

Four Essays on University Economics

Dissertation

zur Erlangung des akademischen Grades

Doktor der Wirtschaftswissenschaften (Dr. rer. pol.)

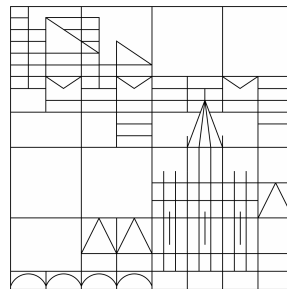
an der Universität Konstanz,

Rechts-, Wirtschafts- und Verwaltungswissenschaftliche Sektion,

Fachbereich Wirtschaftswissenschaften,

vorgelegt von

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Tag der mündlichen Prüfung: 16. Februar 2008

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Summary

This dissertation is a collection of four research papers written during my doctoral studies at the University of Konstanz between October 2004 and November 2008. These papers are empirical studies dealing with different aspects in the field of university economics. The focus of the first two articles is on the evaluation of research output and research productivity of universities in the fields of economics and business economics. Bibliometric methods are used to assess the state of research production in Austria, Germany, and Switzerland. A further aim of the articles is to enhance knowledge of what drives research outcomes. In the other two articles I focus on university graduates. I analyze the return decision of foreign graduates and the determinants of professional success of graduates who studied economics. In the following I briefly summarize the main results.

Chapter 1 is a reprint of the paper *How Did Economic Research in Switzerland Develop since the Beginning 90s?* which was published in the *Schweizerische Zeitschrift für Volkswirtschaft und Statistik/Swiss Journal of Economics and Statistics*, Vol. 142, pp. 285-306, in June 2006. In this paper I present a bibliometric method of quantifying economic research which results in an incentive compatible measuring. Using this method, I assess and compare the research activities of the six Swiss universities with the largest economic research output during the period from 1990 to 2004, namely, the universities of Basel, Bern, Geneva, Lausanne, St. Gallen and Zurich. I present a dynamic research ranking to uncover time patterns that show how the research activity developed during the observation period. My results indicate that total research activity has increased considerably. Looking at the individual universities, however, I observe strikingly different time patterns. In particular, I arrive at the result that the universities that were leading at the beginning of the 1990s, the universities of Basel and Geneva, have in the meantime been surpassed by other universities, in particular the universities of Zurich and St. Gallen. The

average quality of research produced at the six universities converged. The surge in research output is not due to an overall increase in research quality but rather to a dramatic increase in the number of published author-pages over the last decade and a half.

Chapter 2 is joint work with Prof. Oliver Fabel (University of Vienna) and Robert Hofmeister (University of Konstanz). Our paper *Research Productivity in Business Economics: An Investigation of Austrian, German and Swiss Universities* was published in the *German Economic Review*, Vol. 9, No. 4, pp. 506-531, in the year 2008. We draw on a new and comprehensive dataset that collects the research output of business economists employed by Austrian, German and Swiss universities in spring 2008. The data set comprises publication records and personal data of roughly 1,800 scientists. We compute research rankings of departments and identify the leading departments in selected sub-disciplines. Our results indicate that productivity differences between departments are relatively small and concentration of research output across departments is low. Using Tobit and Hurdle regressions, we investigate how institutional design and individual characteristics affect research productivity. We find that research productivity increases with department size as measured by the number of department members and with the number of a department's professors who actively publish. Moreover, productivity is higher in departments that run an economics study program. In line with the life cycle hypothesis we observe that the productivity of active researchers decreases with higher career age. Female business economists appear to be less productive than their male peers.

Chapter 3 is based on the paper *How can Scholarship Institutions Foster the Return of Foreign Students?* that extends the ideas of a Master thesis which was written at the University of Konstanz by Joachim Plesch. In this paper we investigate the return decision of foreign students from developing and transition countries who studied in Germany and received support from a scholarship institution using a discrete time duration analysis. Our analysis is based on individual level data from the Catholic Academic Exchange Service (KAAD). The KAAD is the scholarship institution of the German Catholic Church which supports graduate and post-graduate students and scientists from developing and transition countries. It envisions its students returning to their home countries after the end of their study period in Germany. In their home countries they shall help to foster economic, political, and social development. Our analysis is based on data of 2,436 stu-

dents from 76 countries who were sponsored by the KAAD and who finished their studies in Germany between 1990 and 2005. Controlling for economic, political, and institutional determinants, we find that individual factors, in particular age and time spent in the host country, have a crucial impact on the return decision. We propose selection criteria and proper contractual arrangements that are liable to induce students to return, thereby fostering the economic development in their home countries. Such arrangements include a strict limitation of the grant period, the facilitation of home visits and the recruitment of students in their respective home countries. Moreover, we analyze the impact of cultural differences between home and host country on the return decision. Especially graduates from Africa seem to consider cultural differences when deciding whether and at which time to return.

In Chapter 4 I analyze determinants of professional success using data from an alumni survey of the Department of Economics at the University of Konstanz. 573 alumni of three fields of study (Mathematical Finance, Economics, and Business and Economics Education) participated in the survey which I carried out in autumn 2007. These alumni finished their studies between 1984 and 2007. I consider four measures of professional success: duration of the search for the first job, current income, managerial responsibility in the current job, and the satisfaction with terms and contents of the current job. Gender and final grade have a significant impact on the duration of search for the first job and on current income. But these factors are hardly relevant for the graduates' satisfaction and their level of managerial responsibility. In addition to specific characteristics of the current job, age, and working experience are significant determinants of current professional success. This chapter is written in German language.

Chapter 1

How Did Economic Research in Switzerland Develop since the Beginning of the 90s?

1.1 Introduction

The plethora and popularity of university rankings indicates that the key players of the university system as well as the public at large have a distinct interest in comparative evaluations of the performance of universities. Teaching evaluations are often based on surveys and are, therefore, of dubious quality. Research evaluations, on the other hand, can be based on objective bibliometric methods and are therefore less controversial.¹ This study presents a relatively simple bibliometric method of quantifying economic research. Using this method, we assess and compare the research activities of six leading Swiss universities in the field of economics. In particular, we derive time patterns that document the development of the research activities over the last 15 years.

Bibliometric methods of measuring research output are by now fairly well established in the economic profession. A symposium issue of the *Journal of the European Economic Association* (December 2003), for example, presents different evaluation methods and rankings. These rankings reveal that the economic departments of Swiss universities are not among the leading institutions in the field. In the global ranking presented by Kalaitzidakis et al. (2003), the University of Geneva is ranked 102nd, the University of Zurich 127th and the University of Lausanne 177th. Another worldwide ranking by Coupé (2003) ranked the University of Geneva 149th and the University of Zurich 159th. In a study by Combes and Linnemer (2003) in which only European institutions are evaluated, the University of Zurich is ranked 39th and the University of St. Gallen 57th.

The Center for Science and Technology Studies (CEST), which is affiliated with the Swiss Science and Technology Council, also evaluates research institutions from all over the world in its *Champions League of Research*.² In the field of economics, only the Universities of Geneva and Zurich are represented in the *Champions League*.

Adopting an international perspective, the quantity of research output produced by Swiss economics departments thus appears to be rather unimpressive. An increase can only be achieved by devoting more resources to research or by increasing research productivity. Since the former avenue does, for the time being, not appear to be viable, many observers

¹Research rankings of non-university institutions also exist. Keil and Huber (2004) for example compare the research activities of seven German and three Austrian economic research institutes.

²For an interim report see Da Pozzo et al. (2001), http://adminsrv3.admin.ch/cest/Publikationen/2001/cest_11/bericht.pdf

focus on efficiency enhancing measures such as the increased use of incentive compatible management instruments. Given this focus, it is of utmost importance to be in a position to identify good and poor performances. The arguably most helpful instruments in this context are suitable research rankings.

The hitherto available research rankings of Swiss universities are hardly suited to serve as management instruments. The Swissup ranking,³ but also the research ranking provided by the German CHE,⁴ nowadays a partner of Swissup and the Swiss university rectors' conference, are based on (dubious) questionnaire surveys or assess research quality by measuring inputs such as research grants or the scientific personnel instead of output.⁵ Interestingly, Swissup originally made an attempt to underpin its ranking with a bibliometric analysis, but the collected data has not been analyzed.⁶ As it is, the ranking is based on questionable criteria such as the number of doctorates. This number is easy to acquire but does not really measure research activity because the quality of doctoral theses is very heterogeneous. Moreover, wrong incentives are set: Departments that substitute research quality by quantity fare better in this kind of ranking than departments dedicated to quality.⁷ Such rankings are clearly unsuitable for management purposes.

The method employed by CEST is well-founded from a bibliometric point of view. However, it is not designed as a management instrument but as a means to identify the leading research units in the world.⁸ To do so CEST only counts publications in journals that are listed in the Social Science Citation Index (SSCI), and ranks only those economic research units that have published at least 50 SSCI publications in the survey period. If this method were used as a management instrument, unintentional incentive effects would again result. The objective to “maximize the number of SSCI publications” would replace high quality research by inferior research that is still publishable in second rate SSCI journals. Hein and Ursprung (2004) have referred to this effect as “Gresham’s law” of research evaluation.⁹

³<http://www.swissupranking.com>.

⁴The new CHE Ranking, in which also Swiss universities are evaluated was published on 19. May 2005 (<http://www.che-ranking.de/news.php?id=304>).

⁵A critique of the Swissup/CHE Ratings can be found in Leu (2005).

⁶see http://www.swissupranking.com/pdf/methodo_PDF_DEF_D.pdf

⁷see Fabel et al. (2003)

⁸see Da Pozzo and Roulin Perriard (2004)

⁹The *Champions League of Research* also lists the average citation incidence of the publications (in relation to the global field specific citation incidence). However, it is unclear whether quality differences can be identified by this method because the citation success of most of the economic publications is relatively

In our study, we use a method which was proposed by Combes and Linnemer (2003). This method results in an incentive compatible measuring and is thus better suited for management purposes than the methods that were used in Switzerland until now. Using this bibliometric method, we compare the research activities of the six Swiss universities with the largest economic research output over the last 15 years, namely, the universities of Basel, Bern, Geneva, Lausanne, St. Gallen and Zurich.

In contrast to other rankings, we present a dynamic research ranking to uncover time patterns that show how research activity developed over a period of 15 years. The chosen period from 1990 to 2004 is particularly interesting because, during this period, a distinct move towards a higher appreciation and more international exposure of research activities took place in the economics profession.¹⁰ In the 80s, some departments still had only a few researchers who published in international journals. Today, however, international research acclaim is a prerequisite for an academic career in economics.

In the next section, we describe the method proposed by Combes and Linnemer and discuss its suitability as a university management instrument. Our dynamic baseline ranking of the Swiss universities is presented in section 1.3. In section 1.4, we investigate the effect of the proliferation of learned journals on our results. Moreover, we decompose the total increase of research output into a quantity and a quality component. Section 1.5 concludes.

1.2 An Incentive Compatible Method

Combes and Linnemer (2003) employ the body of articles published in learned economic journals as the basis for research assessment. This assessment basis is quite common in the bibliometric literature and appears to be adequate for two reasons. First, research results in economics are primarily communicated via journal publications today.¹¹ Second, articles published in peer-review journals are subject to quality controlling. The incentives to publish high quality research on the part of the editors and to be published in highly reputed journals on the part of the authors gives rise to a hierarchical system of research

small and can thus be manipulated quite easily.

¹⁰Laband and Tollison (2003) point out that between 1974 and 1996 the incentives to raise the research output were increased in the USA but also in other countries.

¹¹see Coupé (2003) and Hutchinson and Zivney (1995)

publication that, as a by-product, assesses research quality in a decentralized manner.

Clearly, such an endogenous assessment of research quality is not available for other types of publications, i.e. for articles in collected volumes and monographs. The publication decision in these cases will often not only depend on the academic quality but also on the expected commercial success. Moreover, monographs and collected volumes often deal with extremely applied subject matters. They thus frequently serve to transfer economic research to a non-specialist audience. If this is the case, these publications have to be classified as economic or political consulting rather than research.¹²

Our evaluation is based on the EconLit database, the American Economic Association's electronic bibliography. EconLit covers a wider range of the economic journal literature than the SSCI. In terms of the economic research of Swiss universities, the SSCI only lists approximately one third of the journal articles included in EconLit.¹³ In particular, the SSCI neglects a number of journals that are important for certain regions or certain fields of economics. If those publications are not taken into account, the resulting measure of research activity would be biased.

We collected information about EconLit journal articles that were published between 1990 and 2004 and which were (co-)authored by at least one author affiliated with one of the six above mentioned Swiss universities. EconLit also covers some management/business journals in which economists sometimes publish. With the exception of publications in finance journals we did, however, not take these publications into account.

Our measure of research activity corresponds to Combes and Linnemer's CLpn-index that is based on article length, number of coauthors, and a journal specific weight.¹⁴ In measuring the research output of an institution I , we thus account for all EconLit journal articles k of the members i of institution I . The research output (FX) of institution I is then computed as follows:

$$FX = \sum_{i \in I} \sum_{k,i} \frac{p_{k,i} w_{k,i}}{n_{k,i}}, \quad (1.1)$$

where $p_{k,i}$ denotes the number of pages of publication k authored or co-authored by researcher i , $n_{k,i}$ the number of authors, and $w_{k,i}$ a journal specific quality weight.

¹²The German Wissenschaftsrat advises differentiating between research and transfer activities (<http://www.wissenschaftsrat.de/texte/6285-04.pdf>).

¹³Even the EconLit database does not cover all journals, but only those that satisfy certain qualitative criteria.

¹⁴We do not correct for different sizes of the pages of different journals.

Since an assessment of the quality of each single article is difficult and time-consuming, it has become common practice in the evaluation literature to use journal specific quality weights, i.e. the quality of an article is associated with the quality of the journal in which it is published. There are two ways of determining journal-specific quality weights. One possibility is to identify the quality of a journal with its impact factor based on citation incidence. However, such a weighting scheme results in perceived quality differences that are inappropriately large.¹⁵ An alternative way of arriving at journal-specific quality weights is via a survey among experts. This method, of course, may also yield controversial results. Even though there are different methods of objectifying the opinions of experts (for example by taking “impact factors” into account) the weighting always remains subjective and vulnerable to critique.

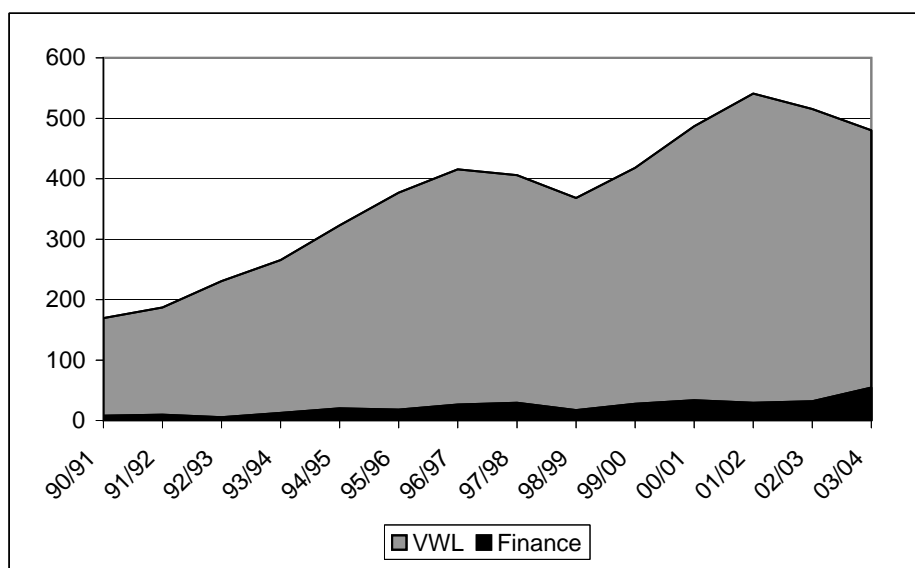
In the literature different weighting schemes have been proposed. For our benchmark-ranking, we use the original weighting scheme proposed by Combes and Linnemer (2003).¹⁶ The CL weighting scheme reflects objective factors as well as expert opinions. All journals listed in EconLit are given a positive weight. The journal weights range between $\frac{1}{12}$ and 1. Thus, it is assumed that 12 articles published in journals of the lowest category contain ceteris paribus the same research achievement as one article which is published in one of the leading journals. The CL scheme contains six categories with the weights $\frac{1}{12}$, $\frac{1}{6}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$ and 1. The lower the category, the more journals it contains. Only five journals receive a weight of 1 (AER, Econometrica, JPE, QJE, RES), but 138 journals a weight of $\frac{1}{6}$. All journals that are not explicitly listed in one of the first five categories that contain approximately 230 journals, fall into the last category and receive a weight of $\frac{1}{12}$.

The research activity of the universities is recorded on an annual basis. In order to compensate for accidental fluctuations between two consecutive years, we however prefer to present moving two year averages. We chose this presentation because we want the ranking to reflect the normal productivity of a university and not random events such as publication lags and faculty turnover.

¹⁵Kalaitzidakis et al. (2003) for example gave the *Journal of International Economics*, which is a leading journal in its field, a quality weight which is 13 times smaller than that of the *American Economic Review*; a paper in *Kyklos* is rated 110 times less valuable than a paper in the *American Economic Review*.

¹⁶Our results are not very sensitive with respect to the weighting scheme. The rank correlation coefficients between our benchmark ranking and rankings based on seven other weighting schemes are, in general, quite high (see the German working paper version of this paper, http://twi.ch.uni-konstanz.de/twi_research.php).

Figure 1.1: Total economic research output of the Swiss universities



Own calculation: sum of the research outputs of the six Swiss universities we consider (according to the weighting CL)

1.3 Baseline Results

The development of overall economic research output of the Swiss universities subdivided into research in economics (VWL) and finance is depicted in Figure 1.1.

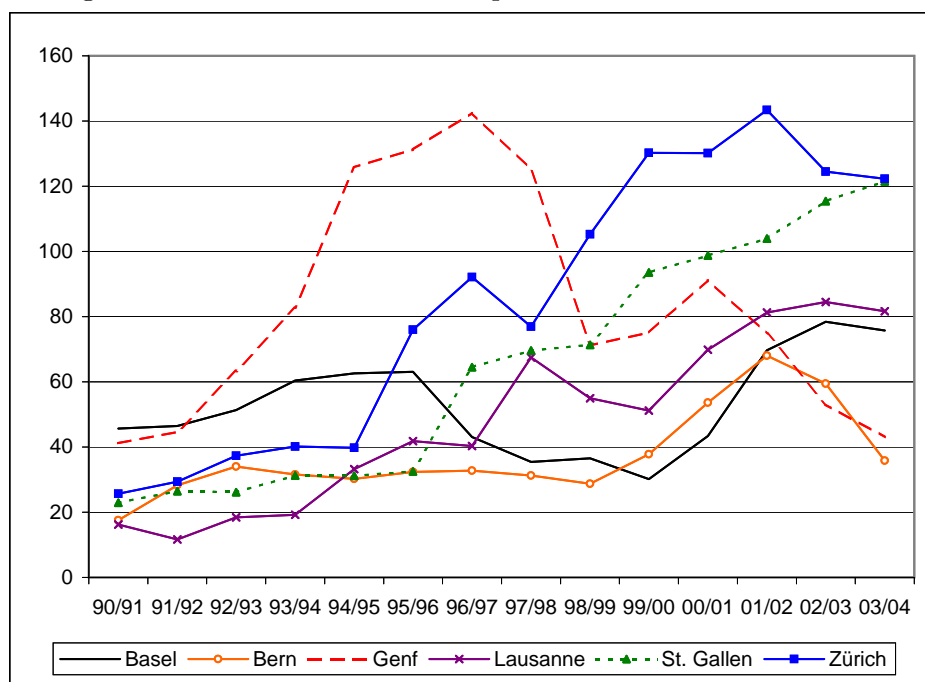
The development of the research activity of the six largest universities as measured by equation (1) is displayed in Figure 1.2.

Comparing the annual averages of 1990/1991 and 2003/2004 reveals that the research output of all six universities has increased in the observation period (in the case of the University of Geneva, though, only slightly). The patterns of research output of the six individual institutions show, however, marked differences.

The largest increases in research output have been achieved by the Universities of St. Gallen and Zurich. Particularly since the mid-90s, large growth rates can be registered. Because of the continuous increase in research output, both universities were able to improve their position in the ranking. While they were ranked third and fourth at the beginning of the 90s, they are now the leading Swiss universities in terms of total economic research output.

The University of Lausanne has also been able to improve its position in the ranking.

Figure 1.2: Economic research output of the six Swiss universities



Own calculation: moving two year averages of the research output (according to the weighting CL)

Its research output rose quite steadily. However, the average growth rates were smaller than those of the Universities of St. Gallen and Zurich. The University of Bern, which also registered a moderate increase in research output in the 90s, fell back to the last position due to a decline beginning in 2001/2002.

The gains of Zurich, St. Gallen and Lausanne came at the cost of the Universities of Basel and Geneva. In the first half of the 90s, these universities also managed to increase their research output. In particular, the University of Geneva registered large growth rates. However, in the middle of the 90s the research output of the two universities began to decline. The University of Basel was able to stabilize its research output in the second half of the 90s and, since the beginning of the 21st century, has recuperated nicely. The research output of the University of Geneva, however, has steadily declined. In 2003/2004, Geneva's research output is not significantly larger than it was at the beginning of our 15 year observation period. As a consequence, the University of Geneva, which was leading for more than six years, is currently only ranked second-to-last.

Since the resources put into economic research are liable to differ substantially across the

six universities, output differences do not translate into differences in research productivity. In order to compute research productivity which is, arguably, the most important indicator for managerial decisions, a measure of input in research production is needed. A natural measure would be costs. Unfortunately, Swiss universities are still not in a position to provide full cost accounting information. Lacking this kind of information, a second best alternative that is often used is to compute average productivity in terms of employed manpower. Even though this approach is, in principle, practicable, some serious problems arise nonetheless. The first one is that the often-used method of measuring the size of an economics department with the number of full professors is inadequate since the relevant research output is not only produced by full professors. As a matter of fact, it appears that the observed increase in research output is, to a substantial extent, due to the fact that junior researchers have become much more productive in the observation period. To establish the number of all researchers who worked in the six departments for the 15 years covered in our survey is, however, beyond the grasp of this exploratory study. A further problem that would have to be dealt with in a serious investigation of research productivity is the fact that researchers specializing in fields other than economics (mathematicians, political scientists, psychologists, sociologists, etc.) also contribute to economic research. To identify these researchers and to measure the time they use for economic research is a real challenge. We do not want to disregard all these issues by using some readily available but rather meaningless figures. Therefore, we leave this issue to be resolved by a future investigation that would have to draw on the support of the assessed institutions.¹⁷

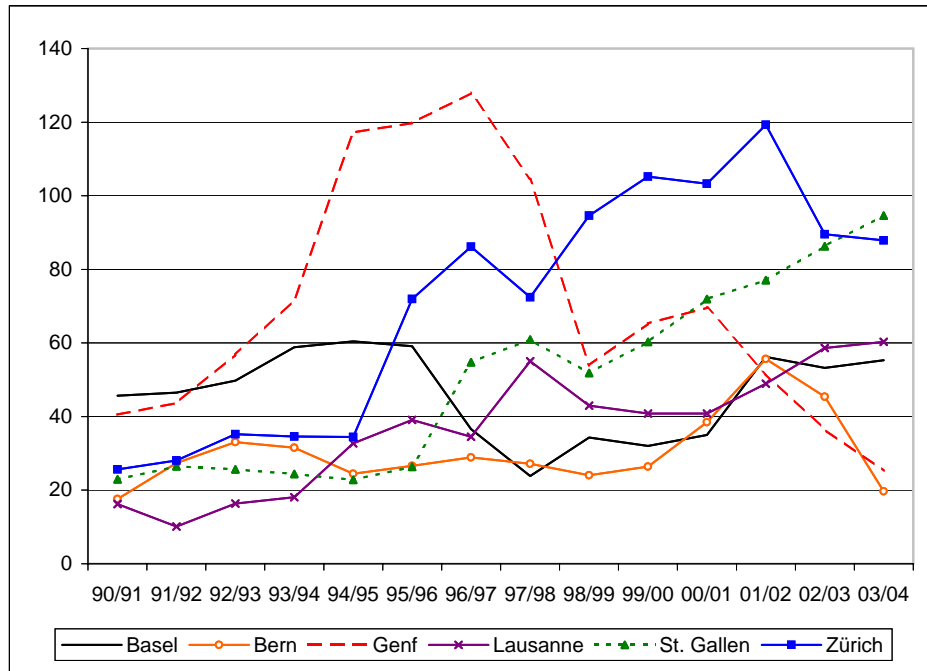
1.4 Journal Proliferation and the Development of Research quality

1.4.1 Journal Proliferation

The increase in economic research activity in Switzerland as described in section 1.3 may, to some extent at least, be attributed to the fact that during the observation period the publication behavior was subject to a substitution process favoring journal publications

¹⁷Most scientometric studies dealing with research activity restrict themselves, presumably for the reasons given above, to measuring output. A notable exception is again the study by Combes and Linnemer (2003). Their input measure appears, however, to be somewhat suspect (see Ursprung, 2003, p. 185).

Figure 1.3: Economic research output of the six Swiss universities (modified)



Own calculations: moving two year averages of the research output in journals that were covered by EconLit already in 1990 (according to the weighting CL)

at the cost of other publication media. In order to eliminate the influence of journal proliferation, we excluded all articles from our calculations that were published in journals that did not yet exist in 1990 or were not covered by EconLit at that time. Figure 1.3 depicts the modified development of the research output of the six universities.

The research output displayed in Figure 1.3 is, of course, lower than the research output displayed in Figure 1.1. The development patterns are however quite similar.

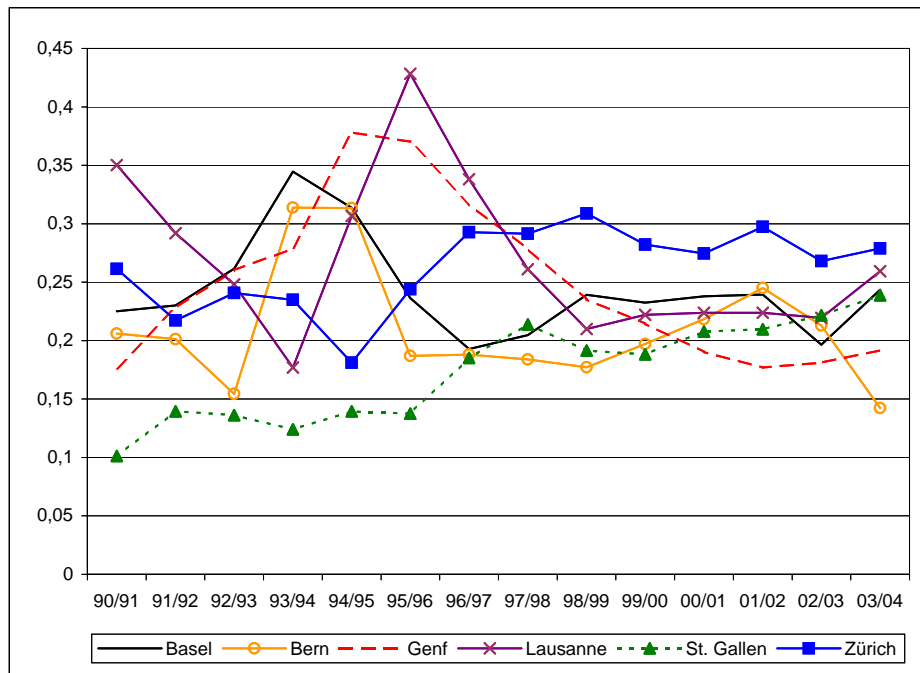
1.4.2 Quality and Quantity

The level of research activity (FX) is determined by the number of author-pages published (FX_S) and the average quality of the publications (DQ): $FX = FX_S * DQ$. Average research quality DQ is thus defined as follows:

$$DQ = \frac{FX}{FX_S} = \frac{\sum_i \sum_k \frac{p_{ki} w_k}{n_{ki}}}{\sum_i \sum_k \frac{p_{ki}}{n_{ki}}}. \quad (1.2)$$

The development of the average quality of research produced (DQ) at the six universities

Figure 1.4: Average research quality of the six Swiss universities



Own calculation: moving two year averages of the average quality (according to the weighting CL)

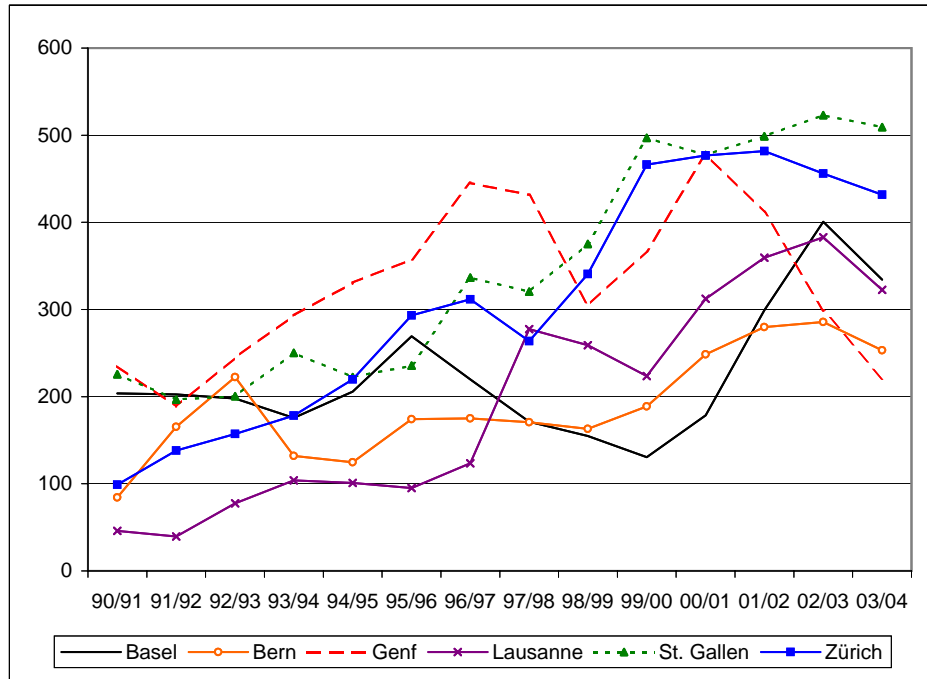
is displayed in Figure 1.4.

A steady increase in the average quality of research can only be observed for the University of St. Gallen whose publications were rated lowest at the beginning of the observation period. The index of average research quality for St. Gallen more than doubled from 1990/1991 to 2003/2004. At the beginning of this period, the economists from St. Gallen published almost exclusively in journals of the lowest category ($\frac{1}{12} = 0.08$). Today, the index of average research quality is approximately 0.25; this corresponds to a quality level of journals that enjoy an international reputation.

In general, the average quality of research produced at the six universities converged. We interpret this but to imply that over the last 15 years, more and more faculty members became active in research; the “law of large numbers” renders extreme averages unlikely; the averages thus converge. Our result also indicates that the university system in Switzerland is not structured hierarchically. Until now, at least, no elite departments have emerged.

The surge in research output that we identified in section 1.3 is thus not due to an overall increase in research quality. Rather, it documents the fact that the number of published

Figure 1.5: Number of pages published by the six universities



Own calculation: moving two year averages of the number of published pages weighted by the number of authors

author-pages dramatically increased over the last decade and a half. This development is displayed in Figure 1.5.

1.5 Conclusion

The method on which our baseline ranking is based is better suited to measure the research activity than the ranking methods that were used in Switzerland hitherto because it can be used as a management instrument.

We demonstrated that the research activity of the Swiss universities developed differently. Over the period under consideration (15 years), the ranking of universities was not stable. Due to this, it is necessary to update research rankings on a regular basis (approximately every five years), if they are to be used as management instruments.¹⁸ Our time patterns show that the classification of the University of Geneva in the *Champions League* of the CEST as well as its relatively good position in the rankings by Kalaitzidakis et al.

¹⁸This is in accordance with a recommendation of the German Wissenschaftsrat (Deutscher Wissenschaftsrat, 2004).

(2003) and Coupé (2003) are mainly based on its high research output in the first half of the 90s, but are no longer justified on the basis of its current research activity. Moreover, it has to be taken into account that the journal landscape changes over time. In order to prevent distortions due to this change, the weighting schemes should also be reviewed and updated regularly.

A problem of our method is the undifferentiated assignment of the research activity to the institutions, i.e., in our case, to universities instead of departments. Bibliometric methods encounter difficulties in this respect. In order to overcome this weakness, one has to rely on the collaboration of the institutions. An accurate institutional assignment is only possible on the basis of self declarations (research reports). Also, information, such as, the size of the institution (the academic personnel or the total expenditures), could be inferred from research reports. With this information, the research productivity of the evaluated research units could be calculated - a central measured value for research management which cannot be measured accurately in bibliometric studies.

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Chapter 2

Research Productivity in Business

Economics: An Investigation of Austrian,

German and Swiss Universities

2.1 Introduction

The international exposure of economic research in continental Europe has certainly increased over the last two decades. This development has been accompanied by a growing interest in comparative evaluations of research institutions. Most of these evaluations have, however, focused on ‘proper’ economics (defined as the research program envisaged by classical political economists). Representative studies include Clemenz and Neusser (1991) for Austria, Combes and Linnemer (2001) for France, Guimarães (2002) for Portugal, Dolado et al. (2003) and Rodríguez (2006) for Spain, Cainelli et al. (2006) for Italy, Hein (2006) for Switzerland, Turnovec (2007) for the Czech Republic, and Rauber and Ursprung (2008a) for Germany. Some momentous ranking studies covering Europe as a whole have been published in a special issue of the *Journal of the European Economic Association* (2003).

The much younger subdiscipline of business economics has yet received very little attention. Clearly, this discipline that deals with the application of economic principles to firms or other management units attracts considerable public, commercial and academic interest - reflected, for example, in the growing number of professorships in business administration and the starting salaries of graduates. However, apart from Fabel and Heße (1999) we are not aware of any studies that evaluate research performance in this field. The above-mentioned ranking studies either do not consider this research at all or it is mingled with publications from the various subdisciplines of economics. However, due to differences in publication and citation cultures, blending across disciplines causes comparability problems.

In our study we therefore focus on research in the field of business economics, which, in our understanding, includes the subdiscipline *management*. We exploit a new and comprehensive dataset on the research output of academics in business economics who are employed at universities in Austria, Germany and (German-speaking) Switzerland. Research in economics and research in business economics are complementary. Lacking a business school tradition, business economics - with only few exceptions - constitutes an integral part of most economics faculties at Austrian, German and Swiss universities. This close relationship indicates that similar standards should be applied when evaluating research performance in economics and business economics.

In particular, it is evident that research success must be measured in terms of publications in journals that adhere to some minimum quality standard. For incentive-compatible performance measurement, it is then further necessary to account for quality differences between journals. By the same token, the evaluation strategy needs to be balanced across economics and business economics. Unfortunately, traditional ranking studies have often been tailored to meet the requirements of ‘proper’ economic research. Consequently, the publication data of business economists are underrepresented and the weighting schemes appear inappropriate. In contrast, our analysis reflects the publication habits in the field of business economics.

The paper is organized as follows. In the next section, we describe our dataset and our measures of research productivity. Instead of including a comprehensive literature survey, we discuss the relevant literature when we report our results in the following sections. In Section 2.3 we present our department rankings. In Section 2.4 we analyze institutional effects on research productivity and derive some conclusions concerning the training of junior scientists. The impacts of individual characteristics on research performance are analyzed in Section 2.5. The final section provides a brief outlook on important issues for future analysis.

2.2 Data and Methodology

We draw on a dataset collected under the auspices of the Committee for Research Monitoring of the German Economic Association (*Verein für Socialpolitik*). The dataset is housed by the Thurgau Institute of Economics and funded by the Association and the *Handelsblatt*, a leading German business newspaper. It comprises publication records and personal data of roughly 1,800 scientists in the field of Business Economics and Management who are employed by Austrian, German or (German-speaking) Swiss universities in spring 2008. Most of these researchers are employed by a full university.¹ However,

¹From the original list of university departments provided by the German Rectors’ Conference (HRK), we exclude departments with less than four full professors in our sample - leaving out the International University Bruchsal, the Jacobs University Bremen, the Technical University Graz, the Universities of Erfurt, Hildesheim, Koblenz-Landau and Salzburg, the Kassel International Management School, the WHL Lahr and the International Graduate School (IHI) Zittau. We further omit the Dresden International University, the Steinbeis College Berlin and the Krems-Donau University because their staffs consist (almost exclusively) of academics from other universities on lecture contracts. Owing to its extreme specialization on health management, we also leave out the Medical University Hannover.

we also include the academic staff of institutions that, by international standards, rather resemble business schools.² We focus on individuals who possess a doctor's degree and whose principal occupation is academic research and teaching. Part-time lecturers with a primary nonuniversity employment are not included in the dataset.

Personal data and data on institutional characteristics of the departments are gleaned from the departments' homepages. The publications are collected from the EconLit and WISO databases. WISO indexes a large number of journals that publish articles in German. We account for differences in journal quality by using one of the journal meta-rankings proposed by Schulze et al. (2008). Meta-rankings are generated by imputing several journal weighting schemes that cover different but overlapping sets of journals. Specifically, we employ journal weights of the meta-ranking that uses Ritzberger's (2008) classification as the base scheme. Ritzberger calculates journal impact factors according to reciprocal citations for SSCI journals in the categories economics, business, finance, industrial relations, and labor, and for selected statistics journals.

Schulze et al. (2008) supplement this classification with additional journals that are not included in the SSCI but are ranked in questionnaire surveys conducted by Bräuningner and Haucap (2001), the German Academic Association for Business Research (VHB) and the Vienna University of Economics and Business Administration (WU Wien). While Bräuningner and Haucap's classification includes many economics journals that publish in German, the VHB and the WU Wien classifications introduce the business economics focus that we need for our analysis. The meta-ranking then classifies 2,825 journals (economics and business administration) by sorting them into six quality groups with group weights ranging from one to six.

Intuitively, it may appear more appropriate to use a meta-ranking that is based on the VHB or the WU Wien classification. However, such meta-rankings would virtually place all SSCI-listed journals into the top category. In contrast, using Ritzberger's (2008) list as the base scheme induces sufficient variation in the journal weights of the resulting meta-ranking. We admit that this procedure may induce a bias against management journals that have an interdisciplinary perspective. For our specific purpose, however, this feature is rather desirable because the results can be readily compared with the

²The respective schools are legally entitled to award doctor's degrees.

available rankings of economics departments. Such comparisons are interesting because pure business administration departments are the exception in Austria, Germany and Switzerland. The standard institutional set-up is rather a department of economic science that encompasses economics as well as business administration. Academics in business administration are thus regularly subjected to research evaluations that fail to account for disciplinary differences.

To measure research performance, we assign a score pw/n to each publication in the sample where p denotes the number of pages, w is the journal weight and n the number of authors. A researcher's output is then defined as the sum of the scores of all articles written over his or her career. Individual research productivity is defined as output divided by career years. Because the weight of journals in the lowest quality category is one, the individual productivity measure can be interpreted as the average number of standardized pages in journals of the lowest quality category per career year.

We assume that the year in which a scientist is awarded the doctorate marks the beginning of his or her career. In cases where this information is missing, we use an estimate of the first career year: for all researchers whose first career year is known we compute the median time lag between the beginning of the career and the first publication. We then assume that this time lag should also apply to individuals for whom the information about the beginning of the career is missing. Department productivity is defined as the average of the productivities of its individual members. Thus, the department productivity measure can be interpreted as the average annual number of standardized pages in journals of the lowest quality category per department member.

Table 2.1 illustrates the distribution of the 2,825 journals and of the 20,879 articles in the dataset across the six quality categories. The distribution of the articles is bimodal. To test the hypothesis that this bimodality results from the interference of two distributions - one for top researchers and one for less prolific researchers - we compute the distribution of articles separately (1) for researchers who have achieved at least one publication in a top journal and (2) for researchers without a top publication. The last two columns of Table 2.1 reveal that individuals of both groups publish more articles in journals with a quality weight of four than in journals with quality weights of three and five. This observation does not support the above hypothesis. The observed bimodality is rather

Table 2.1: Distribution of journals, publications, scores, and authors over journal classifications

Quality weight	% of journals	% of articles	% of output	Average no. of authors per article	% of articles by authors with at least one top publication	% of articles by authors without top publication
6	0.50	0.39	3.13	2.14	9.36	0.00
5	0.74	0.38	1.92	2.19	4.28	0.21
4	1.17	0.99	4.47	2.30	8.32	0.67
3	2.09	0.79	2.55	2.03	4.39	0.63
2	4.39	3.17	6.97	2.00	11.33	2.82
1	91.12	94.28	80.95	1.90	62.31	95.66
Number, average	2,825	20,879		1.91		

due to the way in which journals are assigned to quality categories. Journals in category four seem to be more popular research outlets for business economists in Austria, Germany and Switzerland.

Table 2.1 also provides information about the distribution of research output and the average number of authors per article across the six types of outlets. Comparing the distribution of the number of publications with the distribution of total output across quality categories illustrates the effect of the quality-weighting scheme. Most of the articles in our sample are either single (37%) or double authored (41%). The average number of authors appears to increase with journal quality.

One of our objectives is to investigate whether institutional and individual characteristics affect research productivity. Because almost 15% of the academics in our sample did not publish in our sample of journals, we then use Tobit regressions to identify the determinants of productivity. The descriptive statistics of the data used in our regression analyses of average department productivity (in Section 2.4) and of individual productivity (in Section 2.5) are detailed in Table 2.6 in the Appendix (Section 2.7).

2.3 Department Rankings

Table 2.7 in the Appendix reports department rankings according to research productivity. Table 2.7 (a) includes only full professors and Table 2.7 (b) includes full professors and

Table 2.2: Rank correlations between productivity rankings using different journal weighting schemes (professors and junior staff)

	Whole sample	Quantile 1 (worst)	Quantile 2	Quantile 3	Quantile 4 (best)
VHB	0.8620	0.8079	0.3870	0.6364	0.4113
WU Wien	0.8012	0.7817	0.2043	0.5844	0.2641
Unweighted	0.8227	0.8827	0.4183	0.4632	0.4078
Combes/Linnemer	0.5549	0.3698	0.1609	0.4826	0.1957
Tinbergen	0.4084	0.2598	0.0960	0.1966	0.3101
No. of observations	89	23	22	22	22

junior staff. The leading department is at the University of Bonn. On average, full professors in Bonn publish the equivalent of almost 30 pages per career year (without co-authors) in journals of the lowest quality category. The departments at the universities of Mannheim and Vienna - respectively at the WHU Koblenz/Vallendar, when accounting for junior staff - are ranked second and third. Adopting a bird's-eye view, we cannot confirm a separation of research and teaching universities in Austria, Germany and Switzerland. This is in stark contrast to the situation in the United States.

Research output is not concentrated on a select group of departments: the normalized Herfindahl index of 0.0088 (0.0086 for the ranking including junior staff) does not indicate a monopolization of the 'market for publications'.

To judge the robustness of our results with respect to changes in the journal weighting scheme, Table 2.2 reports rank correlation coefficients between our ranking displayed in Table 2.7 (b) and alternative rankings. Two of the alternative rankings are taken from Schulze et al. (2008) as well but use the VHB and the WU Wien classification as reference lists. We also compare our ranking with a ranking that uses no journal weights at all. For the whole sample the rank correlation between our preferred ranking and these three rankings is rather high. The rank correlations for the quantile 2-4 subsamples are, however, substantially lower, confirming that productivity differences between departments are relatively small.

There is much more disagreement in ranking departments that exhibit high productivity (quantile 4) than in ranking departments with less prolific members: the publication incidence in high-quality journals is actually only noticeable in good departments. Weightings

induce shifts in rankings mainly at the top of the lists. This interpretation is confirmed by the rank correlation between our preferred ranking and the ranking computed with unitary quality weights. Again, the rank correlation is higher for low-productivity departments. Thus, high productivity and high quality are correlated.

Table 2.2 also displays rank-order correlations vis-à-vis productivity rankings based on the journal weighting schemes by Combes and Linnemer (2003) and the Tinbergen Research Institute at the Erasmus University, Rotterdam. Both classifications focus on journals in ‘proper’ economics (EconLit). Hence, they do not account for most business journals that we include in our ranking. The correlations between our preferred ranking and these two rankings are - not surprisingly - significantly lower than the correlations discussed above. This finding indicates that publications in WISO journals that are not listed in EconLit cannot be neglected in a well-balanced ranking for the business economics profession. Although EconLit covers the most important and influential economics journals, business economists very often choose other publication outlets. Only 21% of the publications in our dataset are recorded by EconLit. Restricting the analysis to these journals would thus seriously distort the evaluation of research in business economics.

Rauber and Ursprung (2008a) propose to control for cohort effects if evaluating departments with different age structures. Following their method, we therefore define an individual’s cohort by the group of peers who received their doctor’s degree up to two years before or after the reference individual. We then order the peers in each cohort according to research productivity and assign the appropriate quantile to each individual. In a last step each department’s score is calculated as the mean of the quantile values of its individual members.

Our cohort ranking based on the sample including junior staff is presented in Table 2.7 (c). The leading department according to this ranking is at the University of Konstanz followed by the departments of the Technical University of Braunschweig and the Ludwig-Maximilians-University München. The rank correlation coefficient between the productivity and the cohort ranking is 0.7983. However, cohort rankings do not use information on the absolute differences of productivities within cohorts. Furthermore, not every additional publication increases the score. Thus, performance measurement using cohort rankings may provide somewhat weaker incentives to publish.

Table 2.3: Top-five departments by fields of research

Rank	Financial Markets and Corporate Finance	Managerial Accounting	Marketing and Sales	Organization, Personnel, and Strategy	Financial Accounting, Auditing and Taxation
1	Mannheim University	Wien University	Darmstadt TU	Würzburg University	Saarbrücken University
2	Ulm University	Koblenz Vallendar WHU	Koblenz- Landau University	Bonn University	Paderborn University
3	Karlsruhe University	Ilmenau TU	Augsburg University	Paderborn University	Köln University
4	Dortmund University	Graz University	Jena University	Köln University	Hannover University
5	Jena University	Bremen University	Mannheim University	Braunschweig TU	Trier University

Using the departments' web pages, 1,490 individuals can be assigned to subdisciplines. In Table 2.3 we report top-five department lists for the subdisciplines 'Financial Markets and Corporate Finance', 'Managerial Accounting', 'Marketing and Sales', 'Organization, Personnel and Strategy' and 'Financial Accounting, Auditing and Taxation'. Initially, we identified two more subdisciplines. Yet, we exclude the field 'Production, Cost Accounting and Industrial Management' because we are too often unable to differentiate this field from business information systems. We also exclude the subdiscipline 'Public Enterprise Management' due to an insufficient number of observations.

Only four departments, the departments of the universities of Jena, Mannheim, Köln and Paderborn, make it into the top-five lists in two subdisciplines. No department can claim more than two top rankings. This observation suggests that business economics research is rather specialized. Or phrased in terms of current German higher education politics, centers of excellence are not concentrated in a small number of locations.

Table 2.8 in the Appendix provides a ranking of departments such that research output is assigned to the individual's original training department - defined either as the department that granted the researcher's doctor's degree or *venia legendi* - instead of the department

that the researcher is currently affiliated with. Unfortunately, we are unable to obtain information concerning the training department for all individuals in our sample. We only include departments in which at least four professors received their training. Professors who received their doctor's degree from the Humboldt University in Berlin, the University of Bonn and the University of Hagen are most productive (on average). The Technical University of Vienna, the University of Bonn and the University of Passau awarded the *venia legendi* to the most productive researchers in our sample.

The University of Bonn, which is the top university in terms of current department productivity, also belongs to the most successful training institutions. The other leading training departments do not stand out as high-productivity departments in Table 2.7 (b). Generally, rank correlations between the rankings based on current affiliations and training institutions are moderate. The rank correlation between the productivity ranking reported in Table 2.7 (b) and the productivity rankings in Table 2.8 is slightly higher when focusing on the doctor's degree 0.5234 than on the *venia legendi* 0.4799.

According to Davies et al. (2008) and Kocher and Sutter (2001), the concentration of research output across universities is higher if the research output is assigned to the department that granted the researcher's doctor's degrees than if it assigned to the researcher's current affiliation. The same holds true for our sample. However, the normalized Herfindahl index is still very low: the respective values are 0.0220 (doctorate) and 0.1835 (*venia legendi*). Interpreting this information with due care suggests that the market for junior business economists is not very concentrated in the German-speaking area. We cannot single out a small group of departments that train the most productive individuals. Thus, it does not appear to be a promising strategy to concentrate recruiting on a few prestigious departments when hiring new faculty.

2.4 Institutional Effects

In this section we investigate whether institutional characteristics affect the research productivity of entire departments. Research productivity is measured as the average of the productivities of department members including junior staff. Table 2.4 reports the results of a Tobit regression analysis. We present results for two subsamples. Because the variable 'number of students' is not available for Austrian departments, only German and Swiss

departments are considered in subsample 1, while subsample 2 also includes the Austrian departments.³

Table 2.4: Regression output of Tobit regressions for university sample (professors and junior staff)

Dependent Variable: Department productivity	(1)			(2)		
	Without Austrian departments			All departments		
	Coefficient	Standard error		Coefficient	Standard error	
Size	0.1191	0.0549	**	0.2095	0.0925	**
Size squared				-0.0019	0.0010	*
No. of non-publishing professors	-1.6020	0.3993	***	-1.5339	0.3743	***
Dummy: economics	1.4983	0.9578		1.7729	0.8472	**
No. of students per professor	-0.0009	0.0029				
Dummy: Switzerland	0.7088	1.8940		1.6192	1.8016	
Dummy: Austria				-3.2536	1.7379	*
Ratio Dr./Prof.	-0.8193	1.4770		-1.5035	1.3434	
Constant	8.3686	1.0510	***	7.4355	1.0942	***
No. of observations	79			89		
Pseudo- R^2	0.0427			0.0515		

Notes: *** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level

We find that research productivity increases with department size as measured by the number of department members (see Table 2.4). Using subsample 2 that includes the Austrian departments (see Table 2.4, column 2), the effect of department size on productivity is actually positive but diminishing. Only when department size exceeds 55 persons, productivity begins to decline. There are only two departments with such a large faculty: the department of the WU Wien and the department of the University of St. Gallen. This finding is perfectly in line with Cainelli et al. (2006), who show that average research output of Italian economics departments is higher in larger departments. The positive correlation between productivity and size may reflect either increasing returns in research production (conceivably due to more peer pressure) or the selection of more successful individuals into larger and potentially more prestigious departments.

³For the same reason we must also exclude three German business schools (ESCP-EAP Berlin, Frankfurt School of Finance and Management, and Zeppelin University) from subsample 1.

Cainelli et al. (2006) also report that research output is highly concentrated within Italian economics departments, a result that is confirmed by Australian evidence (see Neri and Rodgers, 2006). According to Cainelli et al. (2006), this result reflects the division of labor that allows some individuals to specialize in research while others assume teaching and administrative duties. To investigate this issue, we use the Gini coefficient as a measure for the concentration of research output within departments. The average of the Gini coefficients over all departments is 0.22, indicating that concentration of research within departments is moderate. Specifically, the Gini coefficients in our sample are much lower than the Gini coefficients reported by Neri and Rodgers (2006) for Australian economics departments. Furthermore, we find virtually no correlation between concentration of research output and productivity. Division of labor thus does not necessarily induce better research performance.

Our next estimate shows that productivity is lower in departments with a higher number of non-publishing professors. Whether this confirms the finding of Taylor et al. (2006), who claim that researchers with productive peers are more productive themselves, remains questionable: in our computations department productivity is defined as the average over all individual productivities. Thus, this average also includes the unproductive members. We return to this issue in the next section where we analyze the determinants of individual research productivities.

Most programs in business economics and management in Austria, Germany and Switzerland are associated with economics departments. Interdisciplinary collaboration and interdisciplinary competition are likely to have an impact on productivity of business economists. In fact, our estimates show that productivity is higher in departments that also run an economics study program (see Table 2.4, column 2).

According to Maske et al. (2003) and Taylor et al. (2006), higher teaching loads and/or more administrative duties reduce research productivity. We attempt to proxy the teaching load by the total number of students who major in business economics and management, economics or a related discipline and divide this number by the number of faculty members. Unfortunately, we were not able to uncover federal statistics on student numbers in Austria. The estimate for the subsample that includes only German and Swiss departments suggests, however, that higher teaching loads in terms of class sizes do not

deter research productivity (see Table 2.4, column 1).

Research grants are provided with the intention to enhance research productivity. Often, past research performance is appreciated and used as a predictor for future research performance. We therefore expect a positive correlation between research grants per capita and department productivity. In 2005 the German CHE Consult (an organization that is specialized on advising institutes of higher education) collected data on research grants per researcher for a large number of German universities (see Berghoff et al., 2006). The respective figures for Austria and Switzerland were released by the Austrian Agency for Quality Assurance and the swissUp project in Basel.⁴ Owing to missing observations for some universities in our sample, we do not use this information in our regression analysis. Instead, we only compute the correlation coefficient. The coefficient value is 0.0931, indicating only a weak impact of research grants per capita on department research performance. This observation is in line with results of Arora et al. (1998) and Jacob and Lefgren (2007). Their explanation emphasizes that research grants only displace other sources of funding without actually improving total research funding.

According to Combes and Linnemer (2003), total publication output and publication output per capita are higher for German departments than for Swiss departments. The respective figures for Austrian departments are even lower. In contrast, Eichenberger et al. (2000) find that, upon controlling for differences in population size, Austrian and Swiss departments exhibit higher research productivities than German departments. Both of these country comparisons consider only articles published within a rather restricted period of time. Eichenberger et al. (2000) further focus their analysis on a small subset of journals. We find no significant differences in productivity between German and Swiss departments and significantly lower productivities for Austrian departments (see Table 2.4).

Finally, our Tobit regression reveals that the share of post-docs in a department does not significantly affect the average department productivity. Mentoring of post-docs does not seem to conflict with the research performance of professors.

⁴See <http://www.hochschulranking.ac.at> and <http://www.rankingswissup.ch>, respectively.

2.5 Determinants of Individual Research Productivity

In this section we investigate the effects of institutional determinants and personal characteristics on individual research productivity. The results of a Tobit regression analysis for two different subsamples consisting of all faculty members (column 1) and of full professors only (column 2) are reported in Table 2.5. Additionally, we use a Hurdle model to analyze the propensity to publish and the productivity given publication incidence separately. We specify the initial binary choice in the first tier of the Hurdle model by a Probit model. For the second tier, rather low productivities of many researchers in our sample suggest the log-transformation of the productivity index. Following Wooldridge (2002, pp. 536 - 538), we therefore assume a log normal distribution of individual productivities of active researchers and use the OLS estimator for the second tier of the Hurdle model. The results of the Hurdle model are presented in Table 2.9 in the Appendix. Again, we distinguish two subsamples: the subsample of all faculty members [Table 2.9 (a)] and the subsample of full professors [Table 2.9 (b)].

Individual productivity is affected by institutional determinants. Researchers in larger departments are more productive. However, the size effect on individual productivity is non-linear: the coefficient associated with the square of size is significantly negative. The effect reaches its maximum for researchers in departments with about 61 persons. However, we are reluctant to interpret this number as an optimal department size because all departments in our sample except for the departments of the University of St. Gallen and of the WU Wien are smaller - and both, by international standards, resemble business schools. The size effect rather indicates that potential returns to scale in research production are positive but diminishing.

Researchers from departments with a larger share of junior scientists exhibit lower productivity on average. The Hurdle model reveals that this effect is not due to significant differences in the propensity to publish but to a lower productivity of researchers who are publishing. Active post-docs in particular seem to profit from mentoring or from exchange with experienced colleagues. Informal collaboration between professors and post-docs within the same department is likely to be more developed in departments in which the share of post-docs is smaller. In any event, it does not seem to be the case that the research productivity of the senior faculty suffers when the junior faculty is sizable.

Table 2.5: Tobit regressions for individual sample

Dependent Variable: Individual productivity	(1)			(2)		
	All researchers			Only full professors		
	Coefficient	Standard error		Coefficient	Standard error	
Size	0.2748	0.0546	***	0.2829	0.0698	***
Size squared	-0.0025	0.0005	***	-0.0027	0.0007	***
No. of non-publishing professors	-1.3432	0.2082	***	-1.2921	0.2441	***
Dummy: economics	2.4063	0.6201	***	2.8688	0.7791	***
Dummy: Switzerland	0.5649	1.0334		1.5135	1.3429	
Dummy: Austria	-1.1933	1.0625		0.1279	1.5112	
Ratio Dr./Prof.	-1.9402	0.6945	***	-1.7928	0.9664	*
Career age	-0.3304	0.0358	***	-0.3126	0.0391	***
Dummy: Prof. PhD	4.5697	2.4948	*	4.5878	2.4531	*
Dummy: Juniorprofessor	-2.4386	1.6604				
Dummy: Privatdozent	-3.6370	1.2039	***			
Dummy: Dr.	-7.8833	0.7739	***			
Dummy: PhD	-15.7329	5.5552	***			
Dummy: ao. Prof.	-3.9336	2.1236	*			
Dummy: gender (female = 1)	-4.5103	0.7230	***	-3.5733	1.0868	***
Constant	13.1355	1.0461	***	12.0470	1.2232	***
No. of observations	1,482			870		
Pseudo- R^2	0.0236			0.0194		

Notes: *** significant at the 1% level, * significant at the 10% level

Recall from the previous section that productivity is lower in departments with a high number of non-publishing professors. We can now confirm that active researchers with less productive peers are less productive themselves. Taylor et al. (2006) suggest that research is valued more strongly, more resources are devoted to research, and opportunities for formal or informal collaboration are better in departments with a larger share of publishing academics. Also, this finding may reflect peer effects. In particular, when recruiting new faculty, superior research productivity may be of minor value or even an impediment if incumbent professors want to control internal research competition. Alternatively, however, the effect may be attributed to a selection bias: highly productive researchers may avoid becoming affiliated with departments with a large share of inactive colleagues.

Members of departments that also run economics study programs are more productive. The Hurdle model reveals that this finding can be attributed mainly to higher productivity

of active scientists. Thus, professional exchange and competition with economists are particularly conducive to the productivity of researchers who already have some publication experience.

To account for life cycle effects, we define ‘career age’ as the number of years since obtaining the doctor’s degree. Individual productivity then decreases with career age.⁵ Remarkably, we find a negative effect of career age on the propensity to publish for the subsample of full professors [see Table 2.9 (b)]. Because our estimates are based on aggregated data, professors of a higher career age who had more opportunities to publish than peers with shorter careers are actually less likely to have at least one journal publication during their whole career. Possibly, this finding is due to a change in publication behavior from books and collective volume articles to journal articles that has taken place in more recent times. For the subsample that also includes junior scientists we identify a positive effect of career age on the propensity to publish. The non-linearity of the effect indicates that it is harder for older scientists to publish their first journal article.

The decrease in the productivity of active researchers is in line with the life cycle hypothesis. For (younger) economists who are employed at German universities, Rauber and Ursprung (2008b) report that publication behavior follows a characteristic life cycle: productivity increases in the first years of an academic career, reaches a peak six to eight years after the onset of the academic career and begins to decline afterwards. Explanations of the decline in productivity of tenured professors include the lack of career incentives, the increased obsolescence of knowledge and an increased preference for non-research activities.

We also include dummies for an individual’s highest academic degree in our regressions. The negative dummy coefficients for young researchers (see Table 2.5) indicate a lower productivity compared with full professors. With the exception of so-called ‘Juniorprofessoren’ and ‘Privatdozenten’ (staff without and with *venia legendi*, both non-tenured), lower productivity is at least partly due to a smaller propensity to publish [see Table 2.9 (a)]. Because careers of younger scientists are shorter and many journals exhibit considerable publication lags they simply have had fewer opportunities to publish than professors. ‘Juniorprofessoren’ and ‘Privatdozenten’ still need to pass a rigorous competitive assess-

⁵We tested whether the age effect is non-linear but the coefficients of higher-order polynomials of the variable ‘career age’ turned out to be insignificant.

ment on the basis of their publication record when applying for a full professorship. Their propensity to publish does not significantly differ from full professors.

Within the group of active researchers, non-professors are *ceteris paribus* less productive [see Table 2.9 (a), column 2]. However, finding lower productivities for non-professors who are of the same career age as full professors is not surprising. It only shows that promotions are actually at least partly granted on the basis of an assessment of past research success. To compare the productivities of active young researchers and full professors, we have to account for the fact that the careers of junior researchers are shorter than the careers of full professors. Comparing productivities of median aged junior researchers and median aged full professors, the junior scientists exhibit a higher productivity.

Although we do not know the country in which the academic training took place, we attempt to address the effect of having obtained academic training outside of the German-speaking region. Until very recently the short form for the doctor's degree awarded by Austrian, German and Swiss universities was 'Dr.'. Thus, it is likely that individuals whose homepages report a 'PhD' degree have received their academic training abroad. Comparing full professors only (see Table 2.5, column 2), those who obtained a 'PhD' degree are more productive than researchers holding a 'Dr.' degree. In his study on Portuguese economists, Guimarães (2002) reports that there are no significant differences in the propensity to publish in international journals between scientists who obtained their doctorate in Portugal and scientists who received their academic training abroad. There is one notable exception: academics who obtained their PhD in the United States are more likely to publish in international journals than their peers. This finding may either reflect better training, an advantage of US-based departments in the competition for top junior researchers, or the cultivation of a home bias of US-based top journals (see e.g. Hodgson and Rothman, 1999; Kocher and Sutter, 2001).

Finally, we find evidence for gender differences in the publication behavior. Female business economists appear less productive than their male peers. Such differences have also been reported for 'proper' economics research (see e.g. Maske et al., 2003; Rauber and Ursprung, 2008b; Taylor et al., 2006). Rauber and Ursprung (2008b) show that female researchers are less likely to publish but that women who publish are just as productive as their male peers. In contrast, our Hurdle model reveals that active women exhibit a

lower productivity than men. Moreover, we actually find no significant differences in the propensity to publish between male and female professors. When using cross-sectional data, lower research output during career interruptions (e.g. during maternity leaves) implies lower overall productivity. In contrast, such events are likely to affect only the publication propensity in the years on leave when using panel data. Hence, there may be a rather simple explanation for the difference between our result and Rauber and Ursprung (2008b).

2.6 Outlook

Drawing on a new comprehensive dataset that collects the research output of roughly 1,800 business economists working at Austrian, German and Swiss universities, we provide research rankings of university departments and analyze the determinants of research performance. We find that individual research productivity and consequently departmental research productivity is affected by institutional and personal characteristics. Most of our findings appear to be in line with previous findings from studies on ‘proper’ economics that exist for various countries. A direct comparison of research performance between the disciplines economics and business economics would certainly be promising - and possible, given the new data.

Another issue that may be addressed in the future is the problem of adequately accounting for interdisciplinary research. It remains to be tested, for instance, whether the gender differences with regard to publication performance are due to restrictions imposed by the publication data. Women’s choices of study programs are known to be biased toward the arts and cultural studies (see BMFSFJ, 2005). Consequently, female academics in business economics and management may tend to specialize on interdisciplinary research that is certainly underrepresented in our publication data. Also, business school – type universities may be underrated in our ranking because both teaching and research may have a more interdisciplinary orientation than research undertaken at full universities in which economic science departments offer joint study programs in economics and business administration. Further, because business school-type institutions specialize in supplying a broad and basic business education, teaching possibly obtains greater relative importance and staff may be more specialized on this task than in ‘full’ universities.

These open issues are clearly just as important for evaluations of research in ‘proper’ economics and in (business) economic disciplines that engage in developing quantitative research methods. Interdisciplinary research in these fields may be published in science journals that are not included in either EconLit or WISO. In any event, measuring research performance in areas that are inherently interdisciplinary requires the collection of even more comprehensive data and more elaborate evaluation methods. We hope that the German Economic Association’s research monitoring group will be able to tackle these issues in the near future.

2.7 Appendix

Table 2.6: Descriptive statistics

	Without Austrian universities		All universities	
	Mean	Standard deviation	Mean	Standard deviation
<i>Sample: university data</i>				
No. of observations	79		89	
Productivity	9.9065	4.3238	9.5493	4.3185
Dummy: economics	0.6456	0.4814	0.6180	0.4886
Size (no. of faculty members)	16.6582	10.3166	18.2472	13.6242
No. of students per professor	172.8767	166.0015		
No. of non-publishing professors	0.5823	1.2771	0.6180	1.2294
Ratio Dr./Prof.	0.4777	0.3524	0.4840	0.3695
Dummy: Switzerland	0.0633	0.2450	0.0562	0.2316
Dummy: Austria			0.0787	0.2707
<i>Sample: individual data</i>				
	All researchers		Only full professors	
No. of observations	1,482		870	
Productivity	8.8581	10.4480	10.1363	10.4765
Dummy: economics	0.6815	0.4660	0.6632	0.4729
Size (no. of faculty members)	28.0331	21.6013	24.6035	18.6563
No. of non-publishing profs.	0.8516	1.5190	0.8989	1.6883
Ratio Dr./Prof.	0.7318	0.5204	0.6050	0.4624
Dummy: Switzerland	0.0877	0.2830	0.0805	0.2722
Dummy: Austria	0.1619	0.3685	0.1011	0.3017
Career age	14.1754	9.5608	18.8575	9.0384
Dummy: Prof. PhD	0.0115	0.1065	0.0195	0.1385
Dummy: Juniorprofessor	0.0290	0.1679		
Dummy: Privatdozent	0.0587	0.2352		
Dummy: Dr.	0.3023	0.4594		
Dummy: PhD	0.0034	0.0580		
Dummy: ao. Prof. ^a	0.0196	0.1386		
Dummy: gender (female = 1)	0.1808	0.3850	0.1138	0.3177
Dummy: publication	0.9325	0.2509	0.9805	0.1385

^a 'a.o.' indicates 'extraordinary professorship', i.e. tenured or non-tenured professorship achieved without undergoing formal application procedures.

Table 2.7 (a) Productivity ranking of departments (full professors only)

Rank	University	Productivity	Rank	University	Productivity
1	Bonn University	29.70	46	Berlin FU	8.92
2	Mannheim University	19.85	47	Gießen University	8.92
3	Wien University	19.21	48	Wuppertal University	8.90
4	Saarbrücken University	17.51	49	Dresden TU	8.71
5	Koblenz/Vallendar WHU	17.48	50	Hamburg University	8.47
6	Augsburg University	16.49	51	Magdeburg University	8.41
7	Frankfurt/Main University	16.21	52	Berlin TU	8.25
8	Konstanz University	16.20	53	Zürich ETH	8.02
9	Köln University	16.12	54	Oestrich–Winkel EBS	7.79
10	München TU	15.87	55	Mainz University	7.69
11	Braunschweig TU	15.75	56	Oldenburg University	7.67
12	München LMU	15.60	57	Bremen University	7.50
13	Ulm University	15.43	58	Marburg University	7.41
14	Dortmund University	15.30	59	Wien WU	7.38
15	Basel University	14.76	60	Eichstätt KU	7.26
16	Jena University	14.66	61	Clausthal TU	7.23
17	Aachen RWTH	14.08	62	Siegen University	7.03
18	Würzburg University	13.97	63	München UniBW	6.82
19	Bern University	13.86	64	Hohenheim University	6.81
20	Kiel University	13.72	65	Zeppelin University	6.37
21	Darmstadt TU	13.69	66	Düsseldorf University	6.27
22	Zürich University	13.06	67	Innsbruck University	6.26
23	Regensburg University	12.80	68	Frankfurt School of F&M	6.20
24	Paderborn University	12.76	69	Witten/Herdecke University	6.00
25	Hannover University	12.04	70	Leipzig University	5.68
26	Karlsruhe University	11.96	71	Frankfurt/Oder University	5.59
27	Bamberg University	11.81	72	Bielefeld University	5.28
28	Bochum University	11.71	73	Potsdam University	5.05
29	Kaiserslautern TU	10.99	74	Chemnitz TU	4.93
30	Passau University	10.99	75	Ilmenau TU	4.91
31	Stuttgart University	10.60	76	Cottbus BTU	4.71
32	Münster University	10.30	77	Osnabrück University	4.44
33	Graz University	10.18	78	Rostock University	4.26
34	Erlangen–Nürnberg University	10.05	79	Kassel University	4.15
35	Duisburg–Essen University	9.73	80	Berlin ESCP–EAP	4.03
36	Greifswald University	9.67	81	Hamburg TU	3.93
37	Tübingen University	9.64	82	Bayreuth University	3.44
38	Göttingen University	9.37	83	Linz University	3.38
39	St. Gallen University	9.34	84	Hamburg UniBW	3.29
40	Freiburg University	9.26	85	Halle–Wittenberg University	3.22
41	Hagen FernUni	9.21	86	Flensburg University	2.54
42	Trier University	9.16	87	Freiberg TU	2.41
43	Wien TU	9.01	88	Lüneburg Leuphana University	2.18
44	Berlin HU	8.96	89	Klagenfurt University	2.06
45	Leipzig HHL	8.95			

Table 2.7 (b) Productivity ranking of departments (professors and junior staff)

Rank	University	Productivity	Rank	University	Productivity
1	Bonn University	24.01	46	Wien TU	8.92
2	Mannheim University	18.86	47	Wuppertal University	8.90
3	Koblenz/Vallendar WHU	17.81	48	St. Gallen University	8.86
4	Köln University	16.64	49	Dresden TU	8.70
5	Saarbrücken University	16.37	50	Berlin TU	8.33
6	Konstanz University	16.03	51	Berlin HU	8.30
7	München TU	15.87	52	Gießen University	8.21
8	Ilmenau TU	15.76	53	Hamburg University	8.17
9	Braunschweig TU	15.75	54	Magdeburg University	7.70
10	Frankfurt/Main University	15.72	55	Mainz University	7.56
11	Ulm University	15.56	56	Bremen University	7.44
12	München LMU	15.33	57	Marburg University	7.41
13	Basel University	14.76	58	Zürich ETH	7.16
14	Jena University	14.66	59	Siegen University	7.16
15	Wien University	14.21	60	Eichstätt KU	7.14
16	Würzburg University	13.97	61	Innsbruck University	7.11
17	Kiel University	13.72	62	München UniBW	7.11
18	Augsburg University	13.16	63	Graz University	6.87
19	Zürich University	13.06	64	Clausthal TU	6.83
20	Aachen RWTH	12.96	65	Hohenheim University	6.81
21	Chemnitz TU	12.69	66	Frankfurt/Oder University	6.65
22	Darmstadt TU	12.53	67	Oestrich-Winkel EBS	6.62
23	Regensburg University	12.50	68	Osnabrück University	6.37
24	Bern University	12.49	69	Zeppelin University	6.37
25	Dortmund University	12.16	70	Witten/Herdecke University	6.30
26	Karlsruhe University	11.96	71	Düsseldorf University	6.27
27	Bamberg University	11.81	72	Frankfurt School of F&M	6.20
28	Hannover University	11.76	73	Leipzig University	6.14
29	Paderborn University	11.65	74	Berlin ESCP-EAP	5.99
30	Greifswald University	11.59	75	Wien WU	5.91
31	Passau University	10.99	76	Bielefeld University	5.28
32	Tübingen University	10.95	77	Cottbus BTU	4.71
33	Stuttgart University	10.60	78	Potsdam University	4.69
34	Münster University	10.25	79	Kassel University	4.15
35	Berlin FU	10.13	80	Rostock University	3.95
36	Kaiserslautern TU	10.12	81	Hamburg TU	3.93
37	Duisburg-Essen University	9.71	82	Hamburg UniBW	3.72
38	Oldenburg University	9.56	83	Bayreuth University	3.44
39	Erlangen-Nürnberg University	9.32	84	Linz University	3.41
40	Bochum University	9.30	85	Halle-Wittenberg University	3.22
41	Freiburg University	9.26	86	Lüneburg Leuphana University	2.67
42	Hagen FernUni	9.21	87	Flensburg University	2.54
43	Trier University	9.16	88	Freiberg TU	2.41
44	Göttingen University	9.11	89	Klagenfurt University	2.29
45	Leipzig HHL	8.95			

Table 2.7 (c) Cohort rankings (professors and junior staff)

Rank	University	Average cohort quantile	Rank	University	Average cohort quantile
1	Konstanz University	0.84	46	Bochum University	0.60
2	Braunschweig TU	0.83	47	Leipzig HHL	0.59
3	München LMU	0.81	48	Düsseldorf University	0.59
4	München TU	0.80	49	Bremen University	0.59
5	Koblenz/Vallendar WHU	0.79	50	Wuppertal University	0.58
6	Kiel University	0.79	51	Dresden TU	0.57
7	Bonn University	0.78	52	Eichstätt KU	0.57
8	Frankfurt/Main University	0.78	53	Magdeburg University	0.56
9	Basel University	0.77	54	Frankfurt/Oder University	0.56
10	Mannheim University	0.76	55	Karlsruhe University	0.56
11	Regensburg University	0.75	56	St. Gallen University	0.56
12	Freiburg University	0.75	57	Berlin TU	0.55
13	Würzburg University	0.74	58	Chemnitz TU	0.55
14	Köln University	0.74	59	Siegen University	0.53
15	Passau University	0.73	60	Witten/Herdecke University	0.52
16	Ulm University	0.73	61	Zeppelin University	0.52
17	Stuttgart University	0.73	62	Clausthal TU	0.51
18	Dortmund University	0.72	63	Osnabrück University	0.50
19	Berlin FU	0.71	64	Hamburg University	0.50
20	Greifswald University	0.71	65	Leipzig University	0.49
21	Tübingen University	0.70	66	Zürich ETH	0.49
22	Bamberg University	0.70	67	Bielefeld University	0.49
23	Hannover University	0.70	68	Mainz University	0.49
24	Zürich University	0.69	69	Hohenheim University	0.48
25	Kaiserslautern TU	0.69	70	Innsbruck University	0.48
26	Aachen RWTH	0.69	71	Wien TU	0.47
27	Saarbrücken University	0.68	72	Wien WU	0.46
28	Wien University	0.68	73	Berlin ESCP–EAP	0.45
29	Hagen FernUni	0.66	74	Kassel University	0.45
30	Münster University	0.65	75	Potsdam University	0.43
31	Erlangen–Nürnberg University	0.65	76	Hamburg TU	0.43
32	Augsburg University	0.65	77	Oestrich–Winkel EBS	0.43
33	München UniBW	0.64	78	Graz University	0.42
34	Jena University	0.64	79	Bayreuth University	0.40
35	Trier University	0.63	80	Cottbus BTU	0.40
36	Paderborn University	0.63	81	Hamburg UniBW	0.39
37	Oldenburg University	0.63	82	Halle–Wittenberg University	0.38
38	Marburg University	0.62	83	Linz University	0.37
39	Darmstadt TU	0.62	84	Rostock University	0.37
40	Bern University	0.61	85	Frankfurt School of F&M	0.32
41	Duisburg–Essen University	0.61	86	Freiberg TU	0.30
42	Göttingen University	0.61	87	Lüneburg Leuphana University	0.28
43	Ilmenau TU	0.61	88	Klagenfurt University	0.28
44	Berlin HU	0.61	89	Flensburg University	0.27
45	Gießen University	0.61			

Table 2.8 (a) Productivity rankings according to training location (professors and junior staff) – doctor’s degree

Rank	University granting doctor’s degree	Productivity	Rank	University granting doctor’s degree	Productivity
1	Berlin HU	21.10	30	Aachen RWTH	8.04
2	Bonn University	17.37	31	München LMU	7.98
3	Hagen FernUni	16.51	32	Karlsruhe University	7.97
4	Passau University	15.95	33	Magdeburg University	7.42
5	Mannheim University	15.36	34	Innsbruck University	7.41
6	Braunschweig TU	15.16	35	Wien WU	7.35
7	Kiel University	14.03	36	Berlin FU	7.24
8	Koblenz/Vallendar WHU	13.63	37	Duisburg–Essen University	7.14
9	Kaiserslautern TU	12.45	38	Hohenheim University	7.04
10	Saarbrücken University	12.38	39	Zürich University	6.87
11	Dortmund University	12.06	40	Paderborn University	6.86
12	Frankfurt/Main University	11.86	41	Basel University	6.75
13	Oldenburg University	11.74	42	Münster University	6.56
14	Würzburg University	11.48	43	Bochum University	6.41
15	Augsburg University	10.99	44	Erlangen–Nürnberg University	6.29
16	Trier University	10.84	45	Gießen University	6.23
17	St. Gallen University	10.79	46	Graz University	6.18
18	Hannover University	10.76	47	Berlin TU	5.92
19	Bielefeld University	10.70	48	Rostock University	5.55
20	Hamburg University	10.68	49	Bayreuth University	4.78
21	Köln University	10.67	50	Stuttgart University	4.61
22	Wien TU	10.66	51	Linz University	3.63
23	Regensburg University	10.44	52	Bremen University	3.59
24	Marburg University	10.37	53	Bamberg University	3.38
25	Tübingen University	10.14	54	München TU	2.72
26	Freiburg University	9.92	55	Zürich ETH	2.62
27	Wien University	9.73	56	Klagenfurt University	2.19
28	Freiberg TU	8.79	57	Oestrich–Winkel EBS	1.82
29	Göttingen University	8.64			

Table 2.8 (b) Productivity rankings according to training location (professors and junior staff) – *venia legendi*

Rank	University granting <i>venia legendi</i>	Productivity	Rank	University granting <i>venia legendi</i>	Productivity
1	Wien TU	25.55	28	Darmstadt TU	9.22
2	Bonn University	22.87	29	Dortmund University	9.07
3	Passau University	17.07	30	Bochum University	8.71
4	Hamburg UniBW	17.05	31	Erlangen–Nürnberg University	8.51
5	Basel University	16.96	32	München LMU	8.37
6	Bielefeld University	16.83	33	Innsbruck University	8.15
7	Koblenz/Vallendar WHU	16.32	34	Wien University	7.93
8	Lüneburg Leuphana University	15.91	35	München TU	7.64
9	Kiel University	15.69	36	Karlsruhe University	7.41
10	Würzburg University	14.98	37	Aachen RWTH	7.40
11	Hamburg University	14.71	38	Stuttgart University	7.23
12	Kaiserslautern TU	14.13	39	Berlin TU	7.18
13	Mannheim University	13.52	40	Wien WU	6.90
14	Saarbrücken University	13.51	41	Münster University	6.69
15	Köln University	13.46	42	Graz University	6.66
16	Berlin HU	12.96	43	Gießen University	6.50
17	Zürich University	12.93	44	Bayreuth University	6.23
18	Frankfurt/Main University	12.17	45	Paderborn University	5.92
19	Regensburg University	11.85	46	Eichstätt KU	5.80
20	Augsburg University	11.42	47	Hannover University	5.53
21	Trier University	10.92	48	Berlin FU	5.23
22	Hohenheim University	10.92	49	Göttingen University	4.43
23	Oldenburg University	10.54	50	Bremen University	3.50
24	Duisburg–Essen University	10.42	51	Oestrich–Winkel EBS	3.21
25	St. Gallen University	10.26	52	Klagenfurt University	3.17
26	Tübingen University	9.30	53	Linz University	2.64
27	Freiburg University	9.27			

Table 2.9: Hurdle model: (a) whole sample and (b) only full professors

Dependent variable	(1)			(2)		
	1. stage: Probit			2. stage: OLS		
	Dummy: publication			Log productivity		
	Coefficient	Standard error		Coefficient	Standard error	
<i>(a) Whole sample^a</i>						
Size	0.0075	0.0041	*	0.0235	0.0057	***
Size squared				-0.0002	0.0001	***
No. of non-publishing profs.	-0.1490	0.0358	***	-0.1709	0.0242	***
Dummy: economics	-0.1703	0.1417		0.3194	0.0642	***
Dummy: Switzerland	-0.1262	0.2126		0.1545	0.1128	
Dummy: Austria	-0.3255	0.2024		-0.2461	0.1174	**
Ratio Dr./Prof.	-0.0298	0.1368		-0.2298	0.0751	***
Career age	0.3809	0.0863	***	-0.1643	0.0329	***
Career age ²	-0.0313	0.0095	***	0.0064	0.0018	***
Career age ³	0.0009	0.0004	**	-0.0001	0.0000	***
Career age ⁴	0.0000	0.0000	**			
Dummy: Prof. PhD				0.1395	0.3355	
Dummy: Juniorprofessor	-0.3113	0.3895		-0.6439	0.1790	***
Dummy: Privatdozent	0.0868	0.4176		-0.4273	0.1189	***
Dummy: Dr.	-1.1625	0.2126	***	-1.1225	0.0994	***
Dummy: PhD	-2.5850	0.6380	***	-0.8595	0.1606	***
Dummy: ao. Prof. ^b	-0.4328	0.4871		-0.4404	0.2350	*
Dummy: gender (female=1)	-0.4613	0.1308	***	-0.4659	0.0725	***
Constant	1.3155	0.3201	***	3.0683	0.1999	***
No. of observations	1,482			1,382		
Pseudo-R ²	0.2378			0.2264		
<i>(b) Only full professors^c</i>						
Size	0.0648	0.0253	***	0.0206	0.0073	***
Size squared	-0.0005	0.0002	**	-0.0002	0.0001	**
No. of non-publishing profs.	-0.2554	0.0645	***	-0.1512	0.0260	***
Dummy: economics	-0.0917	0.2777		0.3326	0.0780	***
Dummy: Switzerland				0.1412	0.1430	
Dummy: Austria	-0.2374	0.3932		-0.2882	0.1722	*
Ratio Dr./Prof.	-0.1561	0.3485		-0.1241	0.0996	
Career age	-0.0268	0.0122	**	-0.0408	0.0044	***
Dummy: Prof. PhD				0.1889	0.3177	
Dummy: gender (female=1)	-0.1439	0.3228		-0.4274	0.1028	***
Constant	2.1855	0.3291	***	2.3325	0.1272	***
No. of observations	870			853		
Pseudo R ²	0.1528			0.1817		

*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level
 Similar results if negative binomial regression is used in the second stage.

^a All persons with the title Professor PhD published at least one article during their career.

^b ‘a.o.’ indicates ‘extraordinary professorship’, i.e. tenured or non-tenured professorship achieved without undergoing formal application procedures.

^c All professors from Switzerland and all persons with the title Professor PhD published at least one article during their career.

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Chapter 3

How Can Scholarship Institutions Foster the Return of Foreign Students?

3.1 Introduction

Governmental and non governmental institutions in industrial countries spend considerable amounts of money on educating foreign students (see e.g. Spilimbergo, 2007). Scholarship institutions which sponsor students from developing and transition countries often motivate their support with a commitment to foster development. Recent studies show positive effects of foreign education on growth (Kim, 1998), technological advancement (Park, 2004) and the promotion of democracy (Spilimbergo, 2007) in the students' home countries. One major concern associated with the provision of scholarships is whether the foreign students really return to their home countries after graduation.

We investigate the return decision of foreign students from developing and transition countries who studied in Germany and who received support from a scholarship institution using a discrete time duration analysis. Our analysis aims at identifying selection criteria and contractual arrangements that scholarship institutions can adopt in order to induce their scholars to return.

Most previous studies of students' migration behavior like Bratsberg (1995) employ aggregated data. These studies focus mainly on the impact of economic and political determinants on the return decision. Our analysis is based on individual level data from a German scholarship institution. Using this data we investigate whether the actual return decision is also affected by individual factors as survey studies on return intentions indicate. If individual factors have an impact, scholarship organizations can select their students according to these characteristics and can offer contractual arrangements that provide incentives to return.

The impact of culture on migration decisions has been largely neglected in the economic literature. A further objective for providing scholarships to foreign students is the promotion of cultural exchange. However, cultural differences might jeopardize adjustment in the host country and strengthen the desire to return. We analyze whether students from countries with larger cultural differences to the host country have a higher propensity to return.

The paper is organized as follows. In Section 3.2, we discuss results from the previous literature and derive hypotheses concerning the impact of individual and cultural factors on the return decision of foreign students. In Section 3.3, we briefly characterize the

scholarship organization that provided us with the data and comment on the legal situation in Germany. The data set and our empirical strategy are described in Section 3.4. Subsequently, we present the results of our duration analyses and derive implications for scholarship institutions in Section 3.5. Section 3.6 gives a conclusion of the main results.

3.2 Determinants of the Return Decision

When a foreign graduate decides whether to remain in the host country or to return to his or her home country he will be exposed to contradictory forces. He estimates costs and benefits of the alternatives – to stay, to return, or to migrate to a third country – and chooses the alternative which offers him the highest utility.

3.2.1 Economic and Political Determinants

Previous studies which rely on aggregated data on changes in visa status find that the economic and political situation in the home and the host country have an impact on students' return decisions.

Economic Factors

Potential return migrants compare employment conditions – in particular wages – and employment opportunities in the home and host country.¹ The propensity to stay is high if labor demand in the host country is high and labor market conditions are good (see Baruch et al., 2007; Güngör and Tansel, 2005 and 2007). Graduates who expect to find an appropriate job easily in the home country have a higher propensity to return.

Furthermore, the desire to achieve higher standards of living is widely acknowledged to be a reason for migration. Differences in standards of living between industrial host countries and developing or transition home countries are often substantial. Graduates who spent some time in the host country get used to higher standards of living and may be reluctant to return. Bratsberg (1995) reports that students from wealthier home countries have a higher propensity to return.

Trade between industrial countries and developing or transition countries entails substantial R&D spillover effects (Coe and Helpman, 1997; Kwark and Shyn, 2006). However,

¹see Sjaastad (1962), Nakosteen and Zimmer (1980), Massey et al. (1993) and Borjas (1994)

developing and transition countries need well-educated people with up-to-date knowledge to absorb these technology spillovers. Demand for foreign graduates who acquired this kind of knowledge and who are familiar with advanced technology is therefore likely to be higher in home countries with closer trade relations with the host country.

Freedom

Students are less inclined to return when individual freedom is limited in the home country. Political instability might affect employment opportunities and income prospects. Restrictions of civil liberties complicate personal and professional life. Several studies report that highly educated people are less likely to return when civil liberties are at stake (see e.g. Bratsberg, 1995; Zweig, 2006; Güngör and Tansel, 2005 and 2007). In contrast, Dreher and Poutvara (2005) observe no significant effect.

Eposto and Zaleski (1999) find that economic freedom enhances the quality of life. For graduates who earn well, who take high positions in enterprises or even start up their own enterprise, protection of property, free exchange and other aspects of economic freedom are important. Therefore, graduates from countries with more economic freedom are expected to be more likely to return. Ashby (2007) shows that within the USA migration into states with higher levels of economic freedom takes place.

Equal opportunities of men and women are another aspect of freedom. Social attitudes towards women and towards female employment in particular might have a crucial impact on womens' return decisions. Women, who have no opportunity to work or who are restricted in their individual rights for political, religious or social reasons, are expected to be less inclined to return.

3.2.2 Impact of Individual Determinants

Also, on the individual level, there are various forces at play. Personal connections in the home country are contrasted with personal connections in the host country and costs of return and of stay have to be considered. In this section, we develop hypotheses concerning the impact of individual determinants on the return decision.

Connections in the Home Country

For people from developing or transition countries with unfavorable economic and political conditions, social ties and personal connections are a major reason to return. Although de Palo et al. (2006) argue that social ties are less important for highly educated people, we hypothesize that graduates with close connections to home are more likely to return.

Social ties are manifold and hard to capture empirically. The most prominent ties are family ties. Many studies of return intentions find that people with families at home are more likely to return (see e.g. Baruch et al., 2007; Güngör and Tansel, 2005 and 2007).

Social ties and other personal connections evolve over life-time. Students who arrive in the host country at an older age are more likely to own property and to have closer social and economic ties in the home country. Dustmann (1996) finds that these people have a higher propensity to return to their home countries.

Hypothesis 1.1: Students who came to the host country at a higher age are more likely to return.

During home visits, students refresh connections in the home country. Gmelch (1980) reports that many migrants make the decision to return during a vacation in their home country. Also Kapur and McHale (2005) propose that industrial countries should facilitate interaction and transaction with the home country in order to increase return rates.

Hypothesis 1.2: Graduates who visited home during their study period abroad are more likely to return.

Connections in the Host Country

Foreign students who spend some time abroad develop social ties in their host country. They adjust to the way of living and their desire to return might weaken.

The creation of social ties and adjustment in another country take some time. Güngör and Tansel (2005 and 2007) and Dustman (1996) find that the longer people stay in the host country, they are less willing to return.

Hypothesis 2.1: Graduates who stayed in the host country for a longer time period are less likely to return.

The effect of the duration of stay in the host country on the adjustment process might be decreasing because after a certain time abroad the adjustment process is accomplished. We test for a non-linear effect of time spent in the host country. According to Dustmann and Kirchkamp (2002) a person's decision on the optimal migration duration is connected with the intended after-return activity. Foreign students might require some international experience, contacts in the host country or a certain amount of money to pursue their intended after-return activity and return as soon as these requirements are met.

Scholarship institutions pursue different recruitment strategies. Some scholarship institutions select students from foreign students who already study in the host country. Others recruit their students when they are still in their home countries. Students who already spent some time in the host country are expected to be better adjusted than students who are invited from abroad.

Hypothesis 2.2: Graduates who were recruited from abroad are more likely to return.

Other Personal Factors

Hypothesis 3.1: The return propensity differs according to fields of study.

Employment opportunities in home and host country differ across fields of study. The migration of health care professionals from developing countries to industrial countries in which they find more attractive employment conditions has received some attention in the literature (see e.g. Clark et al., 2006). Also, law students can be expected to have a higher propensity to stay because there might arise problems of transferability of the degree earned in the host country because of differences in judicial systems. Graduates of agricultural sciences who come from home countries where the agricultural sector often plays a major role and offers better employment opportunities are likely to have a higher propensity to return.² Kim (1998) argues that fields like natural sciences and engineering are more internationally integrated and knowledge in these fields is more easily adaptable to the home country. Labor demand for students who study the host country's language or literature might be limited in the host country.

Graduates who spent some time in an industrial country might have difficulties to rein-

²Mulinge and Mueller (1998) report that in developing countries like Kenya, in which agriculture is the leading economic sector, a considerable amount of resources is invested in this sector.

tegrate when they are back home. Some scholarship institution offer seminars which are intended to address topics of development policy and provide assistance for reintegration.

Hypothesis 3.2: Students who participated in a seminar in which assistance for reintegration is provided are more likely to return.

3.2.3 Impact of Cultural Factors

Cultural factors give rise to connections to the home country. Students from countries with large cultural differences to the host country might feel alienated and have more difficulties adjusting. De Palo et al. (2006) report that migrants from countries with larger cultural differences socialize less in their host countries. Baruch et al. (2007) find mixed evidence concerning the role of culture on the migration decision.

Hypothesis 4.1: Students from countries of a similar cultural background as the host country have a lower propensity to return.

Another topic in the migration literature is the role of networks of compatriots (diasporas). If diaspora networks facilitate adjustment and provide connections in the host country, graduates from countries with a larger diaspora in the host country should be less likely to return.³ In a diaspora, however, often home country customs and culture are cultivated. If this is the case, there might be less need for the graduate to integrate into the host country society and to develop social contacts with host country nationals.⁴ Martin (2003) argues that diasporas facilitate return because these diasporas provide a point of contact between potential returnees and home country governments or organizations which might be used for example to find adequate employment in the home country.

Hypothesis 4.2: Students from countries with a larger diaspora in the host country have a higher propensity to return.

3.3 Framework of the Case Study

Our empirical analysis is based on a data set of scholarship recipients of the Catholic Academic Exchange Service (*Katholischer Akademischer Ausländer - Dienst*, KAAD). In

³see Vogler and Rotte (2000) and Dreher and Potvaara (2005)

⁴Skeldon (1997) discusses some cultural aspects of diasporas.

this section, we describe this scholarship institution and compare it to other scholarship institutions. We also compare the KAAD student population to the broader foreign student population in Germany and depict the legal framework for the migration decision in Germany.

3.3.1 The Scholarship Institution KAAD

The KAAD is the scholarship institution of the German Catholic Church which supports graduate and post-graduate students and scientists from developing and transition countries. As a non-profit, non-governmental organization it is dedicated to goals of promoting development and the dialogue between cultures and churches. It envisions its students returning to their home countries where they shall help to foster economic, political and social development.

The KAAD manages three scholarship programs. Financial aid in all programs consists of a monthly scholarship. The amount of the scholarship is determined according to the economic situation of the student in such a way that it covers his study and living costs. Selection criteria for all programs are above-average qualification, integrity and return intention. Since the KAAD is a catholic organization, it supports primarily, but not exclusively, catholics.

In Program 1, also called *Partner Program*, graduates from developing countries are invited to come to Germany for research or graduate study. The program focuses on specific countries which are selected in consultation with the Episcopal Aid Organizations and the German Catholic Bishops' Conference. Partner organizations in these countries propose candidates and the selection board of the KAAD, the Academic Committee, decides on the acceptance of scholarship students. Accepted students are invited to Germany and receive a scholarship for study or research.

Program 2 is aimed at students who are already living in Germany and who are in an advanced stage of their studies – they have typically passed their mid-degree examinations. Personal applications are not possible. Students have to be proposed by the relevant Catholic university community and are selected by the Academic Committee. Students of Program 2 might be quite representative of foreign students in Germany. Their decision to come to Germany was not affected by the offer of a KAAD scholarship and they had

to finance the first period of their stay in Germany by other means.

Programs 1 and 2 are restricted to students from developing countries in Africa, Asia, Latin America and the Middle East. The maximum duration for financial support is three years.

The KAAD also runs an Eastern European Scholarship Program (Program 3) that supports students from Eastern and South-Eastern Europe in financing primarily short term stays (of two to six months) in Germany for research or study purposes. Similar to the first program, partner organizations propose candidates which are then selected and invited by the Academic Committee.

The KAAD actively encourages return. If a scholar does not return to his or her home country or to another developing country at the end of the study period in Germany, the funds received from the KAAD and any additional aid must be repaid in full. Moreover, the KAAD offers seminars which address topics of development policy and provide assistance for reintegration.

3.3.2 Other Institutions and the Foreign Student Population in Germany

Other Scholarship Institutions

The grant policy of the KAAD resembles that of other scholarship organizations. Well-known scholarship organizations like the Fulbright program or the Ford foundation (USA) also support students from developing and transition countries with the aim to foster development and expect their scholars to return.⁵ Selection criteria for scholarships usually include above-average performance at university or work, and societal involvement.

Organizations which provide scholarships to foreign students who do not yet study in the respective host country often rely on local councils in the home countries to (pre-)select the scholarship recipients. The Fulbright Program for example has its own local selection committees.

The KAAD program has two distinctive features: the preferential selection of catholics and the payback requirement if the scholarship recipient stays. In our analysis, we control for the preferential selection of catholics by including a dummy for being catholic. The payback requirement does not seem to compromise the underlying data via a selection

⁵see Spilimbergo (2007)

Table 3.1: Women ratio of foreign students vs. KAAD students in 2002, 2003, 2004

	2002			2003			2004		
	Men	Women		Men	Women		Men	Women	
	Total	Total	in %	Total	Total	in %	Total	Total	in %
Overall	107,764	98,377	47.70	117,205	109,821	48.40	125,826	120,310	48.90
KAAD	331	244	42.43	252	209	45.34	147	132	47.31

Source: Student Statistics Federal Statistical Office, HIS computations (available at: www.wissenschaft-welttoffen.de); KAAD Database

bias. Even though the decision to stay gets more costly if students are required to repay the loan, still a large number of scholarship recipients stay in Germany. Moreover, the enforcement of the payback requirement is rather difficult and some students might get around it.

Because of the similarities to other scholarship organizations, our analysis is of interest for other organizations trying to enhance global development through education. The results of our analysis identify feasible control levers for the success as measured in terms of the return rate of such scholarship programs.

Foreign Student Population in Germany

In this section, we compare some descriptive statistics for our sample and for the overall population of foreign students in Germany for the years 2002, 2003, and 2004.⁶

In the overall population of foreign students, the ratio of women has risen from 47.7 % in 2002 to 48.9 % in 2004 (see Table 3.1). A similar pattern can be observed in the KAAD student population. Here the rise was more pronounced from 42.4 % in 2002 to 47.3 % in 2004. This shows that the gap in the ratio of women between the KAAD students and the overall foreign student population in Germany has been closing.

The KAAD exclusively supports students from transition and developing countries. Among these countries, China and Poland are clearly the major senders of foreign students to Germany (see Table 3.7 in the Appendix (Section 3.7)). These two countries are also the two major home countries of KAAD scholarship recipients: most KAAD students come from Poland followed by China. Because of the relatively low number of students

⁶For these years foreign student statistics for Germany are available.

Table 3.2: Average age and time in host country of foreign students vs. KAAD students in 2002, 2003, 2004

	2002	2003	2004
<u>Age</u>			
Foreign Graduates: graduate studies (without PhD)	29.09	29.09	28.65
PhD program	33.49	33.39	33.01
KAAD Graduates:	32.18	31.90	32.55
<u>Time</u>			
Foreign Graduates: duration of studies (in semester)	5.51	5.70	5.64
KAAD Graduates: time spent in Germany (in months)	35.24	35.58	41.74

Source: Student Statistics Federal Statistical Office, HIS computations (available at: www.wissenschaft-welt offen.de); KAAD Database

who are supported by the KAAD in a given year and because of the focus of the KAAD on specific countries, the distribution of home countries in the KAAD sample is not fully representative. Still, home countries other than China and Poland are represented with comparable shares in the overall student population and in the KAAD database.⁷

In Table 3.2 the average age of foreign students and KAAD students is depicted. The KAAD student population consists of students who are enrolled in graduate study programs or in PhD programs and of guest researchers. Consequently, the average age of KAAD students lies between the average age of foreign students who participate in a PhD program and of foreign students who are enrolled in other graduate study programs.

Table 3.2 also reveals that the study duration of foreign students who did a Master in Germany was between five and six semesters. These students, thus, spent between 30 and 36 months in Germany. KAAD students in this respect resemble the overall foreign student population. In the year 2004, however, the average time the KAAD students spent in Germany is exceptionally long.

These similarities between the foreign student population in Germany and the KAAD students leads us to conclude that the underlying KAAD database is useful when regarding the implications of this study in a more general setting.

⁷The shares for the foreign student population in Table 3.7 in the Appendix are calculated in relation to the whole population including students from other countries than transition and developing countries.

3.3.3 Legal Situation

In the period between 1990 and 2004, German migration laws obliged foreign students to return to their home countries after graduation. Even though some students might have been forced to return by these laws, many students found a way to stay. The enforcement of these laws was, thus, not too strict.

Graduates, who married a German spouse, were allowed to stay in Germany. Unfortunately, we do not know, when students in our sample married and what nationalities their spouses are. However, many unmarried students also stayed in Germany. Migration agencies made the decision whether graduates were allowed to stay on a case-by-case basis. It was common practice, however, that graduates who found adequate employment in Germany or who planned further education in Germany were allowed to stay. Furthermore, we know of no informal rules which guided migration agencies' decisions.

In the years 1993, 1997 and 2000 migration laws in Germany were changed. In 1993 the right of asylum was restricted, in 1997 the legal position of foreigners living in Germany was improved and in 2000 the green card was introduced and conditions for naturalization were changed. Even though these changes were not explicitly aimed at students, they might have affected their return decision. Apart from the change in 1993, the changes should have had a positive effect on the propensity to stay.

Since 2005 foreign students are allowed to stay in Germany after graduation to search for employment. Accordingly, we expect that more students choose to stay than before.

3.4 Data and Empirical Strategy

For our analysis we use data of 2,436 students from 76 countries who were sponsored by the KAAD and who finished their study period in Germany between 1990 and 2005. The largest group of students came from Poland (359 students), followed by China (165 students) and Romania (134 students). We perform a duration analysis to investigate which determinants have an impact on the decision of these graduates whether and when to return to their home countries after they finished their studies in Germany. We assume that at the end of the study period in the host country a graduate decides whether to stay or to return and that he or she revises this decision regularly. A graduate who did not

return immediately after graduation can decide to return at any time later.

Our data are interval censored. We know in which months the students in our sample graduated and returned. Therefore, we use a discrete time model. The hazard rate can, then, be interpreted as the conditional probability that a graduate returns in a particular month given that he or she did not return before. For the functional form of the hazard rate, we choose the complementary log-log transformation. This is the discrete time representation of a continuous time proportional hazards model.

The data is reorganized in person period format: For every student in our sample, we created as many data rows as there are months he or she stayed in Germany after the end of the study period. We include fixed and time varying covariates in our regression. To account for duration dependence we model the baseline hazard as a cubic polynomial. This specification allows for non-monotonicity of the baseline hazard and has a significantly better fit than a quadratic polynomial. Because of the large number of time periods, we did not include dummies for every time period.

To test for potential unobserved heterogeneity (“frailty”), we estimated the model including normally distributed unobserved heterogeneity. The likelihood ratio tests indicate that there is statistically significant frailty of this type in some of our sub-samples.

In the following, we briefly describe the variables we use in the duration analysis (for descriptive statistics see Table 3.8, for variable descriptions see Table 3.15 in the Appendix).

3.4.1 Dependent Variable

The dependent variable is a dummy for the decision to stay in Germany. Since our data is restricted to the period between January 1987 and August 2005, the spells of some graduates are right censored. The return date is missing for 39.24 % of the students in our sample. The differences between the three programs are quite large (see Table 3.3). Given the aim of the KAAD and the legal situation in Germany, the number of students who decided to stay - at least for some more months after graduation - is surprisingly high in all three programs.

Our identifying assumption is that all students, for whom the return date is missing, are still in Germany in August 2005. In principle, it might be the case that some students whose return dates are missing did return but did not report to the KAAD. Variables,

Table 3.3: Descriptive statistics concerning the return date

KAAD program	total number	return date		censored	(share)
		known	(share)		
All	2436	1480	(60.76 %)	956	(39.24 %)
Program 1	1276	681	(53.37 %)	595	(46.63 %)
Program 2	278	84	(30.22 %)	194	(69.78 %)
Program 3	882	715	(81.07 %)	167	(18.93 %)

which correlate positively with the inclination to report the return, might, thus, have a spurious correlation with the dependent variable.

3.4.2 Explanatory Variables

Individual Factors

The data set contains the student's date of birth, the dates of arrival in Germany and of the end of the study period. From this data we can calculate the time a student spent in Germany and the student's age at the end of the study period. On average, students stayed for 44 months in Germany. The average age of graduates in our sample is 32 years. Both variables, time spent in Germany and age, depend linearly on time and are included in our regression as time varying covariates. Similar to Ham and Rea (1987), identification of the coefficients of time spent in Germany and age comes from variations in the parameter values at the end of the study period.

Other personal characteristics which are included in the regressions are gender and the field of study. 43 % of the scholarship recipients are women. We created dummies for six different fields of study: agricultural sciences, technical sciences, medicine, EBP (economics, business and politics), law and German (German language or literature studies). For descriptive statistics concerning the fields of study see Table 3.8 in the Appendix.

Even though we have information about the student's family status we do not use family status variables in our regression. The family status might have changed over time but in our data there is no history of family status. Personal characteristics are recorded at one point in time and updated only if the student informs the KAAD about a change in his or her status. Therefore we do not know when the student did marry or when he had

children.

In the data set, it is also registered whether a student participated in a seminar which was offered by the KAAD and whether he or she visited home during the study period in Germany. We created dummies for these events. 53 % of the scholarship recipients participated in at least one seminar, 23 % visited their home country one or more times. The two dummies are potentially endogeneous. If students plan to return, they might have a higher inclination to visit home or to participate in a seminar in which help for return is offered. The definitive return decision, however, is made at the end of the study period or later and, therefore, after a participation in a seminar or a home visit.

Cultural Proximity

One way to control for culture is to include dummies for cultural regions. We, therefore, include dummies for Africa, Asia, the Middle East, and Latin America. But also within cultural regions some countries might be culturally closer to Germany than others. We rely on matrices constructed by Eff (2004) to capture other aspects of cultural proximity. Following his consideration that “Language is the primary vehicle of inherited culture” (Eff 2004, p. 5) linguistic proximity is used as a proxy for cultural similarity of nations. The similarity measure is based on insights of linguists on the phylogenetic relationship between languages. With the help of graph theory, the distance between pairs of languages in a phylogenetic language graph can be calculated. The length of the longest path in a language family is used to standardize the similarity measure such that a pair of languages with a common ancestor is equally distant from that ancestor. The matrix for linguistic proximity is constructed such that the values lie between zero and one. A value of one indicates closest proximity. Languages from different language families have a similarity index of zero. The values of linguistic proximity between the countries in our sample and Germany are reported in Table 3.13 in the Appendix.

Since cultural similarity might arise from common history we include a dummy which indicates whether home and host country were dominated by a particular colonial or imperial power within the last 300 years. In Table 3.14 in the Appendix all countries in our sample that have a common history with Germany are listed.

We control for the impact of networks of compatriots by including the logarithm of the

number of the student's compatriots living in Germany.⁸ The logarithm is used because an additional compatriot living in the host country might matter less when many compatriots already live there.

Control Factors

Standards of living in the home and the host country are proxied by GDP per capita which is considerably lower in the home countries (on average 6,163 dollars) than in Germany (on average 24,805 dollars). Since we expect that the motive to gain higher standard of living is stronger for students from countries with a low standard of living, we use the logarithms. The unemployment rate of highly qualified people in Germany (which was 3.7 % on average) measures labor market perspectives in Germany. Since reliable and comparable information on unemployment levels is not available for developing countries, the labor market situation in the students' home countries is described by the three year average growth rate of GDP per capita. We assume that higher growth results in more employment. Average growth rates differ widely, the mean in our sample being at 4.3 %.

We also include the amount of bilateral trade in order to capture higher labor demand in the home country due to R&D spillovers. The bilateral trade volume with Germany is calculated by adding the respective country's exports to and imports from Germany. This sum is divided by the size of the population to account for country size. Since for some countries exports and imports vary considerably between years we include the logarithm of the average over three years in our regression. The logarithm is used because the demand for highly qualified workers might rise in a non-linear manner.

We include indices of (political) freedom (from "Freedom House") and of economic freedom (from the Fraser Institute) in our regressions. For the freedom variable we added the two indicators for political rights and civil liberties which range from one to seven each. A higher index indicates less freedom. The economic freedom index ranges from one to ten. A value of ten indicates the highest level of economic freedom. The average level of freedom in our sample is eight and the average level of economic freedom is six.

The percentage of female labor force divided by the percentage of female population in the home country is used to proxy access restrictions for women to national labor markets.

⁸Source: Federal Bureau of Migration, Germany

A low participation rate of women in the labor market might indicate that women are inhibited to work. However, other factors may account for a low female participation rate. We include the logarithm of the ratio because the logarithm places less weight on observations which indicate the absence of discrimination. Another indication of gender discrimination is a gender bias in mortality. Sen (1989, 1990) proposed to compare actual population sex ratios with expected ones and coined the notion of “missing women”. According to the classification of Klasen and Wink (2003) 22 % of the graduates in our sample come from a country in which there is excess female mortality, i.e. in which women are “missing”.

Since the KAAD is a catholic organization, the majority of the students in our sample are roman catholics (76 %). In some countries in our sample, catholics are a minority. This might affect the selection process of the KAAD because it preferentially selects catholic students. We therefore include the proportion of catholics in the home country which is on average 43 %.⁹

To account for the effect of different recruiting strategies, we include dummies for Program 1 and Program 3 in our baseline regression. Also, the legal situation is controlled for by including dummies for the different legal regimes.

3.5 Duration Analysis

In this section we report on the results of the duration analysis. We first estimated a baseline specification with the control variables. Then, we included individual factors. Likelihood ratio (LR) tests indicated whether the group of individual characteristics is significant. The likelihood ratios are reported in Table 3.12 in the Appendix. To check whether cultural determinants are important, we added these factors to our baseline specification and also performed LR tests.

3.5.1 Whole Sample

Regression results are reported in Table 3.9 in the Appendix. The LR tests indicate that individual and cultural factors have a significant impact on the return decision. In

⁹Source: La Porta et al. (1999)

Table 3.4 we summarize which individual and cultural variables have significant effects on the return decision.

The baseline hazard is initially decreasing. Graduates who spent more time in Germany after they finished their studies have a lower hazard rate: Their propensity to return in a given month is lower. The baseline hazard reaches a minimum at 56 months after graduation, then rises and peaks at 110 months after graduation.¹⁰

Graduates who came to Germany at an older age and graduates who visited home during their study period in Germany have a higher hazard rate. In a given month, they are more likely to return and are, thus, expected to return earlier than their peers. Time spent in Germany has a significantly negative but non-linear effect on the return hazard. Students having spent more time in Germany are presumably better integrated and less likely to return. But the reduction in the hazard rate becomes smaller with increasing time spent in Germany.¹¹ Students of agricultural sciences, of German and of medicine have a significantly higher hazard rate than students of other disciplines.

The propensity to return is significantly higher for participants in the two invitation programs (Program 1 and Program 3) than for participants in Program 2 who were recruited in Germany. The hazard rate of catholic students is not significantly different from non-catholic students. However, graduates from countries with a higher proportion of catholics in the population have a significantly lower hazard rate.

Also cultural proximity has significant effects on the return decision. Students from countries in which a similar language is spoken have a significantly lower hazard rate. They have a higher propensity to stay and they can be expected to stay for a longer time. Graduates from Africa and from the Middle East are less likely to return than their peers from Latin America.

Students from wealthier countries have a higher hazard rate and are, thus, more likely to return. In contrast to our expectation, graduates from countries with closer trade relations with Germany have a higher propensity to stay. If their home countries are important

¹⁰If the polynomial of the baseline hazard is: $c_1t + c_2t^2 + c_3t^3$ the formula for the computation of the trough and peak is: $\frac{-c_2 \pm \sqrt{c_2^2 - 3c_1c_3}}{3c_3}$.

Here: times of trough and peak = $\frac{-0.0025 \pm \sqrt{0.0025^2 - 3(-0.1862)(-0.00001)}}{3(-0.00001)}$.

¹¹Only for students who spent more than 147.5 months (computation: $|-0.0295/(2*0.0001)|$) in Germany at the end of the study period, the propensity to return starts to increase with time. Nobody stayed in Germany for such a long time.

trading partners for Germany, German firms might be particularly interested in hiring these students because they can help to establish and maintain good trade relations. Students from countries, in which freedom is less pronounced or female mortality is high have a significantly lower hazard rate.

Women have a significantly lower hazard rate than men. To analyze the differences in the return decision between male and female graduates more closely, we run separate regressions and a regression in which the dummy variable for gender is interacted with explanatory variables (see Table 3.10 in the Appendix). In the last column of Table 3.10 the coefficients of the cross-product terms are given. Only few of these terms are significant indicating that only few significant differences between male and female graduates exist.

There are significant differences in the baseline hazard between male and female students. The baseline hazard initially declines for all students. But for women the baseline hazard reaches the minimum earlier (at 52 months after the end of the study period as compared to 57 months) and peaks later (at 124 months after the end of the study period as compared to 121 months). Female graduates who study technical sciences have a significantly higher hazard rate, those who study medicine have a significantly lower hazard rate than their male peers. Women from Africa or from countries with closer trade relations with Germany have a significantly higher propensity to return than men. Moreover, female graduates who come from a country with a common history are less likely to return.

3.5.2 The Three Scholarship Programs of the KAAD

Since the three KAAD programs differ somewhat in focus and organization, we investigate them separately in this section. Regression results are reported in Table 3.9 in the Appendix. In Table 3.5 we summarize which individual and cultural variables have significant effects on the return decision. Since our main focus is the impact of individual and cultural determinants we will not comment on the impact of economic and political factors.

Initially after graduation the baseline hazard is significantly negative for graduates of all three programs. It has an early trough and a late peak.

Individual determinants are jointly insignificant for participants of Program 2.¹² Time

¹²If individual determinants are included in the regression only two variables – home visits and German – are significant at the 10 % level (both effects are positive).

Table 3.4: Summary: Significant effects (whole sample, gender differences)

Variable	Prediction	Whole Sample	Men	Women
<u>Individual Factors</u>				
age	+	+	+	+
trip home	+	+	+	
time spent in Germany	-	-	-	-
time spent in Germany ²		+	+	+
agricultural sciences	+	+		
medicine	-	+	+	
technical sciences	+			+
German	+	+		
<u>Cultural Factors</u>				
linguistic proximity	-	-	-	
common history	-		+	
Africa		-	-	
Middle East		-	-	

Notes: + = more likely to return, - = less likely to return

spent in Germany and age have a significant impact on the return decision of graduates from the two invitation programs (Program 1 and Program 3). Graduates from Program 1 who visited home during their study period in Germany have a higher hazard rate. The variable “home visits” is not included in the regression for Program 3 because there is hardly any variation concerning this variable (only 2 students from the third program visited home during their study period in Germany). Students of agricultural sciences have a higher propensity to return. Moreover, graduates from Program 1 who studied medicine or who participated in a seminar have a significantly higher hazard rate. Female graduates of Program 3 are significantly less likely to return.

Cultural determinants are jointly insignificant for participants of Program 3. In contrast to our expectation, participants of Program 2, who come from a country with a common history, have a higher hazard rate.

3.5.3 The Regions

Regression results for the different regions can be found in Table 3.11 in the Appendix. In Table 3.6 we summarize which individual and cultural variables have significant effects on the return decision. Since our main focus is the impact of individual and cultural determinants we will not comment on the impact of economic and political factors.

Table 3.5: Summary: Significant effects (different programs)

Variable	Prediction	Program 1	Program 2	Program 3
<u>Individual Factors</u>				
age	+	+		+
trip home	+	+		
time spent in Germany	-	-		-
time spent in Germany ²		+		+
agricultural sciences	+	+		+
medicine	-	+		
seminar	+	+		
<u>Cultural Factors</u>				
common history	-		+	

Notes: + = more likely to return, - = less likely to return

Age and time spent in Germany are significant determinants for the return decision of graduates from all regions. There are, however, some differences in the impact of the field of study variables on the return decision across regions. For graduates from Asia, no significant differences in the return propensity across field of study are observed. Students of agricultural sciences from Africa and Eastern Europe and students of law from the Middle East have a higher hazard rate. While medical students from Latin America are more likely to return, medical students from the Middle East have a higher propensity to stay. Female graduates from Eastern Europe and from Latin America have a lower hazard rate.

While graduates from Africa and the Middle East who participated in a seminar have a higher propensity to return, the opposite is true for students from Asia. Participants of Program 1 from Africa and Asia have significantly higher hazard rates than participants of Program 2. Catholic students from Asia and the Middle East and Middle Eastern graduates from countries with a smaller proportion of catholics have a significantly lower propensity to return. This might reflect fear of religious discrimination.

Cultural determinants only have a significant impact on the return decision of African graduates. In contrast to our finding for the whole sample, these graduates have a significantly higher hazard rate if they come from countries with higher linguistic proximity.

Table 3.6: Summary: Significant effects (different regions)

Variable	Prediction	Africa	Asia	Latin America	Middle East	Eastern Europe
<u>Individual Factors</u>						
age	+	+	+	+	+	+
time spent in Germany	-	-	-	-	-	-
time spent in Germany ²		+	+	+	+	+
agricultural sciences	+	+				+
medicine	-			+	-	
law	-				+	
seminar	+	+	-		+	
<u>Cultural Factors</u>						
linguistic proximity	-	+				

Notes: + = more likely to return, - = less likely to return

3.5.4 Implications for Scholarship Institutions

Scholarship institutions aiming at high return rates basically have two strategies. They can select students with higher return propensities and they can make incentive compatible contractual arrangements. Based on the identification of determinants of the return decision for our sample of scholarship recipients, we now speculate what measures scholarship institutions can take in order to raise the return rate.

Students who graduate at an older age and graduates who study agricultural sciences have high return propensities. Scholarship institutions might, thus, consider preferentially selecting these students. With respect to other fields of study, no clear-cut results emerged. Selection according to the field of study will, therefore, probably not have a big impact on overall return rates.

Another significant determinant for the return decision is the time spent in the host country at the end of the study period. Students who study for a shorter period in the host country have higher return rates on average. If there is a positive correlation between the intended duration of a study program and actual duration, scholarship institutions might preferentially select students who plan to participate in shorter study programs. Moreover, contractual arrangements could be made such that support is limited to a certain period of time and these time limits should be rigorously enforced. If these arrangements induce students to finish their studies faster and to be in Germany for a shorter time period,

higher return rates might result.

Since home visits have a significantly positive impact on the return propensity for some groups of students, scholarship institutions could provide arrangements that encourage home visits. Scholarship institutions could facilitate home visits for example by offering administrative support, or they might consider providing travel funding for home visits.

Participants of the invitation programs (Program 1 and Program 3) have a higher propensity to return than students who already spent some time in Germany prior to receiving their scholarship. Scholarship institutions which aim at high return rates might consider to limit their recruitment to students in their respective home countries. The KAAD offers seminars to ease reintegration. Students from Program 1 and African and Middle Eastern graduates who participated in such a seminar have a significantly higher propensity to return. The seminars seem to promote return. Graduates from Asia, who participated in such seminars, are, however, less likely to return.

Since the baseline hazard declines initially, scholarship institutions might consider addressing graduates who just finished their studies to encourage them to return. Scholarship institutions might cooperate with migration agencies and activate networks of former scholarship recipients in the home countries in order to design favorable incentives to facilitate return.

3.6 Discussion

In this paper we analyze the return decisions of foreign students from developing and transition countries who study in Germany with the support of the KAAD, a German scholarship organization. We find that individual factors, in particular the time spent in the host country and age, are important determinants for the return decision and for the timing of return.

We proposed some measures that scholarship institutions can take to raise return rates. The higher hazard rate of older students, for example, led us to the conclusion that scholarship institutions should select older students. However, raising return rates is just one criterion of selecting foreign students. A scholarship institution has to take into account different objectives. For example, scholarship institutions usually prefer to select younger students who might learn more easily, who might have better career perspectives

and who might better complement domestic workers.

Additionally, we investigated the impact of cultural proximity on the return decision. As measures for cultural proximity, we used not only regional distance but also linguistic proximity and common history. We found that cultural proximity has a significant impact only on the return decision of some groups of students, in particular students from Africa. Moreover, we did not get clear-cut evidence whether more cultural similarity has a positive or a negative impact on return rates.

3.7 Appendix

Table 3.7: List of major home countries of foreign students in Germany (only developing and transition countries considered)

(a) for the year 2002					
Rank	Country	Total number of students in Germany	% of foreign student population in Germany	Number of KAAD scholars	% of KAAD population
1	China	13,523	13.44	46	8.00
2	Poland	8,827	8.77	56	9.74
3	Russia	7,098	7.05	3	0.52
4	Bulgaria	6,954	6.91	4	0.70
5	Morocco	5,570	5.54	2	0.35
6	Turkey	5,188	5.16	3	0.52
7	Cameron	4,309	4.28	15	2.61
8	Ukraine	4,049	4.02	8	1.39
9	South Korea	3,729	3.71	1	0.17
10	Iran	2,929	2.91	5	0.87
11	Hungary	2,455	2.44	8	1.39
12	Romania	2,451	2.44	18	3.13
13	Indonesia	2,016	2.00	33	5.74
14	Georgia	1,973	1.96	1	0.17
15	India	1,745	1.73	6	1.04

(b) for the year 2003					
Rank	Country	Total number of students in Germany	% of foreign student population in Germany	Number of KAAD scholars	% of KAAD population
1	China	19,374	16.13	37	8.03
2	Poland	10,284	8.56	50	10.85
3	Bulgaria	9,499	7.91	0	0.00
4	Russia	8,113	6.76	4	0.87
5	Morocco	6,159	5.13	1	0.22
6	Turkey	5,728	4.77	1	0.22
7	Ukraine	4,975	4.14	12	2.60
8	Cameron	4,709	3.92	6	1.30
9	South Korea	3,899	3.25	1	0.22
10	Romania	3,024	2.52	19	4.12
11	India	2,920	2.43	5	1.08
12	Iran	2,810	2.34	3	0.65
13	Hungary	2,667	2.22	9	1.95
14	Georgia	2,490	2.07	1	0.22
15	Indonesia	2,187	1.82	25	5.42

Source: Student Statistics Federal Statistical Office, HIS computations (available at: www.wissenschaft-welttoffen.de); KAAD Database

Table 3.8: Descriptive statistics for the different programs

	Whole Sample		Program 1		Program 2		Program 3	
	mean	std. dev.	mean	std. dev.	mean	std. dev.	mean	std. dev.
time since								
the end of the study period	59.1897	44.9938	51.6534	41.6039	76.1020	47.2671	46.5874	39.4218
age								
at end of study period	32.4027	7.5580	33.7312	6.4585	32.4640	4.5224	30.4615	9.2063
time spent in Germany								
at end of study period	43.6617	42.1936	56.0886	37.9273	92.5216	46.3078	10.2835	8.4970
<u>time constant covariates</u>	2,436 individuals		1,276 individuals		278 individuals		882 individuals	
trip home	0.2295	0.4206	0.3942	0.4889	0.1942	0.3963		
agricultural sciences	0.0456	0.2086	0.0713	0.2575	0.0360	0.1866	0.0113	0.1059
technical sciences	0.0825	0.2752	0.0909	0.2876	0.1511	0.3588	0.0488	0.2155
medicine	0.1679	0.3739	0.1967	0.3977	0.1727	0.3786	0.1247	0.3306
EBP	0.0936	0.2913	0.1027	0.3036	0.1043	0.3062	0.0771	0.2669
law	0.0456	0.2086	0.0345	0.1825	0.0216	0.1456	0.0692	0.2539
German	0.1026	0.3035	0.0384	0.1922	0.0432	0.2036	0.2143	0.4106
seminar	0.5337	0.4990	0.6207	0.4854	0.0432	0.2036	0.5624	0.4964
linguistic proximity	0.0493	0.0392	0.0325	0.0361	0.0263	0.0279	0.0809	0.0230
common history	0.3805	0.4856	0.1301	0.3365	0.1727	0.3786	0.8084	0.3938
Africa	0.1478	0.3550	0.2547	0.4359	0.1259	0.3323		
Asia	0.1897	0.3921	0.3009	0.4588	0.2734	0.4465		
Middle East	0.0998	0.2997	0.0823	0.2749	0.4964	0.5009		
female	0.4331	0.4956	0.3730	0.4838	0.2806	0.4501	0.5680	0.4956
catholic	0.7586	0.4280	0.8174	0.3865	0.2554	0.4369	0.8322	0.3739
share of catholics	43.1227	38.8084	42.5726	40.9497	12.2266	28.1999	53.6569	32.7581
Program 1	0.5238	0.4995						
Program 3	0.3621	0.4807						
missing women	0.2151	0.4110	0.2610	0.4393	0.6871	0.4645		
<u>time varying covariates</u>	100,158 observations		52,009 observations		33,839 observations		14,310 observations	
stock of compatriots	124948.40	365214.60	51144.28	240666.60	214152.60	530386.10	182243.80	126312.90
unemployment rate, D	3.6866	0.4020	3.6877	0.4071	3.6915	0.3874	3.6708	0.4168
avg. growth rate, H	4.2751	3.0680	4.2225	3.3298	4.5275	2.8401	3.8694	2.4865
GDP, p.c., D	24804.58	1327.30	24994.84	1246.22	24367.10	1421.32	25147.66	1098.82
GDP, p.c. H	6163.11	4083.65	5004.96	3747.30	6119.17	3781.82	10476.29	2895.11
trade volume p.c.	0.0002	0.0004	0.0000	0.0001	0.0001	0.0001	0.0009	0.0008
freedom, H	8.1585	3.7426	8.3313	3.4457	9.8524	3.2169	3.5252	1.4340
economic freedom, H	5.7503	0.8477	5.8091	0.8136	5.5868	0.8558	5.9233	0.8869
female labor force	0.7484	0.1511	0.7838	0.1258	0.6359	0.1433	0.8858	0.0179
law 1993	0.1783	0.3828	0.1367	0.3436	0.2700	0.4439	0.1128	0.3163
law 1997	0.2091	0.4066	0.1968	0.3976	0.2328	0.4226	0.1975	0.3981
law 2000	0.4891	0.4999	0.5372	0.4986	0.3763	0.4845	0.5811	0.4934
law 2005	0.0769	0.2665	0.0925	0.2897	0.0461	0.2098	0.0933	0.2909
	Africa		Asia		Latin America		Middle East	
	mean	std. dev.	mean	std. dev.	mean	std. dev.	mean	std. dev.
time since								
the end of the study period	51.8642	41.4960	61.9256	45.8423	55.0962	42.8355	72.3275	47.6361
age								
at end of study period	34.0444	6.4642	34.4957	6.7422	32.9206	5.8348	31.9877	4.7207
time spent in Germany								
at end of study period	56.4056	38.6675	62.0909	41.1113	54.2627	36.1718	89.1934	48.0942
<u>time constant covariates</u>	360 individuals		462 individuals		491 individuals		243 individuals	
trip home	0.3361	0.4730	0.3636	0.4816	0.3870	0.4876	0.3210	0.4678
agricultural sciences	0.1056	0.3077	0.0498	0.2177	0.0509	0.2201	0.0617	0.2412
technical sciences	0.0944	0.2929	0.1320	0.3389	0.0652	0.2471	0.1276	0.3343
medicine	0.1778	0.3829	0.1255	0.3317	0.1935	0.3954	0.3416	0.4752
EBP	0.1472	0.3548	0.1104	0.3137	0.0815	0.2738	0.0658	0.2485
law	0.0222	0.1476	0.0303	0.1716	0.0489	0.2158	0.0165	0.1275
German	0.0278	0.1646	0.0563	0.2307	0.0448	0.2071	0.0123	0.1107
seminar	0.5083	0.5006	0.5541	0.4976	0.5662	0.4961	0.3663	0.4828
linguistic proximity	0.0095	0.0153	0.0063	0.0204	0.0743	0.0167	0.0247	0.0205
common history	0.1833	0.3875	0.3247	0.4688				
female	0.2194	0.4144	0.3528	0.4784	0.5092	0.5004	0.2634	0.4414
catholic	0.8417	0.3656	0.6753	0.4688	0.9857	0.1187	0.0617	0.2412
share of catholics	25.3139	16.3818	7.1519	20.3660	91.9939	5.5683	0.5613	0.6425
Program 1	0.9028	0.2967	0.8312	0.3750	0.9409	0.2360	0.4321	0.4964
missing women	0.0306	0.1723	0.6623	0.4734			0.8519	0.3560
<u>time varying covariates</u>	16,542 observations		22,392 observations		21,838 observations		25,079 observations	
stock of compatriots	18214.33	22784.31	32624.54	20923.55	9182.17	7638.12	345881.20	667333.70
unemployment rate, D	3.6966	0.4045	3.6831	0.3976	3.6896	0.4022	3.6894	0.3951
avg. growth rate, H	3.3457	3.4752	6.6064	3.1905	2.9137	2.5562	4.2243	2.0477
GDP, p.c., D	25080.25	1189.65	24633.25	1378.39	24814.27	1329.83	24571.71	1407.03
GDP, p.c. H	1716.40	1345.93	6997.42	5476.17	6764.56	2622.38	5366.15	1622.25
trade volume p.c.	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0001	0.0001
freedom, H	9.4534	2.6871	8.6434	4.0428	6.0064	1.8813	11.3895	2.0720
economic freedom, H	5.3811	0.8288	6.0390	0.5711	6.0060	0.9126	5.4147	0.7750
female labor force	0.7932	0.1571	0.8141	0.0984	0.7829	0.0724	0.5518	0.0766
law 1993	0.1262	0.3321	0.2107	0.4078	0.1738	0.3789	0.2250	0.4176
law 1997	0.1960	0.3970	0.2169	0.4121	0.2081	0.4059	0.2182	0.4130
law 2000	0.5504	0.4975	0.4480	0.4973	0.4907	0.4999	0.4314	0.4953
law 2005	0.1025	0.3033	0.0628	0.2426	0.0794	0.2704	0.0614	0.2400

Notes: Abbreviations used: D for Germany and H for home country

Table 3.9: Results of duration analysis for the different programs

	Whole Sample		Program 1		Program 2		Program 3	
dependent variable:	return		return		return		return	
time since graduation	-0.1862	***	-0.1469	***	-0.1335	***	-0.3362	***
	(0.0100)		(0.0123)		(0.0215)		(0.0248)	
(time since graduation) ²	0.0025	***	0.0019	***	0.0015	***	0.0049	***
	(0.0002)		(0.0002)		(0.0004)		(0.0007)	
(time since graduation) ³	-0.00001	***	-0.00001	***	-0.00001	***	-0.00002	***
	(0.0000)		(0.0000)		(0.0000)		(0.0000)	
<u>individual factors</u>								
age	0.0492	***	0.1182	***			0.0088	*
	(0.0057)		(0.0115)				(0.0046)	
trip home	0.3640	***	0.2862	*				
	(0.1174)		(0.1577)					
time spent in D	-0.0295	***	-0.0327	***			-0.0722	***
	(0.0025)		(0.0042)				(0.0085)	
(time spent in D) ²	0.0001	***	0.0001	***			0.0004	***
	(0.0000)		(0.0000)				(0.0001)	
agricultural sciences	0.3350	*	0.4443	*			0.6260	*
	(0.1983)		(0.2682)				(0.3706)	
technical sciences	0.0178		0.0412				0.0863	
	(0.1607)		(0.2560)				(0.1864)	
medicine	0.2479	**	0.3543	*			0.2082	
	(0.1188)		(0.1886)				(0.1284)	
EBP	0.1238		-0.2920				0.2164	
	(0.1442)		(0.2434)				(0.1521)	
law	0.0391		0.2622				-0.1351	
	(0.1900)		(0.3630)				(0.1643)	
German	0.2572	*	-0.1567				0.0739	
	(0.1382)		(0.3678)				(0.1092)	
seminar	-0.1034		0.3257	*			-0.0941	
	(0.0991)		(0.1838)				(0.0880)	
<u>cultural factors</u>								
linguistic proximity	-5.7790	**	-4.2542		3.2938		-1.4322	
	(2.3180)		(4.2237)		(9.8577)		(2.6938)	
common history	0.2232		0.2086		3.3561	***		
	(0.1467)		(0.2768)		(1.0492)			
Africa	-0.6815	**	-0.8018		-3.1961			
	(0.3191)		(0.6086)		(2.6175)			
Asia	0.0744		0.2329		-1.5995			
	(0.3069)		(0.6079)		(2.7556)			
Middle East	-1.0285	***	-1.1444		-2.2820			
	(0.3696)		(0.7114)		(2.5724)			
stock of compatriots (log)	-0.0368		-0.1040		0.1055			
	(0.0399)		(0.0783)		(0.1662)			
female	-0.1736	**	-0.1073		-0.2068		-0.1835	**
	(0.0861)		(0.1478)		(0.2685)		(0.0860)	
catholic	-0.0086		-0.1660		-0.4122		0.1636	
	(0.1348)		(0.2257)		(0.3457)		(0.1484)	
share of catholics	-0.0045	**	-0.0053		-0.0048		-0.0032	
	(0.0023)		(0.0056)		(0.0270)		(0.0021)	
Program 1	0.9802	***						
	(0.1996)							
Program 3	1.3863	***						
	(0.3459)							
unemployment rate, D	0.1296		-0.0269		1.5274	***	0.2369	**
	(0.1007)		(0.1590)		(0.5356)		(0.1098)	
avg. growth rate, H	-0.0002		0.0171		0.0124		-0.0211	
	(0.0133)		(0.0226)		(0.0498)		(0.0145)	
GDP p.c., D (log)	-0.6365		-1.2275		11.9836		-5.7636	*
	(2.3181)		(3.4185)		(7.7356)		(3.2418)	
GDP p.c., H (log)	0.3442	***	0.1523		-0.1191		0.0120	
	(0.1284)		(0.2148)		(0.5162)		(0.3223)	
trade volume (log)	-331.0080	**	3026.2490		3278.7360		-271.4659	*
	(133.2179)		(1911.8450)		(4079.1920)		(144.1561)	
freedom, H	-0.0511	**	-0.0629	**	0.1846	**	0.0496	
	(0.0204)		(0.0305)		(0.0869)		(0.0379)	
economic freedom, H	-0.0416		-0.0692		-0.1872		0.2289	**
	(0.0734)		(0.1055)		(0.2480)		(0.1083)	
missing women	-0.5293	***	-0.8538	***	-1.7848	***		
	(0.1941)		(0.2699)		(0.6714)			
female labor force (log)	0.4533		0.2159		0.5563		-3.5819	
	(0.9924)		(1.3269)		(3.4657)		(4.8073)	
law 1993	1.1878	***	0.7359	***	0.5309		2.3156	***
	(0.1983)		(0.2765)		(0.4712)		(0.4847)	
law 1997	1.2047	***	0.7193	*	0.1660		2.5597	***
	(0.2803)		(0.4024)		(0.8005)		(0.5356)	
law 2000	1.1244	***	0.6147		0.2441		2.8418	***
	(0.3861)		(0.5592)		(1.2464)		(0.6395)	
law 2005	0.8029	*	0.4371		0.4633		2.2018	***
	(0.4575)		(0.6473)		(1.4554)		(0.7400)	
constant	-0.0209		7.7602		-129.3433	*	56.0950	*
	(23.0835)		(34.0632)		(77.3709)		(31.7277)	
frailty								
No. of observations	yes		yes		no		no	
	100,158		52,009		33,839		14,310	
No. of individuals	2,436		1,276		278		882	
Log likelihood	-4508.295		-2499.554		-495.9266		-1354.5618	

Notes:

Abbreviations used: D for Germany and H for home country

*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level
standard errors in parentheses

Table 3.10: Results of duration analysis: Differences between sexes

dependent variable:	Men		Women		Model with interaction effects			
	return		return		return			
					interaction terms			
time since graduation	-0.1570	***	-0.2446	***	-0.1648	***	-0.0529	***
	(0.0119)		(0.0170)		(0.0117)		(0.0177)	
(time since graduation) ²	0.0020	***	0.0033	***	0.0021	***	0.0008	**
	(0.0002)		(0.0003)		(0.0002)		(0.0003)	
(time since graduation) ³	-0.00001	***	-0.00001	***	-0.00001	***	-0.000003	**
	(0.0000)		(0.0000)		(0.0000)		(0.0000)	
<u>individual factors</u>								
age	0.0559	***	0.0377	***	0.0531	***	-0.0108	
	(0.0077)		(0.0078)		(0.0074)		(0.0114)	
trip home	0.5092	***	0.2020		0.4924	***	-0.2733	
	(0.1573)		(0.1677)		(0.1510)		(0.2412)	
time spent in D	-0.0306	***	-0.0264	***	-0.0299	***	0.0017	
	(0.0033)		(0.0037)		(0.0032)		(0.0052)	
(time spent in D) ²	0.0001	***	0.0001	***	0.0001	***	0.0000	
	(0.0000)		(0.0000)		(0.0000)		(0.0000)	
agricultural sciences	0.2816		0.4438		0.2667		0.2270	
	(0.2585)		(0.2910)		(0.2481)		(0.4144)	
technical sciences	-0.2570		0.7400	***	-0.2390		1.0894	***
	(0.1986)		(0.2801)		(0.1902)		(0.3736)	
medicine	0.4122	***	-0.0623		0.4001	***	-0.4689	*
	(0.1565)		(0.1740)		(0.1496)		(0.2476)	
EBP	0.1685		0.0425		0.1691		-0.1347	
	(0.1982)		(0.1954)		(0.1897)		(0.2918)	
law	0.0874		-0.0083		0.0709		-0.0811	
	(0.2723)		(0.2428)		(0.2608)		(0.3796)	
German	0.4217		0.1315		0.4095	*	-0.2570	
	(0.2612)		(0.1486)		(0.2493)		(0.3019)	
seminar	0.0307		-0.2039		0.0279		-0.2584	
	(0.1449)		(0.1246)		(0.1386)		(0.1986)	
<u>cultural factors</u>								
linguistic proximity	-7.4375	**	-3.4765		-7.2961	**	3.5575	
	(3.3783)		(3.0070)		(3.2385)		(4.6917)	
common history	0.4432	**	-0.0923		0.4332	**	-0.5339	*
	(0.2011)		(0.2002)		(0.1921)		(0.2985)	
Africa	-1.1530	**	0.0036		-1.1268	***	1.1174	*
	(0.4577)		(0.4382)		(0.4379)		(0.6585)	
Asia	-0.3912		0.5625		-0.3857		1.0021	
	(0.4488)		(0.3979)		(0.4286)		(0.6224)	
Middle East	-1.3420	***	-0.6682		-1.3070	***	0.5675	
	(0.4998)		(0.5571)		(0.4788)		(0.7830)	
stock of compatriots (log)	-0.0932		0.0211		-0.0878		0.1122	
	(0.0576)		(0.0520)		(0.0551)		(0.0808)	
catholic	-0.0909		0.0761		-0.0890		0.1563	
	(0.1818)		(0.1919)		(0.1739)		(0.2793)	
share of catholics	-0.0068	**	-0.0026		-0.0066	**	0.0038	
	(0.0035)		(0.0028)		(0.0033)		(0.0046)	
Program 1	0.9217	***	1.0491	***	0.8764	***	0.3191	
	(0.2528)		(0.3181)		(0.2430)		(0.4238)	
Program 3	1.1266	**	1.6377	***	1.0601	**	0.8022	
	(0.4832)		(0.4853)		(0.4632)		(0.7098)	
unemployment rate, D	0.0733		0.1192		0.0755		0.0572	
	(0.1394)		(0.1369)		(0.1353)		(0.2029)	
avg. growth rate, H	-0.0052		0.0108		-0.0047		0.0133	
	(0.0177)		(0.0192)		(0.0171)		(0.0273)	
GDP p.c., D (log)	-0.8847		-1.2951		-1.0324		0.2128	
	(2.9894)		(3.5445)		(2.9089)		(4.8343)	
GDP p.c., H (log)	0.4250	**	0.2847		0.4032	**	-0.1079	
	(0.1732)		(0.1870)		(0.1661)		(0.2664)	
trade volume (log)	-589.9496	***	-105.7496		-569.0967	***	459.6040	*
	(218.5391)		(155.7078)		(209.1877)		(273.5324)	
freedom, H	-0.0555	**	-0.0509		-0.0545	**	-0.0032	
	(0.0261)		(0.0326)		(0.0251)		(0.0441)	
economic freedom, H	-0.0106		-0.0792		-0.0086	**	-0.0852	
	(0.1026)		(0.1012)		(0.0990)		(0.1491)	
missing women	-0.5869	**	-0.5099	*	-0.5620		0.0139	
	(0.2481)		(0.3027)		(0.2377)		(0.4153)	
female labor force (log)	1.4004		-0.9378		1.3599		-2.4333	
	(1.2424)		(1.6178)		(1.1941)		(2.1744)	
law 1993	1.1352	***	1.3128	***	1.1387	***	0.1460	
	(0.2481)		(0.3299)		(0.2428)		(0.4237)	
law 1997	1.2472	***	1.2106	***	1.2647	***	-0.0979	
	(0.3607)		(0.4405)		(0.3526)		(0.5852)	
law 2000	1.0979	**	1.2537	**	1.1224	**	0.0533	
	(0.4982)		(0.5962)		(0.4870)		(0.8012)	
law 2005	0.8387		0.7960		0.8556		-0.1530	
	(0.5934)		(0.6998)		(0.5807)		(0.9461)	
constant	2.0496		7.3934		3.7859		-1.4390	
	(29.7716)		(35.2435)		(28.9658)		(48.0924)	
frailty								
No. of observations	62,658		37,500		100,158			
No. of individuals	1,381		1,055		2,436			
Log likelihood	-2580.0684		-1898.5500		-4480.7700			

Notes:
Abbreviations used: D for Germany and H for home country
*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level
standard errors in parentheses

Table 3.11: Results of duration analysis for the different regions

dependent variable:	Africa		Asia		Latin America		Middle East	
	return		return		return		return	
time since graduation	-0.1304 *** (0.0285)		-0.1516 *** (0.0150)		-0.1320 *** (0.0198)		-0.2186 *** (0.0330)	
(time since graduation) ²	0.0017 *** (0.0005)		0.0015 *** (0.0003)		0.0020 *** (0.0003)		0.0030 *** (0.0006)	
(time since graduation) ³	-0.00001 ** (0.0000)		-0.00001 *** (0.0000)		-0.00001 *** (0.0000)		-0.00001 *** (0.0000)	
<u>individual factors</u>								
age	0.1417 *** (0.0268)		0.0864 *** (0.0146)		0.0991 *** (0.0221)		0.1390 *** (0.0290)	
trip home	0.4938 (0.3300)		0.2170 (0.1906)		0.1011 (0.2952)		0.3798 (0.3685)	
time spent in D	-0.0412 *** (0.0095)		-0.0287 *** (0.0049)		-0.0266 *** (0.0069)		-0.0282 *** (0.0085)	
(time spent in D) ²	0.0001 ** (0.0000)		0.0001 *** (0.0000)		0.0001 * (0.0000)		0.0001 ** (0.0000)	
agricultural sciences	0.9198 ** (0.4631)		-0.1023 (0.3963)		0.5089 (0.5597)		0.5888 (0.5440)	
technical sciences	-0.9668 (0.6352)		0.1788 (0.2659)		-0.0623 (0.5062)		-0.5340 (0.6113)	
medicine	0.1500 (0.3876)		0.1199 (0.3042)		0.9419 *** (0.3318)		-0.8148 * (0.4220)	
EBP	-0.0265 (0.4661)		-0.0405 (0.2863)		0.0546 (0.4558)		0.5814 (0.6322)	
law	0.9538 (0.8659)		-0.3543 (0.5351)		0.3582 (0.5616)		1.7335 ** (0.8859)	
German	0.5444 (0.7990)		0.4559 (0.3620)		-0.3330 (0.6674)		-17.9203 (9363.8520)	
seminar	1.4174 *** (0.3857)		-0.4885 * (0.2720)		-0.0603 (0.3271)		1.1959 ** (0.5204)	
<u>cultural factors</u>								
linguistic proximity	28.0996 ** (12.3730)							
common history	0.0088 (0.4307)							
stock of compatriots (log)	0.0240 (0.1595)							
female	0.2817 (0.3425)		-0.1315 (0.1771)		-0.4302 * (0.2495)		-0.3267 (0.3872)	
catholic	0.0938 (0.5182)		-0.4042 ** (0.2066)		1.1439 (1.0913)		-1.5897 ** (0.7483)	
share of catholics	0.0225 (0.0149)		-0.0014 (0.0054)		0.0217 (0.0294)		4.6454 ** (2.0422)	
Program 1	1.3794 ** (0.6767)		1.1262 *** (0.3130)		0.7989 (0.5280)		-0.7304 (0.7280)	
unemployment rate, D	-0.0979 (0.3377)		0.6227 ** (0.2456)		-0.6073 ** (0.2799)		0.2659 (0.5407)	
avg. growth rate, H	-0.0163 (0.0402)		-0.0189 (0.0431)		0.0712 (0.0457)		-0.1065 (0.0767)	
GDP p.c., D (log)	-15.9735 ** (8.1095)		9.6830 ** (4.9010)		-1.9729 (5.1198)		20.6512 * (12.3912)	
GDP p.c., H (log)	0.0245 (0.4765)		0.8521 ** (0.3975)		-0.6972 * (0.4112)		8.0932 ** (3.6139)	
trade volume (log)	1318.0740 (11294.0100)		-1528.7070 (3630.2030)		10521.7800 (9659.0700)		661.1554 (5498.0350)	
freedom, H	-0.0911 (0.0659)		-0.0382 (0.0522)		0.0301 (0.0767)		0.3660 (0.1904)	
economic freedom, H	0.6145 * (0.3205)		0.4012 (0.2527)		-0.2181 (0.1572)		0.9694 (0.6406)	
missing women	-0.9412 (1.6573)		-0.6595 ** (0.3145)				5.4529 * (3.1222)	
female labor force (log)	-4.2121 (3.7241)		3.5032 (3.1669)		-0.9657 (3.7990)		-32.4643 *** (11.6957)	
law 1993	2.1197 ** (0.9663)		0.9873 *** (0.3614)		0.8093 ** (0.3967)		0.6379 (0.8528)	
law 1997	2.4113 ** (1.2039)		0.7497 (0.5729)		0.5837 (0.5868)		-0.5829 (1.4229)	
law 2000	2.4701 (1.5581)		0.3151 (0.7955)		0.2709 (0.8012)		-2.7437 (1.9554)	
law 2005	1.7337 (1.7450)		0.0436 (0.9086)		0.2945 (0.9664)		-1.7712 (2.1880)	
constant	150.0352 * (81.3179)		-115.6925 ** (49.2359)		20.2585 (50.6281)		-285.6269 ** (131.5163)	
frailty	yes		yes		yes		no	
No. of observations	16,542		22,392		21,838		25,079	
No. of individuals	360		462		491		243	
Log likelihood	-542.8421		-1069.788		-1051.83		-250.2437	

Notes:

Abbreviations used: D for Germany and H for home country

*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level
standard errors in parentheses

Table 3.12: Table of Log Likelihoods

Duration Analysis	Whole Sample		Program 1		Program 2		Program 3	
baseline	-4659.8634	(21)	-2627.0483	(19)	-504.9905	(19)	-1417.4217	(18)
baseline + individual	-4529.4488	(32)	-2512.7878	(30)	-496.1425	(30)	-1354.5618	(28)
baseline + cultural	-4640.7426	(27)	-2613.5880	(25)	-495.9266	(25)	-1415.8427	(21)
Duration Analysis	Africa		Asia		Middle East		Latin America	
baseline	-598.5789	(20)	-1115.7761	(20)	-276.8770	(20)	-1082.7630	(19)
baseline + individual	-545.5547	(31)	-1069.7808	(31)	-250.2431	(31)	-1051.8300	(30)
baseline + cultural	-590.7312	(23)	-1113.0181	(23)	-276.6805	(22)	-1081.9546	(21)

Notes: number of variables included in the regression in parentheses

Table 3.13: Values of linguistic proximity

Country	Value	Country	Value	Country	Value
Albania	0.08334	Ghana	0.02925	Philippines	0.00063
Algeria	0.00037	Guatemala	0.05265	Poland	0.09620
Argentina	0.08085	Haiti	0.08333	Romania	0.08248
Armenia	0.07934	Honduras	0.08243	Russia	0.07594
Bangladesh	0.08285	Hungary	0.02523	Rwanda	0.00000
Benin	0.00026	India	0.06682	Senegal	0.00047
Bolivia	0.03689	Indonesia	0.00000	Sierra Leone	0.04977
Brazil	0.08327	Iran	0.04668	Slovakia	0.07588
Bulgaria	0.07590	Israel	0.04027	Slovenia	0.08348
Burundi	0.00000	Jordan	0.00019	South Africa	0.12418
Cameroon	0.00000	Kenya	0.00022	Sri Lanka	0.07042
Chile	0.08096	Korea	0.00000	Syria	0.00994
China	0.00000	Latvia	0.09718	Tanzania	0.02720
Columbia	0.08248	Lithuania	0.08333	Thailand	0.00000
Congo	0.00112	Madagascar	0.00011	Togo	0.00007
Congo, D.R.	0.00000	Malawi	0.00098	Tschad	0.00004
Costa Rica	0.08981	Mali	0.00009	Tunesia	0.00010
Cote d'Ivoire	0.00017	Mexico	0.07820	Turkey	0.00875
Croatia	0.08390	Morocco	0.00006	Uganda	0.02897
Czech Republic	0.08842	Nepal	0.06854	Ukraine	0.08342
Dominican Republic	0.08333	Nicaragua	0.08268	Uruguay	0.08333
Ecuador	0.07206	Nigeria	0.00484	Venezuela	0.08244
Egypt	0.00145	Pakistan	0.08156	Vietnam	0.00000
Estonia	0.00000	Panama	0.09414	Zambia	0.00261
Gabun	0.00325	Paraguay	0.00190	Zimbabwe	0.01886
Georgia	0.00290	Peru	0.06738		

Data source: The data was kindly provided by E. A. Eff.

Table 3.14: Number of students who come from a country with common history

	Program 1	Program 2	Program 3
Armenia	0	0	1
Bulgaria	0	0	8
Burundi	3	0	0
Cameroon	27	2	0
Czech Republic	0	0	30
Estonia	0	0	2
Georgia	0	0	1
Hungary	0	0	112
Korea	59	46	0
Latvia	0	0	37
Lithuania	0	0	53
Philippines	30	0	0
Poland	0	0	359
Russia	0	0	22
Rwanda	10	0	0
Slovakia	0	0	50
Tanzania	13	0	0
Togo	13	0	0
Ukraine	0	0	38
Vietnam	14	0	0

Notes: Classification of countries with common history according to E. A. Eff

Table 3.15: Variable description

variable	description	source
time since graduation	number of months since end of study period	
age	students' age	KAAD
trip home	dummy for home visit (1 if home visit)	KAAD
time spent in Germany	number of months since arrival in Germany	KAAD
agricultural sciences	dummy for field of study (1 if agricultural sciences)	KAAD
technical sciences	dummy for field of study (1 if technical sciences)	KAAD
medicine	dummy for field of study (1 if medicine)	KAAD
EBP	dummy for field of study (1 if economics, business or politics)	KAAD
law	dummy for field of study (1 if law)	KAAD
German	dummy for field of study (1 if German)	KAAD
seminar	dummy for participation in KAAD seminar (1 if participated)	KAAD
linguistic proximity	linguistic proximity between Germany and home country (1 indicating closest proximity)	EF (2004)
common history	dummy for common history (colonial and imperial ties) between Germany and home country (1 if ties present)	EF (2004)
Africa	dummy for country area (1 if student comes from Africa)	
Asia	dummy for country area (1 if student comes from Asia)	
Middle East	dummy for country area (1 if student comes from the Middle East)	
Latin America	dummy for country area (1 if student comes from Latin America)	
Eastern Europe	dummy for country area (1 if student comes from Eastern Europe)	
stock of compatriots	number of compatriots living in Germany	Federal Bureau of Migration
female	dummy for students' gender (1 if female)	KAAD
catholic	dummy for being roman catholic (1 if catholic)	KAAD
share of catholics	share of population which is catholic	La Porta et al. (1999)
Program 1	dummy for program 1 (1 if participant of program 1)	KAAD
Program 3	dummy for program 3 (1 if participant of program 3)	KAAD
unemployment rate, Germany	rate of unemployed people with university degree in Germany	IAB
avg. growth rate, Home	GDP growth rate in home country, three year average	world bank, WDI
GDP, p.c., Germany	GDP per capita corrected for purchasing power parity in Germany	world bank, WDI
GDP, p.c., Home	GDP per capita corrected for purchasing power parity in home country	world bank, WDI
trade volume p.c.	bilateral trade, sum of exports from and imports to Germany divided by population of home country, three year average	DOTS
freedom, Home	sum of civil liberties and political rights indicators (between 2 (highest) and 14)	Freedom House
economic freedom, Home	level of economic freedom in home country (between 1 and 10)	Fraser Institute
missing women	dummy for countries in which there are missing women (1 if missing women)	Klasen and Wink (2003)
female labor force participation	percentage of female labor force divided by percentage of female population in home country	WDI
law 1993	dummy for legal situation (1 if graduation between 1993 and 1997)	
law 1997	dummy for legal situation (1 if graduation between 1997 and 2000)	
law 2000	dummy for legal situation (1 if graduation between 2000 and 2005)	
law 2005	dummy for legal situation (1 if graduation after 2005)	

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Chapter 4

**Determinanten des beruflichen Erfolgs von
Absolventen der Wirtschaftswissenschaften:
Eine Fallstudie auf Basis von Daten einer
Absolventenbefragung an der Universität
Konstanz**

4.1 Einleitung

In diesem Artikel untersuche ich, welche Faktoren den beruflichen Erfolg von Absolventen eines wirtschaftswissenschaftlichen Studiengangs beeinflussen. Als Maße für den beruflichen Erfolg betrachte ich die Dauer der Suche nach der ersten Stelle, das Einkommen, die Anzahl der Personen, gegenüber denen ein Absolvent weisungsbefugt ist, und die Zufriedenheit eines Absolventen mit den Tätigkeitsinhalten und den Arbeitsbedingungen seiner derzeitigen Tätigkeit.¹

Meine Analyse beruht auf Daten einer Befragung von Absolventen des Fachbereichs Wirtschaftswissenschaften an der Universität Konstanz, die im Herbst des Jahres 2007 durchgeführt wurde. An dieser Befragung haben sich 573 Absolventen dreier Studiengänge (Mathematische Finanzökonomie, Volkswirtschaftslehre und Wirtschaftspädagogik) beteiligt, die ihr Studium zwischen 1984 und 2007 abgeschlossen haben. Neben Daten zum Studium und zur beruflichen Situation der Absolventen liegen auch einige persönliche Angaben zu den Absolventen vor.

Nach einer kurzen Beschreibung des Datensatzes in Abschnitt 4.2 befasse ich mich in Abschnitt 4.3 zunächst mit dem Übergang vom Studium ins Berufsleben und analysiere, welche Determinanten einen signifikanten Einfluss auf die Schnelligkeit hatten, mit der die Absolventen eine geeignete erste Stelle gefunden haben. In Abschnitt 4.4 wende ich mich der derzeitigen beruflichen Situation der Absolventen zu. Aufgrund zweier Probleme bei der Erfassung der Einkommensvariable untersuche ich nicht nur Einflussfaktoren auf das derzeitige Einkommen, sondern auch auf das Ausmaß an Personalverantwortung, das den Absolventen übertragen wird. Als weiteren Indikator für den derzeitigen beruflichen Erfolg betrachte ich schließlich in Abschnitt 4.5 die persönliche Zufriedenheit der Absolventen mit ihrer derzeitigen Tätigkeit.

4.2 Datensatz

Im Herbst 2007 wurde eine Befragung der Absolventen des Fachbereichs Wirtschaftswissenschaften an der Universität Konstanz durchgeführt. Mit dieser Befragung wurden Informationen zum Übergang vom Studium ins Berufsleben, zur derzeitigen berufliche

¹Um die Lesbarkeit zu erleichtern, wird in diesem Artikel die männliche Form *Absolvent* verwendet. Diese Bezeichnung umfasst weibliche und männliche Personen.

Situation der Absolventen und zu ihrer Zufriedenheit mit verschiedenen Aspekten ihrer derzeitigen Beschäftigung gesammelt. Diese Informationen sollen dazu dienen, die Ausbildungsqualität des Fachbereichs zu überprüfen und gegebenenfalls zu verbessern. Die Absolventen wurden per e-mail oder per Post kontaktiert und gebeten, einen Fragebogen auszufüllen. Die Rücklaufquote lag bei 66 %.

Bis zum Jahr 1997 wurde im Fachbereich Wirtschaftswissenschaften nur der Studiengang Volkswirtschaftslehre angeboten. Der Studiengang Wirtschaftspädagogik wurde im Wintersemester 1997/1998 und der Studiengang Mathematische Finanzökonomie (MFÖ) im Wintersemester 1999/2000 eingeführt. An der Absolventenbefragung haben 32 Absolventen des Studiengangs Mathematische Finanzökonomie, 442 Absolventen des Studiengangs Volkswirtschaftslehre und 99 Absolventen des Studiengangs Wirtschaftspädagogik teilgenommen. Die Absolventen, die an der Befragung teilgenommen haben, haben ihren Abschluss zwischen 1984 und 2007 gemacht.

4.3 Suchdauer nach der ersten Stelle

Eine Frage, die im Zusammenhang mit Absolventenstudien häufig gestellt wird, ist, inwieweit es den Absolventen gelingt, nach ihrem Studienabschluss schnell eine adäquate Stelle zu finden (siehe z.B. Briedis und Minks, 2004; Teichler, 2007). Auch in der vorliegenden Befragung wurden die Absolventen gebeten, anzugeben, wie viele Monate sie nach ihrer ersten Stelle gesucht haben. Im Durchschnitt haben die Absolventen des Fachbereichs Wirtschaftswissenschaften an der Universität Konstanz etwas mehr als drei Monate nach ihrer ersten Stelle gesucht (siehe Tabelle 4.7 im Anhang (Abschnitt 4.7)). 21 Personen haben die Frage nach der Suchdauer nicht beantwortet. Da jedoch alle dieser Personen Angaben zu einer Anstellung gemacht haben, sind fehlende Angaben über die Suchdauer nicht darauf zurückzuführen, dass diese Personen keine Stelle gefunden haben. Die Daten sind also nicht zensiert und ich führe keine Verweildaueranalyse durch. Vielmehr untersuche ich den Einfluss verschiedener Faktoren auf die Suchdauer mit Hilfe einer *negative binomial* Regression. Diese Schätzmethode ist gut geeignet, wenn es sich bei der abhängigen Variablen um *count data* handelt.

4.3.1 Mögliche Einflussfaktoren

Verschiedene Faktoren können die Suchdauer beeinflussen. Frauen haben möglicherweise aufgrund familiärer Bindungen oder aufgrund von Diskriminierung durch potentielle Arbeitgeber schlechtere Chancen, schnell eine adäquate Arbeitsstelle zu finden als Männer. Da das Abiturzeugnis ein obligatorischer Bestandteil einer Bewerbungsmappe ist, kann die schulische Leistung von potentiellen Arbeitgebern als ein Auswahlkriterium benutzt werden. Absolventen, die vor ihrem Studium bereits eine Ausbildung oder ein anderes Studium abgeschlossen haben, sollten aufgrund dieser Zusatzqualifikationen bessere Arbeitsmarktchancen haben. Die Arbeitsmarktchancen können sich ferner für Absolventen der drei Studiengänge unterscheiden.

Im Rahmen von Auslandsaufenthalten können Studierende Erfahrungen in anderen Kulturkreisen sammeln und ihre Flexibilität gegenüber potentiellen Arbeitgebern signalisieren. Durch Praktika oder durch eine Erwerbstätigkeit während des Studiums gewinnen die Studierenden berufliche Praxiserfahrungen. Sie können Kontakte zu potentiellen Arbeitgebern knüpfen und ihr Interesse an bestimmten beruflichen Tätigkeiten demonstrieren. Ich unterscheide zwischen drei Arten der Erwerbstätigkeit: einer Erwerbstätigkeit als wissenschaftliche Hilfskraft an der Universität und einer Erwerbstätigkeit im Rahmen von Stellen mit fachlichem Bezug oder im Rahmen von Stellen ohne fachlichen Bezug. Auch im Rahmen einer ehrenamtlichen Tätigkeit können Studierende weitere Kontakte knüpfen, ihr Human- und Sozialkapital erweitern und potentiellen Arbeitgebern ein besonderes Engagement signalisieren.

Es ist davon auszugehen, dass Absolventen mit besseren Abschlussnoten *ceteris paribus* bessere Arbeitsmarktchancen haben. In der Vergangenheit wurden in der öffentlichen Diskussion auch vielfach das Alter eines Absolventen und die Studiendauer als Auswahlkriterien thematisiert. Darüber hinaus kann auch die wirtschaftliche und konjunkturelle Situation zum Zeitpunkt des Studienabschlusses einen Einfluss auf den Übergangsprozess vom Studium ins Berufsleben haben. Ich unterscheide daher vier Kohorten: Absolventen, die ihren Abschluss zwischen 1984 und 1991, zwischen 1992 und 1996, zwischen 1997 und 2001 oder zwischen 2002 und 2006 gemacht haben.

Heutzutage werden von Absolventen vielfach gute Sprach- und EDV-Kenntnisse erwartet. Als Maß für die Sprachkenntnisse dient eine Variable, die die Zahl der Fremd-

sprachen abbildet, in der ein Absolvent gute oder sehr gute Kenntnisse hat. Die Güte der EDV Kenntnisse wird durch eine Dummy Variable abgebildet, die den Wert eins annimmt, wenn ein Absolvent in mindestens zwei von fünf der im Befragungsbogen aufgeführten EDV Bereichen gute oder sehr gute Kenntnisse hat.

Die Dauer der Stellensuche sollte auch von der regionalen Flexibilität der Absolventen abhängen. Absolventen, die nur regional suchen, haben möglicherweise schlechtere Chancen, eine geeignete Stelle zu finden, als Absolventen, die deutschlandweit oder sogar auch im Ausland nach ihrer ersten Stelle suchen. Allerdings besteht möglicherweise ein Endogenitätsproblem, wenn Absolventen, die längere Zeit suchen, ihre Suchstrategie ändern.

4.3.2 Ergebnisse der Analyse

In Tabelle 4.1 (1) sind die Ergebnisse der Analyse der Einflussfaktoren auf die Suchdauer nach der ersten Stelle aufgeführt. Deskriptive Statistiken sind in Tabelle 4.7 im Anhang dargestellt. Männliche Absolventen haben schneller ihre erste Stelle gefunden als weibliche. Kürzere Suchdauern sind auch für Absolventen der Wirtschaftspädagogik zu verzeichnen. Dies ist wohl darauf zurückzuführen, dass ein Großteil der Absolventen der Wirtschaftspädagogik in den Schuldienst geht. Während Absolventen, die während ihres Studiums ein Praktikum gemacht haben oder eine Stelle als wissenschaftliche Hilfskraft hatten, eher eine Stelle gefunden haben, ergeben sich für Absolventen, die während ihres Studiums anderweitig erwerbstätig waren, keine signifikant kürzeren Suchdauern.

Absolventen, die während ihres Studiums ehrenamtlich engagiert waren, haben schneller ihre erste Stelle gefunden. Mögliche Erklärungsansätze hierfür sind, dass diese Absolventen durch ihr ehrenamtliches Engagement Kontakte geknüpft haben, die bei der Stellensuche hilfreich waren, oder dass Arbeitgeber ehrenamtliche Erfahrungen schätzen. Ehrenamtliches Engagement kann z.B. als Signal für eine hohe Motivation der Absolventen aufgefasst werden.

Absolventen mit einer besseren Abschlussnote haben kürzere Zeit nach ihrer ersten Stelle gesucht. Studiendauer und Alter bei Studienabschluss haben keinen signifikanten Effekt auf die Suchdauer. Absolventen, die bei Abschluss ihres Studiums in mindestens zwei EDV Bereichen gute oder sehr gute Kenntnisse hatten, haben schneller eine Stelle gefunden. Hingegen hat die Kenntnis mehrerer Fremdsprachen keinen signifikanten Effekt

Table 4.1: Analyse des Übergangs vom Studium in das Berufsleben

Dauer Stellensuche	(1)		(2)	
	Koeffizient	Standard Fehler	Koeffizient	Standard Fehler
Dummy: Geschlecht (Mann=1)	-0.3431	0.1157 ***	-0.3165	0.1110 ***
Abiturnote	0.0255	0.0933	0.0512	0.0892
Dummy: Abitur in Baden-Württemberg			-0.3455	0.1468 ***
Dummy: Abitur in Bayern			-0.8819	0.2989 ***
Dummy: Abitur in Nordrhein-Westfalen			-0.7046	0.1973 ***
Dummy: Ausbildung	-0.0709	0.1433	-0.1008	0.1395
Dummy: abgeschlossenes Studium	-0.5175	0.3525	-0.6501	0.3359 *
Dummy: MFÖ	0.0646	0.2667	0.0520	0.2589
Dummy: Wirtschaftspädagogik	-0.8052	0.2458 ***	-0.7463	0.2406 ***
Dummy: Ausland	0.0139	0.1190	0.0250	0.1152
Dummy: Praktikum	-0.2334	0.1238 *	-0.2713	0.1198 **
Dummy: Wissenschaftliche Hilfskraft	-0.2688	0.1581 *	-0.3100	0.1518 **
Dummy: Stelle mit fachlichem Bezug	-0.3332	0.2138	-0.2862	0.2083
Dummy: Stelle ohne fachlichen Bezug	-0.0695	0.1439	-0.0790	0.1416
Dummy: Ehrenamt	-0.2040	0.1013 **	-0.2018	0.0994 **
Abschlussnote	0.3757	0.0996 ***	0.3380	0.0936 ***
Alter bei Abschluss	0.0333	0.0269	0.0341	0.0247
Dauer des Studiums	0.0181	0.0555	0.0183	0.0509
Kohorte '84-'91	-0.1060	0.1689	-0.1537	0.1633
Kohorte '92-'96	0.3077	0.1610 *	0.3077	0.1541 **
Kohorte '97-'01	-0.0166	0.1474	-0.0361	0.1457
Anzahl gute Sprachen	-0.0171	0.0648	-0.0328	0.0649
Dummy: gute EDV Kenntnisse	-0.2636	0.1104 **	-0.2759	0.1095 **
Dummy: Stellensuche im Ausland	0.0870	0.1360	0.0699	0.1293
Dummy: Stellensuche regional	-0.5123	0.1297 ***	-0.5172	0.1268 ***
Konstante	0.1117	0.7284	0.5210	0.6902
Anzahl Beobachtungen	449		449	
Log Likelihood	-959.2002		-950.1786	

Anmerkungen:

Schätzmethode: *negative binomial* Regression,

*** signifikant auf dem 1 % Niveau, ** signifikant auf dem 5 % Niveau, * signifikant auf dem 10 % Niveau

auf die Suchdauer.

Überraschenderweise haben Absolventen, die ihre Stellensuche nur auf eine bestimmte Region in Deutschland beschränkt haben, schneller eine Stelle gefunden, als solche, die deutschlandweit nach einer Stelle gesucht haben. Da die Kriterien für die Fokussierung auf eine bestimmte Region nicht abgefragt wurden, ist nicht klar, ob dies darauf zurückzuführen ist, dass Absolventen ihre Suche bewusst auf Regionen konzentrieren, in denen viele Arbeitsplätze im gewünschten Arbeitsbereich zur Verfügung stehen. Es kann auch nicht ausgeschlossen werden, dass Absolventen, die ihre Suche auf eine bestimmte Region konzentrieren, eher bereit sind, eine weniger adäquate Stelle anzunehmen als Absolventen, die in einer weiteren Umgebung suchen.

Da sich die Bedingungen für die Suche nach der ersten Stelle im Beobachtungszeitraum

verändert haben können, habe ich Regressionen für die verschiedenen Kohorten, die nach dem Jahr des Abschlusses gebildet sind, durchgeführt. Die Regressionsergebnisse, die in Tabelle 4.12 im Anhang dargestellt sind, deuten darauf hin, dass Absolventinnen der Abschlussjahrgänge 1984-1996 und 2002-2006 nicht signifikant länger nach ihrer ersten Stelle gesucht haben als ihre männlichen Kollegen. Nur für die Gruppe der Absolventen, die ihren Abschluss zwischen 1997 und 2001 gemacht haben, ist eine signifikant kürzere Suchdauer der männlichen Absolventen zu verzeichnen. Praktika und Stellen als Wissenschaftliche Hilfskraft – aber auch ehrenamtliches Engagement – haben erst für Absolventen der Kohorten 1997-2001 und 2002-2006 signifikante Auswirkungen auf die Suchdauer. Im Gegensatz zu den Absolventen früherer Jahrgänge haben Absolventen dieser Kohorten mit besseren EDV Kenntnissen aber nicht signifikant schneller eine Stelle gefunden. EDV Kenntnisse sind heutzutage wohl weiter verbreitet und werden oft als selbstverständlich vorausgesetzt. Bessere Abschlussnoten und eine auf eine bestimmte Region fokussierte Stellensuche haben die Suchdauer von Absolventen fast aller Kohorten signifikant verkürzt.

Die Schätzergebnisse in Tabelle 4.1 (1) deuten darauf hin, dass die Abiturnote keinen signifikanten Einfluss auf die Dauer der Stellensuche hat. In Deutschland wird aufgrund des föderalen Schulsystems häufig darüber diskutiert, ob Abiturabschlüsse der unterschiedlichen Bundesländer qualitativ gleichwertig und die Abiturnoten über Bundesländergrenzen hinweg vergleichbar sind. Insbesondere die Bundesländer Baden-Württemberg und Bayern stehen in dem Ruf, anspruchsvolle Schulsysteme zu haben. In der Befragung wurde auch das Bundesland, in dem die Absolventen ihr Abitur gemacht haben, erfragt. Die meisten Absolventen kommen aus den Bundesländern Baden-Württemberg, Bayern und Nordrhein-Westfalen. Wenn das Bundesland, in dem das Abitur gemacht wurde, in die Regression über die Suchdauer einbezogen wird (siehe Tabelle 4.1 (2)), stellt sich heraus, dass Absolventen, die ihr Abitur in Baden-Württemberg, Bayern oder Nordrhein-Westfalen gemacht haben, signifikant kürzere Suchdauern haben. Dies kann darauf hindeuten, dass potentielle Arbeitgeber darauf achten, in welchem Bundesland der Abiturabschluss gemacht wurde, und bevorzugt Personen anstellen, die einen Abiturabschluss in einem Bundesland mit einem anspruchsvolleren Schulsystem gemacht haben. Allerdings gehört Nordrhein-Westfalen wohl nicht zu den Ländern mit anspruchsvolleren Schulsystemen.

temen. Eine andere Erklärungsmöglichkeit ist die, dass Absolventen besonders mit dem Bundesland, in dem sie Abitur gemacht haben – und in dem sie mit hoher Wahrscheinlichkeit aufgewachsen sind – verbunden sind, bevorzugt in diesem Bundesland nach Stellen suchen und in den Bundesländern Bayern, Baden-Württemberg oder Nordrhein-Westfalen vergleichsweise viele offene Stellen zur Verfügung stehen.

Kreuter (2000) hat eine Absolventenstudie für den Fachbereich Politik- und Verwaltungswissenschaften an der Universität Konstanz durchgeführt. Auch in dieser Studie haben Absolventen, die gute EDV Kenntnisse haben, die während ihres Studiums Praktika gemacht haben oder die als wissenschaftliche Hilfskraft gearbeitet haben, eine signifikant höhere Wahrscheinlichkeit, schnell eine Stelle zu finden. Allerdings gilt dies auch für Absolventen der Politik- und Verwaltungswissenschaften, die während ihres Studiums einer Tätigkeit mit Studienbezug nachgegangen sind. Kreuter stellt keine signifikanten Unterschiede zwischen männlichen und weiblichen Absolventen des Fachbereichs Politik- und Verwaltungswissenschaften bei der Suchdauer nach der ersten Stelle fest. Aber Absolventen des Fachbereichs Politik- und Verwaltungswissenschaften, die länger studiert haben, haben eine niedrigere Wahrscheinlichkeit, schnell eine Stelle zu finden.

4.4 Objektive Maße des derzeitigen beruflichen Erfolgs:

Einkommen und Weisungsbefugnis

4.4.1 Mögliche Einflussfaktoren

Da in der Befragung zeitliche Unterbrechungen der Berufstätigkeit z.B. aufgrund von Geburt und Kindererziehung nicht erfasst wurden, haben Frauen möglicherweise ein geringeres Einkommen und weniger Personalverantwortung als Männer. Absolventen, die vor ihrem Studium bereits eine gewerbliche Ausbildung oder ein anderes Studium abgeschlossen haben, haben häufig schon berufliche Erfahrungen gesammelt und steigen eventuell schneller auf. Auch im Rahmen ehrenamtlichen Engagements werden Kompetenzen erworben, die für den beruflichen Erfolg hilfreich sind. Die Variable *Ehrenamt* kann als Proxy für Human- und Sozialkapital der Absolventen dienen.

Ich untersuche, ob es zwischen den Absolventen der drei Studiengänge und zwischen den Absolventen, die unterschiedlich gute Abschlussnoten hatten, signifikante Unterschiede im

beruflichen Erfolg gibt. Das Alter und die berufliche Erfahrung (in Berufsjahren) sollten einen Einfluss auf das Einkommen und die Personalverantwortung haben. Außerdem vermute ich, dass Absolventen, die sich nach ihrem Studium weiterqualifiziert haben, mehr verdienen und mehr Personalverantwortung tragen als Absolventen ohne Zusatzqualifikation.

Ein großer Teil der Absolventen ist zurzeit erwerbstätig. Absolventen, die zurzeit nicht erwerbstätig sind, wurden gebeten, die Fragen, die die derzeitige Stelle betreffen auf ihre letzte Stelle zu beziehen. Ich habe keine Angaben darüber, wie lange die letzte Stelle zurück liegt, nehme aber an, dass Absolventen, die zurzeit nicht erwerbstätig sind, weniger erfolgreich sind.

Unterschiede im beruflichen Erfolg können auch durch verschiedene Charakteristika der derzeitigen Stelle bedingt sein. Absolventen, die derzeit eine Stelle haben, die nicht ihrer akademischen Ausbildung entspricht und für die sie eigentlich überqualifiziert sind, sollten weniger verdienen und weniger Personalverantwortung haben. Zwischen Angestellten im privaten Sektor, Beamten, Angestellten im öffentlichen Sektor oder Selbständigen kann es Unterschiede hinsichtlich der Höhe des Einkommens und des Ausmaßes an Personalverantwortung geben. Einkommen und Personalverantwortung unterscheiden sich möglicherweise auch zwischen verschiedenen Wirtschaftszweigen. Die drei Wirtschaftszweige, in denen die meisten Absolventen arbeiten, sind: Beratung, Banken und Versicherungen und Universität. Ich gehe davon aus, dass Absolventen, die Management oder Leitung als ihre Haupttätigkeit angeben – also wohl in höheren Hierarchieebenen tätig sind – höhere Einkommen und mehr Personalverantwortung haben. Personen, die ein befristetes Arbeitsverhältnis haben, tragen wohl weniger Personalverantwortung.

4.4.2 Einkommen

Die Höhe des Einkommens wird von Ökonomen üblicherweise als wichtiges Maß für den beruflichen Erfolg verwendet. Ein verbreitetes Problem bei der Erhebung von Einkommensdaten in Befragungsstudien ist, dass die Frage nach der Höhe des Einkommens häufig nicht beantwortet wird. Auch in der vorliegenden Befragung haben einige Personen die Frage zum Einkommen nicht beantwortet. Dies stellt kein Problem für eine empirische Analyse dar, solange die Nicht-Beantwortung unsystematisch geschieht, es also keine sys-

tematischen Unterschiede in der Wahrscheinlichkeit der Nicht-Beantwortungen zwischen Personen verschiedener Einkommensgruppen gibt. Es wird aber häufig angenommen, dass Personen mit sehr hohen oder sehr niedrigen Einkommen stärkere Anreize haben, ihr Einkommen nicht offen zu legen. Wenn dies der Fall ist, liegt ein Selektionsproblem vor. Die folgende Analyse der Einkommenshöhe sollte daher vorsichtig interpretiert werden.

Ein weiteres Problem bei der Erhebung der Angaben zum Einkommen in der vorliegenden Befragung ist, dass einige Personen als Antwort auf die Frage nach dem monatlichen Bruttoeinkommen eine Zahl genannt haben, die wohl eher einem Jahresgehalt entspricht. Es gibt also einige Ausreißer im Datensatz, die die Schätzergebnisse verzerren können. Deshalb habe ich die Schätzungen ohne die Daten von Personen, die ein monatliches Einkommen von mehr als 50.000 Euro angeben, durchgeführt. 10 Personen haben ein höheres monatliches Einkommen als 50.000 Euro angegeben.

In Tabelle 4.2 sind die Ergebnisse einer OLS Regression aufgeführt, in der das logarithmierte Einkommen die abhängige Variable ist. Deskriptive Statistiken sind in Tabelle 4.8 im Anhang dargestellt. Absolventen, die eine bessere Examensnote hatten, haben ein signifikant höheres Einkommen. Neben diesem direkten Effekt gibt es möglicherweise indirekte Effekte, wenn die Examensnote einen Einfluss auf andere erklärende Variable hat. So können beispielsweise die Wahrscheinlichkeit, in einem bestimmten Wirtschaftszweig wie etwa der Universität zu arbeiten, oder die Wahrscheinlichkeit, Management- und Leitungsaufgaben übertragen zu bekommen, von der Abschlussnote abhängen. Die Korrelationskoeffizienten zwischen der Variable *Abschlussnote* und anderen erklärenden Variablen, die in Tabelle 4.11 im Anhang aufgeführt sind, sind aber moderat.

Allgemein scheint es keine signifikanten Geschlechtsunterschiede im Einkommensniveau zu geben: Der Koeffizient des Geschlechterdummies ist insignifikant. Die Signifikanz des Interaktionsterms zwischen dem Alter des Absolventen und dem Geschlechterdummy deutet aber darauf hin, dass ältere männliche Absolventen *ceteris paribus* ein höheres Einkommen erzielen als weibliche. Die geschlechtsspezifischen Einkommensunterschiede, die sich mit höherem Alter ergeben, können auf schlechtere Aufstiegschancen weiblicher Absolventen zurückzuführen sein, aber zum Beispiel auch durch Karriereunterbrechungen bedingt sein. Nach solchen Karriereunterbrechungen wurde in der Befragung nicht

Table 4.2: Analyse des Erfolgs anhand des Einkommens

Einkommen (ln)	OLS Regression		Median Regression		
	Koeffizient	Standard Fehler	Koeffizient	Standard Fehler	
Dummy: Geschlecht (Mann=1)	-0.1685	0.4184	0.2685	0.0485	***
Dummy: Ausbildung	-0.0980	0.0679	-0.1084	0.0869	
Dummy: abgeschlossenes Studium	-0.0020	0.1346	-0.0502	0.1211	
Dummy: MFÖ	-0.0897	0.1428	-0.0635	0.1751	
Dummy: Wirtschaftspädagogik	-0.0742	0.0964	0.0288	0.1115	
Dummy: Ehrenamt	-0.0852	0.0574	-0.0304	0.0446	
Abschlussnote	-0.0866	0.0524	*	-0.1230	**
Alter 2008	-0.0199	0.0153		-0.0064	
Alter 2008*Dummy: Geschlecht	0.0368	0.0105	***		
Dummy: Weiterqualifizierung	0.0527	0.0604		0.0609	0.0577
Jahre Berufserfahrung	0.0157	0.0157		0.0324	0.0191
Dummy: erwerbstätig	0.2735	0.0985	***	0.2361	0.0943
Dummy: überqualifiziert	-0.1994	0.1228		-0.1216	0.1153
Dummy: Beamter	-0.2487	0.0975	**	-0.3470	0.0900
Dummy: Angestellter im öffentl. Dienst	-0.1029	0.1085		-0.1542	0.0826
Dummy: selbständig	-0.2456	0.1396	*	-0.3547	0.3138
Dummy: Beratung	0.0934	0.0930		-0.0696	0.1228
Dummy: Banken/Versicherungen	0.3259	0.0752	***	0.1739	0.0847
Dummy: Uni	0.2658	0.1078	**	0.1169	0.0843
Dummy: Management/Leitung	0.4034	0.0878	***	0.3896	0.1480
Dummy: befristet	-0.3272	0.1160	***	-0.2906	0.1247
monatliche Arbeitszeit	0.0307	0.0096	***	0.0165	0.0065
monatl. Arbeitszeit*Dummy: Geschlecht	-0.0253	0.0113	**		
Konstante	7.6458	0.5185	***	7.6785	0.5678
Anzahl Beobachtungen	375		385		
R ²	0.535		0.3250		

Anmerkungen: *** signifikant auf dem 1 % Niveau, ** signifikant auf dem 5 % Niveau, * signifikant auf dem 10% Niveau

gefragt.²

Absolventen, die derzeit erwerbstätig sind, haben ein signifikant höheres Einkommen als erwerbslose Absolventen es in ihrer letzten Stelle hatten. Das Einkommen der verbeamteten Absolventen und das Einkommen selbständiger Absolventen sind signifikant niedriger als das Einkommen von Absolventen, die im privaten Sektor angestellt sind. Absolventen, die in Banken, Versicherungen oder Universitäten beschäftigt sind und Absolventen, die eine leitende Funktion ausüben, haben ein höheres Einkommen als die übrigen Absolventen. Hingegen verdienen Absolventen, die eine befristete Stelle haben, signifikant weniger als Absolventen mit unbefristeten Arbeitsverträgen. Schließlich hängt das Einkommen auch von der Arbeitszeit ab: Absolventen, die eine längere monatliche Arbeitszeit haben, verdienen mehr. Die marginale Entlohnung einer längeren monatlichen Arbeitszeit ist für männliche Absolventen allerdings niedriger als für weibliche (siehe In-

²Die Variable *Berufserfahrung* bezieht sich auf den Zeitraum seit Studienabschluss.

teraktionseffekt).

Um die Robustheit der Schätzung zu überprüfen, habe ich eine Median Regression durchgeführt, in der ich auch die Daten der Personen, die ein höheres monatliches Einkommen als 50.000 Euro angegeben haben, berücksichtigt habe. Eine Median Regression ist robuster gegen Ausreißer als eine OLS Regression. Die Interaktionseffekte habe ich aufgrund der Schwierigkeiten der Berechnung der marginalen Effekte und Standard Fehler in nicht-linearen Modellen (siehe Norton et al., 2004) in der Median Regression nicht einbezogen. Die Schätzergebnisse der Median Regression, die in Tabelle 4.2 dargestellt sind, sind denen der OLS Regression qualitativ ähnlich, was darauf hindeutet, dass die ursprüngliche Schätzung robust ist.

4.4.3 Weisungsbefugnis

Aufgrund der bereits erwähnten Probleme mit der Einkommensvariable untersuche ich in diesem Abschnitt noch ein anderes Maß für den beruflichen Erfolg: die Anzahl der Personen, gegenüber denen ein Absolvent weisungsbefugt ist. Mit dem beruflichen Erfolg geht üblicherweise die Übernahme von mehr und mehr Personalverantwortung einher. Deshalb nehmen ich an, dass Absolventen, die gegenüber mehr Personen weisungsbefugt sind, eine höhere Position erreicht haben. Für Absolventen der Wirtschaftspädagogik ist allerdings die Anzahl der Personen, gegenüber denen ein Absolvent weisungsbefugt ist, schwierig zu interpretieren. Diejenigen Absolventen, die im Schuldienst sind, geben zum Teil die Klassenstärken der Klassen an, die sie unterrichten, da sie sich gegenüber allen Schülern als weisungsbefugt betrachten. Das erschwert die Vergleichbarkeit mit den Angaben der Absolventen der anderen Fachrichtungen. Deshalb berücksichtige ich in der folgenden Analyse nur Absolventen der Fachrichtungen Volkswirtschaftslehre und Mathematische Finanzökonomie. Die Anzahl der Personen, gegenüber denen ein Absolvent weisungsbefugt ist, ist *count data*. Deshalb führe ich eine *negative binomial* Regression durch. Im Durchschnitt sind Absolventen der Studiengänge Mathematische Finanzökonomie oder Volkswirtschaftslehre acht Personen gegenüber weisungsbefugt (siehe die deskriptive Statistik in Tabelle 4.9 im Anhang).

In Tabelle 4.3 (1) sind die Ergebnisse der Analyse aufgeführt. Absolventen, die vor ihrem wirtschaftswissenschaftlichen Studium an der Universität Konstanz schon ein an-

deres Studium abgeschlossen haben, sind gegenüber mehr Personen weisungsbefugt. Auch Absolventen, die mehr Jahre an Berufserfahrung vorweisen können, tragen mehr Personalverantwortung. Ältere Absolventen sind dagegen weniger Personen gegenüber weisungsbefugt. Da für die Jahre an Berufserfahrung kontrolliert wird, impliziert dies, dass Absolventen, die ihren Abschluss höherem Alter gemacht haben, weniger Personalverantwortung tragen.

Table 4.3: Analyse des Erfolgs anhand des Maßes der Personalverantwortung

Weisungsbefugnis	(1)		(2)		
	Koeffizient	Standard Fehler	Koeffizient	Standard Fehler	
Dummy: Geschlecht (Mann=1)	0.0347	0.2980	0.0381	0.2928	
Dummy: Ausbildung	-0.3460	0.2309	-0.3045	0.2254	
Dummy: abgeschlossenes Studium	1.2670	0.7265	1.4093	0.6999	**
Dummy: MFÖ	0.3384	0.4614	0.6438	0.4688	
Dummy: Ehrenamt	0.6377	0.2215			***
Dummy: Ehrenamt Uni			0.0121	0.2774	
Dummy: Ehrenamt Musik			-0.2078	0.3472	
Dummy: Ehrenamt Sport			0.8627	0.2919	***
Dummy: Ehrenamt Kirche			0.0832	0.3358	
Dummy: Ehrenamt Politik			0.1474	0.3331	
Dummy: Ehrenamt Soziales			-0.3587	0.2738	
Dummy: anderes Ehrenamt			0.4441	0.2862	
Abschlussnote	0.0831	0.1800	0.1153	0.1697	
Alter 2008	-0.0855	0.0388	-0.0916	0.0393	**
Dummy: Weiterqualifizierung	-0.0627	0.2316	-0.0118	0.2163	
Jahre Berufserfahrung	0.1353	0.0425	0.1431	0.0422	***
Dummy: erwerbstätig	1.5462	0.3733	1.5360	0.3840	***
Dummy: überqualifiziert	-0.8165	0.3747	-0.7344	0.3888	*
Dummy: Beamter	1.0710	0.5470	1.2513	0.5078	**
Dummy: Angestellter im öffentl. Dienst	0.1626	0.4060	0.0927	0.4123	
Dummy: selbständig	-0.4236	0.3015	-0.4587	0.2912	
Dummy: Beratung	-0.1861	0.3826	-0.2276	0.3441	
Dummy: Banken/Versicherungen	-0.7060	0.2415	-0.6722	0.2493	***
Dummy: Uni	-0.3111	0.4400	-0.3623	0.4427	
Dummy: Management/Leitung	1.8611	0.2401	1.7837	0.2374	***
Dummy: befristet	0.1280	0.3390	0.1469	0.3310	
Konstante	1.5457	1.2850	1.6830	1.2896	
Anzahl Beobachtungen	356		356		
Log Likelihood	-840.4068		-838.0085		

Anmerkungen:

Schätzmethode: *negative binomial* Regression,

*** signifikant auf dem 1 % Niveau, ** signifikant auf dem 5 % Niveau, * signifikant auf dem 10 % Niveau

Absolventen, die zurzeit erwerbstätig sind, sind gegenüber mehr Personen weisungsbefugt als ihre ehemaligen Kommilitonen, die derzeit nicht erwerbstätig sind. Im Vergleich zu Absolventen, die derzeit im privaten Sektor angestellt sind, tragen Absolventen, die derzeit eine Stelle haben, für die sie eigentlich überqualifiziert sind, weniger und Absolventen, die eine Beamtenposition haben, mehr Personalverantwortung. Wie erwartet sind

Absolventen, deren Haupttätigkeit Management oder Leitung ist, gegenüber mehr Personen weisungsbefugt als ihre ehemaligen Kommilitonen, die eine andere Haupttätigkeit haben. Absolventen, die im Bereich Banken und Versicherungen tätig sind, tragen weniger Personalverantwortung als Absolventen in anderen Sektoren.

Interaktionseffekte habe ich aufgrund der Schwierigkeiten bei der Berechnung der marginalen Effekte und der Standard Fehler in nicht-linearen Modellen (siehe Norton et al., 2004) nicht berücksichtigt. Um dennoch zu prüfen, ob mit zunehmender Berufserfahrung geschlechtsspezifische Unterschiede auftreten, habe ich Schätzungen für die einzelnen Kohorten durchgeführt (siehe Tabelle 4.13 im Anhang). Die Schätzergebnisse deuten darauf hin, dass weibliche Absolventen aus älteren Kohorten weniger Personalverantwortung haben als ihre männlichen Kollegen. Hingegen tragen weibliche Absolventen, die ihren Abschluss zwischen 2002 und 2006 gemacht haben, mehr Personalverantwortung als ihre männlichen Kollegen.

Die Signifikanz der Variable für eine ehrenamtliche Tätigkeit weist auf die Wichtigkeit von Human- und Sozialkapital bei der Übernahme von Personalverantwortung hin. Absolventen, die während ihres Studiums ehrenamtlich tätig waren, sind gegenüber mehr Personen weisungsbefugt. Eine genauere Untersuchung (siehe Tabelle 4.3 (2)) zeigt allerdings, dass vor allem Absolventen, die sich im Bereich Sport ehrenamtlich engagiert haben, signifikant mehr Personen unter sich haben.

4.5 Subjektives Maß des derzeitigen Erfolgs: Zufriedenheit

Ein subjektives Maß für den Erfolg eines Absolventen ist seine Zufriedenheit mit der derzeitigen Stelle. In der Befragung wurden die Absolventen gebeten, ihre Zufriedenheit mit verschiedenen Aspekten ihrer derzeitigen Beschäftigung wie z.B. den Tätigkeitsinhalten oder den Arbeitsbedingungen auf einer fünf-stufigen Skala, die von "sehr zufrieden" bis "sehr unzufrieden" reicht, zu beurteilen. Die Variablen, die die Zufriedenheit messen, sind also kategoriale Variablen. Für die Analysen verwende ich *ordered Probit* Regressionen.

Der Zusammenhang zwischen der Zufriedenheit mit der Arbeitsstelle und verschiedenen Variablen wie den Fehlzeiten, der Unpünktlichkeit oder der Wahrscheinlichkeit, zu kündigen oder die Arbeitsstelle zu verlieren, wurde in der Literatur vielfach untersucht. Es herrscht weitgehend Einigkeit darüber, dass es signifikante Zusammenhänge gibt. Aller-

dings wird über die Richtung der Kausalität diskutiert. Während Freeman (1978) berichtet, dass unzufriedene Arbeitnehmer eine höhere Wahrscheinlichkeit haben, ihren Job zu kündigen oder zu verlieren und Clark et al. (2005) zu dem Schluss kommen, dass unzufriedene Arbeitnehmer häufiger zu spät zur Arbeit erscheinen, stellt Clegg (1983) fest, dass Unzufriedenheit mit der Arbeitsstelle nicht zu Unpünktlichkeit oder Fehlzeiten führt, sondern die Kausalität anders herum ist und häufigeres Fehlen ein signifikanter Vorhersagefaktor für Unzufriedenheit mit der Arbeitsstelle ist. In einer Meta-Analyse verschiedener Studien zum Zusammenhang zwischen der Zufriedenheit mit der Arbeitsstelle und der Performanz im Job kommen Judge et al. (2001) zu dem Ergebnis, dass es eine moderate aber signifikant von Null verschiedene Korrelation zwischen Unzufriedenheit und Performanz gibt. Judge und Watanabe (1993) beobachten außerdem einen positiven und reziproken Zusammenhang zwischen der Zufriedenheit mit der Arbeitsstelle und der Lebenszufriedenheit.

In meiner Untersuchung der Einflussfaktoren auf die Zufriedenheit mit den Tätigkeitsinhalten und den Arbeitsbedingungen der derzeitigen Tätigkeit betrachte ich die gleichen erklärenden Variablen wie in der Analyse des Erfolgs im vorherigen Abschnitt. Zusätzlich überprüfe ich, ob Absolventen, die mehr Personalverantwortung tragen, also gegenüber mehr Personen weisungsbefugt sind, zufriedener sind.

4.5.1 Basisspezifikation

In Tabelle 4.4 sind die Ergebnisse der Analyse der Zufriedenheit aufgeführt. Deskriptive Statistiken sind im Anhang in Tabelle 4.10 abgedruckt. Hinsichtlich der Zufriedenheit mit den Tätigkeitsinhalten und mit den Arbeitsbedingungen gibt es keine signifikanten Unterschiede zwischen männlichen und weiblichen Absolventen oder zwischen Absolventen der drei untersuchten Studiengänge. In einer Studie über Einflussfaktoren auf die Zufriedenheit hochqualifizierter Personen – genauer gesagt Personen mit PhD Abschluss – in den USA finden Bender und Heywood (2006), dass weibliche Ökonomen signifikant unzufriedener sind als ihre männlichen Kommilitonen. Dieses Ergebnis kann ich anhand meines Datensatzes nicht bestätigen. Vielmehr stimmen meine Resultate mit den Ergebnissen von Clark (1997) überein, der berichtet, dass Frauen im Allgemeinen zwar zufriedener mit ihren Tätigkeiten sind, dass es aber für die Gruppe hochqualifizierter Arbeitnehmer keine signifikanten Unterschiede in der Zufriedenheit zwischen Männern und

Frauen gibt.

Ältere Absolventen sind unzufriedener mit ihren Tätigkeitsinhalten als jüngere. In früheren Studien (z.B. Clark et al., 1996; Gazioglu und Tansel, 2006) wird vielfach ein u-förmiger Effekt des Alters auf die Zufriedenheit festgestellt: Mit zunehmendem Alter sinkt zunächst die Zufriedenheit, doch steigt sie später wieder an. Ich habe auch eine quadratische Spezifikation getestet, doch diese war nicht signifikant. Dies kann möglicherweise daran liegen, dass kaum ältere Absolventen im Datensatz sind. Absolventen, die ihr Studium 1984 abgeschlossen haben, befinden sich noch nicht am Ende ihres Berufslebens.

Im Laufe des Berufslebens scheint die Zufriedenheit der Absolventen mit den Tätigkeitsinhalten zu steigen: Absolventen, die eine längere Berufserfahrung haben, sind zufriedener mit den Tätigkeitsinhalten als diejenigen, die erst vor kürzerer Zeit ihr Studium abgeschlossen haben. Da in der Regression gleichzeitig für das derzeitige Alter der Absolventen kontrolliert wird, deutet dies darauf hin, dass Absolventen, die ihr Studium in einem höheren Alter beendet haben, unzufriedener mit ihrer Arbeitsstelle sind als Absolventen, die zum Zeitpunkt des Studienabschlusses jünger waren.

Absolventen, die durch eine Ausbildung schon vor Studienabschluss Erfahrungen im beruflichen Umfeld gesammelt haben, und Absolventen, die sich während ihres Studiums ehrenamtlich engagiert haben, sind zufriedener mit den Inhalten ihrer derzeitigen Tätigkeit als die übrigen Absolventen. Die Teilnahme an weiterqualifizierenden Maßnahmen nach dem Studium hat ebenfalls einen signifikant positiven Einfluss auf die Zufriedenheit mit den Tätigkeitsinhalten. Insgesamt sind Absolventen, die zurzeit erwerbstätig sind, zufriedener mit ihren Tätigkeitsinhalten als ihre Kommilitonen, die zurzeit nicht erwerbstätig sind.

Absolventen, die derzeit selbständig sind, sind zufriedener mit ihren Tätigkeitsinhalten und mit ihren Arbeitsbedingungen als ihre angestellten Kollegen. Hingegen kann eine größere Unzufriedenheit mit den Tätigkeitsinhalten bei den Absolventen, die derzeit in einem Beratungsunternehmen arbeiten, festgestellt werden als bei Absolventen, die in anderen Wirtschaftszweigen tätig sind. Absolventen, die derzeit im universitären Bereich arbeiten, sind zufriedener mit ihren Arbeitsbedingungen als ihre Kollegen, die in anderen Wirtschaftszweigen tätig sind.

Die hierarchische Position scheint weniger wichtig für die Beurteilung der Zufriedenheit

Table 4.4: Analyse der Zufriedenheit (Multinomial Probit)

	Zufriedenheit Tätigkeitsinhalte			Zufriedenheit Arbeitsbedingungen		
	Koeffizient	Standard Fehler		Koeffizient	Standard Fehler	
Dummy: Geschlecht (Mann=1)	0.0645	0.1355		0.0878	0.1344	
Alter im Jahr 2008	-0.0376	0.0194	*	-0.0232	0.0198	
Dummy: Ausbildung	0.2569	0.1479	*	-0.0081	0.1453	
Dummy: abgeschlossenes Studium	0.0311	0.4685		0.0703	0.3356	
Dummy: MFÖ	-0.0122	0.2702		0.4230	0.3359	
Dummy: Wirtschaftspädagogik	-0.1617	0.2255		-0.3424	0.2806	
Dummy: Ehrenamt	0.2753	0.1167	**	0.0797	0.1168	
Abschlussnote	-0.0330	0.0949		-0.1116	0.1064	
Dummy: Weiterqualifizierung	0.2111	0.1259	*	0.1565	0.1230	
Jahre Berufserfahrung	0.0376	0.0222	*	0.0165	0.0229	
Dummy: erwerbstätig	0.5392	0.2183	**	0.1795	0.2283	
Dummy: überqualifiziert	-0.3525	0.2670		-0.2202	0.2572	
Dummy: Beamter	-0.0837	0.2081		-0.2703	0.2188	
Dummy: Angestellter im öffentl. Dienst	0.1588	0.2417		0.0932	0.2100	
Dummy: selbständig	0.4722	0.2356	**	0.4721	0.2638	*
Dummy: Beratung	-0.3751	0.2007	*	-0.1566	0.2013	
Dummy: Banken/Versicherungen	-0.1464	0.1418		-0.0665	0.1423	
Dummy: Uni	0.2498	0.2715		0.4495	0.2621	*
Dummy: Management/Leitung	0.0934	0.1791		0.1827	0.1634	
Dummy: befristete Stelle	0.2688	0.2846		-0.1518	0.2495	
Weisungsbefugnis	-0.0041	0.0030		-0.0037	0.0029	
Anzahl Beobachtungen	396			395		
Log Likelihood	-464.1774			-483.9634		

Anmerkungen: *** signifikant auf dem 1 % Niveau, ** signifikant auf dem 5 % Niveau, * signifikant auf dem 10 % Niveau

zu sein. Absolventen, die derzeit eine Position in Management oder Unternehmensleitung haben oder die gegenüber mehr Personen weisungsbefugt sind, sind nicht signifikant zufriedener als ihre ehemaligen Kommilitonen. Vieira (2005) berichtet, dass Personen, die sich selbst als überqualifiziert für ihre Tätigkeit einschätzen, allgemein eine niedrigere Zufriedenheit mit ihrem Job haben. Ich finde keine signifikant niedrigere Zufriedenheit mit Tätigkeitsinhalten oder Arbeitsbedingungen bei Absolventen, die eine Stelle haben, für die sie überqualifiziert sind.

Auch zwischen Beamten oder Angestellten im öffentlichen Dienst und Angestellten im privaten Sektor sind keine signifikanten Unterschiede hinsichtlich der Zufriedenheit mit Tätigkeitsinhalten oder Arbeitsbedingungen zu verzeichnen. Dies entspricht den Ergebnissen von Ghinetti (2007), der berichtet, dass es in Italien hinsichtlich des Interesses an der eigenen Tätigkeit keine signifikanten Unterschiede zwischen Beschäftigten im öffentlichen und im privaten Sektor gibt.

4.5.2 Einfluss des Einkommens auf die Zufriedenheit

In früheren Studien wurde häufig der Einfluss der Höhe des Einkommens auf die Zufriedenheit mit der derzeitigen Tätigkeit untersucht. Wie bereits erwähnt kann bei der Einkommensvariablen ein Daten-Selektions-Problem vorliegen. Daher nehme ich in der empirischen Analyse entsprechende Korrekturen vor.

Ich habe als Maß für die Zufriedenheit mit den verschiedenen Aspekten der derzeitigen Tätigkeit Dummies kreiert, die den Wert eins annehmen, wenn ein Absolvent eine der ersten beiden Stufen der fünf stufigen Skala angekreuzt hat, und somit zufrieden mit dem jeweiligen Aspekt der Tätigkeit ist. Bei Analysen, die auf diesen Dummies beruhen, gehen im Vergleich zu ordered Probit oder ordered Logit Analysen mit den ursprünglichen kategorialen Variablen zwar Informationen verloren, doch können Korrekturen des Daten-Selektions-Problems leichter vorgenommen werden. Ich schätze ein Probit Model mit Selektion. In einem solchen Model wird neben der Ergebnisgleichung eine Selektionsgleichung geschätzt, in der die Wahrscheinlichkeit, das Einkommen anzugeben, spezifiziert wird. Zur Identifikation muss in der Selektionsgleichung mindestens eine Variable enthalten sein, die nicht in der Ergebnisgleichung enthalten ist. Ich habe die berufliche Position des Vaters gewählt.

In Tabelle 4.5 sind die Ergebnisse der Analyse dargestellt. Die Höhe des Einkommens hat keinen signifikanten Einfluss auf die Zufriedenheit der Absolventen mit den Tätigkeitsinhalten. Absolventen mit einem höheren Einkommen pro Arbeitsstunde sind aber signifikant zufriedener mit ihren Arbeitsbedingungen. Nach Clark and Oswald (1996) ist für die Zufriedenheit das relative Einkommen entscheidender als das absolute Einkommen. Auch Grund und Sliwka (2007) berichten, dass die Zufriedenheit nicht nur vom absoluten Einkommensniveau, sondern auch von den Lohnzuwächsen abhängt. Leider habe ich nicht genügend Daten um das relative Einkommen der Absolventen zu bestimmen oder die Entwicklung des Einkommens nachzuvollziehen.

In einem Vergleich der Ergebnisse der *ordered Probit* Regressionen mit den entsprechenden Probit Regressionen mit Korrekturen für das Selektionsproblem ist zu erkennen, dass es vor allem hinsichtlich der Analyse der Einflussfaktoren auf die Zufriedenheit mit den Arbeitsbedingungen einige qualitative Unterschiede gibt. Deshalb konzentriere ich mich im folgenden Abschnitt auf die Analyse der Einflussfaktoren auf die Zufriedenheit mit den

Tätigkeitsinhalten.

Table 4.5: Analyse der Zufriedenheit (Probit mit Korrektur für das Selektionsproblem)

	Zufriedenheit Tätigkeitsinhalte			Zufriedenheit Arbeitsbedingungen		
	Koeffizient	Standard Fehler		Koeffizient	Standard Fehler	
Dummy: Geschlecht (Mann=1)	0.1884	0.1880		0.1761	0.2529	
Alter im Jahr 2008	-0.0756	0.0362	**	-0.1060	0.0691	
Dummy: Ausbildung	0.3346	0.2167		0.3539	0.2581	
Dummy: abgeschlossenes Studium	-0.0649	0.5650		0.1403	0.5303	
Dummy: MFÖ	-0.3986	0.3799		0.2968	0.4694	
Dummy: Wirtschaftspädagogik	-0.1676	0.3528		-0.6017	0.4866	
Dummy: Ehrenamt	0.3909	0.1687	**	0.0563	0.1664	
Abschlussnote	0.0102	0.1458		-0.1690	0.2837	
Dummy: Weiterqualifizierung	0.4505	0.1748	***	0.2541	0.1866	
Jahre Berufserfahrung	0.0561	0.0390		0.0983	0.0578	*
Dummy: erwerbstätig	0.3752	0.3821		0.3128	1.1589	
Dummy: überqualifiziert	-0.3137	0.4956		-0.2429	2.0451	
Dummy: Beamter	-0.0187	0.3028		0.0306	0.3406	
Dummy: Angestellter im öffentl. Dienst	-0.0481	0.3008		0.3865	0.7361	
Dummy: selbständig	0.2971	0.4082		0.4730	0.6901	
Dummy: Beratung	-0.2863	0.3196		-0.2637	0.6933	
Dummy: Banken/Versicherungen	-0.2046	0.2271		-0.6654	0.2664	**
Dummy: Uni	-0.0629	0.3876		-0.5246	0.4201	
Dummy: Management/Leitung	0.4069	0.2936		0.2150	0.3768	
Dummy: befristete Stelle	0.0794	0.4041		-0.0855	0.9801	
Weisungsbefugnis	-0.0093	0.0033	***	-0.0077	0.0069	
Einkommen pro Stunde (ln)	0.0155	0.1572		0.3967	0.1996	**
Konstante	2.3468	1.3135	*	2.1010	1.4486	
Anzahl Beobachtungen	388			388		
Log Likelihood	-287.2806			-289.1434		

Anmerkungen: *** signifikant auf dem 1 % Niveau, ** signifikant auf dem 5 % Niveau, * signifikant auf dem 10 % Niveau

4.5.3 Motivationssteigernde Aspekte der derzeitigen Tätigkeit

Wong et al. (1998) und Mohr und Zoghi (2008) berichten, dass ein positiver Zusammenhang zwischen der Zufriedenheit mit der Arbeitsstelle und bestimmten Jobcharakteristika besteht, die motivationssteigernd wirken können. Solche motivationssteigernden Charakteristika sind beispielsweise ein hohes Maß an Autonomie, verschiedenartige Aufgaben oder die Möglichkeit, Vorschläge einzubringen. Allerdings wird in beiden Artikeln darauf hingewiesen, dass die Kausalität in beide Richtungen gehen kann und es Wechselwirkungen gibt. Ich habe Proxies für derartige motivierende Aspekte in die Regression aufgenommen, um zu untersuchen, ob es auch im vorliegenden Datensatz einen Zusammenhang zwischen solchen Aspekten der Arbeitsstelle und der Zufriedenheit gibt. Leider habe ich nur Querschnittsdaten und kann daher die Kausalität nicht überprüfen. Die in Tabelle 4.6

aufgeführten Ergebnisse meiner Analyse sind deshalb mit Vorsicht zu interpretieren.

Ich untersuche, ob Absolventen, die angeben, dass VWL Kenntnisse hilfreicher für ihre derzeitige Tätigkeit sind, zufriedener sind. Die Einschätzung erfolgt auf einer fünfstufigen Skala, die von “sehr hilfreich” bis “gar nicht hilfreich” reicht. Absolventen, die VWL Kenntnisse als hilfreicher für ihre derzeitige Beschäftigung betrachten, sind mit ihren Tätigkeitsinhalten zufriedener als ihre Kommilitonen (siehe Tabelle 4.6 (1)).

Die Absolventen wurden außerdem gebeten, die Wichtigkeit verschiedener Kenntnisse und Fähigkeiten – wie z.B. Selbständiges Arbeiten, Problemlösungsfähigkeit oder Fähigkeit, Verantwortung zu übernehmen – für ihre Tätigkeit auf eine fünfstufigen Skale, die von “sehr wichtig” bis “unwichtig” reicht, zu beurteilen. Ein signifikant höheres Maß an Zufriedenheit ist unter Absolventen, die selbständiges Arbeiten als wichtiger für ihre derzeitige Tätigkeit einstufen, festzustellen (siehe Tabelle 4.6 (2)).

Table 4.6: Weitere Analyse der Zufriedenheit (Multinomial Probit)

Zufriedenheit Tätigkeitsinhalte	(1)		(2)		
	Koeffizient	Standard Fehler	Koeffizient	Standard Fehler	
Dummy: Geschlecht (Mann=1)	-0.0147	0.1337	0.0879	0.1359	
Alter im Jahr 2008	-0.0341	0.0192	-0.0279	0.0189	*
Dummy: Ausbildung	0.2430	0.1518	0.2335	0.1563	
Dummy: abgeschlossenes Studium	0.0415	0.4683	-0.0313	0.4682	
Dummy: MFÖ	0.0199	0.2787	0.0680	0.2758	
Dummy: Wirtschaftspädagogik	-0.0882	0.2335	-0.1864	0.2418	
Dummy: Ehrenamt	0.2392	0.1164	0.2544	0.1177	**
Abschlussnote	-0.0165	0.0954	-0.0333	0.0942	
Dummy: Weiterqualifizierung	0.2062	0.1265	0.2402	0.1278	*
Jahre Berufserfahrung	0.0317	0.0222	0.0236	0.0225	
Dummy: erwerbstätig	0.5160	0.2248	0.5548	0.2319	**
Dummy: überqualifiziert	-0.3251	0.2721	-0.2984	0.2790	
Dummy: Beamter	-0.1633	0.2173	-0.1228	0.2163	
Dummy: Angestellter im öffentl. Dienst	0.0941	0.2460	0.1453	0.2398	
Dummy: selbständig	0.4991	0.2335	0.3957	0.2387	*
Dummy: Beratung	-0.3729	0.1988	-0.3279	0.1990	*
Dummy: Banken/Versicherungen	-0.2127	0.1446	-0.1379	0.1440	
Dummy: Uni	0.0971	0.2756	0.2067	0.2793	
Dummy: Management/Leitung	0.1390	0.1722	0.0667	0.1847	
Dummy: befristete Stelle	0.2922	0.2856	0.3349	0.2949	
Weisungsbefugnis	-0.0039	0.0031	-0.0042	0.0031	
VWL Kenntnisse	0.1335	0.0508			***
Wichtigkeit: selbständiges Arbeiten			-0.6441	0.1562	***
Wichtigkeit: Problemlösungsfähigkeit			0.1378	0.1146	
Wichtigkeit, Verantwortung zu übernehmen			-0.0686	0.0828	
Anzahl Beobachtungen	394		392		
Log Likelihood	-458.253		-452.6719		

Anmerkungen: *** signifikant auf dem 1 % Niveau, ** signifikant auf dem 5 % Niveau, * signifikant auf dem 10 % Niveau

4.6 Zusammenfassung

In diesem Artikel habe ich anhand von Daten einer Absolventenbefragung an der Universität Konstanz untersucht, welche Faktoren den beruflichen Erfolg von Absolventen dreier wirtschaftswissenschaftlicher Studiengänge beeinflussen. Geschlechtsspezifische Unterschiede habe ich hinsichtlich der Dauer der Suche nach der ersten Stelle und des derzeitigen Einkommens festgestellt. Frauen suchen durchschnittlich länger als Männer nach ihrer ersten Stelle. Sie sind mit ihrer derzeitigen Tätigkeit ähnlich zufrieden wie Männer. Allerdings verdienen ältere Absolventinnen durchschnittlich weniger als die männlichen Absolventen. Außerdem tragen Absolventinnen der Abschlussjahrgänge 1984–1996 weniger Personalverantwortung als die männlichen Absolventen.

Absolventen mit besseren Abschlussnoten haben schneller eine erste Stelle gefunden und erzielen ein höheres Einkommen. Die Abschlussnote hat keinen direkten signifikanten Effekt auf das Ausmaß an Personalverantwortung oder die persönliche Zufriedenheit der Absolventen. Auf den Einfluss von Human- und Sozialkapital auf den beruflichen Erfolg der Absolventen weist die Signifikanz der Variable *Ehrenamt* hin. Absolventen, die sich während ihres Studiums ehrenamtlich engagiert haben, haben weniger lange nach einer Stelle gesucht, haben mehr Personalverantwortung und sind zufriedener mit ihren Tätigkeitsinhalten.

Mit der Übernahme von Leitungs- und Managementfunktionen sind ein höheres Einkommen und die Übernahme von mehr Personalverantwortung verbunden nicht aber eine signifikant höhere Zufriedenheit. Zumindest in einigen Positionen und Berufszweigen scheint es einen trade-off zwischen Einkommen und Personalverantwortung zu geben. So haben Beamte ein niedrigeres Einkommen aber mehr Personalverantwortung als Angestellte im privaten Sektor und Absolventen, die im Bereich Banken oder Versicherungen beschäftigt sind, ein höheres Einkommen und weniger Personalverantwortung als Kommilitonen in anderen Wirtschaftszweigen.

Absolventen, die derzeit erwerbstätig sind, haben ein höheres Einkommen, mehr Personalverantwortung und sind zufriedener mit ihren Tätigkeitsinhalten als die nicht erwerbstätigen. Ältere Absolventen sind bei gleich langer Berufserfahrung gegenüber weniger Personen weisungsbefugt und unzufriedener mit ihren Tätigkeitsinhalten. Mit steigender Berufserfahrung übernehmen die Absolventen mehr Personalverantwortung. Außerdem

nimmt ihre Zufriedenheit mit ihren Tätigkeitsinhalten zu.

4.7 Anhang

Table 4.7: Deskriptive Statistik für die Analyse der Suchdauer nach der ersten Stelle

	Anzahl Beobachtungen	Mittelwert	Standard- abweichung
Dauer Stellensuche (Monate)	449	3.1492	4.3801
Dummy: Geschlecht (Mann=1)	449	0.6771	0.4681
Abiturnote	449	2.2539	0.6632
Dummy: Abitur in Baden-Württemberg	449	0.6971	0.4600
Dummy: Abitur in Bayern	449	0.0557	0.2296
Dummy: Abitur in NRW	449	0.0846	0.2786
Dummy: Ausbildung	449	0.2049	0.4041
Dummy: abgeschlossenes Studium	449	0.0267	0.1615
Dummy: MFÖ	449	0.0557	0.2296
Dummy: Wirtschaftspädagogik	449	0.1292	0.3358
Dummy: Auslandsaufenthalt	449	0.4521	0.4983
Dummy: Praktikum	449	0.6971	0.4600
Dummy: Hiwi	449	0.3764	0.4850
Dummy: Stelle mit fachlichem Bezug	449	0.1047	0.3065
Dummy: Stelle ohne fachlichen Bezug	449	0.3563	0.4795
Dummy: Ehrenamt	449	0.4410	0.4971
Abschlussnote	449	2.3586	0.6636
Alter bei Abschluss (Jahre)	449	26.7394	2.5251
Dauer des Studiums (Jahre)	449	5.3296	1.3670
Kohorte '84-'91	449	0.1893	0.3922
Kohorte '92-'96	449	0.2249	0.4180
Kohorte '97-'01	449	0.2316	0.4223
Anzahl Sprachen mit guten Kenntnissen	449	1.4454	0.7514
Dummy: gute EDV Kenntnisse	449	0.7060	0.4561
Dummy: Stellensuche im Ausland	449	0.2561	0.4370
Dummy: Stellensuche regional	449	0.3474	0.4767

Table 4.8: Deskriptive Statistik für die Analyse des Einkommens

	Anzahl Beobachtungen	Mittelwert	Standard- abweichung
Einkommen (Euro pro Monat)	375	5634.06	5332.902
Dummy: Geschlecht (Mann=1)	375	0.6747	0.4691
Dummy: Ausbildung	375	0.2000	0.4005
Dummy: abgeschlossenes Studium	375	0.0320	0.1762
Dummy: MFÖ	375	0.0613	0.2403
Dummy: Wirtschaftspädagogik	375	0.1467	0.3542
Dummy: Ehrenamt	375	0.4240	0.4949
Abschlussnote	375	2.3760	0.6581
Alter 2008 (Jahre)	375	37.8267	6.3540
Dummy: Weiterqualifizierung	375	0.5920	0.4921
Jahre Berufserfahrung	375	9.1253	5.8161
Dummy: erwerbstätig	375	0.8400	0.3671
Dummy: überqualifiziert	375	0.0560	0.2302
Dummy: Beamter	375	0.1573	0.3646
Dummy: Angestellter im öffentl. Dienst	375	0.1520	0.3595
Dummy: selbständig	375	0.0720	0.2588
Dummy: Beratung	375	0.0880	0.2837
Dummy: Banken/Versicherungen	375	0.2507	0.4340
Dummy: Uni	375	0.0987	0.2986
Dummy: Management/Leitung	375	0.1173	0.3222
Dummy: befristet	375	0.1813	0.3858

Table 4.9: Deskriptive Statistik für die Analyse des Erfolgs anhand des Maßes der Personalverantwortung

	Anzahl Beobachtungen	Mittelwert	Standard- abweichung
Weisungsbefugnis Personen	356	8.2893	24.0227
Dummy: Geschlecht (Mann=1)	356	0.7163	0.4514
Dummy: Ausbildung	356	0.2051	0.4043
Dummy: abgeschlossenes Studium	356	0.0112	0.1056
Dummy: MFÖ	356	0.0618	0.2411
Dummy: Ehrenamt	356	0.4326	0.4961
Dummy: Ehrenamt Uni	356	0.1208	0.3263
Dummy: Ehrenamt Musik	356	0.0758	0.2651
Dummy: Ehrenamt Sport	356	0.1601	0.3672
Dummy: Ehrenamt Kirche	356	0.0899	0.2864
Dummy: Ehrenamt Politik	356	0.1039	0.3056
Dummy: Ehrenamt Soziales	356	0.1124	0.3163
Dummy: anderes Ehrenamt	356	0.0927	0.2804
Abschlussnote	356	2.3876	0.6682
Alter 2008 (Jahre)	356	39.0618	6.0595
Dummy: Weiterqualifizierung	356	0.5646	0.4965
Jahre Berufserfahrung	356	10.3034	5.4337
Dummy: erwerbstätig	356	0.8567	0.3508
Dummy: überqualifiziert	356	0.0758	0.2651
Dummy: Beamter	356	0.0646	0.2462
Dummy: Angestellter im öffentl. Dienst	356	0.1517	0.3592
Dummy: selbständig	356	0.0787	0.2696
Dummy: Beratung	356	0.0899	0.2864
Dummy: Banken/Versicherungen	356	0.2865	0.4528
Dummy: Uni	356	0.1152	0.3197
Dummy: Management/Leitung	356	0.1489	0.3565
Dummy: befristet	356	0.1320	0.3390

Table 4.10: Deskriptive Statistik für die Analyse der Zufriedenheit

	Anzahl Beobachtungen	Mittelwert	Standard- abweichung
Zufriedenheit Tätigkeitsinhalte	396	4.1439	0.9610
Zufriedenheit Arbeitsbedingungen	395	3.9620	1.0206
Dummy: Geschlecht (Mann=1)	396	0.6995	0.4591
Alter im Jahr 2008 (Jahre)	396	38.3939	6.2760
Dummy: Ausbildung	396	0.2045	0.4039
Dummy: abgeschlossenes Studium	396	0.0253	0.1571
Dummy: MFÖ	396	0.0556	0.2294
Dummy: Wirtschaftspädagogik	396	0.1010	0.3017
Dummy: Ehrenamt	396	0.4394	0.4969
Abschlussnote	396	2.3737	0.6496
Dummy: Weiterqualifizierung	396	0.5884	0.4927
Jahre Berufserfahrung	396	9.5354	5.6668
Dummy: erwerbstätig	396	0.8384	0.3686
Dummy: überqualifiziert	396	0.0783	0.2690
Dummy: Beamter	396	0.1263	0.3326
Dummy: Angestellter im öffentl. Dienst	396	0.1414	0.3489
Dummy: selbständig	396	0.0758	0.2649
Dummy: Beratung	396	0.0833	0.2767
Dummy: Banken/Versicherungen	396	0.2652	0.4420
Dummy: Uni	396	0.1086	0.3115
Dummy: Management/Leitung	396	0.1338	0.3409
Dummy: befristete Stelle	396	0.1641	0.3709
Weisungsbefugnis	396	9.2538	26.2797
Einkommen (Euro pro Stunde)	335	153.8348	141.5938
VWL Kenntnisse	394	3.1701	1.3034
Wichtigkeit: selbständiges Arbeiten	392	1.1276	0.3490
Wichtigkeit: Organisationsfähigkeit	392	1.2832	0.5622
Wichtigkeit, Verantwortung zu übernehmen	392	1.5638	0.8852

Table 4.11: Korrelationskoeffizienten mit der Variable *Abschlussnote*

Einkommen (Euro pro Monat)	0.0845
Jahre Berufserfahrung	0.2758
Dummy: Geschlecht (Mann=1)	0.0066
Dummy: überqualifiziert	-0.0022
Dummy: Beamter	-0.0946
Dummy: Angestellter im öffentlichen Dienst	-0.1497
Dummy: selbständig	0.1188
Dummy: Beratung	0.0923
Dummy: Banken/Versicherungen	0.0425
Dummy: Uni	-0.3146
Dummy: Weiterqualifizierung	-0.1748
Alter im Jahr 2008 (Jahre)	0.3293
Dummy: erwerbstätig	0.2320
Dummy: abgeschlossenes Studium	-0.0620
Dummy: Ausbildung	-0.0004
Dummy: befristet	-0.2365
Dummy: Ehrenamt	-0.0878
Dummy: Management/Leitung	0.1211

Table 4.12: Analyse der Suchdauer: Verschiedene Kohorten

Dauer Stellensuche				
Kohorten:	1984-1991	1992-1996	1997-2001	2002-2006
D: Geschlecht (Mann=1)	-0.3784 (0.2435)	0.1488 (0.2161)	-0.4884 ** (0.1942)	-0.2459 (0.2033)
Abiturnote	0.0754 (0.1734)	-0.0358 (0.1744)	0.0346 (0.1356)	0.3784 ** (0.1596)
D: Ausbildung	0.4564 (0.4215)	-0.4624 ** (0.2136)	-0.3255 * (0.1917)	0.2285 (0.2403)
D: abgeschlossenes Studium		0.5065 (0.3443)	0.3247 (0.3281)	-0.4709 (0.7871)
D: MFÖ				0.2364 (0.2721)
D: Wirtschaftspädagogik			0.9351 ** (0.3675)	-0.7851 *** (0.2440)
D: Auslandsaufenthalt	0.1926 (0.3173)	0.3263 * (0.1925)	-0.1321 (0.1960)	-0.0909 (0.2054)
D: Praktikum	-0.2348 (0.2651)	0.0249 (0.1792)	-0.5087 ** (0.2052)	0.0802 (0.2987)
D: Hiwi	-0.3469 (0.2542)	0.4000 (0.3322)	-0.5311 * (0.2964)	-0.5732 ** (0.2680)
D: Stelle mit fachlichem Bezug	-1.5287 *** (0.3684)	-0.1172 (0.2944)	-0.7781 * (0.4192)	-0.4656 (0.3429)
D: Stelle ohne fachlichen Bezug	-0.1203 (0.3043)	0.5250 ** (0.2481)	-0.2097 (0.2931)	-0.4370 (0.2740)
D: Ehrenamt	0.2218 (0.2393)	0.2844 (0.1995)	-0.4152 ** (0.1842)	-0.5703 *** (0.1913)
Abschlussnote	0.4086 * (0.2290)	0.5439 *** (0.1547)	0.0573 (0.2083)	0.3559 ** (0.1505)
Alter bei Abschluss	-0.0581 (0.0521)	0.0447 (0.0375)	0.0800 *** (0.0263)	0.0001 (0.0399)
Dauer des Studiums	0.0989 (0.0925)	0.0788 (0.0953)	0.1227 (0.0772)	0.0009 (0.0608)
Anzahl Sprachen mit guten Kenntnissen	-0.0309 (0.1510)	0.0182 (0.1298)	0.1458 (0.1220)	-0.0278 (0.1310)
D: gute EDV Kenntnisse	-0.4313 * (0.2350)	-0.7280 *** (0.2009)	-0.1685 (0.1878)	0.2469 (0.2520)
D: Stellensuche im Ausland	0.3807 (0.2481)	-0.1313 (0.2483)	-0.0981 (0.2257)	0.0847 (0.2061)
D: Stellensuche regional	-0.5255 ** (0.2638)	0.3307 (0.2125)	-0.7955 *** (0.2259)	-0.8447 *** (0.2305)
Anzahl Beobachtungen	85	101	104	159
Log Likelihood	-185.8218	-243.6080	-206.5951	-278.3080

Anmerkungen:

Schätzmethode: *negative binomial* Regression,

Abkürzung D. für Dummy,

*** signifikant auf dem 1 % Niveau, ** signifikant auf dem 5 % Niveau, * signifikant auf dem 10 % Niveau, Standard Fehler in Klammern

Table 4.13: Analyse der Weisungsbefugnis: Verschiedene Kohorten

Weisungsbefugnis Personen								
Kohorte:	1984-1991		1992-1996		1997-2001		2002-2006	
D: Geschlecht (Mann=1)	2.6152	***	0.9966	**	0.5952		-1.0906	**
	(0.4185)		(0.4284)		(0.6062)		(0.5331)	
D: Ausbildung	-0.1870		0.6565	*	-0.2116		-0.9612	
	(0.4654)		(0.3793)		(0.5280)		(0.8487)	
D: abgeschlossenes Studium			2.6684	***	-21.4217	***		
			(0.8265)		(0.9071)			
D: MFÖ							0.3815	
							(0.5462)	
D: Ehrenamt	0.6922	*	0.6348		0.5998		0.8398	
	(0.3548)		(0.3886)		(0.3866)		(0.5222)	
Abschlussnote	0.0544		-0.4017		0.0326		0.5642	
	(0.4171)		(0.2828)		(0.3950)		(0.5486)	
Alter 2008	-0.0028		-0.2836	***	0.0850		0.0023	
	(0.0797)		(0.0542)		(0.0804)		(0.1020)	
D: Weiterqualifizierung	0.2754		-0.5446		1.0816	**	0.0528	
	(0.3364)		(0.3676)		(0.4986)		(0.5411)	
Jahre Berufserfahrung	-0.3055	**	0.4165	***	0.1384		0.2700	
	(0.1481)		(0.1269)		(0.1586)		(0.2414)	
D: erwerbstätig	-2.0227		1.9907	**	3.8786	***	1.3655	*
	(1.5885)		(0.9814)		(1.4211)		(0.6999)	
D: überqualifiziert	0.4973		-3.7043	***	0.3598		-3.3513	***
	(0.6060)		(0.6235)		(0.8548)		(1.0939)	
D: Beamter	0.7159		-1.0531	*	2.1055	**	-21.3096	***
	(0.6458)		(0.5747)		(1.0128)		(1.3119)	
D: Angestellter im öffentl. Dienst	-2.3642	***	-1.1424		0.3345		-2.4927	***
	(0.8773)		(0.7006)		(0.7217)		(0.8178)	
D: selbständig	-0.5896		0.5362		-1.3883		-0.9079	
	(0.4686)		(0.6208)		(0.9925)		(1.0758)	
D: Beratung	-0.2485		-0.8209		1.1216		-1.3236	
	(0.5837)		(0.7207)		(1.0097)		(0.8576)	
D: Banken/Versicherungen	-0.9599	**	-0.6234		-1.1697	***	-0.7629	
	(0.4278)		(0.3834)		(0.4323)		(0.6983)	
D: Uni	-1.5298	**	0.6772		-0.4054		1.2248	
	(0.7664)		(0.7718)		(1.2320)		(1.3473)	
D: Management/Leitung	1.5693	***	2.1172	***	2.3594	***	2.5985	***
	(0.4050)		(0.3617)		(0.5573)		(0.9950)	
D: befristet	0.0075		-0.9737		1.9172		1.5917	
	(0.7437)		(1.0670)		(1.3526)		(1.0617)	
Konstante	6.6033		5.8275	**	-8.2652	**	-1.7588	
	(4.1947)		(2.6079)		(3.5456)		(3.2201)	
Anzahl Beobachtungen	83		95		94		84	
Log Likelihood	-225.0738		-232.4197		-191.4814		-133.5893	

Anmerkungen:

Schätzmethode: *negative binomial* Regression,

Abkürzung D. für Dummy,

*** signifikant auf dem 1 % Niveau, ** signifikant auf dem 5 % Niveau, * signifikant auf dem 10 % Niveau, Standard Fehler in Klammern

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Zusammenfassung

Die vorliegende Dissertation ist eine Sammlung von vier eigenständigen Forschungsartikeln, die ich während meines Doktorandenstudiums an der Universität Konstanz zwischen Oktober 2004 und November 2008 geschrieben habe. Diese Artikel sind empirische Studien, in denen verschiedene Fragestellungen auf dem Gebiet der Universitätsökonomie untersucht werden. In den ersten beiden Artikeln evaluiere ich Forschungsleistungen in den Bereichen Volks- und Betriebswirtschaftslehre. Mit Hilfe bibliometrischer Methoden erfasse ich den Zustand der universitären Forschung in Deutschland, Österreich und der Schweiz. Außerdem untersuche ich, welche Faktoren den Forschungsprozess beeinflussen. In den beiden anderen Artikeln befasse ich mich mit Universitätsabsolventen. Ich analysiere die Rückkehrentscheidung ausländischer Absolventen und untersuche, welche Faktoren den beruflichen Erfolg von Absolventen eines wirtschaftswissenschaftlichen Studiengangs beeinflussen. Im Folgenden fasse ich die Hauptergebnisse dieser Arbeiten kurz zusammen.

Kapitel 1 ist ein Nachdruck des Artikels *How Did Economic Research in Switzerland Develop since the Beginning 90s?*, der im Juni 2006 in der Zeitschrift *Schweizerische Zeitschrift für Volkswirtschaft und Statistik/Swiss Journal of Economics and Statistics*, Vol. 142, S. 285–306, erschienen ist. In diesem Artikel stelle ich eine anreizkompatible bibliometrische Methode zur Quantifizierung volkswirtschaftlicher Forschungsleistungen vor. Mit Hilfe dieser Methode evaluiere ich die Forschungsaktivitäten von sechs Schweizer Universitäten – den Universitäten von Basel, Bern, Genf, Lausanne, St. Gallen und Zürich – im Zeitraum von 1990 bis 2004. Im Gegensatz zu herkömmlichen Rankings betrachte ich nicht nur eine Momentaufnahme, sondern erstelle Zeitprofile der Entwicklung der Forschungsaktivität. Insgesamt hat sich die erbrachte Forschungsleistung im Beobachtungszeitraum markant erhöht. Bei einer Betrachtung der Profile der einzelnen Univer-

sitäten sind jedoch deutliche Unterschiede im Entwicklungsmuster zu erkennen. Die zu Beginn der 90er Jahre führenden Universitäten Basel und Genf haben an Boden verloren und sind von anderen Universitäten, namentlich den Universitäten von St. Gallen und Zürich, überflügelt worden. Die durchschnittliche Qualität der Forschungsleistungen der sechs Universitäten ist konvergiert. Die Erhöhung des Forschungsoutputs ist nicht auf einen Qualitätsanstieg der Forschungsleistungen, sondern vielmehr auf einen deutlichen Anstieg der Anzahl der veröffentlichten Seiten im Beobachtungszeitraum zurückzuführen.

Kapitel 2 entstammt einer gemeinsamen Arbeit mit Herrn Prof. Oliver Fabel (Universität Wien) und Herrn Robert Hofmeister (Universität Konstanz). Unser Artikel *Research Productivity in Business Economics: An Investigation of Austrian, German and Swiss Universities*, ist im Jahr 2008 in der Zeitschrift *German Economic Review*, Vol. 9, No. 4, S. 506–531, erschienen. Wir benutzen einen neuen, umfassenden Datensatz, in dem der Forschungsoutput von Betriebswirtinnen und Betriebswirten erfasst ist, die im Frühjahr des Jahres 2008 an einer Universität in Deutschland, Österreich oder der Schweiz beschäftigt waren. Neben den Publikationsdaten enthält der Datensatz auch persönliche Angaben zu etwa 1.800 Forscherinnen und Forschern. Wir berechnen Forschungsrankings der Fachbereiche und erstellen Listen der fünf besten Fachbereiche in einigen ausgewählten Teilbereichen der Betriebswirtschaftslehre. Insgesamt sind die Produktivitätsunterschiede zwischen den Universitäten gering. Auch die Konzentration des Forschungsoutputs zwischen den verschiedenen Universitäten ist niedrig. Mit Hilfe von Tobit und Hurdle Regressionen untersuchen wir außerdem, inwieweit institutionelle Faktoren und individuelle Charakteristika die Forschungsproduktivität beeinflussen. Die Größe des Fachbereichs – gemessen an der Zahl der Fachbereichsmitglieder – und die Anzahl der Professoren, die publizieren, haben einen signifikanten Einfluss auf die Forschungsproduktivität. Die Forschungsproduktivität ist zudem höher in Fachbereichen, in denen auch der Studiengang *Volkswirtschaftslehre* angeboten wird. Entsprechend der Lebenszyklus-Hypothese nimmt die Forschungsproduktivität von publizierenden Forschern mit zunehmendem Karrierealter ab. Betriebswirtinnen scheinen weniger produktiv zu sein als ihre männlichen Kollegen.

Die Idee zu Kapitel 3 stammt aus einer Masterarbeit, die Herr Joachim Plesch an der Universität Konstanz geschrieben hat. In dem Artikel *How Can Scholarship Institu-*

tions Foster the Return of Foreign Students? analysieren wir die Rückkehrentscheidung ausländischer Studierender aus Entwicklungs- und Transformationsländern, die in Deutschland studiert haben und finanziell durch eine Stipendienorganisation unterstützt wurden. Für die Analyse verwenden wir Individualdaten, die uns der Katholische Akademische Ausländer-Dienst (KAAD) zur Verfügung gestellt hat. Der KAAD ist das Stipendienwerk der deutschen katholischen Kirche für Graduierte, Postgraduierte und Wissenschaftler aus Entwicklungs- und Transformationsländern. Von den Stipendiatinnen und Stipendiaten wird erwartet, dass sie nach Beendigung ihres Studien- oder Forschungsaufenthaltes in ihre Heimatländer zurückkehren. Dort sollen sie bei der wirtschaftlichen, politischen und sozialen Entwicklung ihrer Heimatländer mitwirken. Für unsere Analyse verwenden wir Daten von 2.436 Studierenden aus 76 Ländern, deren Förderung durch den KAAD zwischen 1990 und 2005 geendet hat. Wir untersuchen die Rückkehrentscheidung dieser Studierenden mit Hilfe diskreter Verweildaueranalysen. Unsere Ergebnisse deuten darauf hin, dass – unter Berücksichtigung ökonomischer, politischer und institutioneller Determinanten – auch individuelle Einflussfaktoren einen signifikanten Effekt auf die Rückkehrentscheidung haben. Insbesondere das Alter und die Dauer des Aufenthaltes im Gastland beeinflussen die Rückkehrentscheidung. Basierend auf unseren Regressionsergebnissen diskutieren wir, welche Auswahlkriterien und welche vertraglichen Regelungen Stipendienorganisationen wählen können, wenn sie hohe Rückkehreraten erzielen wollen. Solche Regelungen können z.B. strikte zeitliche Begrenzungen des Förderungszeitraums, die Erleichterung von Heimatbesuchen und die Auswahl der Studierenden in ihren jeweiligen Heimatländern vorsehen. Außerdem analysieren wir den Einfluss kultureller Unterschiede zwischen Gastland und Heimatland auf die Rückkehrentscheidung. Insbesondere Absolventinnen und Absolventen aus Afrika scheinen kulturelle Unterschiede zu berücksichtigen, wenn sie sich entscheiden, ob oder wie lange sie nach dem Studium im Gastland bleiben.

Anhand von Daten einer Absolventenbefragung an der Universität Konstanz untersuche ich in Kapitel 4, welche Faktoren den beruflichen Erfolg von Absolventen eines wirtschaftswissenschaftlichen Studiengangs beeinflussen. An der Befragung, die ich im Herbst des Jahres 2007 durchgeführt habe, haben sich 573 Absolventen der Studiengänge Mathematische Finanzökonomie, Volkswirtschaftslehre und Wirtschaftspädagogik betei-

ligt, die ihr Studium zwischen 1984 und 2007 abgeschlossen haben. Als Maße für den beruflichen Erfolg betrachte ich die Dauer der Suche nach der ersten Stelle, das derzeitige Einkommen, die Anzahl der Personen, gegenüber denen ein Absolvent weisungsbefugt ist und die Zufriedenheit eines Absolventen mit den Tätigkeitsinhalten und den Arbeitsbedingungen seiner derzeitigen Tätigkeit. Während das Geschlecht und die Abschlussnote einen signifikanten Einfluss auf die Suchdauer nach der ersten Stelle und das derzeitige Einkommen haben, sind diese Faktoren kaum relevant für das Ausmaß an Personalverantwortung oder die Zufriedenheit der Absolventen. Ehrenamtliches Engagement während des Studiums hingegen hat nicht nur einen signifikant positiven Einfluss auf die Dauer der Stellensuche, sondern auch auf das Ausmaß an Personalverantwortung und die Zufriedenheit. Neben verschiedenen spezifischen Charakteristika der derzeitigen Tätigkeit sind auch das Alter und die Berufserfahrung signifikante Determinanten des derzeitigen beruflichen Erfolgs.

Danksagung

Diese Arbeit wäre nicht möglich gewesen ohne die vielen Menschen, die mich während meiner Promotionszeit begleitet, unterstützt und geprägt haben.

Mein herzlicher Dank geht an ...

- ... meinen Doktorvater Prof. Dr. Heinrich W. Ursprung für seine Ideen für interessante Forschungsprojekte und die Betreuung dieser Arbeit. Seine Kommentare und Denkanstöße haben mir sehr geholfen, die einzelnen Papiere inhaltlich und stilistisch weiterzuentwickeln.
- ... Prof. Dr. Oliver Fabel für seine Bereitschaft, die Zweitkorrektur dieser Arbeit zu übernehmen, seine Gastfreundschaft in Wien und die fruchtbare und unkomplizierte Zusammenarbeit an unserem gemeinsamen Papier.
- ... meine Kollegen Robert Hofmeister, Dr. Michael Rauber, Philipp Stützle und Dr. Christian Wiermann für intensive Diskussionen, konstruktive Kommentare und viele anregende Gespräche. Robert Hofmeister danke ich außerdem für die gute Zusammenarbeit an unserem gemeinsamen Papier.
- ... alle derzeitigen und ehemaligen Mitarbeiter am Lehrstuhl von Prof. Ursprung für das harmonische Arbeitsklima und die stete Hilfsbereitschaft.
- ... meine Kollegen im Promotionsprogramm für die gegenseitige Unterstützung und die vielen anregenden Diskussionen im Rahmen der Brown Bag Seminare und beim gemeinsamen Mittagessen.
- ... meine Eltern und meine Oma für ihre liebevolle Fürsorge, ihre interessierte Begleitung und ihr Vertrauen.
- ... meine Schwester Julia für ihre Hilfsbereitschaft, ihre vielfältigen Anregungen und die schöne gemeinsame Zeit in Konstanz.
- ... meinen Verlobten Peter für seine Geduld, seinen Optimismus und seine liebevolle Unterstützung.

Erklärung

Ich versichere hiermit, dass ich die vorliegende Arbeit mit dem Thema:

Four Essays on University Economics

ohne unzulässige Hilfe Dritter und ohne Benutzung anderer als der angegebenen Hilfsmittel angefertigt habe. Die aus anderen Quellen direkt oder indirekt übernommenen Daten und Konzepte sind unter Angabe der Quelle gekennzeichnet. Weitere Personen, insbesondere Promotionsberater, waren an der inhaltlich materiellen Erstellung dieser Arbeit nicht beteiligt.* Die Arbeit wurde bisher weder im In- noch im Ausland in gleicher oder ähnlicher Form einer anderen Prüfungsbehörde vorgelegt.

Konstanz, den 18.11.2008

(Miriam Hein)

*Siehe hierzu die Abgrenzung auf der folgenden Seite.

Abgrenzung

Ich versichere hiermit, dass ich Kapitel 1 und Kapitel 4 der vorliegenden Arbeit ohne Hilfe Dritter und ohne Benutzung anderer als der angegebenen Hilfsmittel angefertigt habe.

Kapitel 2 entstammt einer gemeinsamen Arbeit mit Herrn Prof. Oliver Fabel (Universität Wien) und Herrn Robert Hofmeister (Universität Konstanz). Die Idee stammt von Herrn Prof. Fabel. Herr Hofmeister hat die Daten aufbereitet und die Rankings in Abschnitt 2.3 erstellt. Die Regressionsanalysen in den Abschnitten 2.4 und 2.5 habe ich durchgeführt. Die Ergebnisse wurden von allen Autoren gemeinsam interpretiert.

Kapitel 3 entstammt einer gemeinsamen Arbeit mit Joachim Plesch. Die Idee und der Datensatz stammen aus der Masterarbeit von Herrn Plesch. Ich habe die Analysen durchgeführt und die Ergebnisse interpretiert und kommentiert.

Konstanz, den 18.11.2008

(Miriam Hein)