp. 289–327). Wiesbaden: VS Verlag.

Neusel, A., & Wolter, A. (Eds.). (2017). *Mobile Wissenschaft: Internationale Mobilität und Migration in der Hochschule*. Frankfurt am Main/New York: Campus.

Pietsch, M., & Stubbe, T. C. (2007). Inequality in the transition from primary to secondary school: School choices and educational disparities in Germany. *European Educational Research Journal, 6*(4), 424–445. https://doi.org/10.2304/eerj.2007.6.4.424.

Plümper, T., & Schimmelpfennig, F. (2007). Wer wird Prof und wann? Berufungsdeterminanten in der deutschen Politikwissenschaft. *Politische Vierteljahresschrift, 48*(1), 97–117. https://doi.org/10.1007/s11615-007-0008-7.

Ramm, M., Multrus, F., Bargel, T., & Schmidt, M. (2014). *Studiensituation und studentische Orientierungen. 12. Studierendensurvey an Universitäten und Fachhochschulen*. Berlin: BMBF.

Rehn, T., Brandt, G., Fabian, G., & Briedis, K. (2011). *Hochschulabschlüsse im Umbruch. Studium und Übergang von Absolventinnen und Absolventen reformierter und traditioneller Studiengänge des Jahrgangs 2009*. Hannover: HIS.

Reimer, D., & Pollak, R. (2009). Educational expansion and its consequences for vertical and horizontal inequalities in access to higher education in West Germany. *European Sociological Review, 26*(4), 415–430. https://doi.org/10.1093/esr/jcp029.

Riegraf, B., Aulenbacher, B., Kirsch-Auwärter, E., & Müller, U. (Eds.). (2010). *Gender change in academia: Re-mapping the fields of work, knowledge, and politics from a gender perspective*. Wiesbaden: VS Verlag.

Rusconi, A., & Solga, H. (2007). Determinants of and obstacles to dual careers in Germany. *Zeitschrift für Familienforschung, 19*(3), 311–336.

Scheller, P., Isleib, S., & Sommer, D. (2013). Studienanfängerinnen und Studienanfänger im Wintersemester 2011/12. In *Tabellenband*. Hannover: HIS.

Schindler, S. (2012). *Aufstiegsangst? Eine Studie zur sozialen Ungleichheit beim Hochschulzugang im historischen Zeitverlauf*. Düsseldorf: Vodafone Stiftung Deutschland.

Schneider, H., & Franke, B. (2014). *Bildungsentscheidungen von Studienberechtigten. Studienberechtigte 2012 ein halbes Jahr vor und ein halbes Jahr nach Schulabschluss*. Hannover: DZHW.

Schwarze, B. (2006). Mehr Chancen für Frauen in technischen Studiengängen. In S. Michel & S. Löffler (Eds.), *Mehr als ein Gendermodul* (pp. 63–78). Bielefeld: Kleine Verlag.

Shavit, Y., & Blossfeld, H.-P. (1993). *Persistent inequality: Changing educational attainment in thirteen countries*. Boulder: Westview Press.

Stanat, P., & Edele, A. (2011). Migration und soziale Ungleichheit. In H. Reinders, H. Ditton, C. Gräsel, & B. Gniewosz (Eds.), *Empirische Bildungsforschung* (pp. 181–192). Wiesbaden: VS Verlag.

Statistisches Bundesamt. (2007). *Bildungsstand der Bevölkerung. Ausgabe 2007*. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. (2013). *Bildung und Kultur. Studierende an Hochschulen. Wintersemester 2012/2013*. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. (2014a). *Bildung und Kultur: Personal an Hochschulen 2013*. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. (2014b). *Bildung und Kultur: Prüfungen an Hochschulen 2013*. Wiesbaden: Statistisches Bundesamt.

Tinto, V. (1988). Stages of student departure: Reflections on the longitudinal character of student leaving. *The Journal of Higher Education 59*(4):438.

Wächter, C. (2005). A gendered look at interdisciplinary engineering education. In A. Bammé, G. Getzinger, & B. Wieser (Eds.), *Yearbook 2005 of the institute for advanced studies on science, technology and society, München* (pp. 470–493). Wien: Profil-Verlag.

West, A., & Nikolai, R. (2013). Welfare regimes and education regimes: Equality of opportunity and expenditure in the EU (and US). *Journal of Social Policy, 42*(3), 469–493.

Winker, G., & Degele, N. (2011). Intersectionality as multi-level analysis: Dealing with social inequality. *European Journal of Women's Studies, 18*(1), 51–66. https://doi.org/10.1177/1350506810386084.

Xie, Y., & Shauman, K. A. (1998). Sex differences in research productivity: New evidence about an old puzzle. *American Sociological Review, 63*(6), 847–870. https://doi.org/10.2307/2657505.

Zuber, S., & Hüther, O. (2013). Interdisziplinarität in der Exzellenzinitiative – auch eine Frage des Geschlechts? *Beiträge zur Hochschulforschung, 35*(4), 54–81.

Zuckerman, H., Cole, J. R., & Bruer, J. T. (Eds.). (1991). *The outer circle: Women in the scientific community*. New Haven: Yale University Press.

Chapter 8
Summarizing Reflections—Stability and Change in German Higher Education

We have described and discussed a myriad of changes that have taken place at the macro, the meso and the micro level of the German higher education system over the last 20 years. In the respective chapters of this book we have embedded each of these developments in theory in order to lend greater depth to our analysis. We have also shown that, on the one hand, these reforms are embedded in transnational discourse and developments; on the other hand, however, that they are strongly influenced by national traditions and structures. Before we begin exploring how these changes are to be assessed overall, we should once again review the developments we described in each of the chapters.

Chapter 2 first presented a variety of areas in which reforms—i.e., intentional attempts at change—have taken place in the last few decades. The breadth of reforms we described show that, on the political plane, there has been a strong desire to change the German higher education system since the end of the 1990s. As a result, the higher education system has been put under pressure to change—whether in respect of teaching, research, or in terms of personnel, funding or governance structures. We believe that these wide-ranging reforms have not necessarily followed a master plan or a coherent concept. Instead, these are rather disconnected reforms that, in part, are contradictory. In addition, the federal system of German higher education consisting of 16 states with 16 different higher education acts hardly makes reform from a single mold possible.

The disconnection can be seen between the five reform areas we discussed. For instance, one goal of the governance reforms was to strengthen managerial control over academics and to make them more dependent on funding decisions of their institutions. In other words, the reforms tried in part to construct universities as bounded, goal-oriented actors ("complete organizations"). However, the Excellence Initiative as part of the reforms in research had the opposite effect. The cluster building efforts of the Excellence Initiative in many cases transcend organizational boundaries because cooperation between universities and also between universities and non-university research institutions was one objective.

O. Hüther, G. Krücken, *Higher Education in Germany—Recent Developments in an International Perspective*, Higher Education Dynamics 49,
https://doi.org/10.1007/978-3-319-61479-3_8

Furthermore, the funding of these clusters made them independent from the funding allocated by their institutions. The Excellence Initiative therefore established new power structures that transcend organizational boundaries and made at least some academics more independent from their institutions.

The disconnection of reforms is also obvious within individual reform areas. One example is the striking differences in how NPM was formally implemented in the 16 states. Take the boards of governors, as part of the external guidance mechanism: In one state we find no boards, in some states they are strictly advisory units and in other states they are, at least at the formal level, powerful steering actors.

Chapter 3 examined the development of the quantitative and structural configuration of the German higher education system. At the quantitative level, two partially independent developments were revealed: a huge expansion of the student population and a considerable increase in research personnel. Since roughly 2005, the German higher education system has been in a phase of accelerated growth. However, despite this expansion, first-time entry rates are still below the OECD average, which is due in part to the extensively developed and highly legitimized vocational education and training system.

Developments in terms of differentiation in the German higher education system have been somewhat incremental in nature, in spite of this huge expansion in student numbers. The binary structure of higher education, consisting of universities and universities of applied sciences that has existed since the 1960s has to date been fundamentally retained. Nonetheless, cracks have started to appear at a number of places in this structure. One such crack has been the development of dual, or work/study, programs that combine occupational training with higher education study that are more representative in structure of a stratified system. Another crack—this time more in the direction of a unified system—is the academic drift of universities of applied sciences toward universities. This process has gathered pace through the introduction of bachelor/master degrees and the growth in the number of research projects at universities of applied sciences.

It should also be noted that the German system is still dominated by public higher education institutions. Although we are witnessing a purely quantitative growth in the significance of private higher education institutions in Germany, the legitimacy of the private sector remains low. Change tendencies can be observed in terms of differentiation by reputation. Whereas until the end of the twentieth century, the dominant assumption in Germany was that there were no relevant differences between higher education institutions in the university and university of applied sciences sectors, this assumption is now coming under significant pressure. Global rankings and the national Excellence Initiative have turned differences in reputation into a subject of heated debate. We can still assume that although differences in reputation in the German system are being increasingly discussed, no stable reputation hierarchy—largely recognized and eliciting concentration effects—has yet formed. At the same time, however, the assumption that all universities and all universities of applied sciences perform at an equal level is increasingly regarded as fiction.

The last key point in the analysis of the quantitative and structural configuration was funding. As before, the state is by far the largest funder of higher education. However, public money is increasingly being coupled with documented performance by the higher education institutions and research funds are increasingly provided on the basis of competitive proceedings. Moreover, higher education institutions receive global budgets and can thus decide for themselves how they want to allocate the money provided. As radical as this may at first sound and as strong as developments towards accountability, competition and financial autonomy have been embedded in general transnational trends in higher education, actual structural changes have only been incremental. Performance indicators that have been introduced have hardly led to a shift in the flows of funds between higher education institutions; the growth in the significance of third-party funding began back in the 1980s and has been a continuous, drawn-out process. In addition, in some places the global budgets are not really variable—when the ministries prescribe how many professors higher education institutions can employ and when target and performance agreements determine that this or that unit within an institution of higher education has to be funded further.

Chapter 4 dealt with developments with respect to governance structures at German higher education institutions. These clearly show the strong orientation towards globally dominating NPM ideas at the discursive level. In Germany, the decline of detailed state regulations and the influence of academic committees, as well as the increase in external guidance, internal hierarchy and competition all play a key role. However, this strong orientation towards NPM cannot be found in the legal regulations of the individual states. Instead, we have a wide variety of hybrid governance regimes in the states between the traditional German regime of governance and the NPM ideal type. This also ties in to our observation that, in an international comparison, reforms at the formal level in Germany have been somewhat moderate. And when we take account of the level of practical decision-making processes at higher education institutions, reforms have been even more moderate. All available studies show that formal decision-making processes often are, or have to be, circumvented simply because the institutional safeguards for formally envisaged decision-making processes are not in place. This leads to the formation of "kitchen cabinets" and to a shift in decision-making to opaque informal structures. It would therefore be wrong to presume that we are experiencing a comprehensive and direct alignment of German governance structures to the NPM ideal type: at best we might be witnessing a fundamental alignment at the discursive level. However, at the level created by higher education law and still stronger at the level of practical decision-making processes in higher education institutions, we show that change is somewhat limited.

Chapter 5 explored the organization structures at German higher education institutions, confirming and expanding on our observations from Chap. 4. Our discussions focused first and foremost on specific properties of higher education institutions, especially German higher education institutions from an organizational sociology perspective. We can see that traditional concepts to characterize higher education institutions in international organization research continue to apply to

Germany. Here, as before, we were able to describe and discuss more recent change processes on the one hand, with the stability of certain structures becoming visible on the other. This includes the chair structure—unlike in other countries, the center of power at German higher education institutions is not the department, but the individual professor, i.e., the chair. This structure is supported by the freedom of teaching and research, protected by the constitution, which further strengthens the dominant position of the professor in the organizational structure. This special feature of German higher education institutions in particular is a key factor in explaining why discourse, formal regulations and actual practice in relation to NPM ideas are at variance in Germany, when compared to higher education institutions in other countries. In addition, we also showed that this simple notion—that you only have to tackle the central position of professors in order to strengthen the change processes at organization level—is not easy to implement in Germany. This is not only due to the fact that we are dealing with structural properties that have proven to be highly stable for more than 150 years, but that these structures have been institutionally safeguarded by constitutional norms. Nonetheless, we do find reforms in decision-making structures at the organizational level. However, these are not characterized by radical changes in decision-making principles, but rather by a mixture of various decision-making principles that have developed historically. We thus find a "wild" hybridization of the principles of the university of professors, of the group university and the managerial university that have arisen at various times.

Using these descriptions and discussions as a basis, we were also able to show that there are indicators pointing to the development of German higher education institutions as complete organizations, breaking with previous organizational models. However, if we take an overall picture—especially in terms of organizational practice—we can clearly see that the construction of complete organizations is primarily a discursive "construction". Be that as it may, in comparison this model plays much less of a role at the level of formal regulations and practice.

Chapter 6 focused on various actors and groups of actors—students, academics and administrative staff—describing and discussing current developments. In terms of students, we began by taking a look at higher education entrants, considered data on students who dropped out of the system and examined the entry of higher education graduates into the labor market. Our analysis of higher education entrants noted a fundamental continuity of attitudes and behavioral patterns. The decision to study at higher education level is based on a wide range of intrinsic and extrinsic motivational factors. The choice of program is primarily an intrinsic one, while regional mobility in the choice of higher education institution is relatively low. Despite the highly explicit political goal of reducing student dropout rates through the introduction of bachelor/master degree programs, these rates have not diminished over time. Studies reveal a highly complex picture of influencing factors: students who drop out early suffer from problems of achievement and self-motivation, whereas funding issues often arise with those dropping out later in their program. Again in contrast to political goals, the overall duration of a program of study has not been reduced through the introduction of bachelor/master

programs. This is due in part to the fact that the standard degree is not the 3 year bachelor degree, but the 2 year master degree directly after the bachelor program. The labor market in Germany has absorbed graduates in a relatively uncomplicated fashion. This is remarkable both in view of the huge expansion of the system and the associated significant increase in graduates, and in comparison with other countries.

We examined academic staff from the doctoral level through to professor and presented the academic career path as an ideal model of phases. The presentation of the "phase model" as it relates to Germany is important because career paths in national higher education systems can be considerably different and special paths that have evolved historically play a very important role here. In the doctoral phase, we find a rise in the significance of structured programs. However, the master-pupil model with its individual doctorate process continues to dominate. It is also clear that the doctorate enjoys a different position in the German labor market system than in other countries. A PhD is not only necessary to advance one's academic career, it also has considerable benefits in other labor market segments. This explains why a large proportion of PhD graduates leave the academic system once they have their degrees in their pocket. Whereas traditionally the post-doctoral habilitation was a prerequisite to a position as a full professor, its significance has tailed off with the introduction of the junior professorship. However, the political goal of abolishing the habilitation has not been achieved. And the objective of making academic careers more predictable and safe by introducing the junior professorship has not succeeded. As before, only full professors are employed on a permanent basis in the German system, and the considerable expansion of academic positions below the level of professor has not led to an increase in professorships. One hundred years ago, Max Weber described the academic career in Germany as a "hazard". Not only does this still apply today, but the situation has become exacerbated in the last 20 years.

In terms of administrative staff, we have seen an expansion in higher administrative positions with a reduction in the number of lower positions. Likewise, a wide range of new demanding positions in higher education administration has been created in recent years. This includes positions in quality management in teaching and research, public relations and the transfer of academic knowledge. In addition, the role of chancellor, the head of higher education administration, has changed considerably in recent years. Despite these changes, there are no strong signs of the development of a new higher education management profession in Germany.

Overall, the details presented in Chap. 6 reveal a familiar pattern: although we see a myriad of changes at different levels, these can normally be viewed as incremental/gradual developments and not as radical changes in direction.

In Chap. 7, we dealt with the question of equal opportunity in the German higher education system. As a cross-cutting issue, equal opportunity is highly relevant for higher education research and development. Our evaluation distinguishes between issues of gender and of social background. We can see both forms of inequality in higher education, but again, there have been interesting developments. Higher education entrants are roughly equally male and female students. Women study

more often at universities than at universities of applied sciences. This is particularly related to the range of subjects available at both types of higher education institution—the humanities are almost exclusive to universities, while engineering is a major department at universities of applied sciences. In the course of an academic career we find a decreasing proportion of women although there have been changes in recent years: the proportion of women has risen at all career stages albeit not in equal numbers. The most critical phase is that between the PhD and the habilitation. While there are only slight gender differences in the numbers of doctoral students and those appointed as professors following the habilitation, the phase in between plays a key role in the decreasing proportion of women in the German system. An analysis of administrative staff reveals a significant feminization of highly qualified administrative staff. However, the top level of administration, the chancellor, is still by and large the preserve of men.

As before, issues of social background play an essential role in the German system. While the inclusion of women can be viewed to a large extent as a successful process in terms of equal opportunity, this cannot be said in terms of the broad inclusion of all social strata. Social background is still crucial both for acquiring the qualification to study as well as for taking up a program of study. This is particularly the case for universities, whereas the social basis at universities of applied sciences is much broader. There are only a few studies on advanced academic careers for Germany. Those available reveal that social background is a factor at all steps on the career ladder in Germany.

If we summarize the findings of all chapters, it can be seen that we are witnessing a myriad of changes in all the areas we investigated—quantitative and structural configuration, governance, organization, actors and groups of actors, equal opportunity—that can only be understood in connection with transnational developments that go beyond Germany. However, for each of these areas, the more recent developments we have analyzed have not led to radical changes. Instead, they are embedded in national traditions and structures. But before we draw the conclusion that the German system has hardly, and at best only incrementally, changed in the last 20 years we would like to take three points into consideration.

Firstly, it is not possible to make a final appraisal of the developments described here. Developments have not been finalized. As a result, the long-term effects of the reforms and changes described cannot yet be comprehensively understood and evaluated. The Excellence Initiative is a good example of this. It is not possible to adequately judge, even 10 years after the program began, whether the goal of achieving a sustained increase in the quality of top research in Germany has been met. The same applies in terms of stratification by reputation and its consequences for the German system. This necessary proviso also includes the possibility that today's "incremental developments" may well turn into tomorrow's "radical change".

Secondly, maybe the strength of change should not be measured by the extent of radical changes in individual areas, but by the possible interplay of many smaller changes in many areas. In other words, possible emergent processes may arise through the interplay of the many reforms and changes—from this perspective, the

whole is then significantly more than the sum of its parts. The historical path dependencies we have noted time and again in our analyses can be broken up by cumulative, individual changes that may at first glance appear small, but still may trigger radical path changes. Such emergent processes—as we are witnessing in Europe at present in other aspects of society, such as multiparty democracy or in terms of the European integration project—do not lend themselves to prediction and are much more difficult to appraise than the scope of individual changes.

Thirdly, our appraisals have primarily been focusing on analyzing change at the structural level. However, in doing so we might have tended to underestimate the rather latent and long-term impact of ideas, attitudes and perceptions that we have not given prominence to. Cognitive and structural levels are certainly not congruent. The rather high level of persistence at the structural level we have worked out may well go hand in hand with a radical change in a mindset perceived by actors and observers of the German higher education system. As members of the system we have been analyzing, we have noticed that the rather incremental changes in structures we having been emphasizing do not "feel" in any way incremental—the system feels so radically different than 20 years ago.