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# Does the Effect of Social Origins on Educational Participation Change Over the Life Course in Germany? Social Inequalities in Entering the Academic School Type and Dropping Out

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## Abstract

To investigate whether the influence of social origins on educational participation increases or diminishes over the educational career in Germany, this paper examines the probability of social access and the later chances to survive in the academic school track. I find, first, a very strong influence of parental characteristics on choosing the academic track after primary school, and second, an ongoing social selection process in the subsequent years. Students who already had low chances of entering this school type due to their social context also had a much higher dropout rate. The analysis is based on data from the German Socio-Economic Panel study.

*JEL-Classification: I21, C41*

## 1. Introduction

In the German educational system, primary school normally ends with the fourth grade. This is often seen as the most crucial turning point in the educational career: after fourth grade, children move on to different types of schools, leading in turn to very different types of training, different certificates of graduation, and different qualifications for further education or work. Thus, the school chosen after fourth grad can either broaden or narrow the way to different opportunities. The highest school track is the *Gymnasium,* an academic course of study leading to the *Abitur* graduation diploma, which qualifies students to apply for university entrance and thus offers them an increased range of choices and opportunities in later life. However, many students leave this type of school prematurely without obtaining the *Abitur* (Schümer et al., 2002, 210; Bellenberg / Klemm, 1998, 587). Up to now there has been little research on this topic.

It is useful to look at the dropout phenomenon in the light of theories predicting changes in the influence of social origins on educational choice. First,

children have to enter this school type at a very early age. Therefore parents play a prominent role in the process of school choice and their decision should be strongly influenced by their own educational biography and social position (Blossfeld / Shavit, 1993, 9). Second, *Gymnasium* normally lasts eight or nine years: a relatively long period in which students could drop out. In addition, the students grow older and they possibly make educational decisions more on their own. During this period, the influence of social origin on educational participation is thus not self-evident.

In the next section, I discuss current views of educational theory on how social origin influences educational choices and how this process changes over the educational career. After briefly describing the data, I present the empirical results. In the first part, I report findings on the influence of social origin on choosing the *Gymnasium,* and in the second, findings on dropping out of the *Gymnasium.* In the conclusion, I summarize the main findings.

## 2. Theoretical Background

According to the sociological theory of educational choice, the decision on a particular school track – or between vocational training and university enrolment after graduation from secondary school – is based on the individual's expectations about the costs and benefits of this choice and the chances of success. Parents and / or children choose the option from which they expect the highest utility (Erikson / Jonsson, 1996, 14 et seqq.; Boudon, 1974, 29 et seqq.).

The expected benefits are returns to education as well as the social class position. It can be assumed that earnings are evaluated irrespective of the individual's own social position, but the value of class membership varies. Parents and children are keenly interested in avoiding social demotion. Thus, the better the position of the family, the greater the benefits of further education.

However, the benefits can only be realized if the student actually is successful in further education. Several factors play a role here. First, children from higher social classes demonstrate better academic performance on average, and consequently, their success probability is rated higher. Second, the higher the parents' education – or according to Bourdieu's approach (1997), the higher their 'cultural capital' – the better they will be able to support their children. Third, parents who have attained high educational levels themselves know from experience that it is not only the brightest young people who are successful in post-secondary education (Erikson / Jonsson, 1996). These three points can also explain why some migrant groups have lower participation rates in higher education. If the family speaks a foreign language at home and the child does not learn German before entering school, he or she will face greater challenges fulfilling the requirements of elementary school, and his or her aca-

demic performance will thus be lower than German-speaking peers. Furthermore, parents who are not native speakers have a hard time helping their children with homework and test preparation, and also often lack an understanding of the German school system that would enable them to provide general support to their children.

In addition, one must consider the costs of higher education. The choice to enroll in any extended fulltime education entails direct costs and, perhaps more importantly, opportunity costs because of the deferred earnings due to longer-lasting education. Consequently, a better financial situation of the parents lowers the financial burden.

These influences are tested at the first branching point in the German educational system, which is immediately after completion of primary school in the majority of federal states, and two years later in the rest. At this stage, parents usually decide among up to three school types, whereby the *Gymnasium* is the school type that leads to the highest-level diploma, the *Abitur.*[1] Thus, the focus lies on the decision whether children will move to the most prestigious school type, the *Gymnasium,* or to a different one after completing primary school.

According to empirical findings and theoretical discussions, the influence of social origins changes over the life course (Blossfeld / Shavit, 1993; Müller / Karle, 1993, Mare, 1980). These debates usually focus on the 'branching points' when students, having reached a certain educational level, must decide whether to continue and if so, which track to choose. However it is also possible to look at phases where someone would normally expect students to simply continue, as in the case of attending the *Gymnasium.*

According to the life course hypothesis, children's 'abilities' are not easily identified at early life stages, so parents make educational decisions based more on their own education and social position. The older the children, the better the possibility to assess their abilities and possibilities of success realistically. Furthermore, a shift in the decision-making process is often assumed to take place over time. Children become increasingly independent of their parents as they grow up (Blossfeld / Shavit, 1993), and consequently, the influence of social origins on educational choice declines across the life course.

The so called selection hypothesis focuses on unobserved differential selection processes. Mare (1993; 1980) states that the barriers to further education are high for children from lower social classes. These children pursue further education only if they are exceptionally bright and / or highly motivated, and therefore they face greater chances of success at later stages. As a conse-

[1] In Germany, there are also some comprehensive schools, but they are found in only a few federal states. The proportion of young people who move on from this type of school to enter a university is very low, and thus I devote little attention to comprehensive schools in the following.

quence, the relationship between social origins and educational participation matters less if the population is restricted to those who have passed all earlier stages (for empirical evidence on the selection hypothesis, see also Teachman, 1987). Research on the first branching point in Germany supports the basic tenets of the selection hypotheses. Children from lower social classes have to show comparatively much higher academic achievements in order to be recommended for *Gymnasium* by their teachers (Lehmann et al., 1997; Ditton, 1992, 132 et seq.). In addition, parents in higher social positions tend to send their children to the *Gymnasium* even if the teacher thinks that this track is too demanding, while parents from the lower social classes tend not to defy school recommendations in this way (cf. Mahr-George, 1999, 134). *According to the tenets of the life course hypothesis and the selection hypothesis, the relationship between social origins and dropping out should be weaker than for the previous transition to the academic track and should decrease during Gymnasium attendance (Hypothesis 1).*

For survival in the most intellectual demanding school track, the *Gymnasium,* it could be an advantage to have highly educated parents who can provide help with homework and test preparation. Parents with lower levels of education, as well as non-native-speaking parents might have difficulties providing academic support, possibly placing these children at a disadvantage. Parents' financial resources are a further factor: more money can be used to improve academic weaknesses through privately paid tutoring (Schneider, 2005, 373). Last but not least, when compulsory education is completed, educational costs should increase in importance as opportunity costs – the foregone income – also increase (Erikson / Jonsson, 1996, 55). Taken together, all these points suggest that *social origin is more important for success at the Gymnasium than for being admitted in the first place, and that the importance of social origin increases progressively during Gymnasium attendance (hypothesis 2).*

## 3. Database and Variables

For the analysis, I use the German Socio-Economic Panel Study (SOEP) from the years 1984 to 2005. Since each person in a household aged 17 and older gives his / her own answers, all information on both parents and older adolescents is provided firsthand. In addition, one person fills out the household questionnaire, which provides information on children and the schools they attend (SOEP Group, 2001). This makes it possible to reconstruct the educational careers of young people on a yearly basis.

In the first analysis, the point of the transition from primary to secondary school is identified based on the institutional regulations of the state in question: in most, this is upon completion of fourth grade. By comparing school attendance in two different years, I can reconstruct the move to either *Gymna-*

*sium* or a different school type (excluding schools for the mentally or physically challenged and comprehensive schools).

In the second analysis, the child's *Gymnasium* attendance is followed from one year to the next. Children are considered to have dropped out if they move to lower school track or if they start an apprenticeship without having finished the *Abitur.* All transitions that can be interpreted as 'leaving the academic career path' are counted as dropouts.

The following variables are used to operationalize the influence of parents' socio-economic position on entering the academic school type. The highest level of formal schooling completed by either parent is taken as a measure of their cultural capital. In addition, the mother's German language skills are taken into account if she has a migration background.[2] The meaning of financial costs is covered by the logarithm of the deflated need-adjusted disposable household income.[3] As an indicator for economic perspectives, I also consider whether either the mother or the father are employed in the civil service since in Germany this means virtually no risk of unemployment. Furthermore, I control for single motherhood, living in East Germany, and the child's gender.

In the second part of the paper, the central variable is what might be called the 'social access probability'. Its value stems from the first estimation upon entering *Gymnasium.* The values range between 0.02 and 0.91. For the estimation of survivor functions, the metric information is grouped into low, medium, and high access probability. Children are assigned to these three groups by dividing the probability distribution at the borders of the first and third quartile (the critical values are 0.14 and 0.51). For the parametric models, I also construct time-varying interaction effects with the duration of *Gymnasium* attendance.

## 4. Empirical Results on Paths into and out of the *Gymnasium*

The bivariate data on parents' highest school qualification and children's access to *Gymnasium* and other academic tracks reveals how strongly social origins affect school choice. If neither parent graduated from secondary school, the child has only a six percent probability of attending *Gymnasium.* If the parents graduated from the lower track or the medium track, their children's chances of attending *Gymnasium* are 15 percent and 35 percent respectively. But if at least one of the parents attained the *Abitur,* which generally

[2] Here I concentrate on the information on the mother only, as she spends normally much more time with the child than the father: Therefore the mother should be more important for the child's development.

[3] According to the OECD scale the factor 1 is attached to the head of the household, the factor 0.5 to every additional person 15 years or older, and the factor 0.3 to children.

means that they attended *Gymnasium,* then the child's probability of attending *Gymnasium* is much higher: approximately 67 percent (figures not reported in a table). This pattern appears as well if we control for other characteristics in a multivariate model (cf. Table 1).[4]

*Table 1*

**Logistic Regression Model for the Probability of Choosing the Gymnasium after Primary School**

| | Model 1 | |
|---|---|---|
| | coeff. | (s.e.) |
| parents' highest school qualification *(intermediate 'mittlere Reife')* | | |
| no qualification | –1.49** | (0.38) |
| lower secondary (*Hauptschulabschluss*) | –0.90** | (0.12) |
| upper secondary (*Abitur*) | 1.01** | (0.10) |
| migrant mother's level of speaking German *(native speakers)* | | |
| poor / not at all | –0.58* | (0.29) |
| mediocre | –0.17 | (0.22) |
| (very) well | 0.23 | (0.15) |
| equivalent income, ln | 1.15** | (0.12) |
| mother's job security *(other employment)* | | |
| employed in civil service | 0.28* | (0.11) |
| not employed | 0.07 | (0.10) |
| father's job security *(other employment)* | | |
| employed in civil service | 0.22* | (0.11) |
| not employed | –0.45* | (0.20) |
| single mother | 0.06 | (0.17) |
| gender: female *(male)* | 0.37** | (0.08) |
| East Germany (*West Germany*) | –0.00 | (0.11) |
| constant | –12.01** | (1.23) |
| Log Likelihood | | |
| starting value | –2259.51 | |
| end value | –1817.29 | |
| Pseudo-$R^2$ (McFadden) | 19.6 | |
| Observations | 3552 | |

References groups: in italics and in parentheses.
Significance level: + significant at 10 %; * significant at 5 %; ** significant at 1 %.

*Sources:* SOEP 1984 – 2005; author's calculations.

[4] As the dependent variable is dichotomous logistic regression models are used (Long, 1997).

According to Model 1, a child does not generally have lower chances of entering the academic track if the mother has a migration background. Only if the mother's German skills are extremely low, the child's chances are reduced. If mothers with a migration background speak German at least moderately well, their children have the same chances as the majority of children with a comparable socio-economic background.

The model also seems to confirm that the financial burden of longer-lasting education is greater if the family income is low because there is a positive and significant logit coefficient for the income variable. This means that the better the financial situation, the higher the probability that the child will attend *Gymnasium.* Another indicator related to the prospective financial situation also tests the relevance of costs, namely the parents' job security. If the mother or the father is employed in the civil service, the child has higher chances of entering the *Gymnasium.* In contrast, there is a reduced probability of entering the *Gymnasium* if the father is unemployed. The latter does not apply to unemployed mothers.

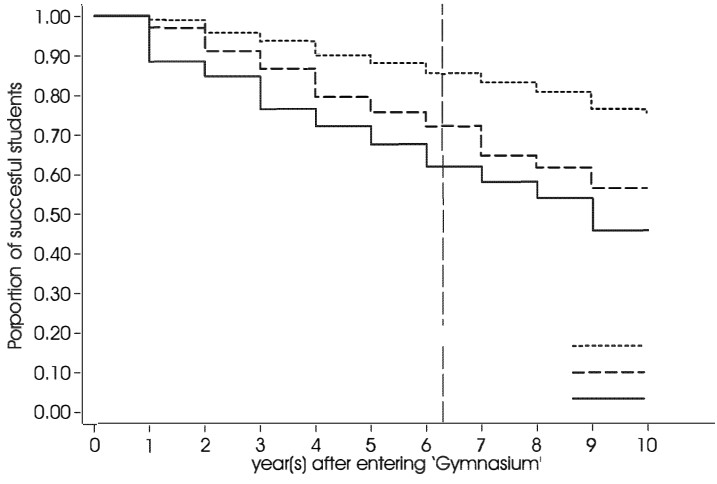
In addition I control for single mothers (to avoid sample reduction in the cases of missing values on fathers), East-West differences, and the child's gender. Only the logit coefficient for gender is significant, indicating that girls are more successful in the school system.

In the following, I focus only on those children who entered *Gymnasium.* In order to demonstrate how widespread the dropout phenomenon actually is, I report survivor curves that show the proportion of 'successful' children. 'Successful' means here that the students observed still attend the *Gymnasium* regardless of whether they have repeated one or more grades or have already attained the necessary qualifications for university entrance.

Figure 1 shows the survivor curves for children with low, medium, and high access probabilities calculated using the estimation results from Model 1. It can be seen that children with low probabilities of entering *Gymnasium* drop out more often than the others. Their survivor curve is, at every single observation point, the lowest. The curves for children with a middle or a high access probability are at a higher level and do not differ from one another. Six years after the children were observed for the first time at *Gymnasium,* only 62 percent of those with a low access probability were still in the academic track. The figures are 72 and 85 percent for students with middle or high access probability. At the end of the observation period, only 46 percent of the young people with a low access probability graduated with the *Abitur,* whereas 57 and 76 percent of the other two groups did. Obviously, social origins play a prominent role in young people's success in this highly demanding school track.

To investigate time-varying effects on premature departure, transition rate models for discrete time data are estimated (Allison, 1982). In contrast to the survivor functions, the observation window ends in the multivariate models at

the sixth time point, as some students obtain their diploma after completing seven full years at the *Gymnasium*. This short time span applies only to a few cases – in particular the federal states of the former East Germany. However, leaving the *Gymnasium* with a diploma means no longer being in the risk set. Thus, graduates have to be excluded, but at the same time, cannot be treated as ordinary censored cases as they have been successful. The end of their schooling is determined by institutional rules and not by their own decisions. To avoid biased estimations, the observation window has to end so early.




*Sources:* SOEP 1984 – 2005; author's calculations.

Figure 1: Survivor Function for Dropping Out of the Gymnasium by Access Probability

Model 2, Table 2, contains the variable for the social access probability of having entered the *Gymnasium* and dummy variables for each observation year. The time dummies are only used to allow a flexible baseline rate and are not discussed further. For the variable indicating the access probability, a negative coefficient is estimated, which is significant on the 1 percent level. Consequently, higher access probabilities go hand in hand with greater chances of staying at the *Gymnasium*. Thus, the estimation confirms the results displayed in Figure 1.

Hypothesis 1 states that the influence of social origin declines over the school career while according to Hypothesis 2, it increases. To test this, interaction effects between the access probability and the time spent at *Gymnasium* are modeled. However, the effect of social origins on dropping out of this school type does not get weaker over time. In Model 3 as well as in Model 4,

the main effect is negative and significant. In contrast to this, the interaction effects are far from any acceptable significance level. These models in no way confirm a decreased impact of social origins over time.

*Table 2*

**Access Probability and the Risk of Dropping Out of the Gymnasium (Discrete Event History Analysis)**

| | Model 2 | | Model 3 | | Model 4 | |
|---|---|---|---|---|---|---|
| | coeff. | (s.e.) | coeff. | (s.e.) | coeff. | (s.e.) |
| access probability | –1.99** | (0.39) | 2.00** | (0.44) | –2.12** | (0.52) |
| interaction effects | | | | | | |
| access pr. * 5/6 years | | | 0.06 | (0.94) | | |
| access pr. * 4/5/6 years | | | | | 0.30 | (0.79) |
| years at Gymnasium (*1 year*) | | | | | | |
| 2 years | 0.64* | (0.27) | 0.64* | (0.27) | 0.64* | (0.27) |
| 3 years | 0.48 | (0.29) | 0.48 | (0.29) | 0.48 | (0.29) |
| 4 years | 0.92** | (0.28) | 0.92** | (0.28) | 0.80+ | (0.42) |
| 5 years | 0.35 | (0.34) | 0.32 | (0.50) | 0.23 | (0.46) |
| 6 years | 0.67* | (0.33) | 0.65 | (0.50) | 0.55 | (0.46) |
| constant | –2.81** | (0.26) | –2.80** | (0.27) | –2.76** | (0.29) |
| Log Likelihood | | | | | | |
| starting value | –616.66 | | –616.66 | | –616.66 | |
| end value | –596.95 | | –596.95 | | –596.88 | |
| person-years | 3662 | | 3662 | | 3662 | |

The estimations are based on 934 students at Gymnasium of whom 147 students dropped out.
References groups: in italics and in parentheses.
Significance level: + significant at 10 %; * significant at 5 %; ** significant at 1 %.
*Sources:* SOEP 1984 – 2005; author's calculations.

## 5. Conclusions

The first analysis presented here regarding admission to *Gymnasium* is in line with previous research: children have better chances of entering *Gymnasium* when their parents have a higher formal education or a better financial situation. Their chances are lower if they come from a migrant family. However, it is not the family's migration status but the language skills that matter, measured here as the mother's knowledge of German.

The second analysis shows an ongoing social selection process. Children with lower chances of entering *Gymnasium* have the highest probability of dropping out later. However, this analysis does not enable us to draw definitive conclusions on whether the dropping-out process is more or less selective than the previous transition. But it does demonstrate clearly that there is no

change in the relationship between social origins and dropping out in the course of *Gymnasium* attendance. Social origins do not decrease in importance either because children gradually become more independent of their parents, as stated in the life course hypothesis, or because children from lower social classes are outstanding achievers, as stated in the selection hypothesis. However, the opposite hypothesis must be rejected as well. The influence of social origins obviously does not increase during *Gymnasium* attendance, although parents with higher education or higher income have better resources to support their children.

Dropping out is obviously not a marginal phenomenon, but it is a highly selective one. If researchers and policy-makers concentrate solely on the institutionally fixed branching points – especially the first one, the transition from primary to secondary school – they will systematically underestimate the relationship between social origins and educational participation. Further research should focus on the whole educational career, which includes all the transitions a person makes in the educational system. In order to obtain more insight into this issue, longitudinal data are needed that also include competence measures.

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