

Effects of institutional changes on requirements for vacant professorships in Germany

Maren Klawitter

PhD Student, International Centre for Higher Education Research Kassel; Research Associate, German Centre for Research on Higher Education and Science Studies.

Contact: klawitter@dzhw.eu

Bio: Maren Klawitter is a PhD student at INCHER-Kassel (International Centre for Higher Education Research Kassel) and a research associate at the German Centre for Research on Higher Education and Science Studies (Deutsches Zentrum für Hochschul- und Wissenschaftsforschung) in Hannover. Her PhD project deals with organizational responses of German universities to institutional pressures, using appointment procedures for professorships as an example.

Suggested citation: Klawitter, M. (2015). Effects of institutional changes on requirements for vacant professorships in Germany. *Working Papers in Higher Education Studies*, 1(2), 1-19.

The article is available online at: <http://www.wphes-journal.eu/>

Effects of institutional changes on requirements for vacant professorships in Germany

Maren Klawitter

The aim of this paper is to examine changes in requirements profiles in appointment procedures for professorships in Germany due to institutional changes in higher education. Recent reforms in higher education have not only enhanced the autonomy of universities, but also confronted them with new institutionalized expectations of their environment (e.g. to compete for funding from governmental or private sources). It is assumed that universities react to changing demands placed on them by modifying their organisational structure and their programmes in particular. Since programmes of universities, which can be referred to as organisational tasks, have to be fulfilled by the academic personnel, the tasks of the professoriate and thus the requirements profile for professorships should have changed. This assumption has been analysed empirically. Based on a quantitative content analysis of 830 job advertisements, the requirements for professorships in different years have been evaluated. Overall, the results of multivariate analyses indicate that certain requirements (e.g. the ability to cooperate) are more likely to be demanded in recent years.

Key words: appointment of professors; requirements profiles of professorships; institutional changes in higher education; autonomy of universities.

Introduction: appointment of professors as an important moment of control

The recruitment of professors has long-term structural effects for universities (Mallich, Steinböck and Gutierrez-Lobos 2010, p. 90). As emphasized by the German Science Council, appointment procedures for professorships constitute key strategic areas in order to promote quality in teaching and research (Wissenschaftsrat 2005). Since professors perform the core activities in teaching and research through their individual expertise, they contribute considerably to the success of universities (Mintzberg 1979). The performance of these tasks mainly depends on the professional competencies, on the thematic orientation as well as on personal characteristics of professors.

Additionally, professors are responsible for the recruitment of further academic staff in their departments. Consequently, the appointment of professors affects the entire personnel structure of universities. The long-term consequences of the recruitment of professors are confirmed by the fact that professors are predominantly appointed as civil servants for life. The high relevance of appointment procedures for professorships is also corroborated by the fact that universities only have limited possibilities to exert influence on their professors once they are appointed. Legal reasons for the lack of steering possibilities are that professors are guaranteed autonomy regarding their activities due to their appointment as civil servants for life and that the freedom of teaching and research is prescribed by law (German Constitution Article 5(3)). Moreover, the low influence is emphasized by different theoretical approaches describing universities as “specific” organisations. To sum up, these specificities emphasize the high autonomy of professors due to problems regarding both the hierarchical governance of the entire organisation and the control of academic performance (Cohen and March 1974; Musselin 2006; Mintzberg 1979; Weick 1976).

Since universities are mainly able to exert influence on their personnel by the recruitment of new professors, they want to ensure the appointment of the best candidate for a vacant professorial chair. Furthermore, the selection of the best candidate is also regulated in the German Constitution (Article 33(2)). In order to identify the best candidate for a vacant position, all candidates are assessed and ranked based on specific criteria (Lamont 2012, p. 206). These criteria stem from the legal preconditions for the appointment of professors (e. g. having successfully finished a doctorate), which are anchored in the German Higher Education Framework Act (in this paper, the abbreviation HRG will be used) and in the various Higher Education Acts of the German federal states (abbreviated as LHG). In addition, further selection criteria arise from the specific requirements profile of the vacant professorship. These requirements for professorial chairs are derived from the prospective tasks of the job holder. On the one hand, these tasks are enshrined in the LHG, and on the other hand they are derived from the tasks of universities (HRG, §2). Furthermore, the requirements profile of a particular professorship is specified by the university in the profile paper as well as in the advertising texts for this position. However, the requirements for professorships are shaped by not only statutory preconditions for the appointment of professors and tasks of universities, but also by other institutionalized

rules - meaning generalized expectation structures – in higher education. This argument is based on the neo-institutional assumption that organisational structures are influenced by the institutional contexts they are embedded in. Universities have to comply with these institutionalized rules (e.g. local cooperation) to assure their legitimacy (Meyer and Rowan 1977). Since these institutionalized demands placed on universities cannot be met by themselves, but only by the performance of their personnel, they should be reflected in the requirements profiles for professorships (Mallich, Domayer and Gutierrez-Lobos 2012, p. 315).

But in recent years, institutional changes have taken place in higher education which should have a double impact on the appointment of professorships. In the first instance, the power of universities in the realm of personnel selection has been increased due to the transfer of the right to appoint professors from governmental to university level. The legal framework for the appointment of professorships is still regulated by the specific LHG, but universities are now authorised to decide on the selection of suitable applicants by themselves.¹ Additionally, recent reforms gave rise to new expectations towards universities and thus towards professors (Kehm and Lanzendorf 2005). Before the backdrop of this development, the aim of this paper is to reveal *how institutional changes in higher education are reflected in requirements profiles of professorships?*

In the first step, new demands placed on universities as consequences of their higher level of autonomy will be outlined. In the following section, hypotheses about the effects of institutional changes in higher education on additional requirements for professorships are formulated. These assumptions are derived from the theoretical framework of the sociological neo-institutionalism and the social systems theory as well as on existing empirical studies in this area. After that, the hypotheses are examined by carrying out a quantitative content analysis of advertisements of vacant professorships.

New demands placed on German universities due to institutional changes

Since the 1980's, competencies of universities and expectations towards them have changed in many countries around the globe. This can be considered as a result of

¹ Only in Bremen, Berlin and Saarland are the ministries still responsible for the appointment of professors.

governance reforms in higher education, which are based on the governance model of the private sector (Kehm and Lanzendorf 2005). Compared with other European countries like Great Britain or the Netherlands, Germany can be characterized as a latecomer regarding the implementation of the so-called new public management (NPM) reforms (De Boer, Enders and Schimank 2009). It is only since amendments of the HRG were made in 1998 that the federal states modified their LHG based on the model of NPM (Hüther, Jacob, Seidler and Wilke 2011, p. 9). On the one hand, competition (e. g. for funding, students, and personnel), internal hierarchy, and the impact of external stakeholders have increased to different extents in all German universities. On the other hand, state control and the influence of academic self-control have decreased (Schimank 2009; De Boer et al. 2007; Kehm and Lanzendorf 2005). Overall, the detailed control of German universities by the state has been replaced by a results-oriented guidance (Kehm 2012, p. 18).

As a result, competitive structures in higher education have been established which force universities to act more autonomously and strategically (Hasse and Krücken 2013, p. 189 ff.). In order to enable this, universities have gained more competencies in various areas, e.g. in the appointment of professorships or the implementation of new study programs (Hüther et al 2011). Universities are now perceived as competitive actors, which are responsible for their success on their own (Meier 2009). Due to the implementation of global budgets, they have to decide autonomously on the efficient use of their financial resources (Hüther et al. 2011, p. 22). Moreover, external funds have become more important for the financing of research activities. However, the attraction of external funding is not only necessary in order to assure funding of research activities because the governmental base funding has decreased, but also to gain legitimacy as a research actor (Winterhager 2015, p. 34-41). Accordingly, universities have to prove themselves in competition, which not only takes place for external funding but also for qualified personnel or international students. Therefore, the positioning of universities within competitive fields has become more important. Universities as a whole or their decentralised organisational units need to develop strategic profiles in order to distinguish themselves from each other (Hasse and Krücken 2013; Enders 2008, p. 91; Fumasoli, Gornitzka and Maassen 2014, p. 19). Furthermore, universities being autonomous actors are confronted with various new demands (Meier 2009, p. 79). Since universities are expected to contribute to society, the socio-

economic relevance of their research activities has become an important factor for their legitimacy (Krücken, Blümel and Kloke, 2012, p. 220). Therefore, new linkages between academia and industry have been established in terms of cooperation with industrial partners or technology transfer offices (Blümel, Kloke and Krücken, 2010, p. 105; Krücken 2014, p. 6). Moreover, the reconfiguration of governance structures has been accompanied by the transnational opening of higher education as part of the Bologna Reform in 1999, which aimed at interlinking the European Higher Education Area (Schimank 2009; De Boer et al. 2007; Kehm and Lanzendorf 2005). As a consequence, international connectivity has become an important quality characteristic of teaching and research. Moreover, competition for funding, personnel, or students has been shifted to the international level and cooperation is expected to be multinational (Fumasoli et al. 2014, p. 16).

Effects of institutional changes on the professoriate

In the first step, the sociological neo-institutionalism constitutes a satisfactory theoretical framework in order to explain that these various new demands placed on universities shape their duties. The tasks of universities are part of their formal structure and according to Meyer and Rowan (1977), universities have to adjust their structures to institutionalized expectations from their organizational environment to assure their legitimacy. Since the tasks of universities influence the requirements for professorships, changing institutions in higher education should be reflected in a modification of requirements profiles of vacant professorial positions. But to explain the mechanism through which organisational structures are adjusted to their institutional contexts, the neo-institutional approach does not provide sufficient arguments since it looks at organisations from the outside (Stichweh 2005). That is why arguments of social systems theory are employed to explain *how* institutions affect the formal structure of universities, and particularly their tasks. The following argumentation is based on the assumption that institutionalized demands placed on universities are communicated via legal regulations, the provision of funding opportunities, or public discourse. Universities react to these communicated expectations because they are connected to certain threat-potentials (e. g. the loss of legitimacy or financial losses). They interpret the institutionalized rules in accordance with their existing organisational structure and in turn modify their programmes – also referred to as their goals or tasks –

correspondingly. From this it can be explained why new institutionalized expectations towards universities, which are communicated in different ways, should be reflected in the goal programmes of universities (Herkle 2011, p.87).

Since the expanded spectrum of tasks of autonomous universities can only be completed by the academic personnel, the requirements for the latter should have been modified in accordance. Kehm and Teichler (2013) have presented an extensive overview about existing studies, which have already shown that institutional changes in higher education have multidimensional effects on the academic profession in Europe. New demands placed on universities have affected not only the tasks of the academic personnel, but also their working conditions and career paths (Kehm and Teichler 2013, p. 6). Moreover, Krücken et al. (2012, p. 228) discussed that the growing complexity of institutional contexts in higher education fostered the implementation of management structures within universities. As a consequence thereof, new task areas between the core activities in teaching and research and the central-level management arose. Based on that consideration, Blümel et al. (2010) showed empirically that new job profiles emerged, which require both academic and administrative skills. Furthermore, Čulum, Rončević, and Ledić (2013) have examined the impact of the so-called “Third Mission” of universities on the academic profession. They came up with the result that the tasks of the academic profession have changed in order to contribute to the fulfilment of new expectations towards universities. Corroborating the effect of institutional changes on the tasks of academic personnel, Fumasoli et al. (2014) showed empirically that core activities in European universities are undergoing significant pressure to become adapted to the strategies of autonomous universities. Assuming that the tasks of a certain position shape the selection criteria for this position, Gross and Jungbauer-Gans (2007) have already explored how recruitment conditions have changed. They have pointed out that existing cooperation relationships of researches have become more important to become appointed as professors. Moreover, the criteria in appointment procedures for professorships have become more standardized in order to be measurable and transparent (p. 465 ff.). But as Musselin (2002) emphasized, the selection criteria for professorships still differ with regard to the discipline or the applicant situation.

Assumptions regarding the requirements for applicants for professorships

On the one hand, we can derive from existing studies that the academic personnel is

confronted with new tasks due to new demands placed on autonomous universities in the course of institutional changes in higher education. From this, it could be deduced that additional competencies are needed to fulfil these tasks beyond the core activities in teaching and research (Kehm and Teichler 2013, p. 6). On the other hand, we do not know whether the requirements for applicants for professorships have changed accordingly. This study aims at filling this gap by analyzing empirically whether the expanded spectrum of tasks of universities is reflected in additional requirements for academic personnel, which is mainly responsible for the fulfilment of the universities' duties. In doing so, the focus of this paper is on the appointment of professorships as well as on requirements beyond the core activities in teaching and research. Throughout this paper, the competencies being demanded from the applicants for professorships serve as indicators for the requirements of these positions, because competencies give information about the prospective accomplishment of requirements (Mallich et al. 2012 p.8). Competencies are in turn derived from former work experiences and activities of the applicants (Erpenbeck 2010, p. 17).

In the following, assumptions regarding changes of professorial requirements profiles will be presented, which will be tested empirically in the next section. The overall assumption is that applicants for vacant professorships nowadays have to meet certain requirements, which are not directly concerned with the core duties of the professoriate in teaching and research. Particularly, the following aspects should be part of the requirements profile for vacant professorships more frequently in recent times.

a) The attraction of external funding

The external funding dependency of universities should be reflected in the tasks of the professoriate. Since universities have to prove themselves by their research activities in international competitions for funding and reputation, they are reliant on contract-research and research applications performed by the professoriate (Fumasoli et al. 2014, p. 20; Winterhager 2015, p. 41 ff.). According to this, it can be supposed that expertise in attraction of external funding has become more important when it comes to the selection of new professors.

b) Cooperation

Furthermore, the dependency on external funding of research activities causes an

increased need for cooperation both with other research institutes and with business enterprises or industrial companies (De Boer et al. 2007). Additionally, the claims of society regarding the socioeconomic relevance of research or technology transfer fostered the rise of new tasks in the area of external cooperation (Blümel et al. 2010, p. 105). With regard to the growing importance of cooperation, it can be assumed that applicants for professorships have to show competencies regarding cooperation in the broadest sense.

c) Internationality

The internationalisation of the academic arena concerns both teaching and research. On the one hand, the Bologna reform fostered the international competitiveness of study programs. Consequently, new teaching requirements in international study programs have to be met by the professoriate. On the other hand, applicants for professorships need to have sufficient language skills or international experiences in order to be successful in international competition for funding or to work in multinational research teams (Kehm and Teichler 2013, p. 6). Therefore, internationality should have become an important requirement for prospective professors.

d) A specific profile

Universities or departments have established distinctive profiles in order to position themselves strategically in competitive fields (Enders 2008, p. 91; Fumasoli et al. 2014, p. 19). It can be assumed that prospective professors have to match these profiles in order to be able to contribute to the success of universities within their specific competitive fields. Consequently, the applicants for professorships should be expected to show competencies in specific areas which reflect the university or department profile.

In testing these hypotheses, it will be considered that the professorial requirements should differ with regard to the academic discipline and across different types of universities. For example, universities of applied sciences attach more importance to practical applications in the areas of teaching and research, which should be reflected in requirements profiles of professorships. Moreover, discipline-specific differences regarding the requirements for professorships should be observed. This is due to the fact that research and teaching activities do not follow university specific rules but rather are

oriented towards normative as well as cognitive guidelines of scientific communities (Stichweh 2005).

Data and methods

In order to test the abovementioned hypotheses, employment advertisements for vacant professorships have been chosen as objects of investigation. With regard to the appointment of new professors, the HRG regulates that vacant professorships have to be advertised to the international public (§45). The regulations regarding the advertisement of professorial positions are specified by the LHG and the resolution of the Conference of Ministers of Education on the appointment of professorships (2002). In summary, it is regulated that job advertisements for professorships have to contain the type and scope of the prospective tasks of the job holder. Thus, texts of job announcements describe the specific profile of a vacant professorship. Furthermore, advertising texts not only contain information about the tasks and requirements of the professorship, but also about the salary grade as well as the allocation to a certain subject area. Moreover, the choice of employment advertisements as objects of investigation enables analyses of requirements profiles at different points in time since they can be examined retrospectively.

Job announcements for professorships from three selected volumes of the German weekly newspaper “ZEIT” were chosen (i. e. 1995, 2003, and 2012) to draw a systematic sample. The first volume was selected because 1995 represents a point in time which is after the political reunification of Germany but before profound changes in the regulatory framework on both the national and international levels (e. g. the Bologna declaration in 1999 at the international level or the fourth amendment of the HRG in 1998 at the national level). The year 2003 was chosen to illustrate changes due to the public sector wage reform. In order to include a volume as current as possible which is at the same time completely available by the start of the analysis, the year 2012 was selected. Moreover, it has been shown by Hüther et al. (2011) that the autonomy of German universities has increased strongly between 2002 and 2008. Furthermore, the selection was limited to the first edition of every second month. Every professorship advertised from German public universities and universities of applied sciences from these 18 editions were used for analysis.

Once the sample was drawn, a code system was developed. On the one hand, the codes were derived inductively from the texts, and on the other hand they were complemented based on theoretical assumptions. This code system was enlarged and differentiated by encoding of parts of the sample as a test exercise. The reliability of the final code system was ensured by comparing the intercoder-reliability of two independent coders. In the next step, the employment advertisements for professorships were encoded. All texts were reviewed with regard to each code. If one code (or several codes) applied to particular elements of the text, the whole advertisement was encoded. The main focus was on encoding requirements for professorships beyond the core areas of teaching and research, which were operationalized by the competencies being requested from the applicants.

Since competencies are indicated by past experiences, the codes aggregate the experiences being demanded in the analysed texts, the application documents to be handed in and the prospective tasks of the job holder to requirements for the offered professorship. To give an example, the code *attraction of external funding* indicates whether it is mentioned in the job announcement that applicants should have experiences in attracting external funding, are expected to attract external funding in the future or should hand in proof of already attracted funding (the coding instructions regarding all relevant requirements can be found in the appendix). Further codes cover the year of the publication of the job announcement as well as specific characteristics regarding the tendering university or the offered position (e. g. discipline or salary grade).

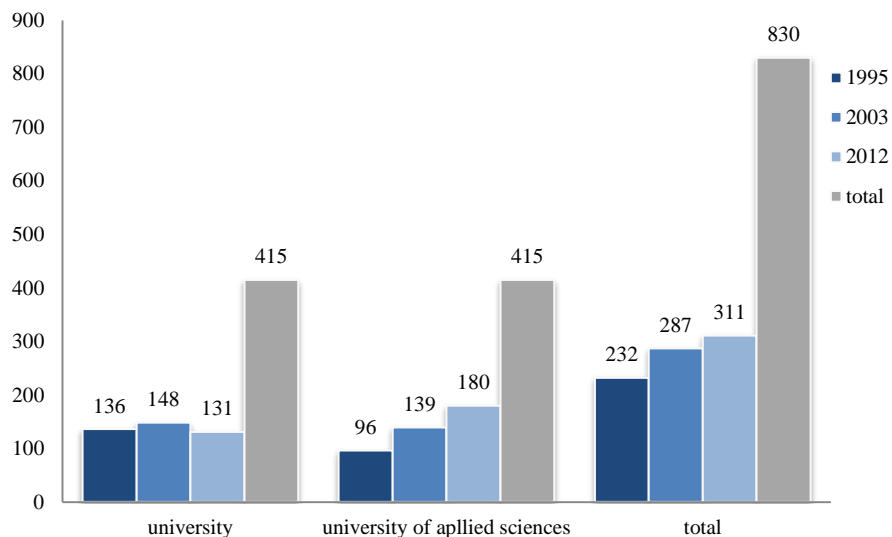
This complex categorisation and content-related structuring of the employment advertisements provided the basis for further evaluations. In the first step, a category-based description of the data was carried out. Once the distribution of the texts with regard to the codes was outlined, the relationships of different codes were analysed employing logistic regression analyses. The main findings of the quantitative analyses will be presented and discussed in the following chapters. But when interpreting the results, the role of employment advertisements for universities has to be considered. Public job announcements are crucial instruments for universities by which they can demonstrate their conformity with institutionalized rules and thus an important mean to assure their legitimacy. This could mean that employment advertisements might

function as “rationalized myths” (Meyer and Rowan 1997, p. 343) and actual requirements for professorships might differ from this outward orientated demonstration. Another source of uncertainty is whether it is the guidelines regarding the content of employment advertisements which have changed, not the requirements for professorships.

Results

Overall, 830 employment advertisements for professorships were analysed. As shown in Figure 1, the share of universities and universities of applied sciences of all employment advertisements is equal. Additionally, it is illustrated that the highest number of professorships was tendered in 2012 (n=311), followed by 2003 (n=287) and 1995 (n=232). Moreover, it can be observed that the amount of tender texts of universities of applied sciences has increased from 1995 (n=96) until 2012 (n=180), whereas the number of job advertisements announced by universities has decreased slightly (1995: n=136; 2012: n=131).

Figure 1: Employment advertisements for professorships, by type of university and year (in absolute terms)



Since the aim of the study was to analyse certain requirements for professorships depending on different years, four logistic regression analyses were carried out (Table 1). In the individual models, each requirement that was considered was treated as a dependent variable and the year of publication of the text was the central independent

variable. Along these lines, the different years stand for pivotal turning points in the institutional context of universities. Further differences between the texts and the tendering universities were considered by adding control variables to the models (i. e. type of the tendering university, allocation of the professorship to a certain subject area, funding through the Excellence Initiative of the German Research Foundation, the number of students in winter term 2012 in absolute terms). The regression results are illustrated in Table 1.

Table 1: Determinants of occurrence of requirements (logistic regressions, odds ratios)

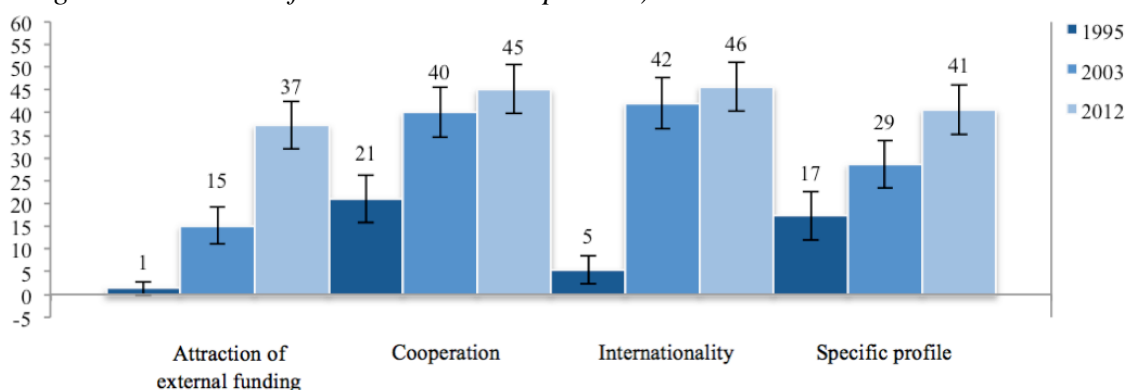
	Attraction of ext. funding	Cooperation	Internationality	Specific profile
<i>Year (ref.: 1995)</i>				
2003	2.685***	1.005***	2.626***	0.797***
2012	4.066***	1.233***	2.786***	0.647**
<i>University type (ref.: university)</i>				
University of applied sciences	-1.377***	-1.200***	-0.234	-0.697**
<i>Subject area (ref.: linguistics & cultural studies)</i>				
Legal, economic & social sciences	-0.487	0.044	1.405***	0.137
Mathematics & natural sciences	0.125	0.653*	0.977**	0.620**
Human & veterinary medicine; health sciences	0.409	1.161**	0.859*	0.326
Engineering sciences	-0.126	0.378	0.739*	0.377
Art sciences	<i>empty</i>	0.095	0.074	0.906*
Other subjects	1.067	1.058*	0.677	0.929
University funded in the excellence initiative	0.244	0.376	0.505	0.033
Number of students	0.000	-0.0001*	-0.001**	-0.001
Prob>chi2 (Pearson's chi- squared test)	0.000	0.000	0.000	0.000
Pseudo-R2	0.238	0.0953	0.167	0.043
Number of observations	830	830	830	830

Significance levels: *p<0.05 **p<0.01 ***p<0.001.

As hypothesised, the occurrence of all examined requirements is positively correlated with the year of publication. Further, the differences between the years can be anticipated as systematic, because all coefficients are highly significant. Moreover, the regression results show that universities have higher odds than universities of applied sciences regarding all requirements. Therefore, the results indicate differences between university types. The association between the requirements for applicants for professorships and the other control variables, i. e. the subject area, the number of students of the advertising university, and the funding under the Excellence Initiative, are mainly not significant. Judging by the considered criteria of model fit (Kohler and Kreuter 2005, pp. 263 ff.), the regressions of *attraction of external funding* and *internationality* are of good quality. The pseudo-R² values range between 16.7% (internationality) and 23.8% (attraction of external funding). The models for *cooperation* and *specific profile* are of lower quality, which is indicated by the lower pseudo-R² values ranging between 4.3% (specific profile) and 9.5% (cooperation).

Based on the regression analyses, average marginal effects (AME) for each model were calculated in order to interpret the coefficients for the different years properly. AME have the advantage of being comparable across different models and thus across the examined requirements (Mood 2010). They describe the estimated changes in likelihood of the occurrence of particular requirements depending on changes in the year of publication (Best and Wolf 2010, p. 840). The AME is the mean of the marginal effects of all employment advertisements and is calculated by comparing hypothetical texts which only differ from one another with regard to the year of publication (Long 1997, p. 72; Williams 2012, p. 326). The results are reported in the form of predictive margins which illustrate the estimated likelihood that certain requirements occur in the population for each year (*Figure 2*).

Figure 2: Estimated likelihood of occurrence of requirements, by year (predictive margins with 95% confidence intervals in percent)



We can observe from figure 2 that the occurrence of all investigated requirements is more likely in recent job announcements. In 1995, *attraction of external funding* represents a requirement for professorships only in one percent (-0.5-2.5) of the employment advertisements. In contrast, this requirement is mentioned in 37 percent (31.77-42.23) of all texts in 2012. The probability that *cooperation* is part of requirements profiles of professorships increased significantly over time as well. Whereas the probability was only about 21 percent (15.67-26.33) in 1995, it reached 45 percent (39.59-50.41) in 2012. Regarding *internationality*, the increase of the likelihood of occurrence is particularly distinct. Only five percent (1.86-8.14) of all employment advertisements in 1995, but 46 percent (40.53-51.47) in 2012 contain this requirement. Referring to the *specific profile of the applicants*, a higher likelihood of occurrence can be observed in recent texts as well. Since the probability is 45 percent (39.44-50.56) in 2012 and 31 percent (24.8-37.2) in 1995, it is more likely that a specific profile is required from applicants for professorships in recent job announcements.

Overall, the results indicate that the requirements for professorships occurring in employment advertisements have changed over time. Based on the present sample, the probability that *attraction of external funding*, *cooperation*, *internationality* and *a specific profile of the applicants* are part of requirements profiles in the population of all job announcements was calculated for different years. As a result, it can be concluded that the likelihood of occurrence for all requirements is higher in 2012 as compared to 1995. That means that applicants for professorships seem to be expected to meet additional criteria to become appointed in recent years.

Conclusions

It has been argued that new governance mechanisms in higher education have fostered the autonomy of universities. Universities have been transformed into autonomous actors in the course of institutional changes and thus are confronted with new demands. It was assumed that the expanded spectrum of tasks should be reflected in changed requirements for academic personnel being mainly responsible for the fulfilment of the universities' duties. Since universities are able to exert influence on their personnel almost exclusively by hiring new professors, those changed requirements should already be relevant in appointment procedures for professorships. In particular, they are

supposed to appear in the job profile of professorships. This assumption has been confirmed by the examination of employment advertisements for vacant professorships. The analyses have revealed that the requirements for professorships mentioned in the texts have changed over time. Since requirements beyond the core activities in teaching and research are mentioned more frequently in recent job advertisements, it seems that applicants for professorships nowadays have to fulfil additional requirements to become appointed. By measuring the institutional changes in higher education with regard to the professorship, this study follows existing studies. But beyond, this study sheds light on changes in certain requirements in appointment procedures for professorships due to its special focus.

a) Limitations and Further Research

This study has several limitations that further research could address. Since only the four requirements of interest have been considered in the empirical analysis, it remains unclear whether they have replaced other requirements or whether they just have been added to the list of requirements for applicants for professorships. Since the tender texts seem to be longer in 2012 than in 1995 at first sight, the second assumption might be more likely. Nevertheless, further analyses with regard to the development of other requirements are necessary to answer that question. Furthermore, the results allow different conclusions regarding changing requirements for professorships in the course of institutional changes in higher education. Additional research is required to reveal whether requirements for professorships have changed due to new demands placed on universities, whether the requirements mentioned in the job announcements are only for the purpose of demonstration of the conformity with institutional contexts or whether expectations regarding the content of employment advertisements have changed. To develop a full picture of the effects of institutional changes on requirements profiles for professorships, qualitative expert interviews as well as additional quantitative online surveys will be carried out. In doing so, it will be examined whether changes in requirements for professorships are reported by selected experts (persons involved in appointment procedures). The results may disclose whether applicants have to meet different requirements nowadays in order to become successfully appointed for a professorship. Furthermore, the online survey of different groups (e.g. heads of appointment commissions) will reveal whether the requirements mentioned in the job announcements are reflected in the selection criteria in further stages of the appointment

procedure or whether a decoupling of formal structures and organizational activities can be observed.

b) Implications

Implications of this study concern both the individual and the university level. With regard to academic careers, it can be derived that the competencies needed to become appointed as professors seem to have changed. Being a good teacher and researcher might not be sufficient for a successful scientific career. Additionally, professors have to contribute to the universities success by third party funds applications and external cooperation. Moreover, since requirements profiles give information about the tasks of the professoriate, a change of the duties of the academic profession is indicated. As Kehm and Teichler pointed out (2013), this might have broader impacts on professional roles. Due to growing demands placed on the professoriate regarding the attraction of external funding, cooperation and specification, the autonomy of the professoriate could be questioned (Enders 2008). Furthermore, the findings suggest that competitive structures in higher education encourage universities to act strategically in the realm of personnel selection (Hüther and Krücken 2013). They strive to appoint professors fitting into their profiles and being able to cover their financial needs by contract-research activities. This could give causes for concern, if the new requirements supersede requirements for high quality in teaching and research.

References

- Best, H. and Wolf, C. (2010). *Handbuch der sozialwissenschaftlichen datenanalyse*. Wiesbaden: Verlag für Sozialwissenschaften
- Blümel, A., Kloke, K. and Krücken, K. (2010). Professionalisierungsprozesse im Hochschulmanagement in Deutschland. In A. Langer and A. Schröer (Eds.), *Professionalisierung im non-profit management* (pp. 105-131). Wiesbaden: Verlag für Sozialwissenschaften.
- Cohen, M. D. and March, J. G. (1974). *Leadership and ambiguity. The American college president*. New York: McGraw-Hill.
- Ćulum, C., Rončević, N. and Ledić, J. (2013): Facing new expectations - integrating third mission activities into the university. In B. Kehm and U. Teichler (Eds.), *The*

academic profession in Europe. New tasks and new challenges (pp. 163-197). Dordrecht: Springer 2013.

De Boer, H., Enders, J. and 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.

Enders, J. (2008). Professor werden ist sehr schwer, professor sein dann gar nicht mehr? Ein Beitrag zur Personalstrukturreform an Hochschulen. In H. Matthies and D. Simon (Eds.), *Wissenschaft unter Beobachtung. Effekte und Defekte von Evaluationen* (pp.83-99), Wiesbaden: Verlag für Sozialwissenschaften.

Erpenbeck, J. (2010). Kompetenzen - eine begriffliche Klärung. In V. Heyse, J. Erpenbeck, and S. Ortmann (Eds.), *Grundstrukturen menschlicher Kompetenzen - Praxiserprobte Konzepte und Instrumente* (pp. 13-19). Waxmann: Münster.

Fumasoli, T., Gornitzka, A. and Maassen, P. (2014). *University autonomy and organizational change dynamics. Oslo: ARENA Working Paper 8*. Retrieved from ARENA website: <http://www.sv.uio.no/arena/english/research/publications/arena-publications/workingpapers/working-papers2014/wp8-14.pdf>

Gross, C. and Jungbauer-Gans, M. (2007). Erfolg durch Leistung? Ein Forschungsüberblick zum Thema Wissenschaftskarrieren. *Soziale Welt*, 58, 453-471

Hasse, R. and Krücken, G. (2013). Competition and actorhood: A further expansion of the Neo-institutional agenda. *Sociologica Internationalis*, 2, 181-205

Herkle, H. (2011). *Die Identität der Organisation und die Organisation der Identität*. Wiesbaden: Springer VS

Hüther, O., Jacob, A. K., Seidler, H. W. and Wilke, K. (2011). *Hochschulautonomie in Gesetz und Praxis. Eine Analyse von Rahmenbedingungen und Modellprojekten*. Essen: Stifterverband für Deutsche Wissenschaft.

Kehm, B. M. and Lanzendorf, U. (2005). Ein neues Governance-Regime für die Hochschulen - mehr Markt und weniger Selbststeuerung? In U. Teichler and R. Tippelt (Eds.), *Zeitschrift für Pädagogik, Beiheft: Vol. 50. Hochschullandschaft im Wandel* (pp. 41-55). Weinheim: Beltz Verlag.

Kehm, B.M. (2012). Hochschulen als besondere und unvollständige organisationen - Neue theorien zur 'organisation hochschule'. In U. Wilkesmann and C. J. Schmid (Eds.), *Hochschule als organisation* (pp. 17-25). Wiesbaden: Verlag für Sozialwissenschaften.

Kehm, B. M. and Teichler, U. (2013). Introduction. In B. Kehm and U. Teichler (Eds.), *The academic profession in Europe. New tasks and new challenges* (pp. 163-197), Dodrecht: Springer 2013.

Kohler, U. and Kreuter, F. (2005). *Data analysis using stata*. Texas: Stata Press.

Krücken, G., Blümel, A. and Kloke, K. (2012). Wissen schafft management? Konturen der managerialisierung im hochschulbereich. In T. Heinze and G. Krücken (Eds.), *Institutionelle erneuerungsfähigkeit der forschung* (pp. 220–256). Wiesbaden: Verlag für Sozialwissenschaften.

Lamont, M. (2012). Towards a comparative sociology of valuation and evaluation. *Annual Review of Sociology*, 38, 201–221.

Long, S. (1997). *Regression models for categorical and limited dependent variables (Advanced Quantitative Techniques in the Social Sciences)*. Thousand Oaks/London/New York: Sage Publications

Mallich, K., Steinböck, S. and Gutierrez-Lobos, K. (2010). Die zukunft des akademischen personalmanagements - professionalisierung von berufsverfahren hinsichtlich überfachlicher Qualifikationen. *Personal - und organisationsentwicklung/-politik*, 4, 90-98.

Mallich, K., Domayer, E. and Gutierrez-Lobos, K. (2012). Erkennen, einschätzen und bewerten von kandidaten-/kandidatinnenkompetenz in berufsverfahren an universitäten. In G. Niedermair (Eds.), *Schriftenreihe für berufs - und Betriebspädagogik: Vol. 6. Kompetenzen entwickeln, messen und bewerten* (pp. 311-326). Linz: Trauner Verlag.

Meier, F. (2009). *Die universität als akteur: zum institutionellen wandel der hochschulorganisation*. Wiesbaden: Verlag für Sozialwissenschaften.

Meyer, J. W. and Rowan, B. (1977). Institutionalized organizations: formal structures as myth and ceremony. *American Journal of Sociology*, 83, 340–363.

Mintzberg, H. (1979). *The Structuring of organizations. A synthesis of research*. New Jersey: Englewood Cliffs.

Mood, C. (2010). Logistic regression: why we cannot do what we think we can do, and what we can do about it. *European Sociological Review*, 26(1), 67–82.

Musselin, C. (2006). Are universities specific organizations?. In G. Krücken, A. Kosmützky, A. and Torke, M. (Eds.), *Towards a multiversity? Universities between global trends and national traditions* (pp.63-84). Bielefeld: Transcript.

Schimank, U. (2009). Governance-reformen nationaler hochschulsysteme. Deutschland in internationaler Perspektive. In J. Bogumil and R.G. Heinze (Eds.), *Modernisierung des öffentlichen sektors: Vol. 24. Neue steuerung von hochschulen. Eine zwischenbilanz* (pp-123-138). Berlin: Edition Sigma.

Stichweh, R. (2005). Neue steuerungsformen der universität und die akademische selbstverwaltung: die universität als organisation. In U. Sieg and D. Korsch (Eds.), *Academia marburgensis. Beiträge zur geschichte der Philipps-Universität Marburg: Vol. 11. Die Idee der Universität heute* (pp. 123–134). München: K G Saur.

Weick, K. E. (1976). Educational organizations as loosely coupled systems, *Administrative Science Quarterly*, 21, 1-19.

Williams, R. (2012). Using the margins command to estimate and interpret adjusted predictions and marginal effects, *The Stata Journal*, 12(2), 308-331

Winterhager, N. (2015). *Drittmittelwettbewerb im universitären forschungssektor*. Wiesbaden: Verlag für Sozialwissenschaften.

Wissenschaftsrat (2005): *Empfehlungen zur Ausgestaltung von Berufungsverfahren*. Jena: o.V. Retrieved from Wissenschaftsrat website: <http://www.wissenschaftsrat.de/download/archiv/6709-05.pdf>