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Ahead of the pack? Explaining the unequal distribution of scholarships in Germany

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**ABSTRACT**

This article investigates to what extent scholarships are unequally distributed among students in Germany and how these inequalities can be explained. Following sociological theory, the article argues that elites seek qualitative ways of distinguishing themselves in a mass higher education system. Using student surveys, we demonstrate that class effects cannot merely be explained with reference to class differences in academic achievement but that higher classes have better access to scholarships independent of earlier school performance. Class differences were particularly persistent when the intermediate classes were compared with higher classes with more education. These findings illustrate that social classes have different strategies when it comes to participating in higher education and suggest that information about and access to scholarships is important in gaining a class advantage.

**The puzzle: why are scholarships unequally distributed?**

In 2014, there were approximately 2.6 million students in higher education (HE) in Germany (Statistisches Bundesamt 2014). While almost one million students received federal student loans, far fewer received a state-funded scholarship. Approximately 26,900 students received a ‘Scholarship for the Promotion of Young Talent’ and approximately 22,500 received a ‘Germany Scholarship’ (BMBF 2015). In contrast to the more comprehensive means-tested student loan system, these two (not entirely) publicly funded scholarship programmes are intended to promote gifted students. The shift to focusing on elite promotion and excellence in HE is a fairly recent development in German educational policy; the central organisation of the ‘Scholarships for the Promotion of Young Talent’ was established in 2005, and the ‘Germany Scholarship’ was launched in 2011. The ‘Excellence Initiative’, which rewards the best German universities and research clusters with additional funding, was introduced in 2005 (BMBF 2015).

While scholarship programmes are intended to promote equal access to HE and allow students to fully concentrate on their studies, it has been found that students with prestigious...
family backgrounds are overrepresented among scholarship recipients. Two-thirds of students receiving a ‘Scholarship for the Promotion of Young Talent’ have an academic family background, while only one-half of the entire student body have an academic family background. A comparison of social origin groups, which took both parents’ education and occupations into account, indicated that half of the scholarship recipients belong to the highest social origin group compared with 37% of the entire student population (Middendorff, Isserstedt, and Kandulla 2009). Among high-achieving students, 14% coming from an academic background receive scholarships compared with 6% coming from families where the parents have a low level of education (Reemtsma Begabtenförderungswerk 2009).

High direct and indirect costs have been found to be a key factor in preventing working-class adolescents from pursuing HE. Therefore, the class bias among scholarship holders is both puzzling and striking because the monetary incentive of scholarships should be particularly attractive for students facing financial pressure (Becker and Hecken 2009; Müller and Pollak 2008). Most scholarship programmes even stress students’ financial need as a selection criterion.

However, many scholarship programmes do not merely consist of a grant but also include non-monetary benefits, such as workshops, alumni networks, mentoring and/or career guidance. The selection procedures are very demanding, and only a small number of students are awarded scholarships. Thus, being a scholarship recipient could be perceived as a sign of excellence.

In this article, the aim is to substantiate these descriptive findings using a representative, large-scale data-set and to examine how the social origin bias can be explained. Three explanations are proposed. First, the effect of social origin bias might be mediated by academic performance. A positive association between social origin and academic achievement may also increase the chances of receiving a scholarship. Second, there is a mechanism of self-selection: application decisions systematically vary by social origin due to class-specific perceptions of the costs, benefits and success probabilities of scholarship applications. Third, certain students may possess relevant cultural or social resources they can take advantage of during the selection process.

In the second section, the theoretical framework and hypotheses are introduced. In the third section, the data-set and methodology are described. The results are presented in the fourth section. The conclusion is presented in the last section.

Explaining the unequal distribution of scholarships: the theoretical framework

The application and selection process for a scholarship can be long and time-consuming. First, students have to apply; and second, they have to be selected. Pre-selections based on written applications, including records, motivation statements, academic evaluations by the home university and reference letters, are followed by selection processes consisting of group discussions and interviews. In Germany, most scholarship granting organisations stress both academic excellence and extracurricular involvement, such as political engagement or community service, to be eligible for a scholarship.

Social selectivity – that is, the systematic effects of social origin – may evolve at different stages in this process. Using Boudon’s (1974) theory of primary and secondary effects of social origin as a starting point, we argue that the unequal distribution of scholarships
among students might be the result of three effects, the first two of which relate to self-selection and the third of which relates to the selection procedure. These effects are as follows:

1. Social origin positively affects academic achievement and thus eligibility for scholarships.
2. Social origin affects application decisions, independent of academic achievement.
3. Social origin affects which students are accepted into scholarship programmes.

These theoretical considerations will be elaborated in the following.

**Primary effects of social origin: the positive relationship of social origin and academic achievement**

Boudon (1974) made an important contribution to the understanding of social inequalities in education by identifying two processes that explain why students of lower social status reach lower educational levels than peers from privileged backgrounds.

First, the ‘primary effects of social origin’ encompass the positive impact of social origin on academic achievement. Students with a higher social origin perform better in school due to the advantage of an intellectually stimulating environment (Jackson et al. 2007). Although the impact of social background on achievement decreases during one’s educational career, it was found that students with an academic family background also perform better at university than their fellows with a working-class background (Hansen and Mastekaasa 2006).1

As eligibility for a scholarship is, among other factors, usually based on students’ academic performance at school or university, the primary effects of social origin may be one explanation for the social selectivity of scholarship recipients. Students with a higher social background might be more likely to receive a scholarship because of their higher achievement, making it easier for them to fulfil the eligibility criteria. In the United States, where many scholarship programmes reward the brightest students based on grade point averages (GPAs) or standardised test results, it has been found that these programmes actually undermine need-based aid and increase inequality in accessing HE instead of counteracting it (Heller and Marin 2004).

**Application decisions as mechanisms of self-selection**

As a second mechanism to explain educational inequality, Boudon (1974) referred to the ‘secondary effects of social origin’. These describe a systematic variation in educational choices based on social background, even in cases where there is comparable academic achievement. Advancing this model, Breen and Goldthorpe (1997) have stressed that these decisions are parental strategies for maintaining class status. Parents evaluate the costs, benefits and failure risks of education streams relative to their own class position. As middle-class parents try to avoid downward mobility, they perceive challenging education tracks as beneficial in retaining their social position, especially because they have sufficient resources to cope with the higher costs of such an investment. In contrast, working-class parents tend to choose more secure but less ambitious options like vocational training. Academic education is socially more distant, costs are higher and the risk of failing in higher-level academic streams can be a burden while the goal of maintaining social status can also be achieved with a lower educational level (Breen and Goldthorpe 1997; Goldthorpe 1996). To
sum up, students and their parents not only base their educational decisions on academic performance, but also consider additional factors and utilise them as strategies to maintain their social status. In Germany, the secondary effects of social origin are particularly noticeable during the transition from primary education to secondary education but have also been observed during the transition from secondary education to tertiary education (Becker 2003; Müller and Pollak 2008; Stocké 2007).

Almost all scholarship programmes expect students to apply themselves, so a similar class-biased decision-making effect can be assumed. Based on their social background, students may evaluate the costs of the application procedure, the benefits of a scholarship and the success probability, resulting in a bias in application behaviour. Costs refer to the effort and time involved in applying for a scholarship. These are considered to be high, as both the scholarship application and selection procedures can be very time-consuming. Students must hand in records, motivation statements, recommendation letters from academics and proof of their societal involvement. This process is followed by written or oral examinations, one-on-one interviews and group discussions.

Students whose families are less experienced in the academic sphere are perhaps less likely to provide information in support of applications. Parents who have obtained an academic degree might be able to supply their children with more help based on their experience and contacts. Therefore, students with an academic background may face fewer obstacles in collecting the materials needed to fulfil the application requirements. Estimating the success probability of an educational decision is certainly shaped by the information at hand (Baumgartner and Steiner 2005; Plank and Jordan 2001). Some students are more familiar with and better informed about the academic system than others, resulting in a strategic advantage (Hatcher 1998; Morgan 2002).

Students’ aspirations and expectations seem to be higher if their parents undertook HE. Students can rely on their knowledge and may be more persuaded of their own abilities. Indeed, it has been found that students with a high social origin are more convinced that they will successfully complete HE (Tolsma, Need, and de Jong 2010). Thus, it may be that students from the lower classes may underestimate their success probabilities. It is assumed that access to information is pivotal in whether one applies for a scholarship, shaping likewise one’s success probability, costs and benefit estimation.

The benefits: scholarships as a strategy to avoid downward mobility in the light of the expansion of HE

Because they imply a huge financial relief, scholarships should be valued more highly by students from less privileged family backgrounds. Many scholarship programmes not only include the monetary benefit but also additional academic support and seminars for students to get to know like-minded fellows. Therefore, receiving a scholarship can also be beneficial in terms of self-development. Scholarships may help strengthen one’s ties and improve one’s social skills and competences. Further, and perhaps even more important, scholarships may be perceived as credentials that distinguish people in future selection processes; for example, for postgraduate studies or jobs (Spence 1973).

With reference to educational expansion, Raftery and Hout (1993) employ their Maximally Maintained Inequality theory to argue that an educational level is only opened up to the masses if the elites have already secured their exclusive access to the next level of
education. Lucas (2001) has suggested that students from the upper classes not only try to reach a higher level of education but that they also seek additional positional advantages at the same educational level to maintain their parent’s class position. Assuming that upper-class students are better informed about labour market outcomes, they may seek niche advantages in terms of qualitatively better education to stand out from the crowd (Lucas 2001; see also Boliver 2011). Such competitive advantages include international experience and enrolling in very select degree programmes at the most prestigious HE institutions (Baker 2014; Boliver 2013; Croxford and Raffe 2014).

Like other advanced societies, Germany experienced an expansion of HE starting in the mid-1970s, and the number of students in HE has more than tripled (Statistisches Bundesamt 2014). To accommodate this increase, educational expansion was accompanied by diversification, particularly via the formation of new educational institutions (Shavit, Arum, and Gamoran 2007). In Germany, the increase in the number of students was absorbed by universities of applied sciences (Fachhochschulen) that mainly offer occupational education in technical fields, business studies and social work.

Yet, in contrast to other systems, the state-centred focus of German HE prevents diversification along the lines of institutional prestige or selectivity (Krüger and Helsper 2014). The role of private HE institutions is still marginal, and university rankings and reputations play a less pronounced role (Ertl 2005; Mayer, Müller, and Pollak 2007). Therefore, opportunities for qualitative differentiation and distinction through institutional reputation are limited. This leads to the supposition that elites seek other channels of differentiation, such as studying abroad or receiving prestigious scholarships. Upper-class students might perceive scholarships as career investments that pad their CVs, while such considerations might be unlikely among lower-class students.

In line with this argument, it has been found that German students with a lower social class background are less often student assistants, jobs that are advantageous at the beginning of one’s academic career (Bargel and Bargel 2010). It has also been found that studying abroad is a means by which the upper classes differentiate themselves socially. Confirming Lucas’ suppositions, this bias has grown over time (Finger 2011; Lörz and Krawietz 2011; Ye and Nylander 2015). Although empirical confirmation is lacking, it has been suggested that key qualifications and additional skills, which could be decisive factors in finding employment, might be easier to obtain for students from privileged backgrounds. Because investing in an HE degree does not necessarily guarantee a good initial position in one’s career and labour market success, a scholarship may be perceived as a type of ‘soft currency’ that helps to secure one’s class position (Tomlinson 2008).

**Social selectivity during the selection process**

Despite these class-specific considerations when applying for scholarships, students from the upper social classes may be privileged due to their cultural resources and non-cognitive traits (Farkas 2003). Diffuse evaluation criteria may facilitate social origin impacts (Andersen and Hansen 2012; Hansen and Masteckaasa 2006). As eligibility is also based on personality and demeanour, traits such as self-esteem, leadership ability or openness could be beneficial in the selection procedure; for example, in group discussions and interviews. Students from academic families may be more experienced in debating, while students with a working-class background may feel inadequate, ineligible or uncomfortable in terms of the competition.
they face during the application process. Alon (2009) has suggested that students from privileged backgrounds are better able to fulfil the requirements of the educational system. Because of their advantages in terms of resources and access to information, it is easier to meet eligibility requirements. Students from the upper classes are probably more likely to be eligible for scholarships because they are more aware of the necessary qualifications and the potential rewards of engagement.

**Hypotheses**

Summing up, it is suggested that students from the upper classes are privileged in terms of receiving scholarships because they are more likely to be eligible. Further, students from lower social classes who are less experienced in the academic sphere are disadvantaged in the application and selection process due to differences in their subjective cost–risk–benefit evaluations and lack of preparatory resources. As our data-set does not include any information on scholarship applications, such as whether a student considered applying or applied in the past, it will not be possible to distinguish the effects of self-selection (application decisions) from selection effects after having applied. Therefore, we first test whether the effect of social class origins on the likelihood of receiving a scholarship can be substantiated and, second, whether these effects can be attributed to the primary effects of social origin:

1. The higher a student’s class background, the higher the likelihood of receiving a scholarship.
2. Controlling for student’s achievement, social origin effects on the likelihood of receiving a scholarship diminish but do not completely disappear.

**Data and methods**

The analysis is based on two pooled waves of the German Student Survey focusing on students’ experiences in HE, study attitudes, orientations and job expectations collected during the winter semesters of 2006/07 and 2009/10. The sample is based on a two-stage sampling method. First, a stratified sample of HE institutions was taken based on the type of institution and geographical location. Second, a random group of students from the preselected institutions was contacted and asked to complete the survey. A comparison of the sample with official HE statistics proved the sample to be representative of the German student body in terms of institution type, sex, field of study and other variables (Simeaner, Ramm, and Kolbert-Ramm 2010).³

**Dependent variable: receiving scholarship funds**

The dependent variable is based on the following question: ‘How do you currently finance your education? – Through a scholarship? (‘Scholarship for the Promotion of Young Talent’, foundations, firms)’. The answer options of ‘No’, ‘Yes, partly’ and ‘Yes, mainly’ were dichotomised into not receiving and receiving a scholarship. As Table 1 shows, 3.82% of all students indicated they received a scholarship.³
Social origin: occupational class and educational background

Parents’ education was captured separately by a dummy variable for having completed tertiary academic education. Students’ social origin was captured by parents’ educational levels and fathers’ highest occupational class. Occupational class is based on the Erikson–Goldthorpe scheme originating in the differentiation of employment relations (Goldthorpe 2000).4

If no information about fathers’ occupations was specified, it was substituted by information about mothers. If the respondent did not specify their mother’s or father’s occupation, it was excluded. In the case of retirement, unemployment or death, the latest occupational position was requested. Inactive parents were merged in a residual category. With reference to parsimony, the categories were collapsed into five categories, plus a residual category. The descriptions in Table 1 show that the percentage of students who receive a scholarship is higher among students from the service classes than the other categories.

Achievement

Achievement was measured by students’ final grades on their HE entrance examinations (Abitur) and their current GPA,5 the latter referring to students’ performance at university.

Table 1. Descriptive statistics for dependent and independent variables.

<table>
<thead>
<tr>
<th>Binomial variables</th>
<th>Proportion of students</th>
<th>Percentage of scholarship recipients</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stipend</td>
<td>0.04</td>
<td>3.82</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Engagement</td>
<td>0.14</td>
<td>8.21</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>University of applied sciences (Fachhochschule)</td>
<td>0.19</td>
<td>4.12</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Female</td>
<td>0.55</td>
<td>3.44</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Field of study</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural studies and linguistics</td>
<td>0.16</td>
<td>3.26</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Education</td>
<td>0.11</td>
<td>1.67</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Social sciences</td>
<td>0.04</td>
<td>3.91</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Business and law</td>
<td>0.15</td>
<td>4.02</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Natural science</td>
<td>0.19</td>
<td>3.57</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Medicine</td>
<td>0.11</td>
<td>4.77</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Technical fields</td>
<td>0.21</td>
<td>4.52</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Arts</td>
<td>0.03</td>
<td>6.85</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Higher education: mother</td>
<td>0.37</td>
<td>4.99</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Higher education: father</td>
<td>0.49</td>
<td>4.60</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Class background</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper service class</td>
<td>0.16</td>
<td>5.35</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Lower service class</td>
<td>0.31</td>
<td>4.22</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Intermediate class</td>
<td>0.21</td>
<td>3.19</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Self-employed</td>
<td>0.13</td>
<td>2.56</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Worker</td>
<td>0.18</td>
<td>3.40</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>0.03</td>
<td>3.83</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Student Survey University of Konstanz.
Note. N = 11,436.
4Within-group percentage receiving a scholarship.
Students were asked to estimate their current GPA or to indicate the GPA of their intermediate examinations. As grading patterns vary between subjects, this variable was standardised by subject. For ease of interpretation, the range of both variables was reversed so that a high value indicates high achievement. With a correlation of 0.29, the current achievement score and achievement obtained in final secondary examinations are not highly correlated.

**Engagement**

Participation in student organisations serves as a proxy for engagement. A binominal variable was constructed for mentioning that either one frequently participates in or holds an office in at least one of the following organisations: student body, students’ union executive committee, official self-administered committees, political student associations, informal campaign groups, student fraternities, student sports clubs or cultural activities.

**Control variables**

Control variables are age, field of study, gender and type of HE. Age is included as a continuous variable; the other variables are included as dummy variables.

**Estimation procedure**

To decompose primary and secondary effects of social origin, two logistic regression models were created: a full model that includes, despite other predictors, the achievement indicators to control for the mediation of background through achievement; and a reduced (nested) model not controlling for the mediating effect of achievement. The scale identification issue, the confusion of mediation and rescaling occurring if the mediating variable has a net effect on the target variable, prevents a straightforward way of nested modelling, as in linear regression models (Mood 2010). Yet a recently introduced method allows the comparison of parameters across models net of rescaling by basing all coefficients on the same scale parameter (Karlson and Holm 2011; Karlson, Holm, and Breen 2010). Instead of omitting the achievement predictors in the reduced model, only the part of the achievement that is orthogonal to the direct effect variable is included; that is, the part of achievement that is independent of social origin. These extracted achievement indicators are the residuals of a linear regression of achievement on social origin.

Equation (1) depicts the reduced model. \( Y^* \) is a continuous latent variable measuring the propensity of receiving a scholarship. The effect of social origin in the reduced model \( \beta_R \) is the total effect that will be attributed to a student’s background, controlling for age, gender, field of study, being involved and university type (concomitants). \( \gamma_R \) is the effect of academic achievement net of student’s background (residualised achievement effects):

\[
Y_R = \alpha_R + \beta_R \text{Origin} + \gamma_R \text{Achievement}_{\text{res}} + \delta_R \text{Concomitants} + \epsilon_R
\]  

The full model, shown in Equation (2), includes exactly the same indicators as the first model except for the full achievement indicators. In this model, \( \beta_F \) is the secondary effect of social origin, the impact of background net of mediation through academic achievement, whereas the difference between the total and the secondary effect of social origin is the primary effect:

\[
Y_F = \alpha_F + \beta_F \text{Origin} + \gamma_F \text{Achievement} + \delta_F \text{Concomitants} + \epsilon_F
\]
Results

Table 2 presents the results of three models. The first is a baseline model that includes the control variables and achievement indicators. The second model adds social origin indicators and residualised achievement indicators to test whether effects of social origin could be found. The third model controls for achievement indicators, which leaves social origin effects net of transmission through achievement.

As expected, both engagement and the two achievement indicators are positive and highly significant, indicating that both academic achievement and societal involvement increase the likelihood of receiving a scholarship. The effect of GPA for final secondary examinations seems more decisive than students’ current academic performance. A one-unit increase of this variable (almost one standard deviation) increases the likelihood of receiving a scholarship by a factor of $e^{0.80} = 2.22$ compared with $e^{0.63} = 1.88$ for current academic performance. Controlling for other variables, being involved translates to an increase of $e^{0.79} = 2.20$ times the likelihood of receiving a scholarship.

While age does not have an effect on the likelihood of receiving a scholarship, we found that female students are systematically disadvantaged ($e^{-0.35} = 0.71$), pointing to a substantial gender gap in the distribution of scholarships.

Table 2. Logistic regression results.

<table>
<thead>
<tr>
<th></th>
<th>Baseline model</th>
<th>Reduced model</th>
<th>Full model</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA Abitur</td>
<td>0.80*** (0.06)</td>
<td>0.79*** (0.06)</td>
<td></td>
</tr>
<tr>
<td>Current GPA</td>
<td>0.63*** (0.06)</td>
<td>0.63*** (0.06)</td>
<td></td>
</tr>
<tr>
<td>Involvement</td>
<td>0.79*** (0.11)</td>
<td>1.00*** (0.12)</td>
<td>0.78*** (0.12)</td>
</tr>
<tr>
<td>Class background</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Reference: upper service class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower service class</td>
<td>−0.19 (0.14)</td>
<td>−0.17 (0.14)</td>
<td></td>
</tr>
<tr>
<td>Intermediate class</td>
<td>−0.38*** (0.18)</td>
<td>−0.35* (0.18)</td>
<td></td>
</tr>
<tr>
<td>Self-employed</td>
<td>−0.58*** (0.22)</td>
<td>−0.47*** (0.22)</td>
<td></td>
</tr>
<tr>
<td>Worker</td>
<td>−0.18 (0.21)</td>
<td>−0.04 (0.21)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>−0.17 (0.34)</td>
<td>0.20 (0.35)</td>
<td></td>
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<tr>
<td>Higher education: father</td>
<td>0.09 (0.14)</td>
<td>−0.01 (0.14)</td>
<td></td>
</tr>
<tr>
<td>Higher education: mother</td>
<td>0.32*** (0.12)</td>
<td>0.16 (0.12)</td>
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<tr>
<td>Field of study</td>
<td></td>
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<tr>
<td>Reference: cultural studies and linguistics</td>
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<tr>
<td>Education</td>
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<td>−0.62*** (0.27)</td>
<td>−0.58*** (0.27)</td>
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<td>Business and law</td>
<td>0.18 (0.19)</td>
<td>0.16 (0.19)</td>
<td>0.17 (0.19)</td>
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<td>Natural science</td>
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<td>−0.02 (0.19)</td>
<td>−0.22 (0.19)</td>
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<td>Medicine</td>
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<td>0.46*** (0.20)</td>
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<td>0.18 (0.18)</td>
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<td>Arts</td>
<td>0.80*** (0.27)</td>
<td>0.77*** (0.27)</td>
<td>0.78*** (0.27)</td>
</tr>
<tr>
<td>University of applied sciences (Fachhochschule)</td>
<td>0.34** (0.14)</td>
<td>0.37** (0.14)</td>
<td>0.38*** (0.14)</td>
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<td>Age</td>
<td>0.00 (0.01)</td>
<td>−0.02 (0.01)</td>
<td>0.00 (0.01)</td>
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<tr>
<td>Female</td>
<td>−0.35*** (0.11)</td>
<td>−0.14 (0.11)</td>
<td>−0.35*** (0.11)</td>
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<tr>
<td>Constant</td>
<td>−3.93*** (0.38)</td>
<td>−3.56*** (0.41)</td>
<td>−3.81*** (0.42)</td>
</tr>
<tr>
<td>Pseudo-$R^2$</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>$\chi^2$</td>
<td>560.31</td>
<td>573.27</td>
<td>573.27</td>
</tr>
<tr>
<td>Degrees of freedom</td>
<td>13</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: Student Survey University of Konstanz.
Note. $N = 11,436$.
$p<0.10; **p<0.05; ***p<0.01$
There are also some significant differences between subjects. However, these are difficult to interpret as scholarship programmes may differ regarding their target group; that is, it cannot be ruled out that art students are simply overrepresented among scholarship recipients because of the number of scholarship programmes that are specifically targeted at art students. Contrary to expectations, students at the less prestigious universities of applied sciences are more likely to receive a scholarship compared with students at traditional universities ($e^{0.34}=1.40$).

The second model tests for total effects of social origin. All coefficients of father’s occupational class and parents’ education level turn towards the expected direction, but some lack statistical significance. Comparing the reference category of students from the upper service class with all other students shows negative log odds. While the negative log odds of the lower service class, workers and others are not significant, they are significantly negative for students from an intermediate class and self-employed backgrounds (odds ratios are $e^{-0.38}=0.68$ and $e^{-0.58}=0.56$, respectively). While the log odds for father’s education are not significant, having a tertiary-educated mother significantly increases the likelihood of receiving a scholarship ($e^{0.32}=1.38$). Summing up, the first hypothesis is partly confirmed as mothers’ HE increases students’ chances of receiving a scholarship, and students whose fathers are self-employed or who are in an intermediate occupation are significantly disadvantaged. However, the effect of social origin does not seem to be linear but rather curvilinear.

In the third model, both achievement and social origin variables are included, allowing us to test whether social origin effects persist net of academic achievement. Controlling for students’ achievement, students with a self-employed or intermediate class background are significantly less likely to receive a scholarship, meaning that their disadvantage is due to the secondary effects of social origin. The opposite is found for mothers’ education. Here, log odds decrease and lack significance, revealing that the effect of mothers’ education is particularly transmitted through educational achievement.

Table 3 presents an overview of the relationship between the primary and secondary effects of social origin. The first column shows the confounding ratio, the ratio between the total and direct effects of social origin. The confounding percentage expresses how much of the total effect is mediated by the achievement indicators. These two columns emphasise the findings already described. The total effect of having a working-class background is more than four times higher than the direct effect, pointing to the fact that the negative but insignificant log odds of working-class students can be mainly attributed to a primary effect of social origin; that is, to poorer academic performance. In contrast, differences in the likelihood of receiving a scholarship between upper service-class students and those of

<table>
<thead>
<tr>
<th>Variable</th>
<th>Confounding ratio</th>
<th>Confounding percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class background (reference: upper service class)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower service class</td>
<td>1.08</td>
<td>7.31</td>
</tr>
<tr>
<td>Intermediate class</td>
<td>1.09</td>
<td>8.55</td>
</tr>
<tr>
<td>Self-employed</td>
<td>1.25</td>
<td>19.93</td>
</tr>
<tr>
<td>Worker</td>
<td>4.43</td>
<td>77.45</td>
</tr>
<tr>
<td>Other</td>
<td>−0.85</td>
<td>217.88</td>
</tr>
<tr>
<td>Higher education: father</td>
<td>−6.27</td>
<td>115.94</td>
</tr>
<tr>
<td>Higher education: mother</td>
<td>2.05</td>
<td>51.30</td>
</tr>
</tbody>
</table>

Source: Student Survey University of Konstanz.
lower service class, intermediate class and self-employed class are not largely attributable to confounding. Rather, additional class effects apart from achievement are prevalent.

The group of students whose fathers are not active in the labour market needs to be considered. Their confounding ratio is negative, while their confounding percentage is large. This indicates that primary effects have such a large effect that they actually reverse the class impact. This also explains why log odds change their directions when controlling for the mediating class effect through achievement.

Concerning parents’ education, Table 3 shows that about half of the effect of mothers’ tertiary education is attributable to its positive impact on students’ achievement. Fathers’ education had marginal effects. These are fully explained with reference to students’ achievement.

Conclusion

The aim of this article was to analyse the distribution of scholarships among students in Germany and to describe the factors that explain this distribution. We were particularly interested in determining whether students from privileged family backgrounds have a higher likelihood of obtaining a scholarship in Germany. How scholarships are distributed, which eligibility criteria apply and selection processes are certainly interesting in light of Germany’s recent shift in HE policy to promote academic excellence. For this reason, it can be expected that the number of scholarships will increase further.

We proposed a three-stage model of how social origin could affect the likelihood of receiving a scholarship. First, students with a higher social origin are more likely to receive a scholarship as they perform better in school and at university and are thus more likely to be eligible for scholarships.

Second, students with a higher social origin are more likely to apply for scholarships because of the class-specific perceptions of costs, benefits and the likelihood of success. In light of educational expansion and the opening up of HE, the upper classes’ strategies to diminish the risk of downward mobility might be to seek qualitative advantages to stand out from the crowd. In addition to enrolling at specific HE institutions and in specific fields of study, which have been confirmed to be means of differentiation in other HE systems, other awards – such as receiving a scholarship – could be perceived as an additional way of distinguishing oneself. Therefore, we proposed that Lucas’ theory of Effectively Maintained Inequality not only applies to decisions made within the formal education system but also to other education-related decision-making processes in order to achieve additional awards. As a consequence, these awards may help to ensure a smoother transition to the labour market, to increase career objectives and, ultimately, to secure status positions.

Third, working-class students could be at a disadvantage during the screening process because they are confronted with greater obstacles and social distance in the selection rounds. However, due to data limitations, it was not possible to separate the last two effects from each other.

The analysis confirmed that mothers’ HE has a significant effect on the likelihood of receiving a scholarship, pointing to the fact that the HE experience of the mother in particular stimulates academic achievement. As students with a working-class background exhibit the largest distance from the academic environment, it was expected that they face the greatest difficulties in the scholarship application and selection procedure and would be the most disadvantaged. Yet, contrary to our expectations and previous descriptive findings,
the likelihood of students from the working class receiving scholarships was not significantly different than the likelihood of students from the upper service classes receiving scholarships when controlling for a number of other factors. Instead, it was found that students with self-employed fathers and fathers in intermediate occupations were significantly disadvantaged when it comes to receiving scholarships. Only part of this effect could be attributed to differences in academic achievement, meaning that these effects are due to a social origin bias in the application or selection process.

What implication can be drawn from these findings? First, the curvilinear pattern of scholarship likelihood based on fathers’ occupational class is remarkable. An explanation could be the growing awareness of unequal educational opportunities leading to initiatives where students from disadvantaged backgrounds in particular are promoted. This may also explain why students with inactive fathers are overrepresented. Yet countervailing measures do not seem to apply to students from intermediate class backgrounds and those with self-employed backgrounds. The low proportion of students with self-employed backgrounds may be explained with reference to their ‘culture of independence’ (Ishida, Müller, and Ridge 1995, 171), making them free of educational credentials. Yet whether the disadvantages of students with an intermediate class background are mainly caused by the effects of self-selection or selection needs to be clarified.

While private organisations have fewer obligations to justify whom to support, public scholarships are subject to particular issues of legitimacy. The Federal Ministry of Education and Research, which partially funds these scholarships, refers to the functionality of modern societies where talent needs to be promoted to serve as societal leaders and role models in the future (BMBF 2013, 3). Yet if the most advantaged benefit the most from these scholarships, additional resources are provided to some who may not need them. Social class determines how much time a student dedicates to work in order to finance studying, thus limiting the time left for studying or social engagement and thus eligibility for scholarships (Roksa 2010). Particularly in light of the increasing importance attached to promoting excellence within German HE, the question of how to identify the most talented becomes pivotal.

Our findings point to a number of open questions. One is the privileged access to scholarships among males and students at universities of applied sciences, especially in light of the following aspects. Students at universities of applied sciences have lower cognitive abilities and are often ‘educational climbers’ who are less familiar with the HE system (Kramer et al. 2011). There is probably a larger number of professionals in continuing education receiving private sponsoring from their companies, which explains the higher likelihood of receiving a scholarship both among males and students at universities of applied sciences.

Yet the substantial gender gap could also be attributable to differences in educational strategies. Previous research has found that women are less certain about university enrolment, act less strategically within the educational sphere and have lower aspirations, while men attach greater importance to extrinsic factors and are more likely to enrol in select institutions and in the most rewarding fields of study (Davies and Guppy 1997; Tolsma, Need, and de Jong 2010). Perhaps women are less self-confident concerning their chances and behave less confidently in the selection process and are therefore less likely to receive scholarships?

More fine-grained data are also needed concerning the dependent variable. The German Student Survey lacks details on the type of scholarships received. This is pivotal information
because scholarship programmes are manifold, as are their eligibility criteria. It is particularly important to differentiate between public and private types of sponsorship.

In addition, the underlying mechanisms leading to the observed distribution need to be researched in detail. In this analysis, the effects of social origin were decomposed into those that are transmitted through achievement and the residual effects of social origins. We argued that these are either effects of self-selection due to differences in application decisions or selection effects that lead to class-specific success rates during the selection process. The existence of both effects needs to be examined in the future.

The applied methodology does not circumvent incorrect causal inferences. While the causal effect of social class on educational attainment is profound, less is known about the observed relationship between students' achievement, involvement and receiving a scholarship. It is possible that, due to the financial relief, students receiving scholarships have more time to dedicate to studying and voluntary engagement rather than working, thus resulting in a reverse causal relationship.

Finally, in addition to the monetary incentive, most scholarship programmes offer alumni networks and access to university staff or workshops, thus promoting social and cultural resource development in the long term. A longitudinal study on the effects of scholarships on study outcomes and career development could substantiate this claim.

Notes

1. As the result of two processes, the effects of social origin diminish during the educational career. First, the effects of social origin decline at branching points as the parental influence diminishes during the life course (Blossfeld and Shavit 1993). Second, because of filtering at earlier transitions, only the brightest from the less privileged social groups attain HE (Mare 1980).

2. Doctoral candidates were excluded from the sample.

3. Note that the ratio of total population to scholarship recipients is disadvantageous but should not negatively affect the analysis because the sample size is quite large (Peng, Lee, and Ingersoll 2002).

4. For two reasons, fathers' occupation is preferred here over the usual operationalisation of social background by highest occupational position of both parents. First, the Erikson–Goldthorpe scheme is not a strict hierarchical scheme. Second, due to earlier selection processes in the German educational system, students in tertiary education are already a privileged group in terms of social background. An indicator based on parents' highest occupational class would result in a very left-skewed distribution.

5. For comparability of achievement indicators across federal states, final examination grades were standardised by states. Because of the federal organisation of education, the set-up of final school examinations varies.

6. Before the implementation of the Bologna process, students had to take pre-examinations after several semesters.

7. As participation in sports clubs and cultural activities are convenient hobbies rather than engagement, these activities were only coded as engagement if respondents indicated they held an office within the sport clubs or cultural groups.

8. The correlation between fathers' class and the dummy for fathers' tertiary education is −0.55. Identical models were run excluding social class, revealing a larger and positive effect of fathers' tertiary degrees but this was insignificant and less than the effect of mothers' tertiary education, indicating that mothers' education has a vital impact.
Disclosure statement

No potential conflict of interest was reported by the authors.

References


