

A blurred photograph of a hallway with people walking, creating a sense of motion and activity. The colors are soft and out of focus, with a mix of blues, greys, and warm tones from the lighting.

NEPS

National Educational Panel Study

BOOK OF ABSTRACTS

2nd International NEPS Conference

October 5–6, 2017

Leibniz Institute for Educational Trajectories (LifBi)

Wilhelmsplatz 3, 96047 Bamberg, Germany

Does gender matter? The interrelatedness of gender stereotypes and educational outcomes

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Gender stereotypes are defined as socially shared beliefs about which characteristics men and women have or should have. Among other things, gender stereotypes suggest that school subject domains are differentially associated to female and male persons. However, the various ways in which children acquire gender stereotypes have not yet been fully identified. One important mechanism of transmission are significant others, such as parents, peers or school teachers. In this keynote I will start with theoretical considerations of the development of gender stereotypes, and I will highlight the effect of gender stereotypes on the educational development of girls and boys in school. Furthermore, I will illustrate some findings on the impact of teachers and the school context on student's educational outcomes. Based on these findings, I will also address some fundamental issues on the persistence of gender stereotypes in student's academic trajectories.

Cobbler, stick to your last? Educational assortative mating and remarriage of women in Germany

Gwendolin Blossfeld (University of Bamberg)

Research has mainly analyzed women's educational assortative mating with regard to their entry into first marriage. An analysis of the effect of the educational match of a first marriage on women's mate selection with regard to remarriage is clearly missing. It is well-known that homogamy in mate choice organizes people in families and determines the characteristics of parents and, thus, has an effect on social inequality. The following consequences can be distinguished as a result of homogamy in couple relationships: (1) social and economic inequality within a generation, (2) social and economic inequality between generations, (3) long-term population changes, and (4) relationship quality and its effect on divorce. This contribution focusses on the social and economic inequality within a generation that can occur as a result of the accumulation of disadvantages/advantages over the life course.

Using life course data from the German National Educational Panel Study (NEPS), we study women's entry into a second marriage by educational match as competing risks with event history models. Based on the NEPS data set, we use information on the education of the ex-spouses at the beginning of first marriage and the spouses at the beginning of women's second marriage. For each partner, we distinguish four educational attainment levels. Based on these four hierarchical levels, we define the following three destination states for women's remarriage: (1) 'Non-Traditional Marriage' for women who married/marry a less educated partner (downward marriage), (2) 'Homogamous Marriage' for women who married/marry a partner with the same level of education, and (3) 'Traditional Marriage' for women who married/marry a more educated partner (upward marriage).

Delayed Educational Decisions of Young Low Qualified Individuals from a Life Course Perspective

Alexander Patzina (Institute for Employment Research, Nuremberg)

Sara Kretschmer (University of Bamberg)

Hans Dietrich (Institute for Employment Research, Nuremberg)

In contrast to previous studies investigating delayed educational decisions within the educational system our study aims at understanding determinants driving educational decisions between ages 25 to 34. We focus on low qualified individuals (i.e., medium general education and no vocational degree) in Germany because chances and risks in the German labor market are structured along vocational credentials. In addition little "within-group" research examines low qualified individuals, although the low-qualified constitute a significant group in the population aged 25 to 34 (around 1.3 million individuals). To analyze delayed educational decisions the paper applies a life course perspective. Thus, we assume that life course events (e.g., failing in the educational system, migration, birth of child) and trajectories (e.g., labor market experience) have an impact on educational decisions later in life. Furthermore, life course theories and rational choice action theories suggest inequality in educational decisions by social origin and status attainment motives. To answer our research questions we draw on NEPS-SC6 data (version 7-0-0). In our retrospective data set we identify 842 low qualified individuals who have no vocational degree and are not in training at age 25. Our results from logistic regressions indicate that high origin and status attainment (approximated by a variable indicating a lower educational level at age 25 compared to the parental level), as well as migration to Germany after the "typical" schooling age, increase the

chance of delayed educational investments. In contrast, the birth of a child and unemployment experience decrease the propensity to invest in education later in life. Educational events during general schooling do not influence educational decisions. Our results show the cumulative effect of social origin and the importance of life course events for delayed educational decisions. Furthermore, they reveal unused potentials within the population of young adults for further qualification.

Do verbal assessments in school reports change educational opportunity?

Merlin Penny (Freie Universität Berlin)

This paper estimates the effect of replacing grades in primary school reports by verbal assessments on educational opportunity. The data comes from the NEPS as well as from law gazettes of federal states since 1950. A differences-in-differences strategy is employed to achieve identification and compare outcomes of federal states and periods with grades before and after the third class. The results do not suggest that the reform affected educational opportunity. This could be due to the fact that verbal reports were still standardized to a large extent and other characteristics played a more important role for selection.

Wage inequalities between women and men in Germany – How relevant are gender-typical job tasks and the technological change for understanding the gender pay gap?

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Anna-Erika Häggglund (Leibniz Universität Hannover)

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Compared to men, women still earn considerably less. One explanation for the gender wage gap is the sex segregation of occupations, as research has shown that female-dominated occupations are associated with lower wage levels. However, it is still far from clear how this relationship has evolved over time. We analyse changes in the gender wage gap over the last three decades by considering occupational tasks and focusing on two mechanisms: On the one hand, task profiles that are typically considered female might be subject to devaluation. On the other hand, technological changes in the labour market might have contributed to lowering the gender wage gap. We test these assumptions by using a new data set on regular employees in Germany that combines retrospective employment histories with administrative wage data (NEPS-SC6-ADIAB), enriched with occupational-level panel data. Empirically, we use OLS and decomposition methods to disentangle the influence of gender-typed occupational tasks and tasks which have changed in the course of skill-biased technological change. Preliminary results show that gender differences in the usage of tasks can hardly explain the gender wage gap or its trend over time. However, without them the gender wage would have even been larger.

Data editing and multiple imputation to prepare the investigation of different pathways to occupational success

Benjamin Schimke (University Wuppertal)

Labor market outcomes for individuals with the same (standardized) educational certificates but different educational pathways might differ between direct and alternative ways (1). Analyzing this assumption is prerequisite in many different ways. The analyst needs information on labor market output (dependent variable), which will be the International Socio-Economic Index of Occupational Status (ISEI) (2). Furthermore, data on individual's educational pathways, their performance while accomplishing certificates and measurements of individual competencies to control for usually unobserved heterogeneity associated with individual productivity capabilities is needed. Data of the National Educational Panel Study (NEPS, starting cohort adults) allows to control for these attributes (3).

Unfortunately, some of the required variables, e.g. final grades and competencies, exhibit high proportions of missing values (up to 50%) due to item non-response and the survey design. First analyses have shown that the missing mechanism is not missing completely at random, but at least missing at random, which means the missing values are dependent on values of other observed variables (4). For example, non-responses to final grades are more likely when the interviewer is male, longer than two years employed as an infas interviewer or when the paid participation incentive is 50 euros (under control of many other sociodemographic variables of the respondents). Therefore, multiple imputation (MI) is an advisable strategy to make use of all individuals with observations on the ISEI.

The focus of this paper presentation is to show the steps preceding the final analyses models of different pathways and possibly different occupational success. Data preparation, editing strategies and multiple imputation models to impute missing values in grades and individual competencies, such as mathematical or linguistic competences, is presented because user-friendly documentations of MI procedures with complex data sets (as the NEPS) is rare and an important issue to many research questions.

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- (3) Blossfeld, H.-P., Rosbach, H.-G., & von Maurice, J. (Hrsg.) (2011). *Education as a lifelong process: The German National Educational Panel Study (NEPS)*. *Zeitschrift für Erziehungswissenschaft: Sonderheft* 14.
- (4) Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys*. New York: Wiley.

Revisiting the causal relationship between education and health: Evidence from NEPS

Jacqueline Lettau (Leibniz Institute for Educational Trajectories, Bamberg)

Guido Heineck (University of Bamberg)

The positive link between education and health is widely documented across different disciplines, including medical sciences, sociology, and economics. Yet, many studies provide evidence based on statistical associations so that it is unclear whether the relationship is causal. Although it is plausible to suggest that education may foster individuals' health and health behavior by, for example, providing more and relevant information on the detrimental effects of, say, smoking, establish causality is not trivial as it may as well be argued that it is good health that may be a prerequisite for acquiring human capital in the first place. A growing body of research therefore attempts to identify the causal relationship between education and health by exploring exogenous variation driven by, inter alia, educational policy reforms. We add to this literature by providing evidence from NEPS. Our approach closely follows Kemptner et al. (2011), i.e. we use an instrumental variable approach based on a reform in former West Germany, where compulsory schooling was extended across federal states from 8 to 9 years at different times between 1940 and 1969. Our empirical analyses use data of the starting cohort 6 of the NEPS so that we are able to examine the long-term health effects of education. The health measures we look at are subjective health status, the short form of the health questionnaire SF12 and individuals' BMI. We further add to the existing literature as the NEPS educational biography data allow us to examine the exogenous increase in education more precisely. Preliminary results are in line with the hypothesis that education is not only positively associated to health, as approximated by our measures, but has a causal impact.

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Inter-ethnic differences in educational expectations – testing different explanations

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Studies have found that compared to natives and other immigrant groups in particular families of Turkish origin have high realistic educational aspirations despite to their weaker school performance.

To explain these ambitions, there are different arguments in literature, e.g. it is referred to a special achievement motivation originating from the wish to improve the social status through migration (immigrant-optimism-argument). In addition, the embeddedness in ethnically segregated networks and ethnic resources can support the transmission of achievement values and guarantee the access to support and learning opportunities. Furthermore, lacking experience with the educational system of the host country may influence educational aspirations for example if the Abitur and subsequent higher education may be perceived as the only pathway in the German secondary education. Also perceived or anticipated discrimination may lead to higher ambitions when immigrant families regard education as a key to overcome these challenges. Applying the rational choice approach, we demonstrate in a first step how these mechanisms influence expectations and contribute to inter-ethnic differences in expectations.

In a next step we test the mechanisms using national representative data of the German National Educational Panel Study (NEPS). With NEPS-data it is not only possible to replicate previous findings but also to overcome shortcomings of past research. The data includes for example various objective measurements of the knowledge about the educational system. Furthermore, we can disentangle effects of the ethnic-capital-argument by using information about concrete resources and orientations in the social environment.

Due to the coherent measurement over the NEPS Starting Cohorts it is possible to study the mechanisms at different stages in the educational career; in this contribution we focus on the first waves of Starting Cohort 3 and 4. The results of logistic regression models are presented as average marginal effects.

School effects in the German secondary education: A longitudinal analysis of immigrant-native achievement gap in reading

Taylan Acar (Boğaziçi University, Istanbul)

The sociology of education and the educational effectiveness literatures have long been concerned about the school-effects. Using the longitudinal information from the 5th grade sample of the National Educational Panel Study (NEPS), this study examines the role of schools in widening or closing the residual gap in reading scores between native and immigrant students in Germany. Based on the reading competence scores of native German and seven immigrant groups (Turkey, Southern Europe, Former Yugoslavia, Poland, Former Soviet Union, North/West and Eastern Europe), measured at three different time points (2011, 2013 and 2015), it applies multi-level growth curve models. The results show that at the first measurement point most immigrant students are behind their native German peers. The growth rates over time are similar between immigrant groups; the only exception is that students with Southern European and Former Soviet Union origins, who have higher growth rates over time than German and other groups.

Most importantly, once the students are in the highly differentiated secondary school tracks, the initial achievement status remains similar over time, where the initial achievement differences between school tracks remain same over time. In other words, the achievement growth rates are similar across school tracks. Overall, the results point to the strong role of the institutional characteristics of German secondary education. Moreover, there is a non-negligible composition effects between schools.

How Computer Games Jeopardize Educational Outcomes: A Prospective Study on Gaming Times and Academic Achievement

Ilka Wolter (Leibniz Institute for Educational Trajectories, Bamberg)

Timo Gnams (Leibniz Institute for Educational Trajectories, Bamberg)

Lukasz Stasielowicz (Osnabrück University)

Markus Appel (University of Würzburg)

Playing computer and video games is a popular pastime activity for many adolescents worldwide. However, the increasing amount of time spent on these games each day raised fears that this comes at the expense of school and, over the long run, impairs academic achievement. Extending prior research, the present study on a sample of $N = 3,548$ German adolescents (56% girls) of the German National Educational Panel Study (SC4 NEPS, Blossfeld, Roßbach, & von Maurice, 2011) adopted a prospective design and examined the effects of the time playing computer games each day on grades and domain-specific competences in mathematics and reading over time. We focused on three measurement waves in 2010 (class 9), 2012 (class 11), and 2013 (class 12). Polynomial mixed-effects regression analyses showed that longer gaming times predicted worse grades two years later. These results were rather robust and could be replicated after controlling for initial grades and reasoning abilities. In contrast, mathematical and reading competences were not affected by gaming times. Thus, playing computer and video games can result in a noticeably, albeit small, loss of educational returns, but it does not affect basic competences.

Adapting to changing labour markets? Associations between parents' occupations, gender attitudes and career aspirations

Jenny Chesters (Youth Research Centre, MGSE, University of Melbourne)

Since the turn of the century, the increasing rate of post-industrialisation in advanced economies has dramatically impacted on the availability of jobs in male-dominated occupations. The service sectors are generating jobs that are either highly-skilled and professional, such as those in education, health and social care or low-skilled and non-manual, such as those in retail and hospitality. In each of these sectors, jobs in female-dominated occupations outnumber jobs in male-dominated occupations. As young people transition from school to work and/or further study, their occupational aspirations are influenced by their experiences at home, and in particular, their attitudes to gender roles. Using the first eight waves of the Starting Cohort 4 data, I examine the associations between father's job, child's gender attitudes and child's occupational aspirations. The results show that both boys and girls with fathers employed in male-dominated occupations hold more conservative gender attitudes than their peers with fathers employed in gender-neutral occupations. Boys with more conservative gender attitudes hold aspirations for jobs in male-dominated occupations whereas girls with more conservative gender attitudes hold aspirations for jobs in female-dominated occupations. These findings suggest that despite growth in gender-neutral knowledge-based industries and the services sector, the socialisation of young people, particularly in regard to attitudes to appropriate roles for men and women, continues to influence occupational aspirations.

Exploring young people's vocational decisions, transitions and success: What role do parental background and attitudes play in this process?

Annalisa Schnitzler (Federal Institute for Vocational Education and Training, Bonn)

Julia Raecke (Federal Institute for Vocational Education and Training, Bonn)

Transitions from one educational or vocational stage to the next can represent critical events in individuals' educational and occupational pathways. For adolescents and young adults in Germany two transitional stages are especially important: the transition from school to vocational education and the transition from the latter into the labour market. During these transition processes, different factors influence the vocational decisions of young people and their success in managing the transition, including the individual's personality as well as his or her proximal and distal environment. The existing literature shows that especially influences from the social environment play an important role.

Focusing on starting cohorts 4 and 6 to depict the two transition stages in the educational process, this contribution explores if and to what extent social influences are at work when it comes to successful educational and occupational development of young people, the focus being on parents' attitudes, supporting behaviour and own educational and occupational background. With regard to cohort 4, pupils leaving school after grade nine are grouped according to whether they succeed in finding an apprenticeship place or not. The groups are then compared with respect to differences in the parental variables mentioned. In a similar manner, young adults from cohort 6 are divided into groups based on whether they succeeded in receiving a vocational qualification or whether they dropped out of (vocational) education.

In a first step, bivariate analyses on sociodemographic and parental variables are conducted to detect differences between successful individuals and those that did not manage the respective transition smoothly. Subsequently logistic regressions are performed to study the joint effects of these variables and to identify common influencing factors in both cohorts that could be regarded as resources (or impediments) inherent in the individual's social environment relevant for both kinds of transition.

The determinants of vocational and academic training decisions

Dominik Hügler (Freie Universität Berlin)

The German education system has many different decision nodes where individuals can choose between different tracks. Since these decisions ultimately lead to different educational degrees, they are decisive for the wages an individual can expect to earn over the life-cycle. In this project, I analyze the factors that determine these choices. More specifically, I analyze how important parental background (education and occupation/income), ability (cognitive and non-cognitive skills), migration background, gender and other characteristics are for the decision to take one track instead of another, for example to go to university instead of starting a vocational training. Looking at the complete educational life-cycle also helps to answer the question where intergenerational mobility originates.

I model these life-cycle decisions by estimating a sequence of discrete choice models such as Multinomial and Conditional Logit models. As of today, only few studies have modeled transitions in the education system as a sequence of decisions (see, for instance, Biewen and Tapalaga (2017), Cameron and Heckman (1998), Colding (2006), Karlson (2011) and Lauer (2003)). These studies usually focus on social background as the main factor but are unable to take into account measures of ability, expectations and motivations which most likely are also important determinants of educational and occupational choices. I use the NEPS cohort of 9th graders (SC4) which covers a large range of variables, including ability, expectations and ambitions.

My preliminary results suggest that for most transitions cognitive ability and parental education are the key drivers. In the next step, I aim at examining the channels, including expectations, motivations and aspirations, through which these characteristics impact educational choices.

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The relationship between reading comprehension and reading volume throughout the life course

Franziska Locher (University of Bamberg)

Maximilian Pfof (University of Bamberg)

Reading development is a lifelong process which starts in early childhood, before the beginning of formal education, and lasts until young adulthood and even beyond. In this process, extracurricular reading contributes to individual differences in persons' reading skills. Numerous studies provided profound evidence that reading behavior/volume promotes the development of reading skills (Anderson, Wilson & Fielding, 1988; Greaney & Hegarty, 1987; Guthrie, Wigfield, Metsala & Cox, 1999; Mol & Bus, 2011; Pfof, Dörfler & Artelt, 2010). However, most studies exclusively focused on primary or secondary school students, while adults were rarely considered. Therefore we investigate the association between reading volume and reading comprehension throughout the lifespan. Congruent with the theory of the Matthew-Effect in reading, which assumes increasing individual differences in reading over time (Pfof, Hattie, Dörfler & Artelt, 2014; Stanovich, 1986) – we expect an increase of the correlation between reading volume and reading comprehension with age.

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Pfof, M., Hattie, J., Dörfler, T. & Artelt, C. (2014). Individual Differences in Reading Development. *Review of Educational Research*, 84, 203-244.

Stanovich, K. E. (1986). Matthew Effects in Reading: Some Consequences of Individual Differences in the Acquisition of Literacy. *Reading Research Quarterly*, 21, 360-407.

The impact of students' gender role orientation on competence development in mathematics and reading in secondary school

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Ilka Wolter (Leibniz Institute for Educational Trajectories, Bamberg)

Gender differences in mathematical and reading competences have been widely reported for years (Hammer et al., 2016; Weis et al., 2016). In an attempt to explain these differences, the effect of socialization outcomes, in this case students' gender role orientation, on a gender-specific competence growth is explored. The study was conducted using data from the German National Educational Panel Study (Blossfeld, Roßbach & von Maurice, 2011). Participants were 3374 students (48.5% female), whose reading and mathematical competences were assessed in grades five and seven. Furthermore students were asked about their interest in those domains as well as their attitudes towards gender roles. Results confirmed expected gender differences in both domains in grade five and seven, with girls being better in reading and boys being better in mathematics. As an important point of this study, the results revealed that students who endorsed an egalitarian orientation towards gender roles showed a higher competence development between grades five and seven in both domains than students holding a traditional gender role orientation. Gender

moderated that effect in mathematics: Boys were less affected by having a traditional orientation than girls. When having a traditional orientation girls' mathematical competence increased to a lesser degree between grades compared to having an egalitarian orientation. No moderating effect of gender on the positive effect of an egalitarian gender role orientation could be found for competence growth in reading. The results are discussed in the regards to the importance of gender roles and ideas for further research in this area are presented.

Preschoolers' delay of gratification and competence development in primary school

Johanna Sophie Quis (University of Bamberg, Bamberg Graduate School of Social Sciences)

Anika Bela (Leibniz Institute for Educational Trajectories, Bamberg)

Guido Heineck (University of Bamberg)

This study investigates the relationship between patience in kindergarten and competence and competence development in primary school. We use data from a test of patience, related to - yet different from - the publicly known Marshmallow tests, which was conducted with six-year-olds in kindergarten from the kindergarten cohort (SC 2) of the German National Educational Panel Study. Controlling for a rich set of background variables, we find a significantly positive relationship between patience and children's mathematical competence levels. This difference in mathematical competence levels is persistent over all three waves in which we observe the measure and it is only slightly reduced when general cognitive ability in kindergarten is additionally controlled for. We do not find, however, differences in competence development between patient and impatient children. This means that while there is a preexisting skill gap between patient and impatient children, which is explained only to a small extent by preexisting differences in general cognitive ability, this gap neither widens nor narrows over the first years of primary school.

Same same but different? Explaining group-specific variations in the impact of spatial context conditions on transitions to higher education in Germany

Katarina Weßling (University of Cologne)

The aim of this paper is to investigate group-specific differences in the relevance of socio-spatial contextual characteristics on (1) the choice to study, (2) the field of study and (3) the place of study.

It is well-known that growing up and living in a specific local or regional setting influences individual decisions and chances. However, there is selective evidence that the residential context is not equally important for different social groups. The central issue of this paper is to systematically assess to what extent and why different groups – the focus is on social and ethnic origin as well as gender – are not equally affected by specific conditions in their local and regional residential area.

Theoretically, I argue that variations in the evaluation of (financial, social and emotional) costs, benefits and success probability between social groups in a particular decision situation, can result in a differing relevance of the same residential context for a specific decision. Moreover, differences in social networks and educationally-relevant information that are formed in and provided by the residential context can be assumed to be less important for advantaged social groups.

We utilize data from the Starting Cohort 6 of the National Educational Panel Study (NEPS) and enrich these data with macro-information on conditions in respondents' residential context on the municipality (Gemeinde) level. The macro data contain information on study opportunities, available fields of studies as well as on vocational training and labor market conditions in the local area. To obtain a measure of the residential context that allows for adequately capturing the reachable or commutable spatial area, the macro data is flexibly aggregated within travel-time radii. The combined data set contains information from 1996 onwards.

Preliminary findings indicate considerable differences in the influence of context conditions. For school graduates from low social and from immigrant origin, the choice of field of study is strongly dependent on offerings in the local contexts as they are – regardless how unfavorable their residential context is – less likely to relocate. Moreover, a favorable supply with study opportunities can compensate in particular for social class differentials. Poor labor-and training-market conditions increase differences between different social groups; they are in particular disadvantageous for males.

Weberian Status Competition and the Structure of Horizontal Stratification in High School

Tony Tam (Chinese University of Hong Kong)

Using comparable national panel surveys from Germany (NEPS), USA (NELS), China (CEPS), and Taiwan (TEPS), this paper examines the structure of horizontal stratification among high school students. The theoretical framework is a Weberian conception of status competition that has informed much of the educational stratification literature over the last four decades: Raftery and Hout's (1993) Maximally Maintained Inequality (MMI) thesis of persistent vertical stratification, Lucas' (2001) Effectively Maintained Inequality (EMI) thesis that emphasizes persistent horizontal stratification, and Alon's (2009) competition hypothesis of changing inequality. There is also strong new evidence that Weberian status competition takes the form of the intergenerational transmission

of positional ranking in educational success among postwar birth cohorts from 35 advanced economies (Van de Werfhorst, Tam, Shavit, and Park 2017).

Building on this background, the objective of this paper is twofold: (1) examine the extent to which IGT of positional advantage accounts for various categorical inequality that manifests as horizontal stratification among German high school students; (2) variations in the level of IGT of positional advantage across grades and societies. Central to the methodology is a monotonic transformation of rank order is an index of positional status (PSI), operationalized as “the average number of competitors excluded,” which is a ratio-scale metric easy to interpret and universally comparable—even among different variables and achievement test scores based on completely different tests. A preliminary PSI analysis of Taiwan and USA has shown that parental education plays a much stronger role than family income in both societies. Most important, parental education and income effects on the PSI are statistically indistinguishable between the two societies, despite very substantial differences in the institution of secondary education, including the screening and allocation of secondary students for higher education. The final paper will extend the analysis and include Germany and China.

Bachelor and then what? Aspirations, educational decisions and transitions of bachelor students with different social backgrounds

Rüdiger Hesse (Georg-August-University of Göttingen)

With the background of unclear labour market opportunities for bachelors, this paper focuses on aspirations, educational decisions and the following bachelor/master transition. Since the Bologna Reform designated the bachelor degree as a general degree that contains professional qualifications, it meant more academics started to work at this level. This could reduce the demand for skilled labour, especially in small and medium-sized enterprises. But there is an additional point of selection at the bachelor/master transition. Nevertheless, the amount of bachelors who transfer to master is high, because of the varied career opportunities available with a master degree. Therefore the demand for master degree courses exceeds the federally-controlled quota. Using the theories of value expectation, and considering determinants of employability, from a perspective of the educational process, social inequalities are expected to affect educational aspirations, decisions and the bachelor/master transition. Specifically social disparities are apparent when the lower educational aspirations and decisions of underprivileged bachelor students means that less go through to a master. Therefore there is reduction in equal opportunities at the transition to a master degree.

This deduction is proved using the data on “first year students” (undergraduates in higher education) held by the NEPS (starting cohort 5). The results suggest that there are social inequalities in educational aspirations, educational decisions and the immediate master transition. These findings were mediated by prior educational decisions (such as choice of academia), individual employability characteristics, expected costs and returns of a master degree, and other aspects of motivation. The master degree obviously has a higher value. Thereby master students can expect better labour conditions (permanent work contracts), higher income and excellent career opportunities. To reduce social inequalities, I suggest subject-specific clearing up of labour market benefits for a bachelor degree and individual course guidance at the academic admission and the transition to master.

Measurement of cognitive basic skills of students with special educational needs – Challenges and possibilities

Lena Nusser (Leibniz Institute for Educational Trajectories, Bamberg)

Sabine Weinert (University of Bamberg)

The proportion of students with special educational needs (SEN) has increased in recent years. The largest group are students with SEN in the area of learning (SEN-L). So far, there are only a few broad and differentiating studies on the competence development of these students, especially in comparison with students without SEN. The reason for this is the particular challenge of measuring educationally relevant competencies of students with SEN L in a valid and comparable way.

As an influencing factor and important (control) measure for many questions of educational research, basic cognitive skills are relevant and are interrelated with the acquisition of domain-specific competencies (Weinert et al., 2011). Previous findings show significant differences between students with SEN-L in segregated and integrative schooling in primary school; they show lower test performance regarding their verbal as well as their visual-spatial ability (Kocaj et al., 2014). Similar results were also found by Bos, Gartmeier and Gröhlich (2009) in secondary schools.

In this presentation, a short test for the measurement of basic cognitive skills (Lang et al., 2014) is investigated which was developed for the NEPS. Using sample of grades 5 (n=509) and 9 (n=990) in special schools as well as in lower secondary school (grade 5: n=650, grade 9: n=3419), the quality and equivalence of the measure is examined. Especially younger students with SEN-L have more difficulties with the processing of the instrument compared to students without SEN. This results in a limited measurement invariance. In comparison, the older students with SEN-L are better able to carry out the test according to the test instructions. Even if their test results are lower than those of the students in lower secondary school, the findings in grade 9 support the assumption of a reliable, valid, invariant and therefore comparable assessment of basic cognitive skills.

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Disentangling Test Administrator and Area Effects in Large Scale Educational Assessments with Cross-Classified Multilevel Item Response Models

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In large-scale educational assessments, test administrators are typically instructed to ensure standardized assessment of, for example, cognitive abilities, motivations, or attitudes for each participant. Nevertheless, assessments can be systematically biased by differences in test-taking situations because test administrators do not strictly adhere to the standardized interview protocol.

Statistical consequences of this deviation are correlated errors for respondents being assessed by the same interviewer and, more importantly, distorted ability estimates that deviate from their true values. Therefore, we examine systematic test administrator effects for the measurement of mathematical competence among a representative sample of $N = 5220$ adults in the German National Educational Panel Study. Furthermore, variance in ability estimates introduced by different test administrators are disentangled from the variance attributable to different geographical regions. Cross-classified multilevel item response models with Markov Chain Monte Carlo (MCMC) estimation are applied to disentangle both sources of variance. The results indicated that a considerable amount of variance in mathematical achievement was attributable to specific test administrator behavior, whereas a rather small proportion was attributable to the regional clustering of the respondents. Based on our results, we recommend intensified interviewer training when competence tests are assessed in the respondents' home environment.

Context effects in large-scale assessments: Domain-specific competence measurement in group and individual administrations

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In large-scale assessments sample and design possibly make it necessary to conduct the survey in different contexts. A typical problem in many of these studies are varying assessment conditions that might bias the validity of the measured scores in contrast to standardized lab studies. This problem can particularly arise in large-scale educational studies if some respondents might be tested in natural clusters such as school classes, whereas hard-to-reach respondents are tested individually at their private homes. Therefore, this study examined context effects of group and individual administration for domain-specific competence tests in mathematics and reading using data from starting cohort four of the National Educational Panel Study (NEPS; Blossfeld, Maurice, & Schneider, 2011). Students that still went to their original school in Grade 12 were tested in classes, whereas others (e.g., school leavers or switchers) were tested individually. Comparable samples of students were created in the two assessment administration groups using propensity score matching. Students were matched on numerous background variables including prior achievement and basic intelligence. The matching resulted in highly comparable subsamples with 583 participants in each condition. The competence tests were scaled using models of item response theory. Subsequently, differential item functioning and mean level differences were evaluated to examine potential context effects. The Rasch model showed a good fit to the data in both context conditions. Moreover, we did not identify meaningful differential item functioning across group and individual settings for the mathematical or the reading tests. However, on average, students in the group administration resulted in slightly higher mathematical scores (Cohen's $d = 0.30$) and reading scores (Cohen's $d = 0.28$) as compared to students in the individual setting. Varying context conditions with regard to group and individual settings do not seem to represent a large threat to validity of competence measurement in large-scale assessments.

The Role of Institutional Factors for Student Dropout in Germany

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Student dropout is a widely discussed topic in higher education research and policy. The student dropout rates are much higher in Germany than in other European countries (OECD 2013). This raises the question of what universities can do to support their students' success and thus to prevent student dropout.

Student dropout rates in Germany differ between fields of study, type of institution and between universities (Heublein et al. 2015, Heublein et al. 2017). Most previous studies focus on individual determinants to explain student dropout, whereas only a few papers study the impact of institutional factors on student success (Georg 2009; Titus 2004; Chen 2012).

Universities have a range of possibilities to select and support students, e.g. admission restrictions, informative meetings, academic support, student advisory. This leads to the following questions:

- (1) Do institutional measures and activities have an influence on student dropout?
- (2) Do various groups of students (lower SES, international students, immigrants, non-traditional students) need different measures of support to successfully complete their studies?

Rather than relying on the frequently used framework of Tinto (1987) to model social and academic integration, we apply a theoretical framework developed in school research. From the theoretical approaches of Bourdieu (1982), DiMaggio (1982), and Coleman (1988), two hypotheses about the impact of institutional measures on student dropout are developed: the cumulation hypothesis holds that there is no effect from institutional measures on student dropout, whereas the compensation hypothesis states that such an effect can be identified.

The database used in the study is the "National Education Panel Study" (NEPS), a representative panel of students in Germany (Blossfeld et al. 2011). In particular, we make use of Starting Cohort First-Year Students for the first eight waves.

Our first results show that a lot of students participate in institutional measures of their universities and regard them as helpful (get-together events, study organization, bridge courses, courses for science-based working). Moreover, universities make widespread use of admission procedures, as about 70% of the students in our sample had to pass such a test. Generally, institutional measures show a weak but significant effect on student dropout.

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Can Rational Choice Theory explain social inequality in higher education dropout?

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Dropout from higher education causes substantial costs on the individual and collective levels. As in other stages of the educational system, students from working class families and those with low educated parents are more likely to leave tertiary education without obtaining a degree. In this paper we test the explanatory power of Rational Choice Theory for dropout decisions of higher education students and the social disparities herein.

From the perspective of Rational Choice Theory (RCT) the dropout decision from tertiary education arises from (re-)considerations of the costs, benefits and probability of successful completion. Assuming uncertainty about the costs, benefits and success probabilities by the time of enrolment, students might revise their initial decision once they learn more about the values of these parameters during the course of their studies. Moreover, even perfectly informed students are expected to change their minds if relevant decision parameters have changed since they first enrolled. Social disparities in the dropout decision are explained by systematic differences in the perceived costs, benefits and success probabilities. Although RCT has been demonstrated to explain other educational decisions and social disparities therein, the theory has rarely been applied in the context of higher education dropout.

We use data from the NEPS starting cohort 5 (students), utilizing instruments specifically designed to measure the pivotal parameters of RCT. We identify students who drop out drawing on information from spell data. Given the binary nature of our outcome we apply logistic regression models to test the theoretical predictions.

Preliminary results suggest that perceived costs and the probability of successful completion are associated with dropout risk in the expected direction. The perceived benefits seem not to be a crucial factor. The results further imply that social disparities in dropout risks can be attributed to the observed differences in perceived costs and success probabilities.

Participation in Panel Surveys: Do the Survey Topic and Personal Success Matter? First insights from analyzing panel attrition in the NEPS Starting Cohort First-Year Students

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To know the mechanisms causing panel attrition is crucial for ensuring the quality of panel data. Only by identifying these mechanisms it is possible to design and optimize ex ante or ex post remedies for (temporary) panel drop out. Influences of the so called standard demography on panel attrition such as age, gender, educational background, and income, have been intensely researched in the past (Watson and Wooden 2009). The same is true for some characteristics of survey administration such as interviewer effects or incentives (ibid.). For the NEPS Starting Cohort First-Year Students Zinn et al. (2017) have thoroughly analyzed many of these influences between subsequent waves in order to provide longitudinal weights.

With our paper we want to add two more aspects to the analysis of panel attrition in the NEPS Starting Cohort First-Year Students: First, according to Lepkowski and Couper (2002) we distinguish between non-response due to unsuccessful contact vs. non-response due to refusal. Second, we investigate a) the role of an important survey characteristic, the survey topic, and b) the role of personal success (see e.g. Windzio and Grotheer 2002) as possible influences on cooperation in a panel survey. We analyze panel attrition between the first and the second telephone interview of the NEPS Starting Cohort First-Year Students. For both unsuccessful contact and refusal we assemble the potential influences in four groups: respondents' characteristics, survey design features, organizational efforts, and respondents' survey experience from the previous wave. Our findings of binomial logistic regression models support the general approach to distinctly analyze non-availability and refusal. Furthermore, for survey topic as well as for the personal success of the respondent we find significant effects on unsuccessful contact and/ or refusal.

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