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Heinke Röbbken*

Career Paths of German Business Administration Academics**

The question of how the career path for professors should be structured is a central issue in the current debate on reforming higher education in Germany. In order to substantiate current discussions on promotion and faculty development this study presents empirical data on the biographies of 699 professors of business administration at German universities. The internet-based data collection provides descriptive analyses on the pathways to the professoriate, including age, sex, educational background, mobility and social networks of business professors. The results suggest that career opportunities for academics in business administration vary widely across different age cohorts. Business professors in Germany show a high mobility, and the ability to accumulate social capital differs significantly between male and female professors. The implications for policy makers and young academics are discussed.

Karrierepfade von Wissenschaftlern in der Betriebswirtschaftslehre

Die Förderung des wissenschaftlichen Nachwuchses an Hochschulen ist eines der zentralen bildungspolitischen Reformthemen. Die vorliegende Studie präsentiert aktuelles empirisches Datenmaterial zur Personalstruktur und den Karriereverläufen von Professoren und Professorinnen an betriebswirtschaftlichen Fakultäten. Auf Basis einer Internetrecherche von Alters- und Karrieremerkmale beschreibt der Beitrag Qualifizierungsverläufe, Kohortenzusammensetzungen und den Personalaustausch zwischen den einzelnen Hochschulen. Zudem werden die Daten netzwerktheoretisch ausgewertet, um die akademische Mobilität von BWL-Professoren zu analysieren. Die Studie ergänzt bestehende Makro-Analysen zur Situation der Nachwuchswissenschaftler in der Betriebswirtschaft mit organisationsbezogenen Daten.

Key words: **career paths, young faculty, academic mobility, social network analysis, social capital**

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1. Introduction

Academics are core staff in higher education institutions, because they perform the central functions of teaching and research. For a long time and in most countries, academics have always been highly respected because they represent a “key profession” among the professions (Locke/Teichler 2007, 7). In recent years, however, a number of substantial changes in the higher education sector (Teichler 2007a, 2007b) have significantly transformed the conditions under which the academic profession operates. Historically, members of the academy were allowed considerable freedom to pursue their individual work, needs, and interests. Growing competition, increasing dependence on private funding, increasing pressures for practical relevance and to publish in international publications, preferably in A Journals, have caused academics to change their work manners (Harley et al. 2004, 329; Lindholm 2004, 603). Calls for new generations of faculty that are more demographically inclusive are also intensifying (Metz-Göckel 2007; BLK 2006). As a consequence, academic careers have become more insecure (Harley et al. 2004, 329) and – at least for some young academics – also less attractive. The general tone among young German academics has been one of complaint regarding the lack of opportunities, low pay, lack of independence and superfluous bureaucracy at German higher education institutions. As a consequence, young German academics have increasingly emigrated to other countries in search of better opportunities. In order to attract German academics to return to work in Germany, the German government has recently launched a program that provides extra funding for universities to improve working conditions for young German academics (Weber/Schröter 2004).

Considering the current situation in the academic labor market, a study of the backgrounds and careers of the persons who fill these positions would seem to be an effective way of substantiating recent discussions with empirical data. A particularly interesting case is the example of German business administration. With 1342 full professors at German higher education institutions in 2007 (Statistisches Bundesamt 2008), the field of business administration is one of the most well represented academic subjects in Germany. This also makes researchers from Germany one of the largest communities in management studies worldwide (Muller-Camen/Salzgeber 2005, 274). Besides basic information such as the number of doctorates provided by the statistics office, there are currently no comprehensive descriptions of the current situation and career patterns of business administration professors in Germany. With the exception of selected studies on the recruitment chances of habilitation graduates (Gaugler/Schneider 1994; 1997; Oechsler 2001; Borchert/Gülicher 2003), the current level of available information can be described as unsatisfactory. The author therefore conducted an empirical study to describe and analyze the qualification patterns of professors of business administration.

The article is structured as follows: First, the state of the art of career studies in academia is presented and theoretical foundations are established for conducting an own empirical analysis. In a second step, the collection of the empirical data and its analysis is described. Subsequently, the data is analyzed according to the three career-related categories described: age, mobility, and social networks. The article con-

cludes with several implications for the organization of qualification paths for young academics.

2. The state of the art of academic career studies

Career-related issues in academia have been an object of study for some time. As far back as 1919, Max Weber (1919) wrote about the profession of scientists and found that “academic life is a wild hazard” (Weber 1919, 79). He pointed out that the career chances of young scholars were determined by so many coincidences, due to deficiencies in the selection process. Furthermore, the duties faced were of a conflicting nature, because the candidate not only had to prove scholarly aptitude, but also pedagogical abilities, two duties which, in his opinion, were difficult to combine (Weber 1919, 78). Academic career paths have been studied extensively in the USA, especially the influence of departmental prestige, research performance and academic mobility on subsequent career success (e.g. Burriss 2004; Keith/Babchuk 1998; Hagstrom 1971).

Authors agree that careers are central to the understanding of the knowledge creation dynamics and organizational change in academic institutions (Teichler 2007a; Hillmert 2003; Lindholm 2004; Baruch/Hall 2004). According to Hillmert (2003, 116-118), an analysis of career paths of professors can provide insights in the employment chances of young academics in the labor market while at the same time increase the understanding of factors which may influence the development and change of the academic discipline. From an employment perspective, academic departments, young academics and policy makers have an interest in the variables affecting the pathways and career chances of prospective employees in the academic labor market. In higher education this is of particular importance because the academic labor market is typically characterized as a relatively closed positioning system (Sørensen 1990). This means that once a candidate has obtained a position in the system, he or she typically remains permanently in it. New employment opportunities will emerge mainly due to vacancies, which usually rise in numbers when whole age cohorts leave the system.

Besides employment-related motives, a demographic study of the academic profession can increase the understanding of the development and change of an academic discipline itself. In this respect, an analysis of age cohorts, generational changes, mobility and qualification steps help to reveal ideas, models or discourses that dominate the discipline of business administration at a given point in time. A specific generation may prefer a particular school of thought, while others favor different paradigms. It is often argued that traditional business administration in Germany has its own publication culture, which emphasizes conceptual, normative, non-empirical type of research (Muller-Camen/Salzgeber 2005, 283). In contrast, especially younger scholars increasingly turn towards the international style of publication, which stresses quantitative empirical analyses (Kieser 2007, 59).

A review of the literature reveals several variables that are related to academic career paths and also to the development of the discipline of business administration. Among them are the age structure and gender composition of current professors, their mobility before and after their initial appointment as well as their ability to build up social networks during their qualification process (e.g. Hillmert 2003, 118; Burriss

2004, 243). These three categories will now be described in detail and also be used as a structural framework to answer the following questions:

- What characterizes the professoriate today? What is the age, sex, and educational background of today's professors?
- What is the path to the professoriate? Do career paths differ in different types of institutions, across sub-disciplines and gender groups?
- What percentage of professors are women? To what extent are their backgrounds and career paths similar to those of their male counterparts?
- How large are personal networks of academics? Do networks differ between men and women?

2.1 Age and gender composition

Age and gender composition are the most studied variables in organizational demography (e.g. Wiersema/Bantel 1992; Zenger/Lawrence 1989), not least because they are relatively easy to collect (Kamuzora 1989). An individual's age at entry into the labor market is expected to influence future career success (Lortie-Lussier/Rinfret 2005, 210). A study of age cohorts is also of interest due to the current generation change among German professors in business administration. The expected numbers of retirements in the past and future have led some authors to deal with the age structure of current professors and the possible consequences of this phenomenon (Gaugler/Schneider 1994; 1997; Oechsler 2001; Borchert/Gülicher 2003). An analysis of age and the generational change can provide insights into the career chances of individual researchers. Some age groups will have better chances for appointment due to unique historical conditions, such as the expansion of the higher education system during the 1960s and 1970s or the restructuring of the higher education system after the reunification of Germany. Another age-related aspect affecting the career chances of young academics is their year of birth. Candidates born when the birth rate was comparatively low may have better career chances than those of their counterparts born in the baby boomer generation.

2.2 Mobility

Another issue often associated with career chances and quality issues in academia is mobility (Musselin 2004; Hillmert 2003; Cohen/March 1986). In Germany, the "Hausberufungsverbot" applies. This regulation prohibits candidates from being appointed professor at the same institution where he or she received their academic qualification. It is assumed that experiences in different academic enrich the candidates' capabilities and that thereby the risk of clique development can also be reduced (Enders 1998). Mobility issues and careers of professors also gained prominence in the current debate on internationalization and Europeanization of science and higher education (Enders 1998, 123). German academics are often criticized for being too immobile and too little internationally oriented in comparison to other European countries (Enders 1998, 123-125). To facilitate international mobility among academics, academic institutions such as the German Research Foundation (DFG) or the German Academic Association for Business Research (VHB) have provided financial

support for scholars to participate in international conferences and to stimulate international collaboration.

Mobility is likely to be associated with the development of the academic discipline, the choice of research topics and the type of knowledge being created. It seems reasonable to suggest that researchers who show a high mobility have been exposed to different schools of thought and could therefore be more likely to pursue new and unexplored research topics. On the other hand, highly mobile researchers may have difficulties in pursuing long-term research projects and may focus on smaller projects instead (Hillmert 2003, 119). As in the literature on the academic profession, mobility, be it institutional, geographical, international or even thematic, is generally presented as something positive and associated with all kinds of benefits, it will be included as a second category of analysis.

2.3 Social networks

An issue closely related with mobility is the establishment of social networks. From a social network perspective, researchers can be seen as an interconnected web of relations, who share ideas, theories and methodological knowledge. The sharing and spreading of ideas among interrelated academics has been termed “invisible colleges” (Price 1961). Price/Beaver (1966, 1011) claimed that in every discipline there is an “in-group” of people who are reasonably in touch with everyone else who is contributing materially to research in the subject area. This body of people meet in conferences, they circulate papers to each other and they collaborate in research. They also state that these core people constitute a power group, because they are more productive and their work receives more attention in the community, and therefore that they are also gatekeepers for the future development of the discipline. Researchers who are often cited are located at central positions of the network. Due to their high centrality they are more likely to shape the contents and development of the academic community and have a stronger impact on the discipline than isolated researchers. Network relations that result from different career patterns are therefore likely to have an impact on the development and change of the field of business administration.

Furthermore, social networks have been found to be of significant value in getting a job (Granovetter 1973). In his seminal study of the job finding process, Granovetter (1973, 1375) found that people who are well connected and have access to diverse networks can receive more novel career-related information and also have the chance to obtain knowledge earlier than less well connected people. One could, however, argue that in the academic marketplace, network connections to peers may be less important due to the fact that appointment decisions are usually not made by peers but by the faculty. On the other hand, the whole faculty may benefit from candidates with a well developed network. A scientist with a large network usually brings many contacts into the new department, which stem from researcher groups, editorial boards, evaluation committees and other memberships to important decision making bodies. It is likely that researchers who are well connected provide a valuable resource for the recruiting department, with which they can improve their resource endowment and their reputation in the long run (Röbken 2007, 330). Since social networks seem to be critical to success in the workplace, it could be illuminating to analyze the rela-

tions among business professors that arose during their qualification process and compare possible differences between men and women.

3 Method

3.1 Data Collection

The dataset consists of business professors who work at one of the sixty university business departments listed in the *Hochschulkompass* (2008), a public listing of study programs at higher education institutions in Germany. The data collection was completed in February 2008. It can be assumed that all respective persons have been included in the sample. In this study the focus is on full-time professorships with a tenured position; honorary professors and junior-professorships were not included. A total of 699 persons were identified. The case selection and subsequent information collection was derived from internet research. In particular, the homepages of the individual professors were analyzed with respect to their biographies and career paths. For each professor, information was gathered on the universities where they received their academic degrees. Three types of degrees were identified: the diploma degree (the first degree awarded after 5 years of study which is more or less equivalent to a Master's degree); the doctorate and the habilitation degree. The habilitation is a postdoctoral qualification that is the necessary entrance qualification for the professorate in Germany. It requires the candidate to write a professorial thesis – either as a book publication or as a collection of peer reviewed articles. The habilitation qualification is sometimes also referred to as “*venia legendi*”, which is the “permission to lecture” at a German university. Although universities may now also accept equivalent qualifications, many German universities still insist on the habilitation (Harley et al. 2004, 339).

Besides the degree-granting institutions, information about age, age of initial appointment and additional appointments at other universities were also collected. Since the information content varies a lot across the homepages, the single variables often show different case numbers. Additional information was collected via google and the homepage and publications of the Association of Professors in Business Administration (2008). The collected data shows that the internet offers access to a variety of publicly available information and provides – at least for specific research questions – an adequate source of data. In sum, this non-reactive data collection method led to a response rate of 87%, which is notably higher than the response rate of postal questionnaire techniques. The selectivity of the final sample is probably lower in this design, although more successful and more informative professors are likely to be over-represented.

3.2 Data analysis

Most of the subsequent analyses focus on descriptive statistics. For some questions, comparisons of means and analyses of variance were conducted. In order to analyze differences in the accumulation of social capital, the single qualification steps during the professors' career paths (places of diploma, doctorate and habilitation) were examined from a social network perspective. Since this method is less common, it is described here in more detail.

In a first step, the social capital of individual researchers was determined. Social capital was measured on the basis of a two-mode network. In a pattern analogous to a

sequence of events, it was assumed that scholars work at different departments during their career and accumulate different levels of social capital. By examining patterns of which actors (professors) were present at which events (departments), it is possible to infer a pattern of social relationships. Although professors need not have attended the event at the same time, it can be assumed that they have colleagues in common and therefore share many indirect ties. Data of this kind involves two levels of analysis (or two “modes”), namely actors (professors) as well as events (attended departments during the career). A common approach to two-mode data is to convert it into two one-mode data sets, and examine relations within each mode separately. Consequently, two datasets were constructed: one dataset of actor-by-actor ties, measuring the strength of the tie between each pair of academics based on the number of commonly attended departments and a second dataset, an event-by-event-matrix, measuring the popularity of departments based on the number of participants. The actor-by-actor matrix was utilized to calculate centrality for individual professors. Two simple, but effective measures were distinguished:

1. Size of the Ego-Network. Here, the social network of individual professors is the focal point of analysis. The size of the ego-network is the number of direct contacts a professor has to others. If, for example, a professor attended a department where many other professors also obtained their degrees, the professor has a large ego-network.
2. Ego-centrality. Centrality of an actor or event is often operationalized by using Bonacich's Eigenvektor centrality measure (e.g. Burris 2004). In this perspective, a researcher is central when he or she has many direct and indirect ties to other popular researchers. A high level of eigenvektors indicates that academics enjoy a more central position in the network, lower values indicate that the person is more peripheral. Eigenvektor centrality is often used to measure the social capital of actors (e.g. Burris 2004). For example, ties to another researcher who, in turn, is very popular are of greater value than ties to researchers who have few important social connections.

4. Results

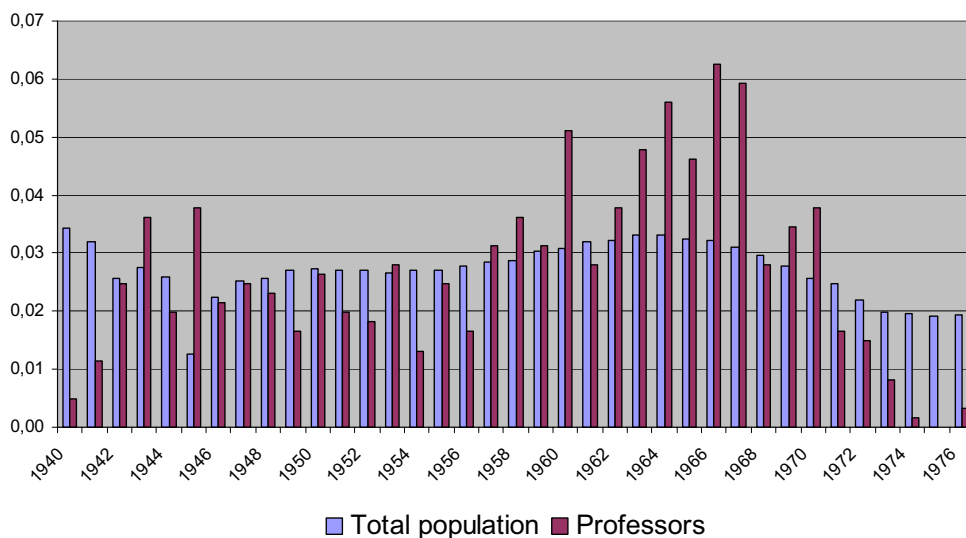
4.1 Age and gender composition

German professors in business administration are relatively homogeneous in terms of age and gender. The average age of professors in business administration is currently 49.7 years (s.d. 9.1). 9.7% of the positions are filled by women. With an average age of 44 years, women are significantly younger than their male counterparts, who are on average 50.4 years old. The age difference can be traced back to the fact that a significant proportion of females have been appointed only very recently. More than 50% of the female professors were recruited during the last five years. The average age at the first appointment for a full professorship is 37.9 years. There is no significant difference between men and women in terms of their age when appointed. There are also no significant differences in the age of the candidate's initial appointment across the different age cohorts; i.e. a professor appointed before 1992 was roughly about the same age as a professor appointed more recently. This could indicate that the probability of being appointed for potential candidates has not changed significantly in re-

cent years. If, for example, the chance of being appointed were to have deteriorated, one would expect that candidates would have to wait longer to obtain a full time position and would thus be older when entering the professoriate.

It can be illuminating to compare the age structure of current business professors with that of the total population. Figure 1 indicates the proportion (in percent) of the respective year of birth in relation to all persons of the years 1940-1976. It can be seen that the age group of persons born in the 1940s is represented relatively often, and that the age groups of those born in the late 1950s and 1960s in particular are highly over represented in today's business administration departments. This pattern can be traced back to historical coincidences that offered particularly good career chances for these age cohorts. For professors who were born in the 1940s, the university expansion during the late 1960s and 1970s led to the creation of a number of additional academic positions that needed to be filled within a short period of time. These persons are currently reaching retirement age, resulting in a generation change which once again leads to an intensive recruitment period. This trend continues to the present day. Over the last 10 years, almost 60% of the valid cases in this sample were filled with new candidates. Hence, persons born during the 1960s and 1970s are expected to have relatively good appointment chances in order to fill the expected vacancies (see also Gaugler/Schneider 1994, 1997). In contrast, persons born during the 1950s and future age cohorts have a lower chance of appointment, as the academic labor market is characterized by relatively closed positioning systems (Sørensen 1990).

Figure 1: Age structure of German business administration professors in relation to the age structure of the total German population¹



Source: Statistisches Bundesamt (2006), based on Hillmert (2003)

¹ The bars represent the proportion (in percent) of the respective year of birth from all persons born in the years 1940-1976.

As with other disciplines, women are becoming increasingly qualified for an academic career path as figures 2a and 2b show. The starting basis (female graduates of business administration) is expanding more and more, from 36% female graduates in 1994 to 44% in 2006. The proportion of females during later academic career stages is however declining continuously, although in 2006 to a lesser extent than in 1994. The largest “loss” of females can be observed at the transition point from the business graduate degree and the doctoral degree, where the proportion of females declines to 26% of the doctorates in 2006. Among the habilitation candidates, the proportion of women amounts to 20%. When it comes to final appointments for tenured professorships in Germany, women made up 21% of all appointments in 2006.

Figure 2a: Distribution of academic degrees between men and women in business administration in 1994

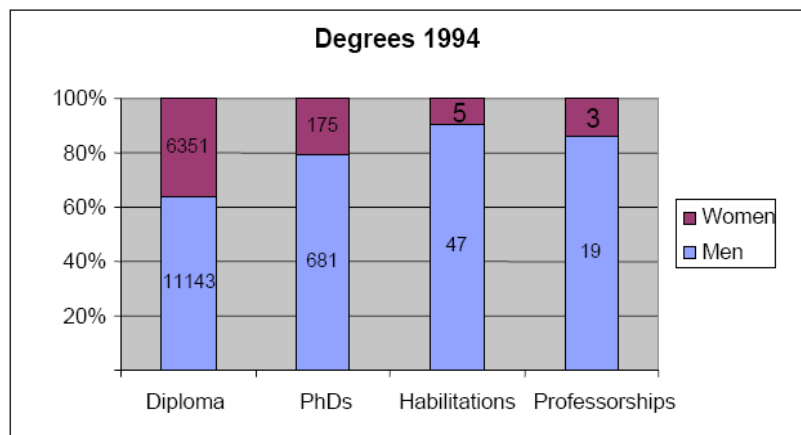
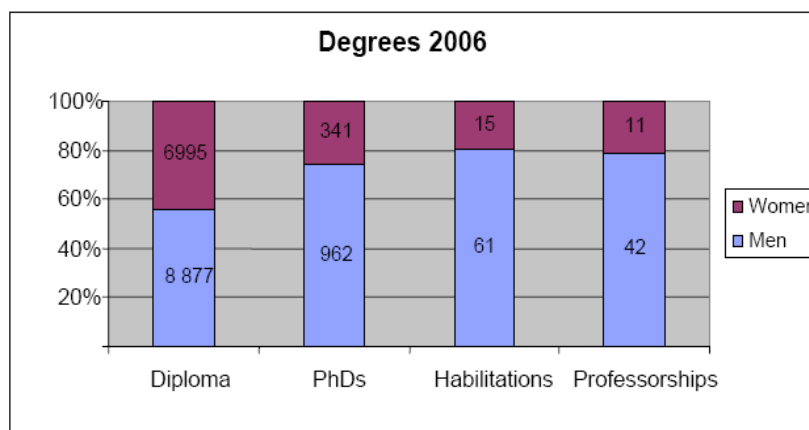


Figure 2b: Distribution of Academic Degrees between Men and Women in Business Administration in 2006



Source: Based on Statistisches Bundesamt (2006)

These results show on the one hand that over the past decade women have managed to significantly increase their representation in business administration academia. Significant improvements occurred in the proportion of women attaining habilitation degrees and full time professorships. However, the results do not necessarily imply that gender equality currently flourishes in the academic field of business administration. For the institutions examined in this study, women comprised less than 10% of the total tenure track business faculty in 2008, which is far lower than the 40%+-ratio of women to men that exists in business practice or business administration students in the classroom (Statistisches Bundesamt 2006). However, the findings suggest that gender-mix problems in business administration are being addressed. A key to eliminating this imbalance is the rate at which women receive doctorates in business administration. A larger pool of fully qualified female candidates suggests that more female candidates are likely to be hired in comparison to previous years.

4.2 Mobility

The places where qualifications were earned for the academic labor market in business administration concentrate on relatively few institutions. One third of the qualification stages, including the diploma, doctorate and the habilitation degree, were obtained at only five institutions; about one half of the professors received their degrees from just 10 institutions. The most prominent places of study for a diploma degree are Cologne (47), Frankfurt (34), Munich (33), Münster (29), and Mannheim (27); the most popular institutions for obtaining a doctoral degree were Cologne (41), Mannheim (37), Münster (37), FU Berlin (34), and Frankfurt (34). The *venia legendi* was earned most often from Mannheim (35), Munich (28), Münster (28), Cologne (26), and FU Berlin (23).

These institutions also show above-average quotas for consecutive studies, i.e. all three qualification stages (diploma, doctorate and habilitation) were completed at the same institution. Of the 481 valid cases, 50% of candidates never changed institutions during the qualification process. Among the institutions with the highest retention rate are Frankfurt (17), Cologne (15), Mannheim (14), and Munich (13) and Münster (13). Together they comprise 30% of the cases where all three qualifications were obtained at one faculty. It seems that the large departments in particular can provide attractive opportunities for prospective candidates at a given point in time.

When it comes to the final appointment, the large departments often recruit candidates who already had an appointment at another university: in Mannheim, 66% of the professors have had an earlier appointment, at the FU Berlin 58%, and in Hamburg 53%. 12,5% of the professors in the sample returned to an institution where they obtained at least one degree during their qualification phase. 5,1% earned all three degrees – Diploma, PhD as well as Habilitation – at the institution where they are employed today. There is a weak, but significant positive correlation between the return quota and the research productivity of the recruiting department measured on the basis of the publication ranking conducted by Macharzina et al. (2004) ($r=0,181$, $p<0,001$). This means that the tendency to return to an institution as professor is particularly high among the more research intensive institutions.

Table 1 shows the frequencies of institutional changes during the qualification process of German professors in business administration. Table 1 indicates that 50%

of today's professors changed their institution before obtaining their *venia legendi*. Male professors and professors were significantly more likely to have changed institution after the first appointment ($p < 0.05$). Female professors are significantly more likely to have earned an academic certificate at a foreign institution ($p < 0.01$).

Table 1: Academic mobility among professors in German business administration

	Transition diploma-doctorate	Transition doctorate-habilitation	At least one transition before habilitation	At least one appointment before current position	At least one degree at a foreign institution
Total	35%	28%	50%	31%	9%
Men	36%	28%	50%	32%	8%
Women	33%	27%	53%	19%	19%

Source: based on Hillmert (2003, 124)

From this analysis one cannot conclude that German professors of business administration exhibit low mobility. Prior to the habilitation phase, 50% of the candidates had already changed institution. When it comes to the final appointment, 97% leave the institution where they gained their habilitation. This clearly indicates that business departments only rarely appoint internal candidates. An analysis of the number of kilometers passed between the single qualification institutions supports this finding: on average, the diploma and the doctorate-granting institutions were 80 km apart, the doctorate and the habilitation granting departments only 57 km. This suggests that the mobility rate after the diploma is higher than after the doctorate and that more candidates choose to remain at the doctorate granting institution in order to obtain their *venia legendi*. The distance between the place of habilitation and the current appointment is 221 km, indicating that in comparison to the qualification phase, professors have to be willing to move relatively far away in order to be appointed to professor.

It is also interesting to note that the mobility rate increased especially among more recently appointed professors. If the professors are divided into quartiles based on the year of appointment, the results suggest that professors appointed in the later two quartiles (after 2001) were significantly more likely to have changed their institution during their qualification process than professors who were appointed before 2001 ($p < 0.05$). They were also more likely to earn an academic degree from a foreign institution ($p < 0.05$). Interestingly, women are more likely to obtain a degree from a foreign institution and seem to be more mobile before obtaining the habilitation degree than their male colleagues. In this respect, German female professors of business seem to resemble their academic colleagues abroad. As Vazquez-Cupeiro and Elston (2006, 589) note, female academics around the world are more likely than men to work as "gypsy scholars", researchers who either move several times between institutions and/or work at two or more institutions at a time, often because full-time or tenure track positions are hard to secure (Hawkins/Schultz 1990, 28).

The analysis also refutes the conclusion that German professors are not sufficiently internationally oriented. The numbers observed only include formal academic certificates. Other international experiences (e.g. as visiting scholar or professor) seem to be much more common but were not included in the analysis. Furthermore, anti-

pated problems regarding the recognition of foreign qualifications at German universities in the past and the specificities of the habilitation may have impeded current professors from acquiring a stronger international background (Hillmert 2003, 129). According to Enders and Bornemann (2002, 70), 27% of graduates in business and economics have obtained some sort of international experience within ten years after graduation. It is also important to note that the sample only includes professors currently working at one of the sixty German university departments of business administration; German researchers currently working at foreign institutions are not included. However, the present results are nevertheless striking: there are very few professors with foreign university qualifications working at German departments of business administration. Among the international qualifications, most were earned at other German speaking institutions, such as from University of St. Gallen (29 certificates), WU Wien (18 certificates) or Innsbruck University (7 certificates).

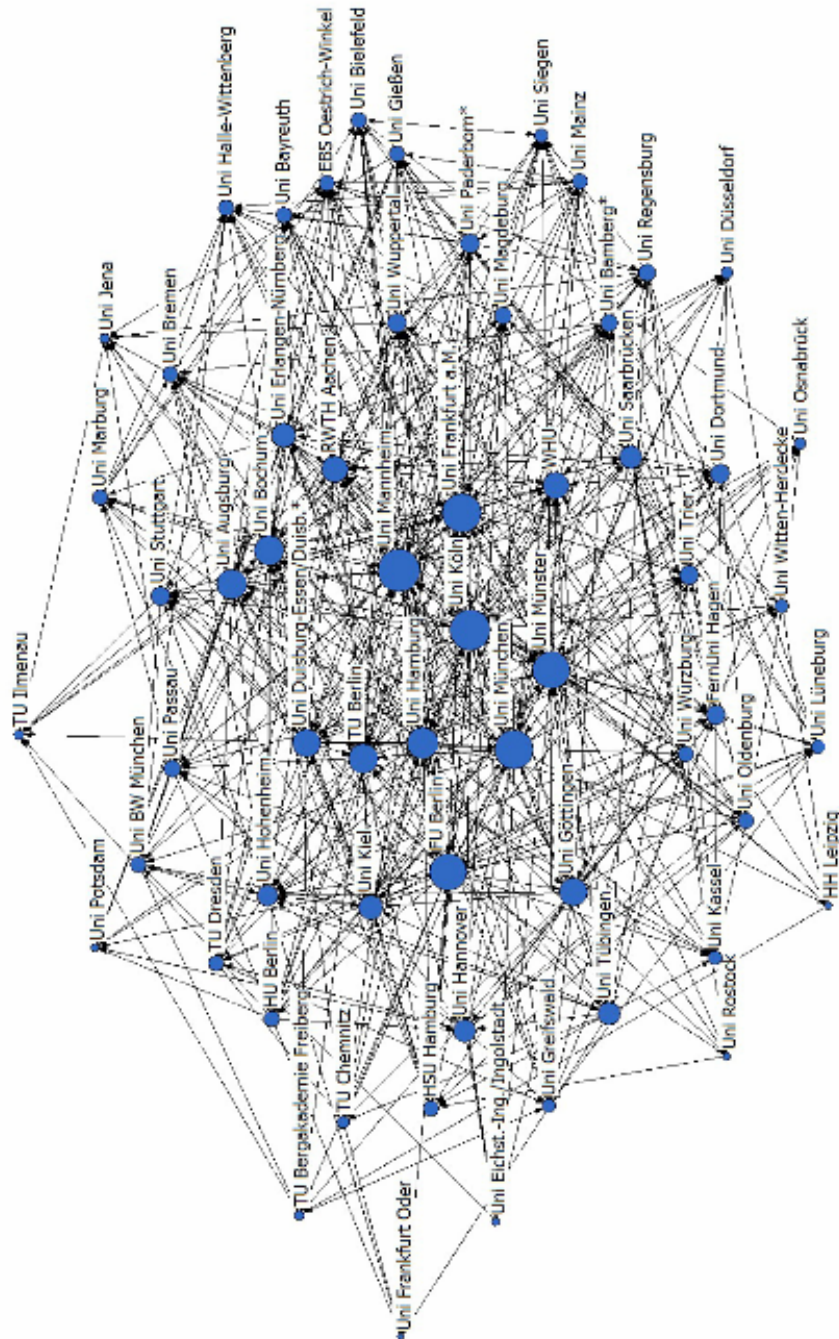
4.3 Social networks

Before examining the social capital for individual professors, the networks of the sixty business faculties were visualized (see figure 3). The size of each node indicates the number of graduations for each department in the sample; i.e. the bigger the node, the more degrees have been awarded by the department. Included were all three qualification steps per professor, namely the diploma, the doctorate as well as the habilitation. A large node indicates that this particular institution has been attended particularly often by the 699 professors during their career path. To adjust for size, the number of attendances was divided by the number of professors currently employed at the faculty. The larger the node and the more central its location in the network, the more professors earned a degree at the particular institution during their qualification phase.

The centrality of an institution measured on the basis of attendances is also positively associated with publication output per faculty member as measured on the basis of Macharzina's et al. (2004) publication ranking ($r=.514$, $p<0.001$). As with other academic disciplines, departmental prestige among German business departments seems to be closely related to research performance (e.g. Burris 2004, 241).

These results are important for the analyses of career paths insofar as it can be assumed that an education at more central departments offers better career chances for prospective candidates. Not only do more central departments provide more ties to other researchers, they also offer ties of a higher quality, e.g. to more productive and renowned researchers. This can prove useful for prospective candidates for several reasons. Firstly, candidates from departments that undertake intensive research will socialize in a certain research culture and are more likely to produce high quality research than graduates from departments that undertake research less intensively (e.g. Wolf/Rohn 2005, 70). Secondly, as Burris (2004, 240) points out, candidates from more central departments may be perceived as more legitimate than graduates from low status institutions. Thirdly, dense networks are usually associated with better information flow. Candidates from central organizations are likely to be informed about potential job opportunities earlier than less well connected candidates (e.g. Granovetter 1973, 1375). It seems reasonable to suggest that the social capital perspective provides

Figure 3: Faculty centralities based on number of granted degrees (adjusted to faculty size)



new insights into the analysis of the career chances of young academics and is now applied to the level of the individual researcher. The results of the analysis are shown in table 2:

Table 2: Size of ego-network and ego-centrality of male and female business administration professors

	Men	Women	P
Size of the Ego-Network	69	59	0,04
Ego-Centrality	0,029	0,020	0,01

Table 2 suggests that in comparison to men, female professors have build up significantly smaller ego-networks during their career path ($p < 0.05$). Male professors show a significantly higher preponderance to have direct connections to other scholars during their education than women ($p < 0,05$). With regard to Bonacich's Eigenvector centrality, women are also less central than men. This means, women's direct and indirect contacts are fewer in numbers and also of less prestige than those of their male counterparts. This unequal distribution of social capital is in line with several, mostly qualitative empirical studies on women academics in academia (e.g. Kulis/Sicotte 2002; Davis 2001; Timberlake 2005). It has been found that women academics have been less present in networks and have been given little access to powerful networks in science that would provide them with opportunities to acquire the knowledge, skills, and resources necessary to be successful in the academic field (Davis 2001, 368). In the present case, it seems that women are more likely to study at the more peripheral institutions, which may lead to more constraints for future career chances. The lack of powerful ties to central scholars in the field could be interpreted as an obstacle for women in higher education, a phenomenon, which is often mentioned, but seldom empirically addressed (Timberlake 2005, 41).

More qualitative studies indicate that women achieve greater success in an environment with contacts to legitimate actors within the field (Barr 1998, 40-43). Legitimacy is a central factor especially in knowledge intensive organizations, because the candidate's future potential in research performance is more difficult to assess than the quality of material goods (Podolny 1994, 459). According to Barr (1998, 6), women are often viewed as outsiders in top positions in the workplace, and therefore they may be required to achieve social capital by borrowing from a sponsor. In academia, a renowned professor or central university could function as a sponsor. When graduating from a prestigious university department, a female applicant gains social capital, which can subsequently be used for making additional contacts or receiving new job information. This social capital is then borrowed from the person or institution that has legitimacy within the field. Kanter (1977) referred to this phenomenon as "reflected power" which is obtained through association with powerful individuals or institutions. Timberlake (2005, 40) found that sponsors are important for men, but they are even more important for women who want to succeed in the academic labor market. It seems reasonable to suggest that in the German field of business administration, which is a relatively self-contained academic community due to language barriers and a specific research culture (Muller-Camen/Salzgeber 2005, 274), social capital

is of central importance in order to increase the proportion of women in the faculty. In small communities, being located at a central position and having access to a variety of individuals can have a powerful impact on career chances. In just a few steps, large parts of the community can be reached, thus offering access to more and diverse information and resources. Since legitimacy seems to be critical to success in the academic labor market, female candidates could increase their opportunities for networking and building social capital when studying at more central institutions.

5. Conclusion

This study described and analyzed specific aspects of the career paths of professors in German university departments of business administration. It was argued at the outset that the age structure, mobility and social networks can have a profound effect on the employment chances of young academics in the labor market and also influence the development of the academic discipline itself. Although mainly descriptive in nature, the empirical analysis revealed a number of insights, which lead to the following conclusions:

The analysis of the age structures among professors showed that cohort changes are currently taking place and are likely to continue in the future. This requires an anticipatory human resource policy, which takes into account the disciplinary and, educational, and societal needs. Once positions are filled, it is less likely that profound changes in the composition of disciplinary sub-fields and in the gender-composition will occur. The decisions today are likely to influence the direction of the discipline for the next generation, and if policy makers and scholars want to achieve changes, they have to consider the closed-system phenomenon in higher education. That means, during generational changes and expansion phases, the likelihood of changing the disciplinary direction or the gender composition is much higher than in phases where recruitment is only limited to filling vacancies.

The analysis revealed that German professors of business administration are very mobile, especially after being granted their habilitation. Almost every professor changed the institution after the qualification path, indicating that the departments are composed of faculty with diverse backgrounds and experiences. This may help to increase the diversity of the discipline and competition among graduates as well as to inhibit clique structures that could lead to relatively closed communication systems and recruitment structures. Before the habilitation, candidates are however less mobile and many candidates seem to prefer an education at one single institution. Furthermore, candidates seem to acquire little international experience during their education. This could place German business administration at a competitive disadvantage, as it become increasingly important to publish in international journals. As Kieser (2002, 222) has suggested, growing pressure to gain international academic reputation might force German scholars to change their research approach. Increasing the international mobility of business academics before and after appointment may be an important step to achieving this goal.

Finally, the study analyzed how the different career paths translate into social ties and how this may influence career chances, especially for women. The results provided support for the widespread assumption that women have less well-developed

job-related networks, thus lowering their chance in the academic workplace. To counter these effects, one suggestion is that women should concentrate more on central institutions for their education, especially regarding the doctorate and the habilitation.

As with any research project, it is important to specify limitations of the research as well as offer suggestions for future inquiry. One limitation of this study lies in the fact that no attempt has been made to correlate the results with individual performance indicators such as publication output. It would have been interesting to ascertain how individual research performance is associated with age of appointment, gender, mobility as well as social connectedness. A detailed analysis of an academic's publication and funding record could provide important insights whether these criteria have a measurable effect on the appointment chances of a young scholar. Considering the growing pressure to publish in international A journals and acquire third party funds these issues gain more and more attention. Further, it would be interesting to analyze differences in appointment age, number of appointments of the candidate as well as institutional reputation. Due to a lack of data this question remains a task for future research. It would have also been useful to integrate more organizational variables in the analysis, which would help to differentiate between large and smaller universities departments.

On the basis of the findings of this study, future inquiry is merited in a number of areas. Future researchers should continue to assess the factors that shape career success, especially in the academic world, because once candidates decide to take this relatively long qualification path, they are specialized and will have aged by the time they are appointed to a professorship. This increases the risk for candidates, and could discourage potential candidates from taking this route. More knowledge about the factors influencing academic career chances may provide more clarity about the expectations and chances of success. The theories that are developing on achieving success in the academic labor market could thus attract more potential and highly qualified candidates.

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