

# Identifying the Information Gap: Measuring the Role of Misperceptions in Student Aid Non-Take-Up\*

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## Abstract

Social benefits programs aim to tackle social inequality, but across the world, take-up is often less than half of eligibility rates. Using survey data from 22,222 students in Germany, we identify students who are eligible but do not take up student aid, and analyze how misperceptions about personal eligibility and about the program itself drive non-take-up. We find that 78.6% of eligible students who do not receive aid mistakenly believe to be ineligible, and that misperceptions about the eligibility criteria determine their non-take-up. Additionally, having a close friend or family member who receives aid significantly increases the likelihood of take-up, indicating that sharing experiences and knowledge plays a crucial role. The results suggest that informing individuals about their entitlement and the program, in combination with providing clear instructions on how to claim aid, can increase take-up and help reduce social inequality.

**Keywords:** non-take-up, misperceptions, social benefits, federal student aid

**JEL Codes:** I22, I23, I38, H53, D84

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# 1 Introduction

Across the world, most social benefit programs only reach half or less of the eligible people (Ko & Moffitt, 2022). Most people do not take up the aid they are entitled to because they are unaware of the programs or face too high transaction costs for take-up (Currie, 2006; Eurofound, 2015). The same applies to student aid, where many eligible students do not take up their entitlements, both in the US (Bettinger et al., 2012; Bird & Castleman, 2016; Kofoed, 2017; Dynarski et al., 2021) and Europe (Booij, Leuven & Oosterbeek, 2012; Herber & Kalinowski, 2019; Fidan & Manger, 2022). Non-take-up, however, leads to prolonged study times (Avdic & Gartell, 2015), lower grades (Stinebrickner & Stinebrickner, 2003; Callender, 2008), higher dropout rates (Glocker, 2011; Triventi, 2014), and lower income in the long term (Bettinger et al., 2019; Denning, Marx & Turner, 2019). Yet, it is unclear why students do not take up student aid even though they are eligible.

Providing information alone is often insufficient to increase take-up, which suggests that unawareness about student aid programs is not a main driver (Bettinger et al., 2012; Booij, Leuven & Oosterbeek, 2012; Marx & Turner, 2020; Bird et al., 2021). Yet, the complexity of the application process seems to be an important factor for non-take-up (Hoxby & Turner, 2015; Castleman & Page, 2016; Dynarski et al., 2021). Additionally, other potential drivers of non-take-up are the lack of self-control (Cadena & Keys, 2013), choice overload (Marx & Turner, 2020), as well as debt and risk aversion (Booij, Leuven & Oosterbeek, 2012; Fidan & Manger, 2022). Apart from these drivers, it is likely that some students underestimate their own potential entitlement and do not take up student aid even though they are eligible. Yet, there is no evidence of how misperceptions about individual eligibility and the student aid programs' eligibility criteria drive non-take-up.

In this paper, we aim to fill this gap by estimating how misperceptions drive the non-take-up of student aid in Germany. Germany offers a unique context to analyze this question as it follows a low-tuition, low-aid strategy (Dynarski, Page & Scott-Clayton, 2023). That is, the large majority of universities are public and students only pay an administrative fee of

approx. €600 per year for studying. In turn, there is only one means-tested federal financial aid program for all students, which is well-known to the student body. This allows us to focus only on this student aid program to measure misperceptions about the program and about individual eligibility and analyze how these misperceptions relate to take-up.

In a survey among 22,222 enrolled student aid receivers and non-receivers across Germany, we use three hypothetical case scenarios of student aid receivers to elicit misperceptions about the student aid eligibility criteria. In each scenario, we present a case of a student aid receiver and provide the necessary information for the participant to assess (i) how much student aid one can receive per month, (ii) how much parents can earn for a given entitlement, and (iii) how much has to be paid back. Based on these answers, we can measure how well the participants perceive the criteria of student aid and analyze if the misperceptions are predictive of non-take-up. Additionally, we elicit the sociodemographic background and their economic situation. This allows us to determine which students are eligible but do not take up student aid and simulate how much aid they are foregoing each month. By asking the non-receivers if they believe to be eligible for student aid and for their reasons for non-take-up, we can analyze the determinants of non-take-up separately for students who falsely believe to be ineligible and those who believe to be eligible but still do not take up student aid.

We find that among the non-receivers with a positive student aid entitlement, 78.6% of the students mistakenly believe to be ineligible. On average, they forego €635 per month. Half of them state that they did not apply because their parents' income is too high. This shows that misperceptions about one's own eligibility are a strong determinant of non-take-up. Additionally, the students have significant misperceptions about the eligibility criteria for student aid. They significantly underestimate how much student aid one can receive per month and how much parents can earn for a given entitlement, and overestimate how much they need to pay back. That is, students not only misperceive their own eligibility but also eligibility criteria in general.

These misperceptions drive non-take-up. For the students who believe to be ineligible, we find that strongly underestimating the monthly student aid amount and the income thresholds for parents are significantly associated with non-take-up, as well as the overestimation of the repayment amount. For the students who believe they are eligible, only the overestimation of the repayment amount drives non-take-up, which suggests that they make an informed decision against take-up. Additionally, a larger need for student aid is predictive of take-up, as well as having a student aid receiver among close family and friends. This suggests that eligible students benefit from the knowledge about student aid and experience with its application process from the receivers among their family and friends.

We contribute to two strands of the literature. First, there is a large literature on the determinants of non-take-up of social benefits. In their extensive collection of benefit programs, Ko & Moffitt (2022) show that most programs across the world only have take-up rates around 50%, while there are many programs with even lower rates between 32-37%. The most common drivers of non-take-up are unawareness about the programs themselves and the foregone gains that come with them, followed by the high transaction cost of claiming the benefits (Currie, 2006; Eurofound, 2015) and stigma (Andrade, 2002). For student aid in particular, the complexity of the application process has been shown to be an important driver of non-take-up (Bettinger et al., 2012; Marx & Turner, 2020; Dynarski et al., 2021), while the evidence on other determinants is mixed. Yet, to the best of our knowledge, there is no analysis of how misperceptions about own eligibility and about the eligibility criteria of social aid programs relate to take-up. This paper aims to address this gap by introducing the different dimensions of misperceptions as determinants for non-take-up.

Second, we contribute to the literature on understanding the non-take-up of student aid. While the existing literature uses third-party observational data (Cadena & Keys, 2013; Kofoed, 2017; Bettinger et al., 2019; Herber & Kalinowski, 2019; Erwin & Binder, 2020; Fidan & Manger, 2022) or field experiments (Bettinger et al., 2012; Booij, Leuven & Oosterbeek, 2012; Hoxby & Turner, 2015; Castleman & Page, 2016; Marx & Turner, 2020;

Bird et al., 2021; Dynarski et al., 2021), there is no study that can identify the group of eligible non-receivers of student aid and provides evidence for the determinants of non-take-up among this sample based on survey data. Using a large-scale online survey, we show that the majority of eligible non-receivers are not aware of their own eligibility and provide evidence on how misperceptions drive their non-take-up and what reasons they state why they did not take up student aid.

## 2 Institutional Context

The federal financial student aid program in Germany, called BAföG, was introduced in the year 1971. It is the only need-based student aid program and aims to ensure equal educational opportunities for all German students (Deutscher Bundestag, 2023). However, only 11% of students receive federal student aid with a decreasing tendency (Destatis, 2023).

In 2023, the maximum amount of student aid for single childless students who are not living with their parents was €812 per month, excluding health insurance. The student aid's purpose is to cover living expenses and not tuition, as students in Germany do not have to pay tuition for attending university besides an administrative fee of approx. €600 per year. The student aid is split equally into a grant and an interest-free loan. The maximum loan amount that must be repaid is €10,010, with repayments beginning five years after the end of the first degree. Different deferral options are possible if the income is insufficient at the point of repayment and after a maximum of 20 years, the remaining loan is forgiven.

To qualify for financial aid, students must be pursuing an initial degree at a higher education institution and have German citizenship or a permanent residency with proof of a perspective to stay in Germany. Furthermore, they are not allowed to be over the age of 45 when beginning their degree and must be within their respective standard period of study. Students fulfilling these requirements are called institutionally eligible.

The information on BAföG is freely available and the students can apply for BAföG

physically and digitally. Starting from the maximum amount of student aid of €812, the actual need for financial aid is calculated based on the information in the application. Additions to the maximum amount may apply due to financial necessities, such as covering your own health insurance or having your own children.<sup>1</sup> Students are permitted to earn €520 per month and have assets of up to €15,000.<sup>2</sup> Any additional money is deducted from the student's needs.

As the financial aid is targeted at students whose parents cannot fulfill their legal obligation to grant child support until the child has obtained its first professional qualification, the primary means-test is performed on the parents' income. After accounting for a wide range of economic and social circumstances<sup>3</sup>, the amount of child support payable by the parents is determined and deducted from the students' needs. In further steps, deductions are made for the student's own income and wealth, as well as their spouse's income, to determine the monthly student aid amount the respective student is entitled to.

In 2023, 335,000 students received €611 in student aid per month, on average, accumulating to €1.3 billion in grant payments and €1.2 billion in granted loans (Destatis, 2023). Out of all 2.97 million students in Germany, 11.7% received student aid, respectively. Considering that not every student can receive student aid, take-up is 14.9% as 2.25 million students in Germany are institutionally eligible (Destatis, 2023; Deutscher Bundestag, 2023). Even though merit-based scholarships exist in Germany, they are not widely spread. Only 4% of the students receive scholarships besides federal student aid. The large majority of students cover their living expenses through financial support from their parents and by working in addition to attending university (Kroher et al., 2023).

Given its unique character as the only need-based student aid in Germany, the BAföG allows us to focus only on this program to understand the role of misperceptions on student

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<sup>1</sup>The maximum amount is increased to €934 if the student is not health insured through their parents. The amount is increased by €160 for each child of the student.

<sup>2</sup>For students older than 30, the wealth threshold is €45,000.

<sup>3</sup>The student aid calculation takes into account among other specificities how many children parents need to take care of, their marital status, their retirement savings plans, or their job situations.

aid take-up. As we know from microsimulations with representative data, at least 40% of the eligible students do not take up student aid (Herber & Kalinowski, 2019), which allows us to identify the group of eligible non-receivers and analyze the determinants of non-take-up separately for those who believe to be eligible and those who falsely believe to be ineligible.

## 3 Data and Sample Preparation

### 3.1 Data Collection

We use an incentivized online survey distributed among enrolled students at all 83 public universities in Germany. The survey was conducted in two waves six months apart.<sup>4</sup> In the first wave, collected from May 2 to May 31, 2023, 22,222 students participated, of which 17,636 gave consent to be contacted again for the second wave. In the second wave, collected from November 2 to December 15, 2023, 12,096 participated again. In both waves, students could participate in a lottery to win 100 times €25 in the first wave and 200 times €50 in the second wave, respectively. Median participation took approx. 15 min in the first and approx. 12 min in the second wave.

Within both survey waves, students were asked about their income by entering how much money they receive from different sources, as depicted in Figure A.1.1. One of the sources was student aid. A positive income from student aid is classified as take-up. In the first wave, participants were additionally asked about their parents' monthly net income thresholds in increments of €500. This question was asked for both parents separately. Additionally, students had to indicate their confidence in these income thresholds using a slider from 0-100%, as shown in Figure A.1.2. In addition, students are asked for their age, degree, semester, marital status, number of siblings, housing situation, their parents' marital status, and whether they had previous secondary training. This information is part of the student

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<sup>4</sup>The data collection was split into two waves due to the evaluation of a randomly assigned information intervention among the non-receivers. The experiment is described and analyzed in the companion paper (see Riedmiller, 2024).

aid's means-test. Furthermore, we elicited reasons for non-take-up among the non-receivers by asking students to indicate on a 5-point Likert scale, which reasons apply to them or not, shown in Figure A.1.3. Some of these reasons were "I cannot receive student aid due to previous training(s)" and "I cannot provide the necessary certificate of performance", which indicate that a student may not be eligible.

We elicited potential misperceptions about student aid in two ways. First, we asked non-receivers if they think they would receive student aid if they filed an application. Answers are given on a 5-point Likert scale ranging from "Definitely no" to "Definitely yes". This allows us to understand if students knowingly decide against receiving student aid in case they are eligible or if they misperceive their individual eligibility. Additionally, we use three hypothetical case scenarios of student aid receivers to elicit how well participants assess the amount of student aid one can receive per month, the possible income thresholds for parents for a given entitlement, and the repayment amount. A detailed description of the misperception elicitation is provided by Riedmiller (2024). In addition, students are asked about the maximum amount of student aid one can receive and about the average student aid amount. The answers to these scenarios and questions allow us to understand if students have general misperceptions about the eligibility criteria for student aid.

In addition to these variables, we also elicited the student's debt aversion using a 10-point Likert scale as a potential determinant of non-take-up. Furthermore, we ask students if someone in their closest circle receives student aid in the first wave. In the second wave, we asked students about their migration background and if one or both of them have a higher educational degree.

### **3.2 Misperceptions as Determinants of Non-Take-Up**

Based on the survey questions, we use different variables as determinants of non-take-up. For the misperceptions, we distinguish between the misperceptions about individual eligibility measured by the respective Likert scale question, and misperceptions about student aid



in general. For the latter, we use the questions from the hypothetical scenarios and the maximum and average student aid amount, as shown in Appendix A.2. More specifically, the first misperception is the deviation from the maximum amount of student aid. Students can receive a maximum of €812 if they are still insured through their parents, which is the regular case for students in Germany. Hence, the correct answer to the question on the maximum amount of student aid is €812. If students underestimate this value, they might think that one can receive less money than is actually true and might be more reluctant to take up student aid.

The second misperception we use is on debt repayment. One of the scenarios was designed to elicit if students have a good assessment of how much student aid needs to be paid back. A specification of this scenario stated that the student received a total of €30,000 in student aid over time and asked how much needs to be paid back. Since the debt one can accumulate through student aid is capped at €10,010, this question was designed to elicit whether students know about this debt cap or not. If they overestimate the debt, they might be more reluctant to take up student aid due to debt aversion.

Lastly, we also use misperceptions about student aid amounts and income thresholds for parents. For both dimensions, students received a scenario that presented a case of a student aid receiver and all necessary information to assess how much aid the student receives per month in the first case and how much parents' can earn for a given entitlement in the second case. We use the deviation from the correct value of €762 as a determinant of non-take-up for the first question. It is possible that students with especially low answers are much more reluctant to apply as they think that student aid is not helping. For this reason, we also include the deviation from the correct amount in quadratic form as a determinant of non-take-up. The misperceptions about the income thresholds for parents are sorted into 5 categories of €15,000 in size, centered around the correct value of €50,000. The first category comprises answers of an income for parents below €27,500, the second from €27,500 and below €42,500, and so on, with the fifth category consisting of answers above €72,500.

### 3.3 Non-take-up simulation

Non-take-up is defined as not applying for student aid even though one would receive a positive student aid amount. Since the student aid entitlement is not observable without an application, we need to estimate the potential aid amount for each student based on their individual situation. We use a microsimulation model that rebuilds the means-test performed within the student aid application process. For this, we first identify students who fulfill the institutional eligibility requirements. Second, we only include students who do not receive other social benefits as these are often mutually exclusive to receiving student aid and require students to be institutionally ineligible. Lastly, only observations with complete information to perform the means-test are included. For the resulting sample, we simulate the student aid amount the students would receive in case of an application.

To test the validity of the microsimulation model, we use the students who receive student aid to compare the simulated aid amounts from the model to the actual aid amounts they receive. That is, we calculate the beta error rate, which is defined as the number of ineligible students who report a positive student aid amount divided by the total number of all students with student aid (Frick & Groh-Samberg, 2007; Harnisch, 2019; Herber & Kalinowski, 2019), as shown in formula 1.

$$\text{Beta Error Rate (BER)} = \frac{\text{Take-Up} = 1 \cap \text{Eligibility} = 0}{\text{Take-Up} = 1} \quad (1)$$

The BER shows us how well the microsimulation fits the actual take-up data. In case of a high BER, it is likely that students misreported their take-up or their parents' income. While the former should not be a problem as the survey is completely anonymous, the second might cause issues as students do not know how much their parents earn. Therefore, students in our survey were asked for monthly income thresholds in €500 increments to avoid point estimates, and students had to indicate how confident they were in their parents' income reports. Additionally, some students might be misclassified due to exceptional factors such

as having a disabled sibling, which was not part of the survey.

### 3.4 Sample Selection and Simulation

To set up the sample, we apply the steps outlined above. First, all institutionally ineligible students were dropped. These students include but are not limited to internationals, long-term students and students that exceed the age restriction for federal student aid. This reduced the number of observations from 22,222 to 17,988. Then, 611 students were dropped due to receiving other forms of social benefits or previous secondary training. In a final step, 1,222 participants were dropped where relevant variables for performing a means-test and simulating the possible student aid amount were missing. The full sample, therefore, consists of 16,155. Of these, 7,799 participated in the second wave of data collection.

Some variables that are part of the means-test but not of the survey were imputed or selected systematically where necessary. This includes the student's wealth, whether the student receives health insurance through his parents or not, and the student's siblings' educational stage. The insurance is imputed via the age of the students, as adults older than 25 are no longer eligible to be covered by parental health insurance in Germany. The other imputed values were chosen to calculate the aid amount as low as possible.

For the analysis, we use the group with the least heterogeneity in potential eligibility as a baseline: students in their first university degree program and within the standard study time. As a regular bachelor's program takes three years, we only use participants within the first six semesters who were not enrolled in a master's program. Additionally, students with student aid independent of their parents' income were dropped.<sup>5</sup> This leaves a sample of 3,588 observations of institutionally eligible students of which 1,564 are student aid receivers (44%). Among the non-receivers, 501 students have a positive simulated student aid amount. With 394 individuals, 78.6% of these eligible non-receivers falsely believe to be

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<sup>5</sup>Some students can receive student aid where the parents' income is not considered for the means-test. This is the case for students in their second training or above the age of 30 if the parents state that they do not support their children financially anymore.

Table 1: Descriptive statistics by students' take-up and own eligibility belief

	Eligible	Non-Take-Up & Eligible		Receivers	
	All	All	non-believers	believers	All
	Mean	Mean	Mean	Mean	Mean
<b>Sociodemographic Background</b>					
Age	22.1	22.2	22.2	22.0	22.1
Female (0/1)	0.69	0.68	0.68	0.70	0.69
Migration background (0/1)	0.08	0.14	0.12	0.22	0.06
One parent college degree (0/1)	0.44	0.62	0.62	0.63	0.39
Studies in East Germany (0/1)	0.31	0.24	0.24	0.23	0.34
Knows receiver (0/1)	0.64	0.47	0.46	0.51	0.69
Semester	3.89	3.72	3.78	3.50	3.94
<b>Degree of needs</b>					
Simulated student aid (€)	709	621	635	568	737
Lives with parents (0/1)	0.14	0.20	0.18	0.28	0.13
Support from parents (€)	200	400	433	315	134
Prior vocational training (0/1)	0.08	0.06	0.06	0.07	0.09
Other scholarship (0/1)	0.03	0.08	0.06	0.16	0.02
<b>Behavioural Preferences</b>					
Debt affinity (Scale 0-10)	2.88	2.67	2.62	2.86	2.95
<b>Misperception Elicitation</b>					
Max. student aid (€812 correct)	817	776	772	794	830
Repayment amount (€10,010 correct)	12,708	15,187	15,519	13,964	11,914
Monthly student aid (€761 correct)	430	396	380	457	441
Parents' income (€50,000 correct)	47,236	43,887	42,169	50,213	48,308
Observations	2,065	501	394	107	1,564

Notes: The table shows the descriptive statistics for the sample of students who receive student aid or have a positive simulated student aid amount. Only observations are included that are enrolled in an undergraduate degree and are within the first six semesters. In column 1, all of these students are included. In columns 2-4, we only look at students who do not take up student aid but are eligible for it, where we report descriptive statistics separately for all of them, only for the students who believe to be ineligible, and only for the students who believe to be eligible, respectively. In column 5, only student aid receivers are included.

ineligible and forgo €635 per month, on average. Based on this sample, we have a student aid estimation of zero for 222 receivers, which amounts to a beta error rate of 14.19%, which is within the range of previous studies (Frick & Groh-Samberg, 2007; Harnisch, 2019; Herber & Kalinowski, 2019). Summary statistics for the group of eligible students are presented in Table 1.

Students are similar across most specifications with respect to their sociodemographic background. Yet, students who do not take up student aid but are eligible are more likely to have a migration background, more likely to have at least one parent with a university

degree, and less likely to know a student aid receiver.

The picture becomes more nuanced for the degree of needs. We can see that students who did not take up student aid differ from the receivers with respect to their simulated student aid, the financial support they receive from their parents, and whether they live with their parents or not. These variables are all related to each other as the simulated amount increases once a student does not live with their parents, and parents are likely to reduce their financial support once their child receives student aid. Additionally, especially students who believe they are eligible are more likely to live with their parents.

We can also see that students who did not take up student aid have stronger misperceptions. The group of students who do not believe to be but are eligible for financial aid have the largest deviations from the correct values in all four categories. They underestimated the maximum student aid per month, as well as the income threshold for parents and the monthly student aid amount from the hypothetical scenarios used for elicitation. Additionally, they overestimate the repayment amount. For the group of eligible students who do not take up student aid although they believe to be eligible, these misperceptions are smaller in all four categories and only larger for the maximum student aid and the repayment amount compared to the student aid recipients. How these misperception differences drive non-take-up will be discussed in the following section.

## 4 Results

### 4.1 Determinants of Non-Take-Up

To estimate how the different determinants influence take-up of student aid, we use a probit model where we compare the receivers to the eligible non-receivers, not considering students that were simulated as ineligible. Since there might be differential effects for students who believe to be eligible and who believe to be ineligible, we estimate three specifications: (i) the comparison of receivers to all eligible non-receivers, (ii) the comparison of receivers to eligible

Table 2: Predicted probability of non-take-up by own eligibility belief

Dependant variable: Non-take-up = 1	Take-up vs.		
	non-take-up	believers	non-believers
Regressors	odds ratio (SD Error)	odds ratio (SD Error)	odds ratio (SD Error)
<b>Sociodemographic Background</b>			
Age	1.5003*** (0.123)	1.266* (0.180)	1.503*** (0.130)
Female (0/1)	1.095 (0.208)	1.126 (0.353)	1.075 (0.220)
Studies in East Germany (0/1)	0.831** (0.0677)	0.830 (0.109)	0.857* (0.0754)
One parent college degree (0/1)	1.206*** (0.0695)	1.228** (0.0981)	1.175** (0.0766)
Knows receiver (0/1)	0.655*** (0.0483)	0.732*** (0.0852)	0.634*** (0.0506)
Semester	0.920** (0.0360)	0.869** (0.0543)	0.956 (0.0408)
<b>Degree of Need</b>			
Simulated student aid (€/100)	0.968** (0.0125)	1.004 (0.0210)	0.967** (0.0135)
Lives with parents (0/1)	1.681*** (0.170)	2.141*** (0.311)	1.455*** (0.165)
Support from parents (€)	2.344*** (0.122)	1.754*** (0.140)	2.434*** (0.137)
Prior vocational training (0/1)	0.792 (0.113)	0.804 (0.192)	0.790 (0.122)
Other scholarship (0/1)	3.460*** (0.581)	5.107*** (1.085)	2.355*** (0.466)
<b>Behavioural Preferences</b>			
Debt affinity (Scale 0-10)	0.916** (0.0327)	0.930 (0.0519)	0.914** (0.0356)
<b>Misperception Elicitation</b>			
Max. student aid (€/100)	0.940** (0.0234)	1.014 (0.0378)	0.914*** (0.0248)
Max. student aid (€ <sup>2</sup> /100)	1.018*** (0.00586)	1.021** (0.00842)	1.017*** (0.00604)
Repayment amount (€/1,000)	1.036*** (0.00554)	1.019** (0.00857)	1.039*** (0.00581)
Monthly student aid (€/100)	0.947 (0.0342)	1.038 (0.0784)	0.925** (0.0348)
Monthly student aid (€ <sup>2</sup> /100)	1.006* (0.00339)	0.998 (0.00751)	1.008** (0.00349)
Parents' income (Scale 1-5)	0.943* (0.0370)	1.068 (0.0671)	0.908*** (0.0390)
Number of Obs.	2065	1671	1958
Pseudo R-squared	0.3074	0.2523	0.3226

Notes: The table shows the odds ratios of determinants of non-take-up of student aid from probit regressions on non-take-up as the dependent variable. We compare all receivers to all eligible non-receivers in column 1, to students who believe to be eligible in column 2, and to student who believe to be ineligible in column 3. Odds-ratios < 1 relate to take-up, and odds-ratios > 1 relate to non-take-up, respectively. Robust standard errors are in parentheses.

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

non-receivers who believe to be eligible (believers), and (iii) the comparison of receivers to non-receivers who believe to be ineligible (non-believers). The odds ratios from the probit estimation are presented in Table 2. Using non-take-up as the dependent variable, odds ratios greater than 1 mean that the respective determinant drives non-take-up, while a coefficient smaller than 1 shows that the determinant drives take-up.

With respect to the students' sociodemographic background, we find that students without student aid are significantly older, more likely to have at least one parent with a university degree, and less likely to know someone who receives student aid in all three specifications. The latter finding suggests that students who are more exposed to student aid are also more likely to take up their entitlement since they can benefit from the knowledge about and experience with student aid and its application from their friends or family. Additionally, students who are studying in East Germany are more likely to take up student aid, while this effect is driven by the students who do not believe to be eligible. That is, believing to be ineligible is less likely to occur in former East Germany than in West Germany.

While take-up decreases in age, it increases in the number of semesters. This differential effect is twofold. On the one hand, students who are older are more likely to have different income sources and are more advanced in their training and, therefore, do not take up student aid. On the other hand, since we are only looking at the first six semesters of undergraduate study programs, it might be that students find out about eligibility later on and, therefore, receive student aid in later semesters rather than earlier. Nonetheless, it is unlikely that students will not take up student aid again if they have received it in earlier semesters. This is corroborated by higher semesters being more determinant of take-up in the comparison to students who believe to be eligible than to those who believe to be ineligible. While the believers deliberately decide against student aid and therefore do not take up also in later semesters, the non-believers who realize at some point that they are eligible are more likely to take up, which is why the significance of the odds ratio on semesters vanishes for this group as they do not differ to the receivers with respect to the number of semesters.

For the degree of need, we find that students who live with their parents and who receive another scholarship are less likely to take up student aid. Additionally, the take-up likelihood decreases in the amount of financial support from parents. Together with the higher likelihood for take-up among students without a parent with a university degree, these findings all point in the direction that especially students who are more financially constrained are more likely to take up student aid. In line with this, we find that the probability of take-up increases in the amount of simulated student aid. However, this is driven by the comparison to non-believers. That is, the amount of student aid is not a significant driver of take-up in the comparison of receivers to students who believe to be eligible, which corroborates that these students actively decide against take-up irrespective of the potential student aid amount they could receive.

For debt aversion, we find that students who are less reluctant to acquire debt are more likely to take up student aid. That is, students who are debt-averse do not take up student aid because of the loan part involved. While this effect is not significant for the comparison with students who believe to be eligible, the odds ratio points in the same direction.

With respect to the misperceptions, we find that especially for the comparison between receivers and non-believers, higher misperceptions are correlated with higher non-take-up. While we find that a small deviation from the correct value of the maximum student aid amount increases take-up, a large deviation is related to non-take-up, as the odds ratio greater than one for the exponential effect shows. The same picture is found for the misperception of the monthly student aid amount. In both categories, this effect is driven by the underestimation of the student aid amount. That is, especially students who severely underestimate the student aid amounts are less likely to take up their entitlement. A deviation from the correct value in the repayment amount is associated with non-take-up in all three comparisons. This effect is driven by the overestimation of repayment. That is, especially students who think that one has to repay more than the correct value are less likely to take up student aid.



For the students who believe to be eligible, misperceptions are not as strongly determinant of non-take-up, which corroborates the finding that their misperceptions are less pronounced than for the non-believers. In most categories, there is no significant difference between actual student aid receivers and those who believe to be eligible. The only significant results are that misperceptions about the repayment amount are related to non-take-up, and that strong misperceptions about the maximum student aid amount relate to non-take-up.

Taken together, the results show that student aid take-up is driven by the actual need for it, but also other factors drive non-take-up that can be tackled through targeted interventions. Both the benefit of knowing a receiver and, therefore, being more skilled to apply and the misperceptions can be tackled by interventions that make the application process easier and provide students with the necessary information about their own eligibility and the student aid's specificities.

## 4.2 Reasons for Non-Take-Up

Apart from the determinants of non-take-up, we asked all non-receivers for their reasons why they did not apply for student aid. The list of reasons and the relative frequency to whom these reasons apply is presented in Table 3. Here, we only include the students from the baseline specification who did not receive student aid and report results separately for students who are ineligible or eligible based on our student aid simulation. Additionally, we split these groups by their believed eligibility.

The most common reasons are that the student receives enough financial support from parents with 70% agreement, that they think their parents' income is too high to be eligible with 64% agreement, and that their parents said their income is too high to be eligible with 60% agreement. All these reasons are related to perceived eligibility and to the student's financial situation. Comparing the relative frequency between the eligible believers and non-believers, we find substantial differences. While 49-51% of the non-believers indicate their parents earn too much for eligibility, only 7-10% of the believers indicate this. Additionally,

Table 3: Reasons against applying for student aid

	Non-Take-Up	Non Eligible		Eligible	
		Non Believers	Believers	Non Believers	Believers
Stigma	0.04	0.03	0.05	0.03	0.09
My parents say: Parental income too high	0.60	0.68	0.19	0.51	0.10
I think: Parental income too high	0.64	0.75	0.16	0.49	0.07
Partner income too high	0.02	0.02	0.03	0.02	0.00
Certification of study within regular period	0.08	0.06	0.07	0.13	0.15
Debts	0.42	0.40	0.54	0.45	0.56
Own income too high	0.20	0.21	0.31	0.11	0.16
Application effort too high	0.41	0.36	0.46	0.51	0.62
Previous application denied	0.09	0.09	0.04	0.16	0.03
Previous education	0.10	0.10	0.03	0.13	0.07
Expected funding amount too low	0.25	0.23	0.34	0.27	0.35
Family situation too complex	0.11	0.09	0.11	0.17	0.22
Disclosure of income information	0.09	0.09	0.08	0.09	0.16
Sufficient support from parents	0.70	0.77	0.51	0.56	0.43
I do not want to receive money from the state	0.08	0.07	0.05	0.08	0.14
Own assets too high	0.44	0.55	0.34	0.12	0.11
Observations	2171	1574	96	394	107

Notes: This table shows the relative frequency of reasons for non-take-up stated by the students who do not receive student aid. The reasons were measured on 5-point Likert scales, where "Agree" and "Rather Agree" were combined into a binary variable of agreement. All non-receivers are included in column 1. In columns 2 and 3, we only look at the students who are not eligible for student aid based on our microsimulation and split them by their beliefs to be eligible. Accordingly, we only look at students who are eligible for student aid based on our microsimulation in columns 4 and 5.

43% of the eligible believers state they receive enough financial support from their parents while 56% of the non-believers say so. The same pattern holds for the ineligible students. This shows that there is a substantial misperception about the individual eligibility which stems both from the parents and the students themselves and is used as a reason not to take up student aid even despite eligibility.

Students who believe they are eligible are more likely to indicate that the application effort is too high and that they do not want to acquire debt. This suggests that they engaged with student aid and its application and then decided against it. In line with this, these students are more likely to indicate that they did not apply because the expected funding amount is too low. As we have seen that misperceptions about the monthly student aid amount are not driving take-up within the comparison between eligible believers and

student aid receivers, this suggests that they make an informed decision against student aid.

Taken together, the reasons for a non-take-up show that misperceptions might be a large driver of non-take-up, as half of the students who are eligible but are not aware of this indicate that their parent’s income is too high for eligibility. Informing them about their potential eligibility could lead to an increase in take-up.

## 5 Conclusion

The majority of people who are eligible for social benefits do not take up their entitlement and, therefore, forgo substantial benefits, which aim to tackle inequality (Ko & Moffitt, 2022). Misperceptions about one’s own eligibility and about the program itself could be driving non-take-up. We show that most people do not believe they are eligible and that their misperceptions about the program are strongly predictive of non-take-up, while people who believe they are eligible seem to make an informed decision against take-up.

In an online survey with 22,222 enrolled university students in Germany, we identify the group of students who are eligible for student aid based on their socioeconomic situation but do not take up their entitlement. Using a microsimulation that reconstructs the student aid’s means-test, we show that 78.6% of the eligible non-take-up is explained by misperceptions about their own eligibility and that these students forgo €635 per month, on average. The main reason these students state for their non-take-up is that half of them think their parents’ income is too high for eligibility. In line with that, we find that misperceptions about the eligibility criteria of student aid determine non-take-up significantly. Having a student aid receiver among close family and friends, however, is a strong determinant of take-up.

Our results suggest that misperceptions about one’s eligibility and the program’s specificities are intertwined and drive non-take-up together. To target non-take-up, it is advisable to inform people not only about the social benefit program itself but also about their potential eligibility so that both dimensions of misperceptions are resolved. As take-up is also

determined by knowing a receiver, a potential intervention to increase take-up could be to increase the transparency of the program overall by making the application accessible and promoting who is eligible for what entitlement. More transparency of social benefit programs could help to bring more people to their entitlement and tackle social inequality.

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# A Appendix

## A.1 Survey Screenshots

 **MAX-PLANCK-INSTITUT**  
ZUR ERFORSCHUNG VON GEMEINSCHAFTSGÜTERN

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### Financing your living expenses (translation from German)

In the following fields, please enter the **net amount, rounded to the nearest euro**, that you receive per month from the individual sources. If you do not receive any income from one of the sources, please enter 0. If you are unsure about individual values, please provide as accurate an estimate as possible.

Financial support from parents (incl. rent support)	<input type="text"/>	EUR per month
Financial support from family (besides parents)	<input type="text"/>	EUR per month
Child benefit for yourself	<input type="text"/>	EUR per month
Regular work	<input type="text"/>	EUR per month
Savings	<input type="text"/>	EUR per month
BAföG	<input type="text"/>	EUR per month
Scholarship (not Bafög)	<input type="text"/>	EUR per month
Loan or student loan (not Bafög, e.g. graduation aid)	<input type="text"/>	EUR per month
Child benefits for own child/children	<input type="text"/>	EUR per month
Other	<input type="text"/>	EUR per month
<b>Sum:</b>	<b>0</b>	<b>EUR per month</b>

Figure A.1.1: Question on student's income per month





## Information about your family background (translation from German)

Please estimate approximately what **net income** your parent 1 has in total per month.

- No income
- Up to 500€
- Over 500€ to 1000€
- Over 1000€ to 1500€
- Over 1500€ to 2000€
- Over 2000€ to 2500€
- Over 2500€ to 3000€
- Over 3000€ to 4000€
- Over 4000€ to 5000€
- Over 5000€ to 6000€
- Over 6000€
- I cannot estimate this

How sure are you about this answer?

Please click on the bar to select.



Figure A.1.2: Question on parent's income and confidence.



## Reasons against BAföG-application (translated from German)

Please enter the reasons why you so far did not apply for BAföG this semester/study year.

Tick the extent to which the reasons apply to you or not. You can select several reasons that apply to you.

If you are taking part in the survey from your smartphone, please use the landscape format for this question.

	Applies	Rather applies	Rather does not apply	Does not apply	Cannot make a clear statement
I get enough financial support from my parents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My spouse's income is too high	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I cannot provide the necessary certificate of performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The expected funding amount is positive but so low that it is not worth it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My family situation is too complex for a BAföG application	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not want to receive money from the state	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have too many assets (e.g. car/savings account)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have realized myself that my parents' income is too high	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My application in the past was declined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I cannot receive BAföG due to previous training(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My parents have said that their income is too high	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have too much income myself (through work and/or scholarship)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Application process is too time-consuming / application is too complex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not want to take on any debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not want to be seen as a BAföG receiver	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not wish to disclose any income information about myself and/or my parents to the BAföG office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>					

Figure A.1.3: Question on reasons against applying for student aid.

## A.2 Misperception Elicitation

### A.2.1 Student aid amount depending on parents' income

Now consider the following basic scenario, which is the same for all three questions:

Anna (22) is studying and lives in student accommodation. Her father is an employee and two years ago had a gross annual income of €60,000. Her mother is a housewife and had no income. Anna has free health and care insurance through her parents. She has no assets of her own. Her little sister Sophie (14) is still at school.

For the BAföG calculation, the income from two years ago is considered.

How much BAföG do you think Anna receives per month (in EUR per Month  $\pm 100\text{€}$ )?

### A.2.2 Parents' income for a given student aid amount

Now consider the following basic scenario, which is the same in both question tabs:

Max (20) is studying in his first semester and lives in a shared flat. He has no siblings. His mother is single and employed. His father has broken off contact and cannot be reached. Max has free health and care insurance through his mother. He has no assets of his own. Max receives €360 a month in BAföG.

For the BAföG calculation, the income from two years ago is considered.

"Unavailable" means that neither Max nor the BAföG office can find his father and he is therefore not included in the BAföG calculation.

What do you think Max's mother's gross annual income was 2 years ago (in EUR per year  $\pm \text{€}7500$ )?

### A.2.3 Student aid repayment

Sara (29) started working after completing her bachelor's degree. During her 3-year degree programme, she received €250 BAföG per month. In total, she received €9,000. Sara is paying back her BAföG loan in instalments.

How much do you think Sara has to pay back in total (in EUR  $\pm 500\text{€}$ )?

Now imagine that Sara studied for 5 years and received €500 per month in BAföG, so that she received a total of €30,000.

How much do you think Sara has to pay back in total (in EUR  $\pm 500\text{€}$ )?

### A.2.4 Maximum student aid amount

What is the current maximum BAföG rate?

Please enter the maximum rate for a student if they have free health and long-term care insurance through their parents. This answer has no influence on your lottery tickets.

In EUR per month