

Research Data Centre for Higher Education Research
and Science Studies (FDZ-DZHW)

1st International DZHW User Conference

on Dynamics in the Student and
Academic Life Course

Location: Leibnizhaus, Hannover

Programme and Abstracts

Hannover

May 16 - 17, 2019

1 Programme

Wednesday, May 15, 2019

From 19:00 Welcome Reception in the premises of the Research Data Center (FDZ-DZHW)

Thursday, May 16, 2019

09:00 - 09:30 Arrival & Registration

09:30 - 10:00 Welcome

10:00 - 10:45 **Understanding the path into and through college: old problems and new questions**
Keynote by Daniel Klasik, Ph. D. (George Washington University, Washington, D. C.)

10:45 - 11:00 Coffee Break

Session I: Educational Pathways and Social Inequality I

11:00 - 11:30 **An integrative perspective on educational pathways in the phase of study entrance**
by Pascale Stephanie Petri (Gießen University)

11:30 - 12:00 **The social stratification of student trajectories through German higher education: A sequence-analytical approach**
by Christina Haas (University of Luxemburg)

12:00 - 12:30 **Bologna-Reforms and Social Inequality in Germany: Social Selectivity Beyond the Transition to Master Degree Programs?**
by David Reimer (Aarhus University) & Ulrike Schwabe (DZHW)

12:30 - 14:00 Lunch Break & **Poster Session**

Session II: Social Inequality II / Methodological Aspects in Higher Education

14:00 - 14:30 **Motives and Patterns of Student Employment in Germany – Social Disadvantage for Job Entrance?**
by Dr. Sonja Bastin (University of Bremen)

14:30 - 15:00 **Standardizing sequence lengths by using the relative duration of episodes**
by Dr. Gesche Brandt & Susanne de Vogel (DZHW)

15:00 - 15:15 Coffee Break

Session III: Impact of the Social Environment

- 15:15 - 15:45 **The long arm of the family. On the role of social background and parental preferences for students' reconsideration of educational decisions**
by Bernhard Christoph (IAB), Heiko Quast & Dr. Heike Spangenberg (DZHW)
- 15:45 - 16:15 **The impact of family formation on career trajectories of female STEM graduates in Germany**
by Jakob Schwerter (University of Tübingen) & Lena Ilg
- 16:15 - 16:45 **The influence of the partner on the academic success**
by Ana Brömmelhaus (University of Oldenburg)

16:45 - 17:00 Coffee Break

Session IV: International Student Mobility

- 17:00 - 17:30 **Does international student mobility increase social inequality? An analysis of heterogeneous income returns during the first ten years after graduation**
by Nicolai Netz & Michael Grüttner (DZHW)
- 17:30 - 18:00 **Stratification and Geographic Student Mobility**
by Oliver Winkler (University Halle-Wittenberg)

19:30 Evening Event

Friday, May 17, 2019

09:00 Arrival

09:15 - 10:00 **Higher education dropout and labor market integration: experimental evidence from Germany**
Keynote by Prof. Dr. Martin Neugebauer (FU Berlin)

10:00 - 10:15 Coffee Break

Session V: International Students in the German Higher Educational System

- 10:15 - 10:45 **What are the international students' success rates in Germany's Institutes of Higher Education? How do international students compare to German students in Economics and Business Studies, Mechanical Engineering and Architecture (under)-graduate degrees?**
by Marita McGrory (Europa-Universität Flensburg)
- 10:45 - 11:15 **Intention to drop-out of study preparation and subjective probability of success of international students with and without refugee background**
by Michael Grüttner, Stefanie Schröder & Jana Berg (DZHW)

11:15 - 11:30	Coffee Break
	Session VI: Educational Returns
11:30 - 12:00	Should I Stay or Should I Go? Income disparities by university degree in Switzerland by David Glauser, Christoph Zangger & Rolf Becker (University of Bern)
12:00 - 12:30	Role of universities shaping graduates' labour market outcomes by Federico Biagi, Zsuzsa Blasko, Jonatan Castaño-Munoz, Mabel Sánchez-Barrioluengo & Sylke Schnepf (European Commission, Joint Research Center)
12:30 - 14:00	Lunch Break & Poster Session
	Session VII: Gender Differences
	[Gender-related determinants and timing of leaving science by Anna Löhle (GESIS)] – <i>Vortrag entfällt</i>
14:00 - 14:30	Performance, occupational interests or social environment? What causes women and men to change their subject in higher education? by Jasmin Meyer, Prof. Dr. Susanne Strauss (University of Konstanz) & Prof. Dr. Kathrin Leuze (University of Jena)
14:30 - 15:00	The Early Career Gender Wage Gap among University Graduates by Dr. Malte Sandner, Ipek Yükselen (IAB)
15:00	Roundup and Farewell

2 Abstracts

Daniel Klasik, Ph. D.

The George Washington University

djklasik@email.gwu.edu

Keynote

Understanding the Part into and through College: Old Problems and New Questions

It is well-established that college completion is associated with a range of lifetime benefits for individuals and society ranging from higher earnings to better health practices to high rates of civic participation. However, this simple refrain obscures enormous complexity on the path towards realizing these returns, as well as the fact that the returns do not accrue equally to all college graduates. Understanding both the nature and source of this variation is one of the primary goals of scholars of the life course through college. In this talk I will highlight some of the research that has expanded our understanding of how students make choices about whether and where to enroll in college, and how those decisions, and later experiences, shape their later life outcomes, as well as new questions that we do not yet have answers to.

On its face, the path into and through college appears quite simple. At the most basic level, scholars in this area are primarily concerned with three main phases in a student's life—the student's schooling and experiences prior to college, the college education itself, and the movement into the labor force after college. In the U.S., our understanding of how students move from high school to college has developed significantly in recent years. We used to understand college choice as a three-phase process in which students initially develop aspirations to attend college, then search for information about college options, and then enroll in one of the colleges to which they have applied and been accepted (Hossler & Gallagher, 1987). We now understand that this process involves many more steps, and likely does not proceed as linearly as originally suggested (e.g. Klasik, 2012). These steps include developing the appropriate academic qualifications for college, taking college entrance exams, and successfully submitting college applications. This expanded view of the college choice process has suggested new places for policy to intervene to help students make their college choices, such as requiring that all students take a college entrance exam (Hurwitz et al. 2014; Hyman 2017; Klasik 2013).

We are also developing an expanded understanding of the importance of where a student goes to college for a student's success and later life outcomes. Students who attend more selective colleges—particularly in the top tier—see higher returns to their degree than students of similar academic ability who attend less selective colleges (Black & Smith, 2004; Hoekstra, 2009; Long,

2008). These heterogeneous returns could have equity-enhancing benefits because they accrue disproportionately both to traditionally under-represented racial and ethnic minority (black and Hispanic) students and students who have less-educated parents (Dale & Krueger, 2011). Attendance at more selective colleges is also associated with larger tuition subsidies, and greater attention from faculty (Hoxby, 2009; Hoxby & Avery, 2012). Further, it is not just among the top tier of colleges where there are benefits to students to enroll in more selective colleges. Specifically, the likelihood that students graduate appears positively related with college quality at many points in the selectivity spectrum (Cohodes & Goodman, 2014; Goodman, Hurwitz, & Smith, 2017).

Given these findings, it appears straightforward to recommend that students attend the most selective college they can gain admission to, but here again, recent research has revealed new obstacles for students. We have long known that students prefer to attend college close to home (Long 2004; Niu and Tienda 2007; Rouse 1995; Turley 2009, Skinner 2018). However, recent documentation of disparities in where colleges are located around the U.S. has highlighted the potential consequences of these preferences. Indeed, as many as 12 percent of all students who apply to college in the U.S. do not live within a reasonable driving distance of an affordable, broad-access college (Klasik, Blagg, & Pekor, 2018), and these students tend to come from areas with lower education attainment levels and higher Hispanic populations (Hillman, 2016). Additionally, over 7 percent do not live near a college that is appropriately matched to their academic credentials (Klasik et al., 2018). This means that work to encourage students to enroll at the best college they can must also reckon with the various costs students face as they move away from home. These matters of geography and mobility persist as student after students graduate as where a student lives is and related to whether he or she can pay back their student loans (Klasik, 2016), and his or her later earnings (Klasik, 2017).

Thus, this basic process of transitioning from high school to college and from college to the workforce presents many paths for students to follow, and the path a student takes is shaped both by well known factors such as family background and academic preparation, but also by factors we are still learning about such as where students live.

Even as we are coming to appreciate the complexity of student movement into and through college, there are many important, open questions about what happens when students do not progress through these stages in a continuous or linear way. What are the consequences, for example, of whether students delay their college entry? Or return to college for new credentials after spending time in the labor market? We know very little about the students who follow these non-traditional paths, even though it appears the non-traditional student population may, in fact, be the norm (Chen, 2017). These paths raise new questions about old findings—if students delay their college entry after high school, does high school performance continue to be predictive of college success? Are the returns to a college degree the same for traditional and non-traditional students? These are just some of the new questions that need answering as we work toward a better understanding of student paths into and through higher education.

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Pascale Stephanie Petri

Justus Liebig University Gießen

pascale.s.petri@psychol.uni-giessen.de

An integrative perspective on educational pathways in the phase of study entrance

Education has long been recognized as an essential element in life course. Especially the decision to participate in tertiary education has an important influence on the subsequent career path (OECD, 2016). Unfortunately, the percentage of students who drop out remains at a relatively high level of about 30% in recent years not only in general across OECD countries (OECD, 2016; 2018), but also in specific in Germany (Heublein et al., 2017). This is considered to be unacceptably high (e.g. Heublein et al., 2015; OECD, 2014). Although there are institutional attempts to intervene, these are usually not based on scientific models of dropout. This might be due to the fact that existing models have either a very narrow theoretical focus or are not yet empirically validated, especially not for the German student population (e.g. Heublein et al., 2017). We therefore (1) examined and compared four existing models theoretically and empirically to determine their utility for this population. We conducted two longitudinal studies to track two cohorts of study entrants. Using data from the first cohort, we compared model fit. (2) We then developed a new process model with an integrative broad theoretical perspective, based on existing models (Spady, 1971; Tinto, 1975; Neuville et al., 2007; Lent & Brown, 2013), recent meta-analytic (Robbins et al., 2004; Richardson, Abraham & Bond, 2012) and on our empirical findings. (3) Independent data from the second cohort served to validate it. Additionally, a second validation study was performed using cross-sectional DZHW data (Middendorff et al., 2016). The new model revealed a good model fit and proved its utility. Thus, it could serve as a framework for future research and counseling in tertiary education in Germany. Tailoring interventions to the identified key elements may help concentrating limited counseling resources to the most promising aspects.

Keywords: dropout, integrative perspective, process model, study entrance, tertiary education

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Christina Haas

University of Luxembourg

Christina.haas@uni.lu

The social stratification of student trajectories through German higher education: A sequence-analytical approach

Student numbers in German higher education have increased tremendously during the past decades. Further, higher education has formally opened up, especially to students not following the traditional route via the *Gymnasium*. Consequently, the student population has become more heterogeneous as enrolment rates of students from all social strata have increased (Shavit et al. 2007; Wolter 2015). However, students from lower social strata may not only enter higher education through different routes and make different decisions at major transition points, but their trajectories in higher education may systematically differ as well. Yet, not much is known on students' higher education trajectories after enrolment.

As will be argued along Lucas' (2001) *Effectively Maintained Inequality* thesis, students' strategies regarding their higher education trajectories may systematically differ by social origin leading to differences in timing, discontinuities or detours. Two contrasting hypotheses regarding students' trajectories will be discussed and empirically tested.

The analysis is based on the student cohort of the National Education Panel Study (NEPS; Blossfeld et al. 2011), a representative largescale panel dataset on first-time enrolling students in Germany. The analysis consists of three consecutive steps: reconstructing trajectories in higher education using sequence analysis, clustering sequences to identify major trajectory types and multinomial logistic regression to test our hypotheses.

Preliminary results identified distinct groups of higher education trajectories. Some of these trajectory clusters are smooth, marked by successful study completion followed by master studies or labour market integration while a few trajectory types are marked by interruptions, discontinuities, delays and/or changes.

Further, there is a social gradient in trajectory types followed. Students from less advantaged backgrounds have a higher propensity to follow non-completing and protracted trajectories. Decomposing these social origin differentials using the KHB method indicate that these differences can be mostly explained with reference to the higher education institution (university vs. university of applied sciences), achievement, information differentials and the prior educational biography.

Keywords: trajectories in higher education; social origin; higher education expansion; sequence analysis; study patterns; study progress

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David Reimer & Ulrike Schwabe

Aarhus University & DZHW

dare@edu.au.dk, schwabe@dzhw.eu

Bologna-Reforms and Social Inequality in Germany: Social Selectivity Beyond the Transition to Master Degree Programs?

In the late 1990s, the Bologna reforms were introduced in Europe with the goal to create a European Higher Education Area that facilitates student mobility between countries and comparability of degrees due to a similar consecutive degree structure (Bologna 1999). Even though emphasized comparatively late in the process, another goal was increasing participation of disadvantaged groups in higher education.

Previous studies focusing on social selectivity at the transition from Bachelor to Master degree programs have demonstrated that, the goal to reduce inequalities has had no - or only limited success (Auspurg & Hinz 2011, Kretschmann et al. 2017, Lörz et al. 2015, Neugebauer et al. 2016). The differentiation between primary and secondary effects has been used as the theoretical framework for differential educational decisions (Schindler & Reimer 2010, Watermann et al. 2014). Therefore, the aim of this presentation is twofold: The first objective (i) is to provide a systematic review of the empirical literature studying the "social dimension" of the Bologna reforms – mainly addressing vertical stratification. The second objective (ii) is to provide an in-depth analysis. Using data from DZHW graduate cohort of 2009, we replicate previous studies and analyze levels of social inequality at that "new transition". We then go beyond previous work by also analyzing the occurrence of horizontal stratification – focusing on two outcomes: (a) changing from low-status to higher status fields of study and (b) changing from lower-reputed to higher-reputed places of studies.

First of all, we are able to replicate previous findings that show that there are considerable social background effects at the transition from Bachelor to Master degree. Furthermore, additional results indicate that there is social stratification beyond this vertical transition. Social inequalities are, (at least) to some extent further maintained by subtle field of study and university changes throughout students' career in higher education.

Keywords: Bachelor-Master system, Bologna-Reforms, DZHW graduate survey 2009, Germany, Social selectivity

Dr. Sonja Bastin

University of Bremen

sbastin@uni-bremen.de

Motives and Patterns of Student Employment in Germany – Social Disadvantage for Job Entrance?

Theory and Question

An increasing number of students work alongside their studies. Besides improving their economic situation students may gain supplemental human capital by performing a job while studying in order to increase later employability. However, little is known about the motives students ascribe to their current employment. Are financial aspects central or do they emphasize issues of qualification for the later job? Exploring job motivation patterns of students might give valuable insight into the selection of students into promotive versus impeding student jobs. Based on the central idea of bounded rationality I argue that students of subjects with low specificity of later occupational field as well as students with higher socioeconomic background are more likely to express motives of professional qualification.

Data, methods and results

I conduct cluster analyses as well as multinomial regression models on the base of the first scientific use file of the German Social Survey from 2012. My results identify highly distinct motivation groups. Further, I provide evidence that students of subjects of study with unspecific occupational fields as well as students with high financial protection are more likely to include motives of professional qualification into their employment reasoning. Moreover, high parental educational background further promotes qualification motives.

Conclusion and Outlook

Consequently, this study identifies student employment as a so far widely neglected potential source of disadvantage for students of lower socioeconomic background as well as for those of unspecific fields of study.

Based on these results, I further aim to use data from the National Educational Panel Study (NEPS) in order to investigate holistic trajectories of student employment. After identifying groups of employment patterns among students, I will conduct multinomial logistic regressions in order to measure post-graduate job entry prospects.

Keywords: student employment, Social Survey, job entry, social disadvantage, NEPS

Dr. Gesche Brandt & Susanne de Vogel

DZHW

g.brandt@dzhw.eu, devogel@dzhw.eu

Standardizing sequence lengths by using the relative duration of episodes

In Germany, trajectories of doctoral candidates are diverse and often consist of different stations. For example, doctoral candidates start with their PhD within a graduate school or scholarship, but later change into gainful employment inside or outside academia. Subsequently, sequences can take from a few months up to several years. The aim of our analyses is to identify patterns of doctorates, e.g. constant courses in a single institution or very complex courses in many different ones. This can help to identify typical doctoral trajectories in different subject areas, to identify problematic processes and to help optimizing doctoral conditions.

Sequence analysis is a very useful method for investigating types of patterns, including the timing of events or transitions, the duration and the order of life course episodes. However, analyses are complicated if the sequences have large gaps or different lengths. In order to make the doctoral candidates' trajectories comparable, we use an innovative method for standardizing the sequence lengths by using the relative duration of episodes. For this, the percentages of single elements are calculated on the total length.

Analyses are based on longitudinal data from the DZHW PhD panel study. This representative sample comprises around 5400 doctorate holders of all disciplines who received their degree from a German University in 2014.

First analyses show that using the relative durations of episodes can be a helpful method to compare sequences of different length.

Keywords: sequence analysis, doctorate, PhD panel Survey

Bernhard Christoph, Heiko Quast & Dr. Heike Spangenberg

IAB & DZHW

Bernhard.Christoph@iab.de, quast@dzhw.eu, spangenberg@dzhw.eu

The long arm of the family. On the role of social background and parental preferences for students' reconsideration of educational decisions

Among the most important transitions in the educational pathways of (future) academics is the decision to enter a university (or comparable institution) after finishing secondary education. Moreover, while inequalities have been decreasing at the transition to higher secondary education, access to universities is still highly selective (Lörz & Schindler 2011; Blossfeld et al. 2015), making this transition particularly important for inequality structures.

In our paper, we focus on the determinants of the decision to enter tertiary education among a very specific subgroup: those that during their final year of school have reported to have no intention to enter tertiary education but planned to pursue a vocational education instead.

In our analyses, we are interested in two questions: first, whether reconsidering will increase or decrease inequalities in university access (i.e. is it rather students from privileged families or those from non-privileged backgrounds that reconsider their original decision). Second, we are interested in the role of parental preferences for tertiary education in the course of this process

Using data from the third wave of the DZHW's 2010 School Leavers Survey (Studienberechtigtenpanel), we can show that reconsidering one's original decision is – like other educational decisions – dependent on social background: Young people from privileged families are not only more likely to take up academic studies in the first place but, moreover, have a higher probability to later on correct an original decision against academic education.

Beyond that, we can demonstrate parental preferences for academic education to play a substantive role in this process of reconsideration. Since parental preferences are usually assumed to exert an influence mainly on earlier educational decisions (e.g. Hillmert & Jacob 2003; Becker 2017), to identify such an influence of parents' wishes even so late in their children's educational biographies could not necessarily be expected.

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Jakob Schwerter & Lena Ilg

University of Tübingen

jakob.schwerter@uni-tuebingen.de

The impact of family formation on career trajectories of female STEM graduates in Germany Work in Progress

Women are not only underrepresented in STEM (sciences, technology, engineering, and mathematics) fields of higher education programmes but also continue to drop out of the 'science pipeline' after graduation and in the early years of their occupational career. And while they are desperately needed in the STEM workforce, the reasons for the female underrepresentation remain largely unknown. With this project, we aim at shedding more light on the issue and examine whether family formation contributes to the excess exit of women from STEM occupations. The first ones to do so for German graduates, we use data from the 2005 and 2009 cohort of the graduate data from the German Centre for Higher Education Research and Science Studies (DZHW). Unlike most other studies on the topic, we include STEM and non-STEM graduates in our sample to compare both the exit behavior of male and female STEM graduates and relative to all other degree fields. Using individual's self-rated job adequacy as a proxy to define whether one is having a job unrelated to his or her field of study, our Logit regressions show that female STEM graduates are indeed excessively leaving STEM occupations during the first five years of their career compared to their male counterparts and non-STEM graduates. This effect is most pronounced for Computer Science graduates and insignificant for all other STEM subfields. Childcare, on the other hand, did not prove to contribute to excess female exits from STEM occupations significantly. The findings are consistent with existing findings from the literature.

Keywords: STEM, job mismatch, gender differences, study programs, family formation

Ana Brömmelhaus

Carl von Ossietzky University Oldenburg

ana.broemmelhaus@uni-oldenburg.de

The influence of the partner on the academic success

The problem of dropout in higher education affects almost all OECD countries, albeit to varying degrees (OECD 2009). In Germany, almost 25% of students leave the university without a first degree (Heublein et al. 2017). Key areas of students' lives, such as students' partnership, have rarely been considered in this context.

The life course approach emphasizes that individual decisions take place in different contexts. It is assumed that individual decisions and individual motivation are to a large extent influenced by other reference persons (Huinink & Schröder 2008).

There are numerous findings on the significance of the partner for the profession (Blossfeld & Drobnič 2001; Solga & Rusconi 2011; Vohlídalová 2017). Analyzes for academic success are lacking, though various studies have suggested that friends and fellow students can have an impact on academic success (Johnes & McNabb 2004; Poldin et al. 2016; Pokorny et al. 2017).

The present article aims to answer the following questions:

1. What influence does the partner have on the success of the study?
2. What significance do the educational aspirations of the partner and the relationship quality have?

The analysis is based on data from the panel study LAST (Life Course Perspective and Dropout from Higher Education). The dataset was developed to analyze the importance of students' central areas of life over time. In order to approach the research question, structural equation models (n = 1364) were calculated. First results confirm the findings of other studies, according to which the motivation of the student is a key determinant of academic success (Suhlmann et al. 2018). It turns out that the learning motivation is positively influenced by the expectation of the partner. Further calculations analyze the effects of the partner in a longitudinal perspective.

Keywords: dropout, higher education, partner, academic success, structural equation model

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Nicolai Netz & Michael Grüttner

DZHW

netz@dzhw.eu, gruettnner@dzhw.eu

Does international student mobility increase social inequality? An analysis of heterogeneous income returns during the first ten years after graduation

Students from a high social origin are more likely to study abroad than students from a low social origin. At the same time, studying abroad positively influences students' intercultural competence, personality development, and labour market prospects. Therefore, social stratification research has tended to assume that international student mobility (ISM) fosters the reproduction of social inequality. This argumentation presupposes that students from different social origins profit from ISM at least to similar extents. However, this assumption has hardly been tested empirically.

Theoretically, two types of heterogeneous returns to ISM are plausible: Students from a high social origin could acquire more (valuable) skills abroad, e.g. because they complete more prestigious stays, or they could be able to better valorise the acquired cultural and symbolic capital in the labour market (cumulative advantage). Alternatively, their marginal utility of staying abroad could be lower because they already acquired solid transversal skills before their studies (compensatory levelling). While the first scenario should increase social inequality, the second one should actually reduce it.

We address the outlined research gap by examining graduates' labour income. We analyse longitudinal data from the 2005 DZHW Graduate Panel, which follows graduates from German higher education institutions up until ten years after graduation. We perform a propensity score matching (PSM) to reduce observable selection bias and calculate random effects (RE) growth curve models with imputed data to examine the role of ISM for the potential development of inequality between social origin groups over time.

Our results suggest that students from a high social origin profit more from ISM than students from a low social origin in terms of income gains. Considering that students from a high social origin are also more likely to study abroad, our results imply that ISM fosters the reproduction of social inequality.

Oliver Winkler

Martin-Luther-University Halle-Wittenberg

oliver.winkler@soziologie.uni-halle.de

Stratification and Geographic Student Mobility

Choosing higher education requires graduates from upper secondary education to make several decisions: (1) choosing higher education or vocational training, (2) where to apply, and finally (3) where to enroll after being admitted to a higher education institution (Nurnberg et al. 2012). Our contribution is concerned with the latter step in the decision-making process. In Germany, literature has pointed out that student beginners tend to choose a university that is a local one or very close to their home town (Lischka et al. 2010; Lörz 2008; Nutz 1991; Nutz 2002; Willich et al. 2011). Spatially, higher education institutions are not evenly distributed in Germany and vary in stratification (Baier & Schmitz 2012; Fritsch & Piontek 2015; Hüning et al. 2017) which makes this finding somewhat surprising. This “geographic immobility” can be interpreted in a way that reputation, unique characteristics or quality of higher education institutions are not the main concern of student beginners. Instead, importance of emotional or monetary costs of moving away for studying is much greater. However, it has been shown that the costs of studying further away are especially difficult to bear for families with fewer economic resources (Denzler & Wolter 2010; Helbig et al. 2017; Spiess & Wrohlich 2010). Since costs of mobility are connected to social inequality, it is argued that staying at home for higher education is rather a phenomenon in lower social status groups. However, literature also argues that valorization of reputation and quality of higher education institutions is also bound to social inequality: Less mobility is a feature of lower status groups because stratification of higher education is less relevant for them and therefore limits their choice further (Ball et al. 2002; Christie 2007; Holdsworth 2009; Reay et al. 2009). Accordingly, stratification within the field of higher education and its unequal importance to different status groups is expected to explain some part of the inequality of the distance. We derive two hypotheses: higher status groups, i.e. upper and middle class, academic milieu as well as high ability students, should be more mobile even after controlling for monetary and emotional costs of moving (H1). Rankings and reputation are more important to higher status groups and should explain their greater geographic mobility (H2). Using data by *Studienanfängerbefragung* 2003-2011 by DZHW, we calculated the distance between a student beginner’s home town and chosen higher education institution and used it as the dependent variable. We estimated OLS regression and KHB analysis (Kohler et al. 2011). Indeed, we find significantly greater distances for higher status groups and a significant non-linear effect of importance of rankings to choose a more distant university. However, importance of rankings mediates higher status groups’ greater geographic mobility only to a small extent. In a median regression as well as in a multi-level analysis, the results were robust. This suggests that status groups do not differ much in valuing stratification in higher education. A main implication that we discuss relates to the ongoing debate of vertical differentiation and “elite education” in German higher education: It has been argued that stratification of higher education is not only produced by

organizations but could also be driven by student beginners' choices (Krüger et al. 2012). Our findings indicate that stratification of higher education is (at most) only accentuated by these choices in Germany.

Keywords: geographic distance, vertical differentiation, rankings, reputation, social inequality

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Prof. Dr. Martin Neugebauer

Freie Universität Berlin

martin.neugebauer@fu-berlin.de

Keynote

Higher Education Dropout and Labor Market Integration: Experimental Evidence from Germany

Thousands of students worldwide leave higher education without graduating, and attempt to gain access to the labor market. It is commonly assumed that dropping out hampers an individuals' labor market integration. However, our knowledge on the causal effect of dropping out is limited, as the bulk of the literature has been unable to consider important confounders, such as individual characteristics that influence both, the dropout decision and the labor market success. Moreover, employers and their hiring decisions have received little attention, despite their pivotal role in granting access to the labor market. Furthermore, it has been rarely taken into consideration that dropouts compete against different competitors, depending on the type of position they apply for.

In this talk, I present findings from a research project which attempts to address these shortcomings. In Germany, higher education dropouts typically apply for either a) apprenticeship positions which are typically sought-after by high school graduates; or b) positions for persons with completed vocational qualification ('Facharbeiter'); or c) positions for higher education graduates. Against this background, I aim to answer the following research questions: First, what are the causal effects of a dropout on the hiring prospects for all three types of positions? Second, which mechanisms explain the different hiring prospects of persons with and without dropout? Third, which factors facilitate labor market entry for dropouts? Theoretically, I draw on human capital theory, signaling theory, and credentialism to derive hypotheses on the hiring preferences of employers. Empirically, I show findings from a series of factorial survey experiments we conducted with random samples of employers who advertised job postings in 2018. These employers rated several résumés (i.e. vignettes) of hypothetical job applicants who were competing for the same position but differed with respect to the characteristics reported on their résumés. Beyond the main criteria of higher education dropout, we experimentally varied a range of dimensions that typically affect hiring decisions, such as high school GPA, or job-relevant skills acquired during an internship.

The results of these experiments provide evidence on the consequences of a university dropout in relation to typical reference groups with more linear educational trajectories. The findings can help to inform students and career counselling, because they provide indications such as how to optimize labor market entries in case of an imminent university dropout. On a more general take, this project demonstrates how experimental studies can complement the DZHW data infrastructure, to help answer open questions in higher education research.

Marita McGrory

Europa-Universität Flensburg
marita.mcgrory@uni-flensburg.de

What are the international students' success rates in Germany's Institutes of Higher Education? How do international students compare to German students in Economics and Business Studies, Mechanical Engineering and Architecture (under)-graduate degrees?

International student success is a global theme, and with the increasing pressure on students and higher education institutions to accomplish an international portfolio, internationalization remains a concept with varying effects on HEIs and students. Although this development is encouraged and shaped by national policies, the diversity that international students bring to the HEI is also influenced by intergovernmental policies such as the Bologna Process (Hackl 2001). The impact of such policies goes beyond exchange programmes and is considered as a positive attribute to the HEI's portfolio (Rienties et al 2012). The increasing demand on students to succeed and experience internationalization, gives cause for this work to analyse what the international student success rates are in Germany's HEIs.

Focussing mainly on degrees in economics, mechanical engineering, and architecture, this work defines three different groups of students: German students with German HEI-entrance qualification, 2) non-native Germans with German HEI-entrance qualification, and 3) international students with international HEI-entrance qualification. Both migration systems theory (Mabogunje 1970) and Tinto's (2012) theories of integration are applied to gain a better understanding of international students and their success rates.

The pertinence of student success in Germany has encouraged the German Ministry for Education to support this analysis with restricted data. The databank contains the federal data of all student registrations in Germany from 1995-2015, and all student final exams from 1996-2015, and the employee data from 1998-2015. Using a multivariate cohort analysis, the results are based on full-time students with their first-time registration in the respective degree courses. Further factors such as the type of HEI (University/ Technical University/ Universities of Applied Sciences), and state and private HEIs are included in the analyses. The duration of the study time and the final examination results are included in defining different levels of student success.

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Michael Grüttner, Stefanie Schröder & Jana Berg

DZHW

gruettner@dzhw.eu, st.schroeder@dzhw.eu, berg@dzhw.eu

Intention to drop-out of study preparation and subjective probability of success of international students with and without refugee background

We will present research on student success of international students with a background of forced migration as well as their fellow international students that take part in preparatory courses at German higher education institutions and “Studienkollegs” (preparatory colleges). Our study is the first to investigate the success of study preparation for prospective refugee students in Germany and in comparison with other international students.

We seek to go beyond established models of student attrition and student success by integrating specific aspects to develop a more target group oriented perspective. Among these aspects are biographical disruptions as well as biographical resources, the subjective security of residence, as well as different modes of integration and belonging. We further investigate classical factors like social and academic integration, motivation and the level of course composition. Our dependent variables are the intention to drop-out on a five point scale as well as the subjective probability to succeed in the final exam of the preparatory courses (the so-called “Feststellungsprüfung” or German language test C1) on a seven point scale.

We present data from seminar room paper and pencil interviews at “Studienkollegs” and higher education institutions in Germany. We collect the data within the DZHW project “Wege von Geflüchteten an deutsche Hochschulen – WeGe” (“Refugees' pathways to German higher education institutions”). Our presentation will be based on the first wave of a panel study to investigate the transitions from preparatory courses to regular university studies. We will describe drop-out intentions and subjective probabilities to succeed in different groups of international students, respective those with and without a background of forced migration. We model drop-out intentions and subjective probabilities to succeed within a structural equation model framework.

The collection of data will be finished in winter semester 2018/2019 and exclusive results will be presented at the fdz.DZHW User Conference.

Keywords: international students, refugee background, student attrition, study preparation, student success

David Glauser, Christoph Zangger & Rolf Becker

University of Bern, Institute of Educational Science

david.glauser@edu.unibe.ch

Should I Stay or Should I Go? Income disparities by university degree in Switzerland

Using repeated panel data of graduates from all Swiss universities in the period 2004-2014, the main objective of the study relates to income inequalities after a tertiary degree. Within the context of the implementation of a two tier system as part of the Bologna reform, we are particularly interested in income inequalities between graduates holding different diploma (BA, MA, PhD). Since improving employability was one of the main goals of Bologna, our contribution aims to answer the question whether and in which cases diploma of specific fields of study already pay off at BA level when entering the labour market and how incomes – given the tertiary degree level, field of study and further training – evolve within the first five years after graduation.

With reference to human capital theory, signalling theory, and the labour queue model, we expect on the one hand an effect of vertical stratification, i.e. more schooling increases monetary returns, and on the other hand an effect of horizontal stratification, i.e. returns are related to the field of study and the university attended. Due to existing institutional norms, it is to be assumed that employability with a BA depends strongly on the chosen field of study. On the other hand, we expect that the introduction of the BA and MA diploma has influenced the recruitment behaviour of employers and that companies have created jobs for which no MA is required.

With this contribution we would like to extend our analyses on status attainment after a university degree (Glauser, Zangger, and Becker 2019) by the aspect of monetary returns. Accordingly, the empirical analyses are based on panel data of the Swiss Graduate Survey (Erhebung bei den Hochschulabsolventinnen und Hochschulabsolventen, EHA). We use OLS regression and the Heckman correction to account for sample selection.

Keywords: returns to education, income perspectives, employability, panel data

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Federico Biagi, Zsuzsa Blasko, Jonatan Castano-Munoz, Mabel Sanchez-Barrioluengo & Sylke Schnepf

European Commission. Joint Research Centre. Unit of Human Capital and Employment

federico.biagi@ec.europa.eu, zsuzsa.blasko@ec.europa.eu, jonatan.castano-munoz@ec.europa.eu, mabel.sanchez-barrioluengo@ec.europa.eu, sylke.schnepf@ec.europa.eu

Role of universities shaping graduates' labour market outcomes

The literature has accumulated substantial evidence on the benefits of greater educational attainment for subsequent labor market opportunities including better jobs and higher earnings, but empirical evidence on the role played by institutional quality is scarce (Singh Bedi and Edwards 2001), particularly at university level. At lower levels of education, several works have examined the impact of school quality on earnings for developed countries (mainly the United States), providing very mixed evidence. However, most of the literature on the impact of quality looks at effects on intermediate outcomes, like test-scores, grade repetition or teaching-student ratio. On the other hand, some studies (Brunello and Checchi, 2014) suggest that higher school quality has a positive impact on educational attainment and returns to education, especially for the individuals born in regions and cohorts with poorer family background. In fact, better school quality is interpreted as a technical substitute to parental education in the production of individual human capital.

At tertiary level, we know yet very little about the relationship of university characteristics, mainly teaching and research activities, on the probability of graduates finding jobs (Ciriaci and Muscio, 2011). As an exception, the work done by Ciriaci and Muscio (2014) analyzes the determinants of the probability to find a job one-year and three-years after graduation, confirming that attending universities with good research performance raises the probability of finding work after graduation.

Combining data from graduate surveys of different EU countries (IT, HU, UK and DE) with the information from the European Tertiary Education Register (ETER), our analysis will focus on the relationship between employment outcomes of recent graduates and the characteristics of the university they have attended in relation to their teaching and research activities.

Preliminary results suggest that both teaching and research activities of the university are related to labour market outcomes of graduates, in particular research excellent institutions with high reputation increase the probability of employment three-years after graduation and are also positively associated with better occupations and higher salary of the graduates. In addition, university characteristics exert a moderator role in the relationship between socioeconomic background of the graduates and their labour market opportunities.

Keywords: employment outcomes, graduates, tertiary education, university quality, social mobility

Anna Löhle

GESIS

Anna.Loehle@gesis.org

Gender-related determinants and timing of leaving science

The system of higher education educates an oversupply of scientists. Not all of the PhD graduates can and want to become a professor – nearly the only way to work on a permanent contract in German science and academia. Consequently, the questions are: Who are these junior scientists who drop out of scientific careers? Why and when do they leave? Especially women drop out disproportionately high. Do they leave science for the same reasons as men or is there anything about science at the stage of postdoctoral employment that opposes women?

The life course perspective (Elder et al. 2003) frames the theoretical approach: different spheres of life are interdependent. Past and current events and experiences of the occupational, educational and family context affect each other. Furthermore, Bourdieu's (1982, 1998) concept of the scientific field captures the peculiarity of science as an employment sector. The social-cognitive career theory (Lent et al. 1994) complements the distinctive feature of motivation in scientific careers.

To answer the questions of leaving science, I am using the data of the Careers of PhD Holders survey. It is a panel of PhD graduates, who completed their doctoral degree in Germany in 2014. By using cluster analysis, different types of drop-outs are identified, focusing on communalities and differences between women and men. Event history analysis enables to implement leaving science as a time-dependent process. This method allows analyzing the questions of when and why do junior scientists leave science in consideration of the life course perspective.

First findings will be shown and especially address gender differences and the drop-out of women.

Keywords: academic career; leaving science; postdocs; gender

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Jasmin Meyer, Prof. Dr. Susanne Strauss & Prof. Dr. Kathrin Leuze

University of Konstanz & University of Jena

jasmin.meyer@uni-konstanz.de, susanne.strauss@uni-konstanz.de, kathrin-leuze@uni-jena.de

Performance, occupational interests or social environment? What causes women and men to change their subject in higher education?

Since choosing a particular subject in higher education has long-lasting consequences, either in terms of study success or as regards labour market rewards, the determinants of fields of study choice have been studied widely. In contrast, factors affecting subject changes after enrolling in higher education are so far an under-explored issue, both in Germany and in other industrialized countries.

In this paper, we therefore analyse the causes of subject changes in German higher education. Building on literature on fields of study choices and higher education dropout, we more specifically investigate whether bad performance, failure to realise one's occupational interests or influences stemming from the social environment, such as parental and peer expectations or social integration, affect subject changes. We derive our hypotheses from an extended rational choice framework, which takes into account the expected costs, benefits and probabilities of success related to the subject currently enrolled in. Moreover, since previous literature on subject choices pointed at strong gender differences, we discuss possible differences between men and women.

Our empirical analysis applies logistic regression models to the first eleven waves of Starting Cohort 5 of the National Educational Panel Study (NEPS). To take gender-differentiated effects into account, we also estimate separate models for men and women.

Preliminary findings indicate that below-average grades and a poor subjective satisfaction with grades increase the probability of subject changes, especially for women. The same applies to a poor realization of occupational interests and a bad social integration with fellow students, while parental and peer expectations can prevent from a subject change. For both, men and women, the probability of subject change decreases when parents and peers evaluate the chosen field of study positively.

Keywords: Change of subject; occupational interests; poor grades; social integration; gender

Dr. Malte Sandner & Ipek Yükselen

Institute for Employment Research, IAB

Malte.Sandner@iab.de, Ipek.Yuekselen@iab.de

The Early Career Gender Wage Gap among University Graduates

Previous research on the sources of the gender wage gap has shown that differences in human capital endowment explain the current gap less than in the past, while factors, such as occupational segregation, field of study, or personality traits, remain important. However, the magnitudes of the remaining sources are not well understood yet. Additionally, little is known about when the gap emerges and whether it exists at the onset of careers when human capital levels between gender groups within a field of study are similar.

This paper analyzes the sources of the gender wage gap among university graduates at labor market entry and over several years after entering the labor market using data of graduates from a German University linked with administrative employment records. The linked dataset includes information on pre-graduation characteristics such as working during study, final grades, field of study and post-graduation characteristics such as occupation, industry and other firm characteristics. The data allow us to investigate the gender wage gap at the first job after graduation and the contribution of pre- and post- graduation characteristics. Furthermore, we can account for characteristics that prior studies miss, such as working experience accumulation before graduation, job changes, as well as the time between graduation and the first job. With this approach and a novel dataset, we attempt to fill the remaining blind spots in the literature.

We present evidence for a significant gender wage gap at labor market entry. However, estimations within different cohort groups reveal that conditional gender wage differences are eliminated for the recent cohort group. The most important contributors to the gender wage gap are occupation, industry and the share of women in an establishment. For the last cohort group, occupation is the most significant contributor. Finally, the gender wage gap increases over time after starting the first job.

Keywords: Gender wage gap; University graduates; Decomposition; Germany

3 Posters

Martin Biewen & Jakob Schwerter

University of Tübingen

jakob.schwerter@uni-tuebingen.de

Does More Math in High School Increase the Share of Female STEM Graduates?

It is well-known that females are underrepresented in STEM (sciences, technology, engineering, and mathematics) subjects in many countries around the world. How to increase the number of female STEM graduates and STEM workers is a hotly debated question both in academic literature and public debate. In this paper, we analyze the question of whether forcing females to take more math in high school has long-term consequences for subject choice at university and subsequent labor market outcomes. To this end, we exploit a natural experiment which introduced mandatory advanced math classes for high school students in one of the German federal states in 2004. We further differentiate between, among others, STEM and PTEM, whereby in PTEM we only include physics, technology, engineering and maths (i.e., we exclude chemistry, biology, and geosciences). The mandatory advanced math classes consist of four to five hours math a week at a more advanced level compared to only two to three hours at a more fundamental level for students who did not specialize in math in the previous regime. The change towards mandatory advanced math classes affected especially females who were less likely to specialize in math under the previous regime. Our study uses a difference-in-differences design based on graduate data from the German Centre for Higher Education Research and Science Studies (DZHW). Our dataset contains rich information on individual and family background characteristics, and courses attended at a university as well as labor market outcomes after graduation. Regression results suggest heterogenous effects within STEM.

Keywords: STEM, study programs, occupational choice, gender differences, high school curriculum, education reform

Prof. Dr. Klaus Birkelbach

University of Duisburg-Essen

klaus.birkelbach@uni-due.de

Experiences from 50 Years of the Cologne High School Panel CHiSP: 1969/70, 1985, 1996/97, 2010, 2019 – from age 15 to age 65)

We will present experiences and results from a longitudinal study of former German high-school students (“Gymnasiasten”) who have been interviewed five times between ages 15 and 65 and discuss strategies used to reduce panel mortality.

In 1969 at the age of 15 n=3240 10th grade high-school students from North Rhine-Westphalia have been interviewed on their social origin, school attainment and scholastic plans. In three follow-ups 1985 (age 30, n=1987), 1996/97 (age 43, n=1596) and 2010 (age 56, n=1301) this cohort has been resurveyed about their educational, occupational and private life courses retrospectively together with questions concerning biographical, political and religious attitudes so far, and their future life plans. April 2019 the fieldwork of the fourth resurvey – the former students of the CHiSP are now about age 65 and reached the threshold to retirement – will be finished.

As a panel, covering the entire educational and occupational career, the CHiSP allows insights into the mechanisms of the life course of a cohort of educationally privileged former students grown up during the educational expansion in Germany.

Whereas the fieldwork of the first follow-up was done as personal interviews by a professional institute, the follow-ups have been carried out in the CATI-Lab of the University of Cologne. It turned out to be very advantageous to hold everything from address localization over designing and programming of the questionnaire up to accomplishment of the interviews in the own CATI-Lab together in the hands of the project group. The presentation will give an overview over the data material of the CHiSP and discusses panel attrition based on information from previous waves.

Keywords: life course, panel study, panel attrition, retirement, educational and occupational career

Kolja Briedis, Uwe Ruß, Susanne Redeke, Andreas Sarcletti & Ulrike Schwabe

DZHW

briedis@dzhw.eu, russ@dzhw.eu, redeke@dzhw.eu, sarcletti@dzhw.eu, schwabe@dzhw.eu

The German National Academics' Panel Study (Nacaps) – a longitudinal survey observing early researcher's careers and life courses

Nacaps is a new survey project in Germany, that aims to generate (i) nationwide representative cross-sectional data on the situation of early researchers on the one hand and (ii) longitudinal data on individual careers of doctoral candidates and doctorate holders on the other hand. The purpose of this project is to answer a various number of (scientific and political) questions addressing the interplay of individual and institutional determinants of early researcher's professional development. This includes different stages: the recruitment and selection process, training conditions during the PhD, and scientific outcomes as well as the attained status and positions after the PhD. More precise, these are questions

- on conditions of the qualification process and young researcher's support,
- on the relationship of scientific outputs (and outcomes) and different institutional settings,
- on selection and self-selection processes in different career stages,
- on the professional development and young researcher's career perspectives.

With this approach, Nacaps is able to identify individual and contextual determinants of academic careers in the academic sector as well as in other fields (like R&D) from a life-course and causal perspective.

The surveys are administered online, and the first wave – starting with doctoral candidates – has been recently taken place in February 2019. It is planned to survey participants until 15 years after obtaining their doctorate in order to have evidence on the long-term careers especially in the academic sector and on the factors that influence the transition to a professorial position. The collected data will be made available for the scientific community.

In this contribution the research questions, the design, and the main contents of the study will be presented.

Keywords: academic careers, doctoral candidates and doctorate holders, DZHW, Nacaps, panel study

Johann Carstensen

DZHW

carstensen@dzhw.eu

The “Student Life Cycle Project” – A New Panel Study for Research on Higher Education

The poster introduces a process to integrate two formerly distinct panel studies. The Student Life Cycle of the German Center for Higher Education Research and Science Studies (DZHW) is aiming to provide individual data about the transition to higher education, educational careers, the transition to and establishment of graduate employment as well as alternative work modes (such as family work) in the approx. 9 to 10 years after graduation. The project has two main objectives:

- The linkage and coordination of the large quantitative Panel Studies “DZHW Panel Study of School Leavers with a Higher Education Entrance Qualification” and the “DZHW Graduate Panel”
- The generation of panel data over longer observation periods.

The integration of the DZHW panel studies and the long-term observation of individuals provide several improvements for the analysis of the student life cycle. Educational careers can be examined more extensively in their chronological and sequential structure as well as in their embeddedness in the life course. The interactions of educational careers with other living areas, also taking into account socio-demographic characteristics, offer analyses that go far beyond the possibilities of official statistics. In addition, determinants of switching habits between tertiary education and alternative activities as well as their effects on employment opportunities and non-monetary returns on education can be taken into account.

Against this background, the SLC project has two main goals: on the one hand, the long-standing and proven surveys are to be continued in order to gather data for education monitoring and not to lose valuable time series. On the other hand, by harmonizing and integrating the panel studies, new analytical potential is to be identified by observing long time periods with a uniform modularized panel survey. By that, new comparative groups are implicitly made available (e.g. for a comparison of graduates with persons without a university degree).

The poster gives insights in the challenges which occur when integrating existing panel surveys, making use of a design with multiple cohorts and sequences. It addresses problems of sampling procedures as well as the harmonization of survey contents given the need of preserving long-lasting time series demanded by education policy. In addition it introduces a new source of data for research in higher education.

Keywords: academic interest; performance; cooperative education; academic major

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Dr. Dieter Dohmen, Dr. Maren Thomsen, Galiya Yelubayeva

FiBS – Research Institute for the Economics of Education and Social Affairs

d.dohmen@fibs.eu, m.thomsen@fibs.eu, g.yelubayeva@fibs.eu

Exploration of student expenditures and income in Germany

As many studies indicate financial stress is a major distractor for study success. For their income, particularly students from lower socio-economic backgrounds often depend on financial support from the government. In the light of equal chances and inclusion, it is not only important to provide governmental financial support to these students, but to make sure that the support is sufficient to cover their basic expenditures. To supply students with a sufficient amount of financial support, average expenditures need to be considered. As the current expenditures of students in Germany are not fully explored, this study aims to provide more insights into the heights and development of average student expenditures. This might, for example, give important input for the determination of an appropriate heights of student's financial support (BAföG). Based on DZHW data (the 20th and 21st Sozialerhebung) the heights and development of German student's expenditures, across students with different demographic and personal characteristics, such as age, housing and family status were calculated using SPSS. The results indicate that student's expenditures have increased on average by 3,5% between 2012 and 2016, for students belonging to the lowest group of income, the expenditures increased on average by almost 24%. In 2016 the average expenditure of students living in Germany was 867 Euro. However, not all types of expenditure have increased. The highest rise showed the costs for housing, transportation and health. When looking at different groups of students great differences in expenditures can be noticed. In 2016, the highest costs had single parents (1756 Euro) and the lowest costs students without a job (625 Euro). When looking, for example, at the type of housing, the costs of students living in a dormitory were about 23% lower than the costs of students living alone. Furthermore, expenditures significantly increased by age of students.

Keywords: Student's expenditures, student's income, student's financial support

Daniel Erdsiek

ZEW Mannheim

erdsiek@zew.de

Dynamics of Overqualification: Evidence from the Early Career of Graduates

This study analyses the persistence and true state dependence of overqualification, i.e. a mismatch between workers' qualifications and their jobs' educational requirements. Employing individual-level panel data for Germany, I find that overqualification is highly persistent among tertiary graduates over the first ten years of their career cycle. Accounting for unobserved heterogeneity, results from dynamic random-effects probit models suggest that only a small share of the observed persistence can be attributed to a true state dependence effect. Unobserved factors are found to be the main driver of the high persistence of overqualification. In particular, selection into initial overqualification at the start of the career is of high importance. Furthermore, overqualification persistence is shown to be partly attributable to observed heterogeneity in terms of ability and study characteristics.

Keywords: resource allocation, overqualification, state dependence, dynamic random effects probit.

Christian Friedrich, Sebastian Lang & Ulrike Schwabe

DZHW

friedrich@dzhw.eu, lang@dzhw.eu, schwabe@dzhw.eu

Graduates' Labour Market Success in Germany: Does University's Excellence Status Make a Difference?

Since the last two decades, the German higher education system is characterized by two big, ongoing developments: (i) huge educational expansion and (ii) different political reforms concurrently taking place. Besides the Bologna process, one of the most controversially discussed reforms is the German excellence initiative instigated by the Federal Ministry of Education and Research (2005/2006). As a result, it fosters competition and vertical stratification among German universities. To the best of our knowledge, no empirical study exists until now that analyses the consequences for higher education graduates and their returns to education.

Therefore, this contribution investigates into the question, whether a university's excellence status affects individual labour market success. And, presuming this excellence premium exists: Why is this the case? On the one hand, one can assume that a university's excellence status now functions as an important additional labour market signal that pays off. In this case we would be able to identify a direct (presumably causal) effect of the excellence status. On the other hand, one can assume that there is no signalling effect of being excellent, because "quality" or "prestige" differences among universities have been known already before. In the latter case, excellence status would just be a manifestation of already existing differences.

To test our hypotheses, we use two recent DZHW graduate surveys: the cohorts 2005 and 2009. The first cohort had studied and entered the labour market before the first round of the excellence initiative has been started, the second cohort after. In a first step, we apply a difference-in-differences (DiD) estimation strategy to estimate the effect of a university's excellence status. In a second step, we apply propensity score matching (PSM) in order to deal with the problem of potential self-selection of students into more or less prestigious universities, as the excellence initiative could have increased an already existing ability selection.

Keywords: DZHW graduate surveys, Excellence initiative, Germany, Labour market success, Vertical stratification

Tina Haußen & Silke Uebelmesser

University of Jena

tina.haussen@uni-jena.de, silke.uebelmesser@uni-jena.de

Determinants of interregional graduate migration over job changes

In recent decades, regional policy makers have become increasingly aware of the importance of highly skilled workers, such as university graduates, as drivers of regional economic growth (Faggian et al. 2017). However, university graduates are not only highly educated, they are also more mobile and change jobs more often than other skill groups (DaVanzo 1978). Only if it is known why graduates leave a region can policy makers develop measures and provide targeted incentives to retain graduates in the region or to attract graduates from other regions. In the present paper we therefore aim at analyzing the determinants of graduates to out-migrate from a region in Germany. Additionally, we empirically estimate how the relevance of these determinants varies over job changes. The panel data we are using is coming from the German Centre for Research on Higher Education and Science Studies (DZHW; Grotheer et al. 2012) and covers students who graduated from higher education institutions in Germany in the academic year 2004–05. To address possible selection and endogeneity problems, we use Heckman and fixed-effects estimations. Our preliminary findings indicate that graduates are highly mobile even at later job changes. Whereas previous migration experience remains a strong determinant of out-migration from a region, the importance of regional characteristics decreases.

Keywords: graduates, highly-skilled, interregional migration, fixed-effects estimation

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Silvia Kopecny & Steffen Hillmert

Bavarian State Institute for Higher Education Research and Planning & University of
Tuebingen

kopecny@ihf.bayern.de, steffen.hillmert@uni-tuebingen.de

Financial returns to tertiary education: Are there differences by institution?

In the last decades, income differences within the group of higher education graduates have gained more attention within the research community, in politics and society. In Germany, the impact of course of study (e.g. Leuze & Strauß 2009), type of tertiary degree (e.g. Müller & Reimer 2015) and type of university (Fabian et al. 2016) on financial returns on the labour market are already known, but little attention has been drawn to differences between graduates of specific institutions. However, as the proportion of a cohort acquiring a tertiary degree increases further characteristics gain relevance for labour market success and increasing competition in the higher educational system shifts the attention to specific institutions. Therefore, we want to examine whether there are different financial returns for graduates of different institutions and how these differences have changed over time.

We assume that differences in the quality of study, support ratio, financial resources and reputation between institutions promote differences in the financial returns of their graduates through a) affecting the acquisition of human capital (Becker 1993), b) signalling effects to the employer (Spence 1973) or c) encouraging processes of social closure (Weeden & Grusky 2014) and we expect an increase in differences over time as the result of particular institutions gaining more relevance.

As initial analyses using the *Bavarian Graduate Panel* (Falk et al. 2007), we applied variance component models on the gross hourly wage, looking at the intraclass correlation. This measurement can be interpreted as the proportion of variance between institutions with respect to variance within. First findings show that even after controlling for some selection and compositional characteristics there are differences between graduates of different institutions which are relatively small but increase over time as expected.

Keywords: Returns to education · Institutional characteristics · Hierarchical model

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Sandra Majer & Prof. Dr. Susanne Strauss

Department of History, Sociology, Empirical Educational Research and Sport Science,
University of Konstanz

Sandra.Majer@uni-konstanz.de, Susanne.Strauss@uni-konstanz.de

How learning environments impact on first- and second-generation students' drop-out intentions

While the majority of drop-out research has focused on individual-level mechanisms (Tinto, 1993; Robbins et al, 2004; Brandstätter et al. 2006; Davidson & Wilson, 2013), recent research has pointed out that individual-level factors do not have a universal effect on academic success but interact with learning environments (Bohdick et al., 2018; Etzel & Nagy, 2016; Pawlowska et al., 2014). While research has argued that certain personality characteristics, such as neurotism, increase students' drop-out risks, this effect seems to be mediated by learning environments which are either favorable or unfavorable for certain types of students (Pawlowska et al, 2014). Previous research has also shown that first generation students generally face greater problems with succeeding in higher education (Bargel & Bargel, 2010; Heublein et al., 2017). This has been theoretically framed with Bourdieu's habitus concept (1982, 1987) who argues that first-generation students have greater problems with adapting to the higher education learning environment. While this argumentation conceptualizes the higher education learning environment as universal, other research has however shown that higher education learning environments vary in important dimensions. The most comprehensive measurement has been suggested by the so-called SSCO model (Schaeper & Weiß 2016) which captures central dimensions of the process quality of higher education, namely structure, support, challenge and orientation. The assumption of our paper is that first- and second-generation students' difficulties in the higher education system – operationalized by their drop-out intentions – vary by these dimensions of the learning environment. To address this question, we use data from the Konstanz student survey (KSS), a representative survey of higher education students in 28 institutions of higher education in Germany. We estimate logistic regression models explaining students' drop-out intentions with the interaction between their status as first- or second-generation student and different dimensions of the learning environment, as captured by the SSCO model. To account for the hierarchical structure of the data, we use multilevel models, nesting students in degree programs.

Keywords: learning environment, first-generation students, dropout, person-environment fit

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Dr. Steffen Wild

Baden-Wuerttemberg Cooperative State University Ravensburg

wild@dhbw-ravensburg.de

Academic interest and performance in cooperative education: a longitudinal study in three different academic majors

How does an individual develop interest in (higher) education? What relationship exists between interest and performance? Which dynamic transforms an interesting interaction into an individual interest?

Over the last 25 years, research on interest has developed into an important topic, e.g. in educational psychology (Krapp, 1992, 2018; Hidi, & Renninger, 2006; Schiefele, 1996). Ferdinand (2014) summarizes, that the development of and effect from interest is still pending. Renninger and Su (2012) also conclude that research on interest development is still in its infancy. Even the science council (Wissenschaftsrat, 2015) emphasizes the importance of interest and its impact on teaching at universities. Krapp (2018) postulates complex research designs in this academic field and reports on the differences in various academic majors.

A current interest group are students in cooperative education in Germany, as the number of students in this type of education has increased by over 100.000 in 2016 (Hofmann, & König, 2017). Based on Person-Object-Theory (Krapp, & Prenzel, 1992) and the model of motivation from Heckhausen and Rheinberg (1980), the causal effect of performance on academic interest and vice versa was analyzed.

Undergraduate students at the Baden-Wuerttemberg Cooperative State University were interviewed ($N = 406$; 237 economy, 119 engineering and 50 social work), using a three-wave panel design (Deuer et al., 2017). The research drew on GPA (grade point average) provided by the university administration to measure performance and a Study Interest Questionnaire (SIQ) with nine items (Cronbach's alpha = .88–.90), from Schiefele et al. (1993), for measuring academic interest.

Path analysis showed cross-lagged effects on the three academic majors in focus. The effects in the three estimated models of each path are different; so generalizing the results is difficult. The research results were nonetheless analyzed, in terms of their impact on the framework of cooperative education.

Keywords: academic interest; performance; cooperative education; academic major

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