

Changing recruitment patterns: A longitudinal analysis of business professors in Germany

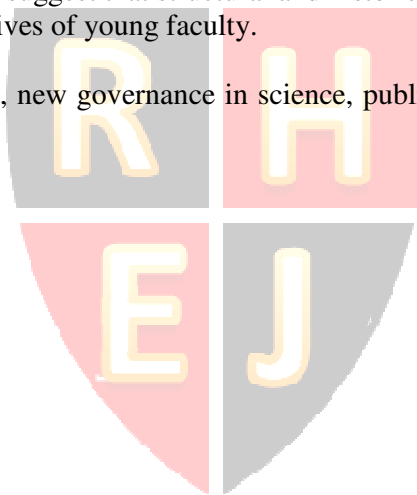
Heinke Roebken
University of Wuppertal/Germany

ABSTRACT

This study examines changes in the career paths of young academics over a period of 18 years. Higher education researchers have emphasized that the conditions under which the academic profession operates have changed considerably over recent years. So far, only few studies attempted to analyze these changes empirically. Using longitudinal data on German professors of business administration, different issues are addressed: (1) Age and gender composition of young faculty are analyzed across time. (2) Publication behavior before initial appointment is analyzed and compared across different age cohorts. (3) Changes in status differences between faculty producing departments are analyzed during the course of time.

Using a methodology derived from economics, the Lorenz curve and Gini Coefficient are introduced as tools for investigating and quantifying vertical differentiation in a higher education system. The results suggest that structural and historical conditions have a strong impact on the career perspectives of young faculty.

Keywords: Academic careers, new governance in science, publication patterns, stratification, longitudinal analysis



INTRODUCTION

In recent years a number of substantial changes in the higher education sector have significantly transformed the conditions under which the academic profession operates (Teichler, 2007a; 2007b). 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 pressure to demonstrate practical relevance and to publish in international publications, preferably in A-Journals, have caused academics to change their work manners and contribute more to the well-being of their institution and the larger community (Lindholm, 2004). Calls for new generations of faculty that are more demographically inclusive are also intensifying (Metz-Göckel, 2007; BLK, 2006). In order to prepare young faculty for these new challenges, a variety of reforms have been implemented by national governments. In Germany, the junior professorship, modeled on the US assistant professorship, was introduced in, 2002. An important goal of this reform was to offer researchers more independence and career opportunities earlier in their lives. In addition, the junior professorships were intended to make academic careers more attractive to women (Wissenschaftsrat, 2001). Other reforms that have affected the careers of junior staff in Germany include graduate schools (Graduiertenkollegs), which have been established at renowned research universities since the, 1990s. In contrast with the traditional German apprentice model of pursuing a PhD, the German graduate school aimed to provide young scholars with structured doctoral training within an excellent research environment, which in turn should reduce the time until the first appointment as a professor (Enders, 2008).

Against this backdrop, it can be assumed that career conditions of young faculty have changed considerably over recent years. Although many publications have reflected on these changes, especially on the potential benefits (BMBF, 2008) and challenges (Enders, 2005; Lindholm, 2004), only few of them attempt to address them empirically. Even fewer publications attempt to make systematic comparisons across time, which is a necessary condition when analyzing change. The goal of this study is to empirically address how academic career conditions have changed over the course of time. Special attention is paid to changes in (1) the age and gender composition of young faculty, (2) the publication output of young faculty, and (3) the status hierarchies among university departments that can affect the recruitment chances of graduates. This study makes use of a broad empirical dataset that includes a number of career related variables including biographical data, publication output and social network data. Using the community of business scholars in German university departments (N=365), this study will analyze individual as well as structural changes in the academic workplace. Finally, the implications of the observed changes for German junior faculty and higher education institutions are discussed.

THEORETICAL FRAMEWORK

Careers can be described from different theoretical perspectives. Some approaches emphasize the individual characteristics of the candidate, others focus more on the structural features of the labor market. The first perspective is based on the assumption that success in the labor market is the result of the individual abilities and characteristics of the applicant. Among the most common individual characteristics discussed are education, age, sex, personal abilities and social background (Runia, 2003). Both the Human Capital Theory (Becker, 1964) and the so-called Status Attainment Theory (Blau/Duncan, 1967, Featherman/Hauser, 1978) draw heavily on individual factors of the applicant.

With respect to academic careers, successful young scholars are presumed to be those with a highly productive publication record and excellent teaching abilities, who in turn have

the best chances of acquiring a permanent position at a university. Also, an individual's age at entry into the labor market is expected to influence future career success (Schulze et al., 2008, Lortie-Lussier/Rinfret, 2005). Previous studies observed that younger candidates have better chances of obtaining a professorship (Schulze et al., 2008). Youth seems to signal attributes such as goal orientation and enthusiasm, which are valued by appointment committees. Age is also related to scholarly productivity: early productivity is positively associated with later scholarly accomplishments (Reskin, 1977).

Although individual features have regularly been found to accompany successful academic careers (e.g. Brüderl, 1991), one can assume that they do not solely guarantee good job opportunities. Rather, structural features of the labor market also have to be taken into account. Unlike the human capital theory, the vacancy-competition model (Sorensen, 1977) emphasizes that individuals can advance in their careers only when a job becomes vacant. Individual attributes are also important – not because they improve the productivity of the person, but because they influence the individuals' chances of getting access to vacant jobs. Here, the timing of vacancies is important, and often changes in individual qualifications do not coincide with vacancies. Once a position is filled, it is closed to outsiders. Sorensen (1990, 1983) calls these systems closed positioning systems. The academic labor market is a classical example of a closed positioning system: once an academic position is filled, it only becomes available if the previous incumbent leaves the job for a better one or for retirement.

Combining these approaches provides a useful perspective for the subsequent analysis of academic careers. In the following section, hypotheses will be constructed with special emphasis on the changing career conditions in the German academic labor market.

HYPOTHESES

Age and Gender Composition

Age and gender composition are the most studied variables in organizational demography (Wiersema/Bantel, 1992; Zenger/Lawrence, 1989), not least because such data is relatively easy to collect (Kamuzora, 1989). Both variables are central issues in the German higher education policy debate. One criticism of the German higher education system is the relatively high age of graduates which also affects later qualifications such as the PhD, the habilitation¹ or the appointment as professor (Enders, 2008). As already argued, a number of reform initiatives such as the junior professorship and the graduate schools were implemented in the German higher education system in order to reduce the qualification phase and offer young academics independent opportunities for teaching and research at a younger age (Wissenschaftsrat, 2001). Given the above, it seems reasonable to expect that the age at appointment has decreased in recent years:

¹¹ The habilitation is, or at least was, the necessary entrance qualification for professorships at German universities. It is usually earned after several years of research. With the habilitation, the status of Privatdozent (university lecturer, PD or Priv.-Doz. for short) is usually granted. As of the year, 2004, the habilitation has been the subject of a major political debate in Germany. Since then, many universities have abolished the system of habilitation and replaced it by the alternative concept of the Juniorprofessur, which is roughly equivalent to an assistant professor in the United States. Nevertheless, due to the current state of transition, many junior professors still write a habilitation. Virtually all professors of business administration have achieved their habilitation.

Hypothesis 1: Over the course of time, the average age of appointment of young faculty decreased.

Another important change in the development of young academics concerns the promotion of women in academia. A large body of literature focuses on gender issues in academic career development (Berweger/Keller, 2005, Park, 2007, Bailyn, 2003). In Germany, different programs have been established to increase the proportion of female professors. Among the most important are the special consideration of women in recruitment decisions, the establishment of professorships only for women, special scholarships for women, or special funds for child care (BMBF, 2008). It seems reasonable to suggest that

Hypothesis 2: Over the course of time, the proportion of female professors increased significantly.

Publication behavior

On an individual level, success in academic careers has typically been associated with meritocratic criteria; merit means that candidates gain access to occupational positions due to their individual abilities, educational qualifications and academic productivity. In the academic labor market typical meritocratic criteria are publication records, acquired funds, or good teaching abilities (Gross et al., 2008). In his early writings, Merton (1957) defined the scientific ethos, in which success and reputation are built on the meritocratic application of universalistic criteria: "(R)ecognition and esteem [are given] to those who have made genuinely original contributions to the common stock of knowledge". From this perspective, candidates who show above average productivity in scholarly work have the best chances of getting a job in academia. Considering that the competition for tenure-track positions in academia has put increasing pressure on scholars to publish new work frequently ("publish or perish") (e.g. Zivney/Bertin, 1992, DeRond/Miller, 2005), it can be assumed that over the course of time the publishing-related activities before appointment have changed considerably and gained even more importance. Thus, it can be argued:

Hypothesis 3: Over the course of time, the publication productivity before appointment increased significantly among scholars.

Structural determinants of faculty appointments

The vacancy-competition-approach (Sorensen, 1977) points to the central importance of vacancies – and not changes in individual characteristics – that determine the career success of individuals. In competing for the limited number of vacant professorships, the prestige of the degree granting department often plays a central role (Burriss, 2005). According to Enders (2008), the question of how diverse or homogenous higher education institutions are can have an impact on the allocation of young faculty. A highly stratified system of higher education may favor candidates from the most renowned research institutions (D'Aveni, 1996), while a more equitable system can give graduates from a wide variety of higher education institutions access to permanent faculty positions. In this regard, not only meritocratic criteria but also social factors affect a candidate's success on the academic labor market (Gross et al., 2008). The German higher education system is typically characterized as one with less status hierarchies among institutions (Clark, 1983; Sorensen, 1990). However, some scholars observe an increasing trend towards vertical differentiation that is likely to influence the career chances of young faculty (Enders, 2009). For example, new steering and

management systems have led to a renunciation of the old “watering-can” principle, which treated all higher education institutions equitably in terms of funding. Other reform initiatives have been implemented such as the so-called “initiative of excellence” (Exzellenzinitiative) which aimed at promoting elite institutions of higher education. In addition, the aforementioned graduate schools for qualifying young researchers have been established, favorably at renowned research institutions. It can therefore be argued:

Hypothesis 4a: Over the course of time, young academics were recruited from a smaller number of higher education institutions indicating an increasing tendency towards vertical differentiation among German business faculties.

On the other hand there are voices that claim that higher education systems are characterized by dedifferentiation and lower status hierarchies, which may give young researchers from a broader range of higher education institutions access to academic positions. Different arguments support the dedifferentiation thesis: according to the “drift theory” institutions of lower status try to imitate the high status institutions, especially the prestigious research universities. This imitating behavior creates a tendency towards uniformity and decreasing levels of vertical differentiation (van Vught, 2007; Neave, 1979). Another argument put forward by Birnbaum (1983) suggests that increasing levels of state-level planning and the application of rigid criteria for the approval of new programs may hamper differentiation processes and foster homogenization instead. Teichler (2008) marked the Bologna-Process as a very strong force which leads to similar institutional patterns and thus contributes to a lower level of vertical differentiation. It follows that:

Hypothesis 4b: Over the course of time, young academics were recruited from a broader range of higher education institutions indicating a flattening of status hierarchies among German business faculties.

METHOD

The dataset consists of business professors who were appointed as professor for the first time between, 1990 and, 2007 at one of the sixty university business departments listed in the Hochschulkompass, a public listing of study programs at higher education institutions in Germany.² 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 365 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 publication activities. For each professor, information was gathered on their biographies and academic publication record. Additional information was collected on further homepages found via Google 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 order to analyze to what extent academic career paths have changed over recent years, the 365 professors were divided into four appointment quartiles. In the first quartile, professors were included who were appointed between, 1990 and, 1995 (N=100); the second quartile contains appointments between, 1996 and, 2000 (N=79), the third quartile

² See www.hochschulkompass.de

appointments between, 2001 and, 2004 (N=88), and the last included all other professors who were appointed until, 2007 (N=98). The data was analyzed using descriptive and univariate statistics.

In order to analyze the changes in vertical differentiation in faculty production, the Lorenz Curves and Gini Coefficient were used. For this purpose the habilitation granting department of each professor was identified. For each of the 60 departments, the fraction of the total number of habilitation candidates in the particular appointment cohort was calculated and ranked by increasing productivity in faculty production. Inequality was measured using the Gini inequality measure and the Lorenz curve.

RESULTS

Appointment age

Figure 1 (Appendix) indicates that the average appointment age ranged between 38 years in the second and fourth quartile and 39.7 years in the first quartile. Significant differences only exist between the first, second and fourth quartile. This means, professors who were appointed between, 1990 and, 1995 were significantly older than professors whose appointment took place in the second and fourth quartile. Besides the efforts that have been undertaken to reduce the time to be appointed as a professor, another aspect has to be taken into consideration when interpreting the significant age differences. That the appointment age was significantly higher during the first quartile could be attributable to the historical coincidence of the reunification, which led to the creation of a higher number of vacancies at Eastern German universities in the first half of the, 1990s. Along with the normal replacement rate of professorships this phase, therefore, offered better recruitment chances for more and possibly older researchers. Although the appointment age between, 2001 and, 2004 is on average a little bit higher than in the quartile before, there seems to be a trend towards a faster qualification phase in this discipline; hence, hypothesis 1 can be confirmed.

Gender composition

As indicated in figure 2 (Appendix), the proportion of females who entered the academic profession in business administration at German universities increased significantly, which confirms hypothesis 2. In the fourth quartile, about, 20% of the professorships at the 60 university departments were filled with women. This is an increase of about 100% in comparison to the second quartile. Again, in the aftermath of the reunification, women also had a slightly better chance of finding a position in the academic workplace than in the subsequent second quartile. Altogether, the data shows that for women the chance of getting access to full professorships in Germany improved significantly. However, it should be emphasized that there should be even higher proportions of women in faculty considering the high number of female graduates in business administration. For example, in the year, 2006, 44% of the diploma graduates in business administration were female, but only 26% of the PhD graduates. Furthermore, only, 20% of the habilitations, a further qualification for researchers who want to apply for professorships, were completed by females (Statistisches Bundesamt, 2008). A core issue in promoting women in academic careers therefore needs to address the transition from the first university degree to the PhD-level.

Publication Output before Appointment. How does the publication output before appointment differ across the various appointment cohorts? Figure 3 (Appendix) indicates significant changes in the publication strategies. The publication records do not only differ in terms of quantity, but also with respect to quality. In terms of quantity, the average number of

publications before the first appointment almost doubled from 14 in the first quartile to 27 publications in the third one, before decreasing again slightly to 24 in the last appointment cohort. Also in terms of articles in German language edited journals and journal publications, the third quartile has been more productive before appointment than any other quartile. The last appointment cohort has published the most monographs, articles in English language and articles in the Social Science Citation Index. Altogether, young academics that have been recruited since, 2001 were far more productive in terms of quantity than their colleagues who entered the profession earlier. To ascertain publication quality before appointment, the number of articles in the Social Science Citation Index was counted. As assumed, later appointment quartiles have been more successful in this category. Although the total number of publications decreased slightly in the last cohort, it seems that young academics spend more time on publishing in renowned journals, which may be more time consuming, thus lowering the overall number of publications. Another factor that helps to explain the different performance levels between the first two and the last two cohorts could be the special phase of German reunification, which offered above average recruitment chances for young faculty during the, 1990s. A high demand for young faculty for a short period of time may have resulted in exceedingly high recruitment chances for that generation, even if the general research qualification was below average. On the contrary, high competition for a limited number of professorships could increase the research performance in quantity and quality before appointment (see also Hillmert, 2003). One should, however, keep in mind that measuring the quality of publications by using the SSCI also has its shortcomings (Hirschauer, 2004., 2005; Gross/Jungbauer-Gans, 2007) and that a profound evaluation of the publication quality is impossible using a single indicator.

Vertical differentiation

In order to assess status hierarchies between the staff producing departments, the number of successfully placed academics on professorships was counted for each department and for each appointment cohort. In a second step, the Lorenz Curve and Gini Coefficients were calculated for each quartile. The Lorenz curve necessarily lies underneath the diagonal line of equality, and the Gini Measure is twice the area between the Lorenz Curve and the diagonal. The Gini Coefficient lies in the range between 0 and 1. A high Gini Coefficient close to 1 indicates that the departments are very unequal in terms of faculty production, while a coefficient near 0 designates that all departments are to the same degree successful in qualifying young academics.

The cumulative proportion of departments (ranked according to the number of habilitation graduates they placed on professorships) is represented by the horizontal axis and the cumulative proportion of habilitation graduates that were successfully placed on a permanent academic position in one of the sixty departments in the sample corresponds to the vertical axis. The straight line represents the equality line, i.e. a perfectly equal distribution of qualified graduates from the 60 departments. The further the Lorenz Curve is from the equality line, the greater the degree of concentration and therefore inequality in terms of the production of young faculty from a certain number of departments.

Figure 4 (Appendix) shows moderate degrees of concentration for all appointment cohorts, meaning that a relatively small proportion of departments contribute a large proportion of all recruited faculty. Between 41% and 45% of the departments do not qualify a single researcher for the academic labor market. The most successful departments educated between 5 (cohorts 1 and 3) and 6 (cohorts 2 and 4) academics and placed them on permanent positions. On average, each of the sixty departments qualifies one researcher for the academic labor market. All in all, there are no significant differences across the four cohorts; the Gini

coefficients range between 0.58 in the third quartile to 0.62 in the fourth. Hence, the data does not confirm the differentiation or the de-differentiation processes, which refutes hypotheses 4a and 4b.

DISCUSSION

This study analyzed changes in appointment criteria over the course of time using biographical and publication data on business professors. As with any empirical study, these analyses and results have some limitations. Many reforms aimed at young academics in German higher education have been implemented only recently so that it is not yet possible to assess its full impact. The present study instead attempts to analyze general changes in career conditions, in which some of the latest reforms may also be partially reflected. It was not the goal to evaluate the reforms mentioned above. Furthermore, the study focuses on the more visible biographical and performance criteria when assessing changes in academic careers. There are a number of other variables that can affect appointments that have not been included in this analysis. It is possible that other factors, such as individual social networks, teaching quality or international orientation have a similar effect on academic careers. This study is also limited to a single scientific discipline; to what extent these results are transferable to other disciplines is difficult to assess. Due to a lack of available data it was not possible to take into consideration the aforementioned additional factors or other fields of research. Despite these limitations, the results of the study have important implications for future research and for practitioners in higher education.

Debates on developing and qualifying young staff often focus only on the individual level and do not pay enough attention to the structural aspects of the labor market. A variety of initiatives were implemented by policy makers and departments, including scholarships, special academic positions for young staff, international exchange programs or programs for female scholars (BMBF, 2008). Although all these instruments are indispensable for academic career development, they do not seem to be sufficient. In this article evidence was found that the success of young academics is also influenced by factors that lie outside the control of individual researchers or institutions. The structural irregularities in the development of vacancies on the academic labor market certainly influence individual career opportunities. A candidate may be an outstanding scholar within the community, but unsuccessful on the labor market if there is no vacant position. In higher education systems, which are relatively “closed”, these mechanisms can have even more impact on the career opportunities and motivations of young academics. This is particularly true for the German chair system: in contrast to the department structure that is typical for US or British universities, the chair system resembles the form of a pyramid with the full professor at the pinnacle. There are fewer intermediate positions, such as senior lecturers or associate professorships with the consequence that permanent positions as a full professor in German higher education become available only infrequently.

Figure 4: Vertical differentiation between departments in terms of faculty productions
This situation can have serious motivational consequences for young academics. The feeling that one’s own actions can be controlled are essential for performance motivation (Heckhausen, 1974). If the chances for reaching career goals are low, people are less willing to invest and work hard for it. In contrast, motivation to work hard may also be low if career possibilities are easy to realize (Sorensen, 1990). Interestingly, the cohort comparisons indicated that recruitment phases with a high replacement rate (e.g. after the reunification) were associated with lower research performance before appointment. This could easily cause frustration and demotivation among young scholars, because individual performance and success on the academic labor market seem to be only loosely coupled. This problem may be

more relevant for the German chair system, because it offers, in contrast to the department system, fewer options to be appointed as a professor. Furthermore, intense cohort cycles, demographic developments or historical coincidences limit these opportunities to a relatively short time frame, which makes it even more difficult to align individual efforts of academics with career opportunities. The negative long-term consequence is – according to Sorensen (1990) – that the whole system is less able to stimulate motivation which may lead to inefficiencies and lower performance. This can only be attenuated through the long-term structural planning of scientific communities (Armingeon, 1997) or the transformation of a chair system into a department system.

What has indeed been achieved over recent years is a slight reduction in the appointment age of young scholars in the German business community. Also with respect to female recruitments in permanent positions in academia a reasonably good degree of success has been achieved. It is, however, difficult to evaluate whether this trend is the consequence of policy reforms recently implemented by the German Government or other external developments. For example, the general international trend to increase the female proportion in leading positions and the increasing number of qualified female academics could also be a contributory factor. As shown, historical coincidences and a higher replacement rate of professors are also positively associated with female recruitment. It seems reasonable to suggest that these external determinants beyond policy and planning initiatives have an important influence on the recruitment chances of female academics.

On the basis of the recruitment analysis this study did not find evidence for differentiation or de-differentiation processes. When comparing the different appointment cohorts it became clear that more or less the same institutions are qualifying young academics, while almost half of the departments did not participate in this qualification process. This observation is also relevant for the development of a scientific discipline. If young academics are recruited only from a limited number of departments and if there is no change in the composition of degree granting institutions over the course of time, then opportunities for knowledge transfer and development are used only to a limited extent. One could critically argue that this does not necessarily foster innovation within a scientific field. On the other hand it was shown that young business academics do indeed increasingly publish in an international context; this could in turn foster the further development of the discipline and compensate for the path dependencies that are inherent in every higher education system.

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Appendix

Figure 1: Appointment age

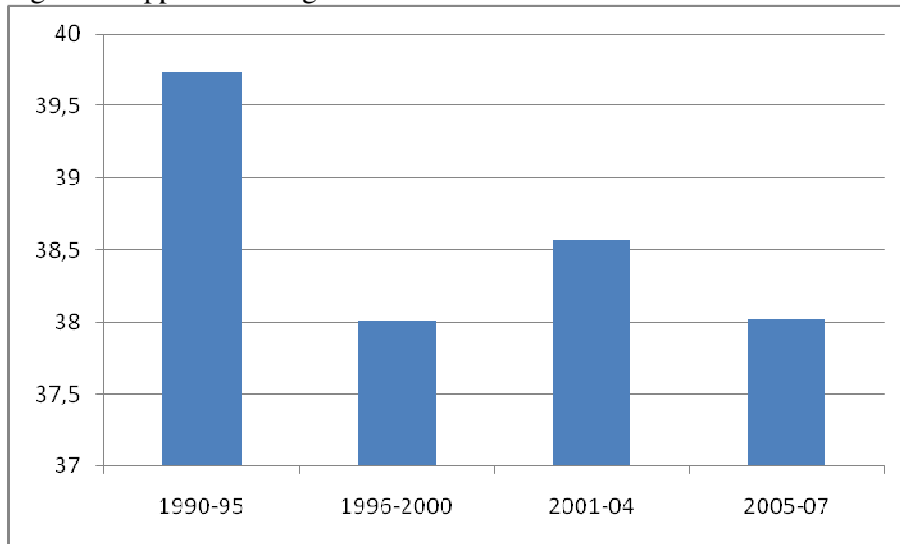


Figure 2: Gender Composition

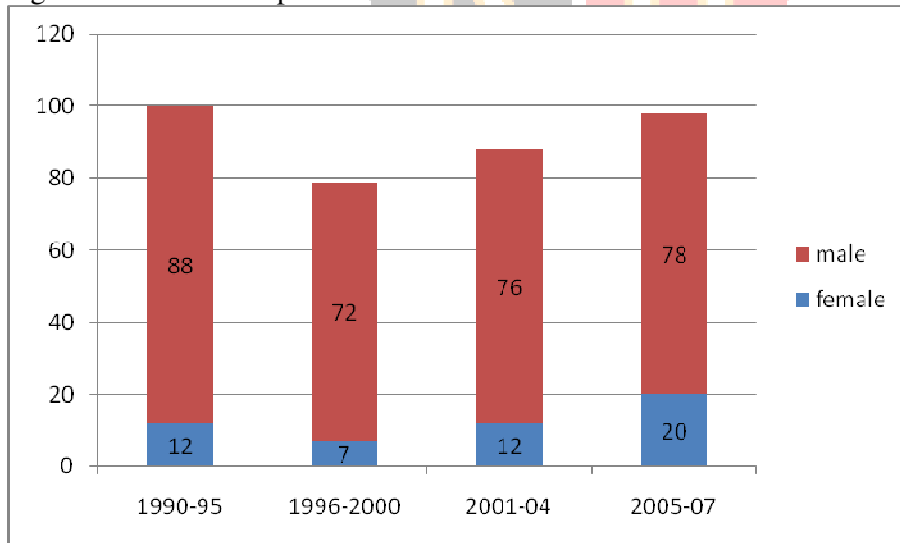


Figure 3: Publication output before appointment

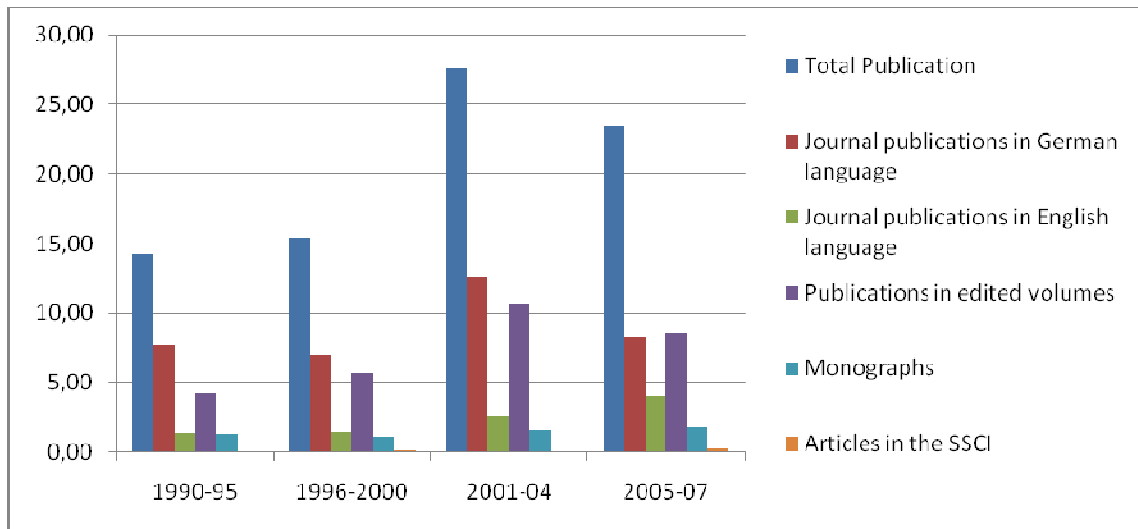


Figure 4: Vertical differentiation between departments in terms of faculty productions

