



SCHOOL OF
ECONOMICS AND
MANAGEMENT

Unclaimed Aid in the German Student Aid System

A Microsimulation of BAföG Eligibility and Non-Take-Up

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Contents

1	Introduction	1
2	Background	3
2.1	International Student Aid Models	7
2.2	The German Study Aid System	8
2.2.1	Declining uptake and its reasons	9
2.2.2	How BAföG Entitlements Are Calculated	13
2.2.3	Institutional Design and Policy Instruments	13
3	Data	16
3.1	Sample Description	17
4	Method	18
4.1	Microsimulation of Theoretical BAföG Eligibility	19
4.1.1	Identifying the Non-Take-Up Rate and Beta Error	22
4.1.2	Simulation Pipeline	23
4.2	Binary Choice Model	26
4.2.1	Key Predictors of Non-Take-Up	27
4.3	Model limitations	30
5	Results	32
5.1	Microsimulation: Non-take-up rates	32
5.2	Determinants of Non-take-up	34
5.2.1	Binary Choice Model	34
5.3	Sensitivity and Specification Analysis	37
5.3.1	Stability of Simulated Non-Take-Up under Income Noise	37
5.3.2	Behaviourally Motivated Eligibility Threshold	38
6	Discussion	39
6.1	Policy Implications	40
	References	41
A	Tables	i

B	Figures	v
C	Microsimulation Appendix	viii
C.1	Sociodemographic Module	viii
C.2	Student Module	viii
C.3	Student-Income Module	ix
C.4	Assets Module	ix
C.5	Parental-Income Module	x
C.6	BAföG Calculation	x
C.7	Variable Dictionary for Microsimulation Datasets	x
D	Example Calculation: Theoretical BaföG Eligibility	xiii
D.1	Total Base Need	xiii
D.1.1	Base Need	xiii
D.1.2	Housing Allowance	xiv
D.1.3	Insurance Supplement	xiv
D.2	Student Excess Income	xv
D.3	Parental Income Evaluation: Father (pid = 20156901)	xvi
D.4	Parental Income Evaluation: Mother (pid = 20156902)	xviii
D.5	Joint Parental Income and Deductions	xix
D.6	Asset-Based Contribution	xxi
D.7	Final Theoretical BaföG Award	xxii

Abstract

This paper examines the non-take-up of Germany's federal student aid program (BAföG) using microsimulation techniques based on data from the German Socio-Economic Panel (SOEP) for the years 2007–2021. With almost a decade since non-take-up of BAföG was last analysed, our study provides updated estimates that capture recent developments. This is of relevance since the share of students that take up BAföG is reported to have decreased even further in recent years. We simulate BAföG eligibility and compare it to observed take-up behavior to estimate non-take-up rates. Our findings indicate that non-take-up has increased over the past decade, with an average rate of approximately 60% during the study period. Two main factors help explain this phenomenon. First, students are less likely to apply if they expect only a small subsidy. Second, greater awareness and understanding of the application process significantly increase the likelihood of take-up. Additionally, we find a notable difference in take-up rates between East and West Germany, suggesting that cultural attitudes toward government support may influence participation.

Keywords: Non-take-up, Non-take-up of student aid, microsimulation, SOEP, student aid, student loans, BAföG.

JEL codes: I22, I23, I24, I38, H53

1 Introduction

In recent years, the issue of non-take-up of student financial aid, specifically BAföG (Bundesausbildungsförderungsgesetz), has attracted significant attention in Germany. While BAföG remains the primary policy tool for ensuring fair access to higher education, there is increasing skepticism about whether it effectively achieves its core objectives of unlocking educational potential and ensuring equal opportunities. This skepticism stems primarily from the steady decline in the number of eligible students who actually make use of BAföG (Gwosć and van der Beek, 2022; Meier et al., 2024a).

Several recent studies highlight significant structural shortcomings of the current BAföG system as central reasons behind the rising non-take-up rates. Among the main points that critics emphasize is that BAföG allowances have not kept up with the actual living costs, particularly amid rising housing prices and increasing inflation (Meier et al., 2024a,b; Staack, 2017; Gwosć and van der Beek, 2022). As of recent, some policy amendments have been made (such as the 29th BAföG amendment in 2024) in an attempt to incrementally adjust the support rates, but these attempts have to some extent been met with criticism for being inadequate. For example, student expenditures for 2024 are projected to average around 969 EUR per month, significantly more than the maximum BAföG rate of 812 EUR, even after these adjustments (Meier et al., 2024a).

Additionally, the complexity and lack of transparency in BAföG application procedures further discourage students from applying, which in turn increases non-take-up rates. Many students find the eligibility criteria unclear, which creates uncertainty about whether or not they qualify for financial support. But these barriers aren't just administrative, they're also psychological. Feelings of stigma, or discomfort with applying for what is perceived as a welfare type of benefit, play a role in that as well. So, while economic factors matter, the decision not to apply is often also shaped by information deficits and psychological factors (Gwosć and van der Beek, 2022; Staack, 2017).

This growing awareness of BAföG's limitations has resulted in demands for more thorough impact evaluations and deeper structural reforms. As Meier et al. (2024a) point out, despite annual public expenditure of approximately three billion EUR (see Table A2), there is still a lack of solid empirical assessment of the effectiveness and efficiency of the system.

This knowledge gap has a limiting effect on the ability to make evidence based policy decisions, leading instead to reforms shaped by political compromise instead of objective analysis. Some researchers, like [Gwosć and van der Beek \(2022\)](#), argue that changing this might even require a shift from the current needs-based model (Fürsorgeprinzip), which requires students to prove their financial hardship, to a more inclusive, universal support model (Versorgungsprinzip). International comparisons indicate that participation rates in countries with universal support systems are substantially higher, which suggests that systemic change could lead to improvements for Germany in this regard.

The urgency to address non-take-up is becoming ever more apparent, especially in the context of recent economic challenges, such as rising housing costs and inflation, factors that disproportionately impact students. Critics of BAföG argue that the issues extend beyond just low support rates. They point to structural issues, particularly the mix of grants and loans. For many students, especially those from economically disadvantaged families, the prospect of going into debt is enough to deter them from applying at all ([Staack, 2017](#); [Gwosć and van der Beek, 2022](#)).

In summary, the growing non-take-up of BAföG has become a key issue in the broader policy debate on educational access. Tackling this problem will require targeted reforms, clearer and more transparent application processes, and a stronger commitment to evidence-based policymaking. Making these kinds of changes is essential to ensure that public funds for student aid are distributed fairly and used effectively, ultimately helping to expand educational opportunities for students from all backgrounds.

This thesis takes a closer look at how many students in Germany are eligible for BAföG, but don't actually receive it. Using microsimulation techniques based on SOEP data from 2007–2021, we estimate the eligibility and compare that to the reported take-up to get non-take-up rates.

We also look into which kinds of students are more or less likely to apply and what factors seem to influence those decisions, whether it's the expected size of the subsidy, information barriers, or broader attitudes towards government support.

The rest of the thesis is structured as follows. The next chapter reviews the theoretical and empirical background, focusing on student aid and the concept of non-take-up. Chapter 3 provides an overview of international student aid systems and then zooms in on how

BAföG works in Germany. Chapter 4 describes the dataset and how we constructed the sample. Chapter 5 outlines the methodology, including how the eligibility simulation works and how we model non-take-up behaviour. Chapter 6 presents the results, and the final chapter discusses what these findings mean in practice and how they might be relevant for policy reform.

2 Background

Means-tested student aid in Germany (BAföG) is structured so that roughly half of the support comes as a non-repayable grant, while the other half is provided as an interest-free loan, part of which is typically canceled upon meeting certain repayment conditions after graduation. Despite the favourable terms of the program, microsimulation studies show that nearly 40% of students who are formally eligible never submit an application. This poses serious challenges to both the equity goal of making higher education accessible to all and the efficiency goal of directing public support where it can have the greatest impact ([Herber et al., 2019](#)).

This phenomenon, known as non-take-up, refers to situations where individuals meet the legal eligibility requirements but do not receive the benefit—often because they do not apply. This is different from “non-enrolment”, which also includes individuals that do not meet the eligibility criteria to begin with. In the economic context, the decision to claim aid is generally understood as a cost–benefit trade-off: students weigh the expected monetary gain against the costs of claiming, which are typically grouped into three categories: informational, procedural, and psychological. These costs tend to increase when the procedure is complex and not clearly explained ([Booij et al., 2012](#)). Estimating NTU reliably is not straightforward. It depends on having high-quality data and being able to simulate eligibility rules in detail. Studies on German social assistance, for example, show that even small mistakes in reported income can lead to NTU rates being overstated by up to ten percentage points ([Frick and Groh-Samberg, 2007](#)).

Standard economic theory predicts that students are more likely to claim benefits when the expected payout is large or long-lasting, and less likely when the application process is complicated or socially stigmatised ([Booij et al., 2012](#)). However, in the case of BaföG, the fact that part of the support is structured as a loan introduces additional behavioural

factors. Students may be discouraged from applying due to debt aversion, present bias, or uncertainty about future earnings. [Herber et al. \(2019\)](#) found that students who score high on impulsivity or impatience are significantly more likely to not take up BAföG. Conversely, those with an older sibling who has already gone through the application process are much more likely to apply, suggesting that informal networks help lower informational barriers. Research from Belgium supports this picture, finding that information-related barriers are often more important than administrative complexity or stigma in explaining why people do not claim benefits they are entitled to ([Fidan and Manger, 2021](#); [Herber et al., 2019](#); [Bolland et al., 2024](#)).

Estimates of BAföG NTU in Germany cover a broad range. Most studies report rates between 40–70%, depending on the data, simulation rules, and time period examined ([Goedemé and Janssens, 2020](#)). Several microsimulation studies based on data from the German Socio-Economic Panel (SOEP), a large longitudinal survey of private households in Germany, such as [Herber et al. \(2019\)](#) and [Bruckmeier and Wiemers \(2012\)](#), find rates around 35 to 50%. However, these estimates are based on earlier SOEP waves and do not capture more recent developments. Other analyses point to higher figures, particularly when relying on more recent samples. This variation reflects both methodological differences and the sensitivity of NTU estimates to income measurement, eligibility modeling, and reporting accuracy.

The microsimulation by [Herber et al. \(2019\)](#) furthermore finds that a 100 EUR increase in monthly BAföG payments reduces the likelihood of non-application by roughly one percentage point. Their findings also highlight the importance of family context, as students who have a sibling who already claimed BAföG are significantly more likely to apply themselves ([Frick and Groh-Samberg, 2007](#); [Bruckmeier and Wiemers, 2012](#)). They further find that students raised in former East Germany tend to claim more often, suggesting that local norms and social context also play a role.

Although BAföG has its own specific features, such as the combination of grants and loans, the issue of NTU is not limited to student aid. Many other means-tested welfare programs in Germany face similar challenges. Across different studies, NTU rates remain notably high, typically between 40 and 70% depending on the program and the way eligibility is measured. To put the BAföG case in a broader context, the selected studies

listed in Table 1 illustrate both the magnitude of this issue and the diversity of empirical approaches used to estimate NTU rates in Germany.

Author(s)	Year	NTU (%)	Year of Data	Data Source	Program Type
Frick and Groh-Samberg	2007	67	2002	SOEP	SA
Herber et al.	2016	36–40	2002–2013	SOEP	BAföG
Bruckmeier et al.	2013	34–43	2008	EVS	BSS
Bruckmeier and Wiemers	2018	43	2013–2014	SOEP	SA
Bruckmeier and Wiemers	2018	87	2013–2014	SOEP	HA
Bruckmeier and Wiemers	2018	63	2013–2014	SOEP	HA & SA
Bruckmeier and Wiemers	2018	88	2013–2014	SOEP	SCA
Bruckmeier and Wiemers	2012	41–49	2005–2007	SOEP	SA

Table 1: Selected previous estimates of non-take-up (NTU) rates for social benefits in Germany. Program type abbreviations: SA = Social Assistance, BAföG = Federal Student Aid, MTG = Means-Tested General Benefits, BSS = Basic Social Security, HA = Housing Allowance, SCA = Supplementary Child Allowance.

Germany’s experience is not unique. For example, Dutch administrative data reveal that about 24% of eligible first-year students do not take up the means-tested supplementary grant. Surprisingly, a third of these non-claimants simultaneously take out student loans, which strongly indicates a lack of awareness or understanding of the program ([Konijn et al., 2023](#)). Estimates of non-take-up vary widely across countries, programs, and data sources, but for means-tested social assistance schemes in OECD countries, NTU levels are frequently found to be high, often falling between 30 and 70% ([Goedemé and Janssens, 2020](#)), which is broadly in line with the range discussed earlier for the German context.

Estimating non-take-up reliably requires careful attention to data quality and eligibility simulation, and this applies to the German case as well. Even with high-quality survey data like the SOEP, small reporting errors can have a large impact. For instance, [Frick and Groh-Samberg \(2007\)](#) show that modest inaccuracies in household income reporting can shift estimated NTU rates by up to ten percentage points. This illustrates how sensitive NTU estimates can be to measurement issues, even in well-documented and commonly used datasets.

Although earlier German studies have produced careful microsimulations of BAföG take-up, they rely on SOEP waves that stop in 2013 and therefore cannot speak to developments in the past decade ([Herber et al., 2019](#); [Bruckmeier and Wiemers, 2012](#)). No national update appears to have been published since then, despite notable changes in student demographics and labour-market conditions. Using the latest SOEP data available up

to 2021, this thesis aims to produce an updated estimate of BAföG non-take-up and to present a breakdown by key characteristics such as parental income, region of upbringing, and migration background. The result is a new national-level snapshot, offering a baseline for future policy evaluation.

TIE THIS BETTER TOGETHER

Understanding non-take-up is not only of academic interest but also directly relevant to the objective of the law, which is to ensure that access to education depends on ability rather than social or economic background. Persistently high rates of non-take-up run counter to this objective, as they suggest that a significant share of eligible students are not receiving the support intended for them. By identifying the characteristics associated with non-claiming behaviour and the underlying barriers, this study seeks to inform a more effective and equitable design of student aid policy.

Clarify early on how your study specifically contributes to existing research (update since Herber et al. 2019, using latest SOEP waves)

Schwarz and Rehburg (2004) highlight how, starting in the 1970s, higher education shifted from being reserved for a small group to something more broadly accessible to the general population. This expansion, seen across much of Europe, led to a growing need for public financial support for students. Each country responded differently, some designed broad, universally available aid schemes, while others introduced more narrowly targeted programs. These differences in scope, eligibility, and administration mean that there is no unified European approach to student financial aid.

These differences in how student aid systems are set up don't just come down to choices made within the education sector, they also reflect different ideas about the role of the state in providing financial support. In countries like Germany, where social policy tends to emphasise personal and family responsibility, financial aid is often tightly means-tested and more narrowly targeted. In contrast, countries in the Nordic region have a stronger tradition of providing universal benefits, and that carries over into how they design their student support systems as well (Gwosć and van der Beek, 2022; Schwarz and Rehburg, 2004).

2.1 International Student Aid Models

When comparing the proportion of students receiving public financial aid across OECD countries, Germany proves to be one of the nations with the lowest coverage. Other OECD nations with low coverage include Austria, Croatia and Switzerland. What these countries tend to have in common is that public financial aid is narrowly targeted, focusing on students from socio-economically disadvantaged backgrounds. At the other end of the spectrum are countries such as Sweden, Denmark, Australia, and the United States, where a much larger share of students benefit from public financial aid ([OECD, 2024](#)).

These differences capture the two main design principles when it comes to public student funding, i.e. the welfare principle and the provision principle. The latter one aligns with Germany's BAföG, which is narrowly targeted to specific groups. The welfare principle on the other hand applies to systems where public aid benefits a larger share of the student population (i.e. the Nordic countries) ([Gwosć and van der Beek, 2022](#)).

Gwosć and van der Beek (2022) conduct an empirical comparison between two groups of countries in Europe, where one group consists of countries that apply the welfare principle and the other of countries that follow the provision principle. The results indicate that countries that follow the latter have a significantly greater share of students that receive public aid on average, and that public aid accounts for a greater proportion of the receiver's overall earnings. Moreover, the probability of students in these countries reporting serious financial issues is lower. The authors also look into what can roughly be translated into participation equity - which refers to proportionate representation of different social groups in higher education. They find that, to a slight extent, the countries that follow the provision principle do worse than the countries that follow the welfare principle ([Gwosć and van der Beek, 2022](#)). This raises the question of whether narrowly targeted systems like BAföG are truly effective in reaching the students who need support most, or whether broader systems, even if less precisely targeted, might ultimately be more successful in improving access.

There is however a common trend in that the main form of student aid across Europe is in the form of grants, i.e. monetary public support that is not to be repaid. These grants can cover general cost of living or more particular needs like tuition fees or accommodation. Student loans are the alternative (or even complement), where public monetary support

needs too be repaid, typically after ones studies have been completed. Typically, such loans come with low interest rates (although there are exemptions to this), often lower than interest rates on private loans in a given country ([Schwarz and Rehburg, 2004](#)).

2.2 The German Study Aid System

The Federal Training Assistance Act (BAföG) is a public student aid system supplied by the Federal Ministry of Education and Research. BAFöG is designed to financially support students, with the primary aim to promote equal opportunities in the education system and unlock educational potential ([Meier et al., 2024a](#)). The eligibility criteria for the loan is therefore relatively strict to make sure that only students who are genuinely in need of the loan have access to it.

BAföG replaced various federal state regulations pertaining to attendance at vocational and general education schools that had already been consolidated in the Education Support Act (AföG) in 1969. It also replaced other regulations that were centered around providing assistance to gifted students and were not associated with any legal entitlement. Thus, this was the first law to establish a "legally enforceable right to educational funding" ([Staack, 2017](#)).

Since the beginning, BAFöG has adhered to the principle of subsidiarity in its basic conception, which is in line with traditional welfare policies in Germany. That is the principle that smaller local units perform their own tasks and a central authority only provides help when necessary, i.e. has a subsidiary function. In the context of BAFöG, this means that first, in order to finance their studies, students must rely on their own income and assets. The next larger social units to be held accountable are spouses or partners, and next the parents become financially responsible. Only after these social units have been exhausted do the mechanisms of the welfare state intervene through BAFöG ([Staack, 2017](#)).

BAföG was introduced in 1971 in the form of a 100 percent non-repayable grant and was generally very successful with almost half (44.6%) **HALF OF WHAT?** receiving the subsidy—a level never reached again. The early success of BAFöG came with significant financial burdens for both the federal states and the federal government, prompting a series of reforms—particularly in response to the energy crises of the 1970s. In 1974, a mandatory loan component was introduced, and by 1977, the loan share had increased

even further. By the 1980s, BAföG underwent a complete overhaul, the so-called "BAföG Kahlschlag" or BAföG clear-cut, transforming it into a fully subsidised loan program. As a result, the grant portion was eliminated, significantly reducing BAföG's appeal. Due to the rapid decline of students applying for BAföG it was once again overhauled in the 1990s, making it so that half the funding was in form of a grant and half in form of an interest-free loan – the structure of which is still in force today. Since 2005, the share of the funding that is provided as a grant has been just over 50% and the share provided as a loan just under 50%. Further changes were made in 2001 when a repayment cap of 10.000 EUR was introduced (Lost, 2025; Staack, 2017; Meier et al., 2024b).

BAföG continues to face low interest among students today, with one of its major issues being that students are not utilizing it, as it lacks appeal (see table A3 and figure B5).

"Clearly summarize at the end of 3.2 how the historical shifts might influence current attitudes and NTU rates today."

2.2.1 Declining uptake and its reasons

Some sources claim that since the introduction of BAföG in 1971, the proportion of students receiving financial aid has fallen from around 50% to around 15% as of 2023. Thereof, around 50% received full funding (Meier et al., 2024b). According to the German student survey (g. Die Studierendenbefragung in Deutschland), it even went as low as 12.9% in the summer semester of 2021¹ (Kroher et al., 2023). While these figures are based on different sources and survey years, they both point to the same overall trend, a significant and long term decline in the share of students receiving BAföG.

The survey supports the finding that BAföG uptake has declined over time, and furthermore found that uptake has consistently been lower among students with higher parental education levels, which likely reflects income based ineligibility. Furthermore, the study shows that as parental educational attainment increases, funding rates decrease. At the same time, a general decline in funding rates can be observed over time across all groups (Kroher et al., 2023).

"Provide brief, structured bullets summarizing key reasons for NTU clearly for quick

¹In Germany, the academic year is divided into a winter semester (October to March) and a summer semester (April to September). Most university programs begin in the winter semester.

reference.”

Structural and behavioural explanations

The decline in BAföG uptake seems to be the result of both structural and behavioural factors. Structurally, the eligibility rules have become relatively stricter over time. For instance, income thresholds have not always kept pace with inflation or with actual cost of living for students, which means that fewer students qualify now than in earlier decades (Meier et al., 2024b). At the same time, the application process itself can discourage students from applying. The forms are long and complicated, and it is not always clear whether an application will be successful. For students who are already unsure about their eligibility, that uncertainty alone can be enough to put them off (Kroher et al., 2023). This is consistent with findings by Fidan and Manger (2021), who show that information gaps and behavioural factors, like students incorrectly assuming they’re ineligible or being confused by the process, play a significant role in explaining non-take-up. Taken together, these elements likely explain both the lower eligibility rates and the growing number of students who could apply in theory, but choose not to.

These patterns also raise questions about how effectively BAföG is reaching the students it is meant to support. In particular, it is worth considering whether informational and structural barriers may be affecting some groups disproportionately, such as students whose parents didn’t attend university or those with a migration background (Kroher et al., 2023).

Application rates and reported barriers

The 22nd German student survey estimated that just about 80% of students did not apply for BAföG during the term it was conducted. It also found that around 66% of students had never applied for BAföG and that a further 10% of students had also never received BAföG, but had submitted an (unsuccessful) application (Kroher et al., 2023). The survey doesn’t go into detail about why these applications were unsuccessful, but common reasons are likely to include their income being just above the threshold, missing paperwork, or confusion about the eligibility criteria.

BAföG funded students can then be further divided into those who received BAföG de-

pendent on parental support (9.3%) and those who received BAföG independently of parental support (3.4%) ([Kroher et al., 2023](#)). The difference comes down to whether a student's eligibility is based on their parents' income or assessed independently. Independent status usually applies to students who are older, have children of their own, or have been financially self-sufficient for some time.

These numbers suggest that quite a few students either don't realise they might be eligible for BAföG or feel discouraged from applying in the first place. The fact that so many have never submitted an application, along with a smaller group who applied but didn't receive support, points to a mix of both perceived and actual barriers in the system.

Data was also collected on reasons students had for not applying for BAföG. The most commonly stated reason was thinking that parental income was too high, but 73.7% of non-applicants claimed that as one of the reasons. The second most common reason stated was thinking that own income/assets were too high, with 29.7% of non-applicants claiming that. The third most common reason stated was fear of debt (21.4%). Also notable is that 7.8% of non-applicants stated that expected funding amount would be too low as one of the reasons ([Kroher et al., 2023](#)).

Funding expiration and completion patterns

The study also looked further into the group of former recipients. Out of the students who were not receiving BAföG because their funding had expired, just over 20% reported that they had exceeded the maximum funding period or standard period of study. The study claims that this is not a surprising result since it is a well documented fact that most students in Germany exceed the standard period of study. Only just over a third of all students complete their studies within the standard period of study, with even almost a quarter exceeding the standard period of study by more than two semesters. Completing a degree within the allocated time is rather the exception than the norm ([Kroher et al., 2023](#)).

Other important reasons for the expiration of funding include that a student's own income or assets or those of relatives are too high (23.5% and 18.6%, respectively), that a student has changed their field of study (15.6%), or that the required credit scores could not be provided (12.2%). However, over 15% of students whose funding has expired also state

that they do not want to incur further debt or that the expected funding amount is too low (14.3%). The current course of study not being eligible for funding or exceeding age limit play a minor role, accounting for around 7% and 4% respectively ([Kroher et al., 2023](#)).

Interpreting declining funding levels

It's also worth noting that for many years, the maximum BAföG support rate didn't keep up with average reported living expenses for students. Data from the Sozialerhebung shows that this gap persisted from at least 2000 to 2017. It wasn't until the 2022 reform (the 27th BAföG amendment) that the maximum support rate was increased to a level that finally exceeded average reported student expenses for the first time ([Meier et al., 2024a,b](#)). This increase took place after the end of the period covered in this analysis and is therefore not reflected in the data used.

This raises a broader question about how to interpret declining funding rates. A lower share of students receiving BAföG doesn't necessarily mean that fewer students are in need of support. Some of the decline might reflect general improvements in living standards. Income per capita in Germany has increased over the past two decades, and shifts in demographics and household income levels may mean that some students are no longer eligible under the current rules. This can be viewed as a general prosperity effect. Furthermore, the share of students receiving financial aid is also affected by various behavioural factors, including fluctuations in demand for education and the social composition of prospective students. This proportion does thus not accurately reflect how many students are actually in need of financial aid nor how many of them receive such aid ([Meier et al., 2024a,b](#)).

While a drop in financial aid rates might suggest that fewer students are in need of support, this interpretation has its limits. Rising income levels and changing demographics may explain some of the reduced eligibility, but they don't account for why many students who seem to be eligible choose not to apply. Things like uncertainty about eligibility, the complexity of the system, or whether the amount of support seems worth the effort, all influence take up rates. As previous studies have shown, it's not just about who qualifies on paper, it's also about how the system is experienced by students themselves ([Meier et al., 2024a,b](#)).

Look into the Meier sources in these three paragraphs above

2.2.2 How BAföG Entitlements Are Calculated

To understand eligibility for BAföG and the amount of support, it is essential to comprehend the means-testing process. The BAföG system calculates entitlements based primarily on the income and assets of both the student and their parents. This involves a detailed review of the applicant's financial situation, including the income of the parents after accounting for taxes, social security contributions, and other standard allowances. Any income exceeding a predefined threshold is deducted directly from the student's potential entitlement.

The application process may also require various supporting documents. If the student does not live with their parents, proof of residency, such as a registration certificate or tenancy agreement, is necessary. Similarly, proof of health insurance and, if applicable, documentation of income (e.g., pay slips or scholarship notices) must be provided. Additional forms are required if the student has assets, such as bank statements, or owns a car, in which case, the vehicle's estimated value must be submitted.

A description of the process is visualized in Figure 1, which outlines a simplified version of the calculation of income and asset adjustments for both students and parents. For a more detailed simulation example of an individual in our dataset, see Appendix D.

2.2.3 Institutional Design and Policy Instruments

This chapter feels a bit weird and out of place

"Clarify more explicitly how policy instruments (threshold and support rates) directly relate to NTU—are thresholds misaligned with actual student needs?"

BAföG uses two main tools in order to achieve its central objectives, the so-called Freibetragsgrenzen, which is the income exemption threshold, and the so-called Bedarfssätze, which is the support rate.

Support Rates. In order to determine the support rates, three main reference points are used: 1) the development of basic social security benefits ("citizens allowance" or Bürgergeld), 2) the development of consumer prices, which reflects the increase in general

costs of living, and 3) the specific living expenses of students, which are surveyed every four to five years in the Sozialerhebung ("the social survey"). Additionally, the financial situation of the federal government is taken into account in order to ensure that increases in support rates, income exemption thresholds and social allowances are fiscally feasible ([Meier et al., 2024b](#)).

Income Exemption Threshold. In reviewing and determining the income exemption threshold, net income (g. arbeitnehmereinkommen) is primarily used as a reference indicator in BAföG reports. The income exemption threshold is also normatively determined by the legislature, i.e. the decision is not based on a fixed rule or an automatic formula, but on policy choices ([Meier et al., 2024b](#)).

These tools are interconnected, as raising the income exemption threshold increases the number of students eligible for BAföG. In addition to that, raising the income exemption threshold makes it so that those who previously received only partial support become eligible for more support, and thus raises the amounts granted to this group of students.

According to the law on BAföG (§35) the support rate and the income exemption threshold must be reviewed every two years and, if necessary, re-determined accounting for the cost of living, general economic conditions, trends in income levels and wealth development ([Bundesministerium der Justiz, 2025](#); [Meier et al., 2024b](#)).

Look into the Meier sources in these paragraphs above

Component	2021	2020	2019	2016	2015	2010	2008	2007	2002
Support rates									
Basic Support									
§13 (1) 2		427	419	399		373	366		333
Acc. w/ parents									
§13 (2) 1		56	55	52		49	48		44
Acc. no parents									
§13 (2) 2		325	325	250		224	146		133
Income exemptions									
Student Exempt.									
§23 (1) 1					290			255	255
Parental Exempt. (married)									
§25 (1) 1	2000	1890	1835		1715	1605		1555	1440
Parental Exempt. (sep.)									
§25 (1) 2	1330	1260	1225		1145	1070		1040	520

Table 2: BAföG Support Components and Income Thresholds by Year

Notes: Values in EUR. Legal references: §13 (basic and accommodation), §23 (student income exemption), §25 (parental income exemption). Table includes values from key BAföG reforms between 2002–2019. Source: Own compilation based on BAföG amendment laws.

Loan Repayment. Student loans are generally repaid either through traditional time-based repayment plans (TBRL), where borrowers pay back fixed amounts on a schedule, or income-contingent loans (ICL), where repayments depend on the borrower's income.

ICLs are designed to reduce default risk by adjusting repayment amounts according to the individual's financial situation, providing insurance against low income and supporting social mobility. In contrast, TBRLs can impose heavier burdens on low-income borrowers.

The German BAföG system employs a partially income-contingent repayment scheme, where monthly repayments are capped at a modest level, and any remaining debt after a fixed number of installments is forgiven. This design reflects a compromise between traditional and income-contingent approaches and may influence students' attitudes toward borrowing and aid uptake.

"Briefly relate repayment structures explicitly to NTU (does the partial income-contingent nature reduce or increase NTU?)."

3 Data

To estimate non-take-up rates of welfare benefits, researchers typically rely on one or more of three data sources: administrative records, specially designed surveys, and general purpose household surveys. Each comes with its own trade-offs. Administrative data are accurate for tracking benefit receipt but usually lack information on those who do not apply. Special surveys can provide richer detail on eligibility and claiming behaviour, though they are costly and rarely implemented. General purpose surveys are more readily available and widely used in empirical research on non-take-up, even if they are not designed with this purpose in mind ([Mechelen, 2017](#)).

In line with much of the existing literature, this study relies on data from the German Socio-Economic Panel (SOEP), which falls into the third category of general-purpose household surveys. As one of the longest-standing multidisciplinary household surveys in the world, SOEP has been conducted annually since 1984 by the German Institute for Economic Research (DIW Berlin) ([Goebel et al., 2023](#)). It is a nationally representative longitudinal study that collects data from around 30,000 individuals in 22,000 households each year. The survey includes respondents aged 17 and older and provides rich individual- and household-level information on income, education, labour market activity, household structure, and demographics. This study uses the SOEP-Core sample, the central and most comprehensive module of the dataset ([Berlin, 2025](#)). While general purpose surveys like SOEP are not specifically designed to measure non take up, they have the advantage of covering both benefit receipt and the before mentioned characteristics needed to estimate eligibility ([Mechelen, 2017](#)).

We restrict our analysis to the period between 2007 and 2021, as this is the range for which we were able to consistently collect and harmonize the necessary statutory parameters from official BAföG regulations ([Bundesministerium der Justiz, 2025](#)). This includes annual updates to base need rates, income allowances, asset thresholds, and other legally defined components relevant to BAföG eligibility and award determination.² Earlier years were excluded due to inconsistencies or incomplete availability of comparable legal documentation. By focusing on this window, we ensure that the simulation model is fully grounded in verifiable legal norms and reflects the actual policy environment faced by

²See Appendix [D](#) for an example of how these rules are applied.

students during this time.

SOEP with its household structure allows us to link students to their parents, siblings and, in many cases, partners. Using this data, we construct a dataset that includes detailed student-level and household-level characteristics. For students, we observe age, gender, federal state (Bundesland), household type, and income (if any). Parental information includes gross and net income, employment status, household structure, tax burdens, and relationship status.

Using this data, we simulate the theoretical BAföG eligibility and award based on statutory rules in place during each year. This involves implementing a detailed microsimulation model that replicates the BAföG means test.

3.1 Sample Description

The final dataset contains 5,889 student-year observations, where each row represents a student in a given survey year. As previously stated, the sample spans the period from 2007 to 2022 and is derived from a harmonized student panel constructed using SOEP-Core data. The panel is unbalanced due to individual variation in education length, dropout behavior, and survey response.

While some students are observed for a single year, others are followed across multiple years of their educational trajectory. Each observation contains detailed information on sociodemographic background, enrollment status, income and assets, housing situation, and reported BAföG receipt. Variables used in the simulation are consistently available for this period.

While the SOEP survey is nationally representative, this analytic subsample is conditional on survey respondents who were enrolled in education and met the inclusion criteria of the simulation pipeline. A descriptive overview of key variables is provided in Appendix C, Table C5.

Descriptive statistics: non-take-up (NTU) and full eligible sample

Variable	NTU Sample			Full Sample		
	Mean	Min	Max	Mean	Min	Max
Main explanatory variable						
Simulated BAföG (EUR)	400	52	861	123	0	861
Demographics and Socioeconomic						
Age	23	18	34	23	18	41
Female (%)	52	n/a	n/a	51	n/a	n/a
Has partner (%)	2	n/a	n/a	2	n/a	n/a
Migration background (%)	31	n/a	n/a	20	n/a	n/a
Institutional and Informational						
Lives at home (%)	43	n/a	n/a	48	n/a	n/a
Sibling claimed BAföG (%)	35	n/a	n/a	30	n/a	n/a
East background (%)	17	n/a	n/a	21	n/a	n/a
Parents highly educated (%)	25	n/a	n/a	43	n/a	n/a
Behavioural Predictors						
Patience (0–10)	6.2	0	10	6.0	0	10
Impulsiveness (0–10)	5.0	0	10	4.9	0	10
Risk appetite (0–10)	5.3	0	10	5.1	0	10

Table 3: Descriptive statistics for the non-take-up (NTU) subsample and the full sample of theoretically eligible students. Means for binary and categorical variables are expressed as percentages. Min/Max not applicable for binary variables.

Note: The mean simulated BAföG in the full sample is lower because it includes all observations with a simulated amount of zero.

4 Method

This study proceeds in two main steps. First, we perform a microsimulation to calculate theoretical BAföG eligibility and award amounts based on statutory rules applied to individual-level survey data. This simulation serves to identify who is entitled to student aid under the legal framework. Microsimulation is particularly suited here because it accounts for individual differences in backgrounds and family situations, applying complex eligibility rules precisely.

Second, we estimate two binary response models along with a linear probability model to

analyze behavioural non-take-up. That is, the likelihood that students eligible for BAföG according to the simulation nonetheless do not receive it. These models incorporate relevant socioeconomic and demographic factors to explore determinants of non-take-up beyond eligibility alone.

4.1 Microsimulation of Theoretical BAföG Eligibility

To analyze non-take-up, we identify eligible students based on statutory criteria, regardless of actual receipt. We implement a microsimulation model that reconstructs individual eligibility and award amounts using detailed SOEP survey data and the relevant legal rules. The following section outlines the purpose, methodological approach, and main components of this simulation. For an overview of the approach see [Figure 1](#).

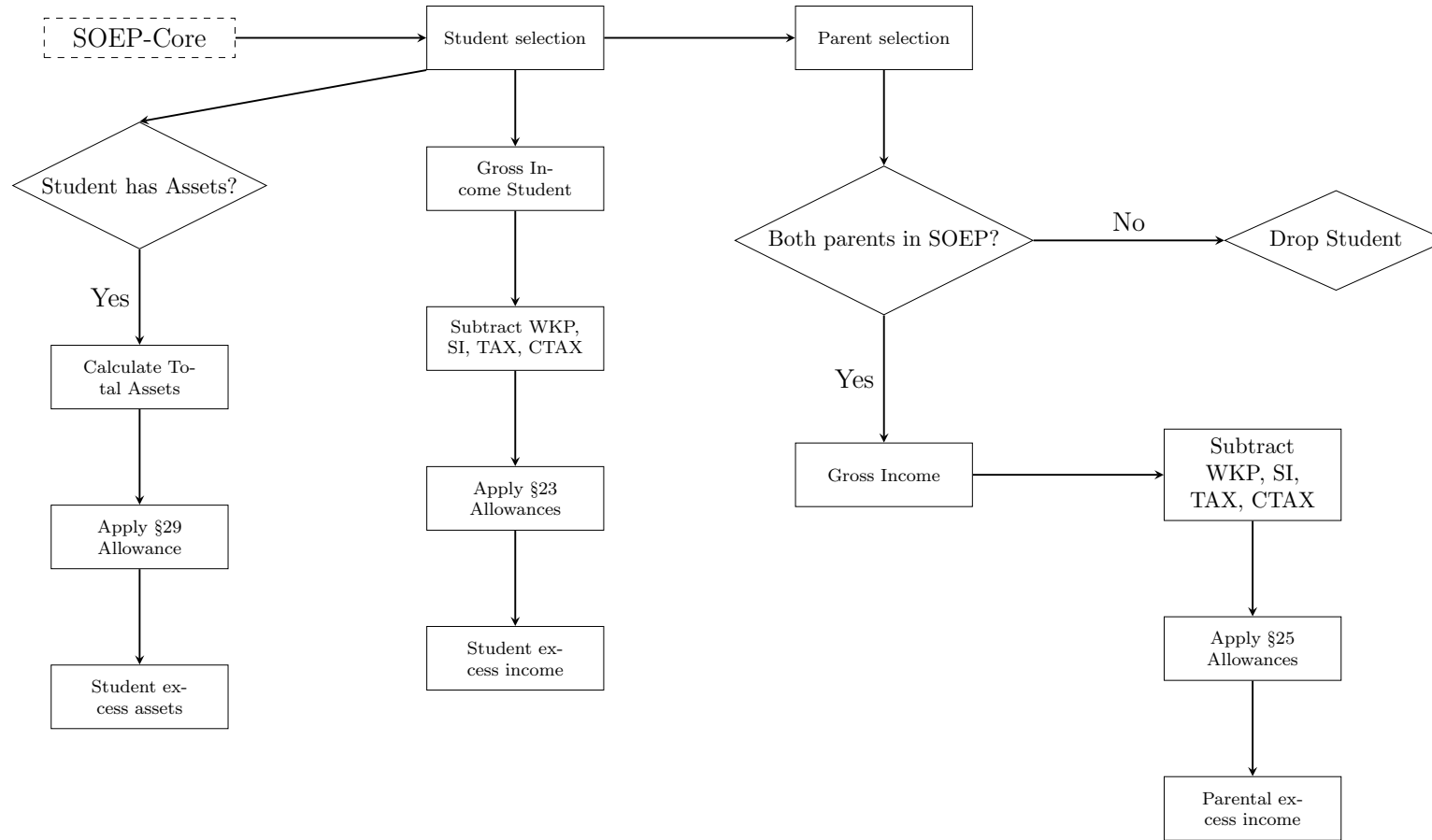


Figure 1: Flowchart for the calculation of student and parental income and asset adjustments. This process includes the identification of relevant income and asset sources, subtraction of allowable expenses, and the application of specific allowances under sections §23, §25 and §29 of BAföG. Abbreviations: **WKP**: Standard deduction for work-related expenses, **SI**: Social Security, **TAX**: Income tax, **CTAX**: Church Tax.

The microsimulation pipeline is designed to calculate a theoretical BAföG eligibility status and award amount for students in the SOEP-Core sample. Its primary purpose is to compare these simulated entitlements with reported BAföG take-up, as reported in SOEP.

To construct the theoretical values, the model replicates the legal rules and means-testing procedures defined in BAföG ([Bundesministerium der Justiz, 2025](#)) for the years 2007 to 2021. These rules are applied to individual-level SOEP data, including detailed information on income, assets, housing costs, and household structure.

In contrast to some earlier studies, we focus exclusively on students in higher education and restrict our sample to individuals aged 18 and older. This choice is motivated by a combination of conceptual, practical, and policy-relevant considerations. From a conceptual standpoint, the structure and goals of BAföG can differ between higher education and vocational training, including differences in eligibility criteria, typical household circumstances, and expectations around study duration and labor market transitions. Focusing only on higher education students allows for a more consistent definition of the target population.

Practically, focusing on students aged 18 and older ensures that key variables needed for the simulation, such as income, employment, and assets, are consistently available at the individual level. SOEP collects this information directly only for adult respondents. For individuals under 18, many of these variables are either missing, incomplete, or recorded via proxy responses from parents ([SOEP Group, 2025](#); [Haiken-DeNew and Frick, 2005](#)). Restricting the sample in this way helps improve both consistency and the reliability of the eligibility estimates, since information on key variables is more reliably reported for this group in SOEP.

From a policy perspective, university students are more frequently the focus of public debate around BAföG reform, especially in relation to issues such as debt aversion, housing costs, and equitable access to higher education. By concentrating on this group, our results are more directly applicable to ongoing policy discussions and recent reforms targeting the higher education sector.

This approach enables a systematic assessment of the alignment between statutory entitlements and actual BAföG participation. Deviations between the modeled and reported outcomes may arise from reporting errors, exceptional administrative decisions, or incom-

plete data. Full documentation of the simulation logic and input structure is provided in Appendix C and D.

Deviation from official outcomes. Even when closely following the legal rules, the simulation can differ from actual BAföG decisions due to missing household details or unobserved individual circumstances. Still, it offers a consistent and transparent benchmark for analysing take-up over time.

While many SOEP variables approximate administrative data, its still the most suitable dataset for examining the BAföG non-take-up rate. The eligibility measure used here reflects the legal framework and is sufficiently accurate for a systematic analysis of non-take-up and its underlying factors.

4.1.1 Identifying the Non-Take-Up Rate and Beta Error

We define non-take-up of BAföG in line with Nelson and Nieuwenhuis (2019), as the circumstance when a person is eligible for welfare, but does not receive it. This is in line with terminology commonly used in literature on welfare take up rates. Non take up rate is thus the number of people who are eligible, but do not receive it, divided by the total number of people eligible.

Formally, this is expressed as:

$$\Pr(\text{NTU} = 1 \mid M = 1) = \frac{\sum_{i=1}^N \mathbf{1}\{R_i = 0 \text{ and } M_i = 1\}}{\sum_{i=1}^N \mathbf{1}\{M_i = 1\}}, \quad \text{where} \quad (4.1)$$

$$\mathbf{1}\{\cdot\} = \begin{cases} 1 & \text{if individual } i \text{ is eligible but does not take up BAföG,} \\ 0 & \text{otherwise.} \end{cases} \quad (4.2)$$

Beta Error (Type II Error). It is worth noting, however, that these situations are often more complex. In some cases, individuals may receive BAföG even though they are not eligible. This can occur due to fraud or simply as a result of administrative errors. Such cases introduce the concept of beta errors. A beta error refers to the probability that a student receives BAföG despite being classified as ineligible by our model. It captures false positives in the eligibility classification; cases where students who should not qualify

according to the simulation nonetheless receive financial support.

Formally, it is expressed as:

$$\Pr(\text{TU} = 1 \mid M = 0) = \frac{\sum_{i=1}^N \mathbf{1}\{R_i = 1 \text{ and } M_i = 0\}}{\sum_{i=1}^N \mathbf{1}\{M_i = 0\}}, \quad (4.3)$$

where $\mathbf{1}\{\cdot\}$ is the indicator function defined as

$$\mathbf{1}\{\cdot\} = \begin{cases} 1 & \text{if individual } i \text{ is ineligible but receives BAföG,} \\ 0 & \text{otherwise.} \end{cases}$$

4.1.2 Simulation Pipeline

The pipeline begins by assembling a harmonized dataset of student-level observations from SOEP-Core and manually harmonizing variables which are not harmonized already. This is achieved by filtering for individuals who are enrolled in education, fall within the relevant survey years, and are at least 18 years old. To ensure a valid estimation of parental contributions, the dataset is further restricted to cases where income data from both legal parents are observable in the panel in order to reduce bias and ensure validity of estimated parental contributions.

The resulting student-level dataframe integrates sociodemographic variables including sex, age, partnership status, number of siblings, number of children, household composition, and federal state of residence. Gross student income is also appended at this stage. Net student income is derived from gross values by applying year-specific rules for income tax, solidarity surcharge, church tax (where applicable), and standard deductions (e.g., Werbungskostenpauschale), in accordance with §§ 21–23 BAföG ([Bundesministerium der Justiz, 2025](#)). This net income will later be used to compute the student’s excess income as part of the BAföG need assessment.

Need calculation and theoretical entitlement. In the final stage, the simulation model calculates the student’s funding need by summing the statutory base need, housing allowance, and health insurance supplement, as defined in § 13 BAföG ([Bundesministerium der Justiz, 2025](#)). From this total, the model subtracts any excess income attrib-

utable to the student, their parents, and their assets. The resulting amount determines the theoretical monthly BAföG entitlement.

A positive entitlement does not automatically imply eligibility: the model also applies age-based eligibility criteria. Students are only considered theoretically eligible if they meet the age requirements defined in the law, typically under 30 for undergraduate studies and under 35 for graduate-level programs. The final output includes both the simulated monthly award and a binary eligibility flag, which are used for comparison against self-reported values in SOEP. Detailed examples of this calculation and relevant thresholds are provided in [Appendix D](#).

Estimating Parental Contributions. Accurate parental income information is essential for constructing a credible BAföG means test. To ensure consistency in the simulation, the analysis is restricted to students for whom income data from both legal parents are available within the household files. This means that cases where one or both parents cannot be identified or linked within the dataset—such as due to absence, non-response, or household separation—are excluded from the simulation sample.

The simulation pipeline aggregates and evaluates parental income to estimate the expected contribution toward the student’s BAföG entitlement. For each student, the incomes of both legal parents—identified within the household and linked through SOEP family structure data—are retrieved and converted into annual net income. These values account for deductions such as income tax, solidarity surcharge, and church tax, where applicable.

Net incomes from both parents are combined into a joint parental income measure. From this, the model subtracts statutory allowances as defined in §§ 24–25 BAföG ([Bundesministerium der Justiz, 2025](#)), which vary depending on the number of parents, number of dependent children, and year-specific legal thresholds. Additional deductions are applied if the student has siblings who might also be eligible for support. The result is a measure of excess parental income, which feeds directly into the theoretical award calculation in the next stage.

A complete breakdown of the income transformation, applicable thresholds, and illustrative examples is provided in [Appendix D](#).

Asset Test. SOEP collects asset data only every five years, with available data for the years 2007, 2012, 2017, and 2022. This results in missing information for the intermediate survey waves. To address this, we imputed missing asset values using linear interpolation in both directions. While more advanced imputation methods exist, linear interpolation offers a straightforward and reasonable approach to create a continuous asset measure for the microsimulation.

The simulation includes an asset test to assess whether students hold financial resources above the statutory exemption thresholds. For each student, information on financial assets, real estate, business holdings, private insurances, vehicles, and other tangible property is combined, and reported debts are subtracted to derive total net assets.

Since asset data in SOEP are only collected every five years, missing observations for non-surveyed years are filled using linear interpolation. This approach allows for year-specific asset estimates that remain consistent with observed data and ensures full coverage across the entire simulation period.

Total assets are then compared against exemption thresholds defined in § 29 BAföG ([Bundesministerium der Justiz, 2025](#)), which vary by age, partnership status, and number of dependent children. Any amount exceeding the applicable allowance is classified as excess assets and contributes to reducing the student’s calculated need.

Modelling taxes. Full tax-return simulations, as in [Herber et al. \(2019\)](#), require detailed information (e.g. deductions, extraordinary expenses) that the SOEP does not always provide. We therefore approximate net parental income with the statutory bracket formulas of § 32a EStG—updated for every year since 2002 [WHY SAY 2002 IF WE ARE LOOKING AT 2007-2021?](#) ([Bundestag, 2024](#); [Buzer, 2024b,a, 2022b,a, 2020, 2018b,a, 2016b,a, 2015b,a, 2013b,a, 2011, 2007, 2006](#); [Liebig, 2012](#)).

In our analysis, we compute individual net income for students (as well as their parents, partners and siblings where relevant) by applying relevant tax and transfer rules to each person’s reported gross income. We then simulate deductions such as income tax and social security contributions, which allows us to estimate net income in a consistent way, taking into account both personal characteristics and the policy environment in each year.

I think there is a term for this in microsimulation literature, add it here for clarification

4.2 Binary Choice Model

To study the determinants of non-take-up (NTU) of BAföG among theoretically eligible students, we estimate a binary choice model of the form

$$\Pr(\text{NTU} = 1 \mid \mathbf{X}) = F(\mathbf{X}^\top \boldsymbol{\beta}), \quad (4.4)$$

where NTU is a binary indicator for non-take-up, \mathbf{X} is the vector of covariates listed in Table 3, and $F(\cdot)$ is the link function that maps the linear index to a probability.

We consider three common specifications for $F(\cdot)$:

- **Probit model:** $F(z) = \Phi(z)$, where $\Phi(\cdot)$ is the cumulative distribution function (CDF) of the standard normal distribution.
- **Logit model:** $F(z) = \Lambda(z) = \frac{1}{1+\exp(-z)}$, the logistic CDF.
- **Linear Probability Model (LPM):** $F(z) = z$, estimated using ordinary least squares (OLS).

All models are estimated on a pooled cross-section of theoretically eligible individuals ($n = 458$), as we restrict the sample to observations with complete parental income information. Although the SOEP is a panel, we do not exploit its longitudinal structure here due to the limited sample size.

Interpretation and Comparison. The logit and probit models are nonlinear estimators of the probability of non-take-up, based on an underlying latent index framework. Their coefficients represent changes in the unobserved latent variable and are not directly interpretable in terms of changes in the probability of the observed outcome. To aid interpretation, we report average marginal effects (AMEs), which approximate the average change in the probability of non-take-up associated with a one-unit increase in each covariate.³

³The AME for covariate X_k is computed as the sample analogue of the population moment $\mathbb{E}[f(\mathbf{X}^\top \boldsymbol{\beta}) \cdot \beta_k]$, where $f(\cdot)$ is the derivative of the link function $F(\cdot)$. Specifically,

$$\widehat{\text{AME}}_k = \frac{1}{n} \sum_{i=1}^n f(\mathbf{X}_i^\top \hat{\boldsymbol{\beta}}) \cdot \hat{\beta}_k = \mathbb{E}_n \left[f(\mathbf{X}^\top \hat{\boldsymbol{\beta}}) \cdot \hat{\beta}_k \right],$$

where $\mathbb{E}_n[\cdot]$ denotes the empirical expectation over the sample.

In practice, logit and probit models typically yield similar qualitative results, with differences largely driven by the tails of the distribution. We report both for completeness and robustness.

The LPM serves as a linear benchmark. While it has known limitations (e.g., heteroskedastic errors and potentially implausible predicted probabilities), it offers transparent interpretation and is widely used in applied work. Coefficients can be interpreted directly as marginal effects, and extensions such as fixed effects or instrumental variables are straightforward to implement.

4.2.1 Key Predictors of Non-Take-Up

Our model includes a set of explanatory variables informed by existing literature and the institutional context of BAföG. These variables capture a range of factors that may influence students' decisions about applying for financial aid, including demographic characteristics, socioeconomic background, and selected behavioural traits. In particular, we incorporate variables such as risk preferences, migration background, and prior family experience with BAföG to reflect differences in access to information, attitudes toward borrowing, and familiarity with the application process. While our primary goal is to estimate the association between these factors and non-take-up among eligible students, the inclusion of conceptually relevant variables also helps to account for sources of heterogeneity that might otherwise bias the estimated effects of financial incentives.

The rationale for including several of these variables is further elaborated below, drawing on prior research and theoretical considerations. In particular, the inclusion of factors like risk attitudes, family experience with the application process, and regional socialization helps account for variation in informational access, institutional trust, and attitudes toward public support.

Risk appetite, impulsiveness and patience. In this analysis, a variable for students' self-assessed willingness to take risks is included. Even though BAföG offers relatively safe and generous conditions, some students might still be hesitant to take on any form of debt if they are generally risk-averse. By including this variable, we aim to capture whether differences in individual risk preferences help explain why some eligible students choose not to apply.

[Herber et al. \(2019\)](#) also include a risk preference variable in their study, mainly to control for the possibility that risk attitudes could affect take-up behavior or influence how other factors, like impatience, play a role. They do not find a strong effect of risk aversion on BAföG take-up, but they still argue it is useful to control for. In a similar way, we include this variable to improve our model and to see whether risk aversion plays any role in students' decisions to reject BAföG.

Furthermore, we include a control variable for impulsiveness, measured using a scale constructed by SOEP from responses to several relevant survey questions. Similarly, we control for patience using a scale based on a different set of questions from the SOEP questionnaire. Including these behavioral traits allows us to account for the possibility that impulsiveness or patience may influence students' decision-making processes and thus help explain variation in BAföG take-up among eligible students.

East German socialization. A variable indicating whether the student lives in East Germany is included to account for potential differences in attitudes toward state support rooted in historical and regional context. [Alesina and Fuchs-Schündeln \(2007\)](#) show that individuals from the former GDR tend to have stronger preferences for redistribution and a greater belief in the role of the state in providing social services, and that these differences in preferences can persist for one to two generations after reunification. Current residence in East Germany may reflect continued exposure to these norms and institutions and can serve as a reasonable proxy for this form of socialization. Since the variable is statistically significant at the 5% level in our model, we interpret it as capturing persistent regional differences in how students view and respond to publicly provided financial support like BAföG.

Sibling prior experience with BAföG. An indicator for whether the student has an older sibling who previously received BAföG is included to capture potential differences in access to informal support and familiarity with the application process. Students with siblings who have already gone through the steps of applying may be more aware of eligibility rules and practical requirements. [Herber et al. \(2019\)](#) highlight that such sibling experience can help reduce informational and procedural barriers, making it more likely that students follow through with the application. This variable is intended to reflect

how previous exposure to the system within the family can shape students' confidence and ability to navigate what is often perceived as a complex process.

Migration background. Two variable for indirect and direct migration background is included to explore whether differences in familiarity with the BAföG system may influence take-up. Some students may come from households with less exposure to German administrative processes or financial aid structures, which could affect their understanding of eligibility or the application itself. In addition, studies show that individuals with a migration background in Germany often have lower financial literacy, which may make it harder to evaluate financial aid options like BAföG (Tsegay, 2024). Including this variable helps capture potential structural or informational factors that may contribute to lower take-up rates among eligible students.

Parental education. To assess whether parental education influences BAföG take-up rates, we include a control variable that identifies students whose parents hold at least a bachelor's degree as having a higher education background. This classification allows us to examine the potential effect of parental educational attainment on students' likelihood of applying for and receiving BAföG support.

Siblings who have claimed BAföG. We include a control variable indicating whether any of the respondent's siblings have previously claimed BAföG. The presence of a sibling with prior BAföG experience may provide informational advantages or influence the individual's own decision-making process regarding BAföG take-up.

Age, sex, and partnership status. We include control variables for age, sex (female), and partnership status (has partner) to account for demographic factors that may influence BAföG take-up. Age is controlled for, as students' likelihood of applying for financial aid may change with their stage of study or broader life circumstances. For instance, older students may encounter different financial pressures or possess greater familiarity with administrative processes compared to younger students. Sex is included to capture potential gender differences in educational choices, financial decision-making, or access to information about student aid. Partnership status is considered, as having a partner could affect an individual's household resources, financial planning, or the sharing

of information relevant to student aid. By controlling for these demographic characteristics, we aim to ensure that our analysis more accurately isolates the effects of other variables of interest.

4.3 Model limitations

Alex: I moved limitations to here. We need to look into what limitations are relevant. We are undermining our model too much still.

Addressing beta errors in eligibility simulations. In simulating benefit non-take-up, beta errors occur when individuals report receiving a benefit but are classified by the model as ineligible. These mismatches typically reflect limitations in the input data, particularly income and assets. Since the data in this study is self-reported, inaccuracies may occur in both income and benefit receipt. Without administrative records, it is not possible to confirm whether a student was truly eligible or actually received the benefit. Some studies suggest that beta errors are more often caused by issues in the income or asset data used for eligibility simulation, rather than incorrect reporting of benefit receipt (Frick and Groh-Samberg, 2007; Janssens and Derboven, 2022).

To address these limitations, several strategies are used in the literature. These include conducting sensitivity checks by adjusting income levels and applying post-simulation corrections to reclassify borderline cases (Herber et al., 2019). Some studies also emphasize the value of combining different data sources where possible, such as using more detailed survey modules on assets or household composition to improve the accuracy of eligibility simulations (Janssens and Derboven, 2022).

Although beta errors cannot be completely avoided, it is important to recognise their potential impact on the results. In this thesis, particular attention is paid to identifying where beta errors may occur and considering how they might influence the findings. Sensitivity checks are applied where relevant to assess the robustness of the findings and to reduce the risk of misinterpretation.

Measurement Errors in Income Data A persistent challenge in empirical research is the presence of measurement errors in income data, which can bias the estimation of policy outcomes. In the context of our study, accurate measurement of both parental

and student incomes is crucial, as these variables are the primary determinants of the theoretical BAföG entitlement to be calculated.

To assess the impact of potential income misreporting or data imperfections, we conduct a sensitivity analysis by introducing normally distributed noise to the log-transformed income variables. Logging is applied to address the right-skewness in the income distributions (see Figure B1). By simulating random measurement errors in logged income, we can evaluate how such noise affects the estimated non-take-up rates and the reliability (i.e., beta errors) of the simulation outcomes.

This approach allows us to better understand the robustness of our results to plausible inaccuracies in income reporting, and highlights the importance of data quality in studies of means-tested student aid.

Income misreporting. When studying benefit take-up using a probit model, there are two common sources of bias that are important to keep in mind: measurement error in income and incorrect reporting of benefit receipt. Income is a key factor in determining eligibility for means-tested programs like BAföG, but it is often self-reported and can be measured with error. If the income recorded in the data does not reflect individuals' true income, some people may be wrongly classified as eligible or ineligible. This can lead to biased estimates and misleading conclusions about the factors that influence take-up (Pudney, 2001).

Take-up misreporting. Another issue is that benefit receipt itself is sometimes misreported. For example, people might say they did not receive aid when they actually did, or the other way around. This kind of misclassification makes it harder to accurately model the take-up decision. As shown in Pudney (2001), even relatively small errors in either income or benefit receipt can have a big impact on the results. This highlights the importance of being aware of potential measurement problems when interpreting the findings from probit models.

5 Results

5.1 Microsimulation: Non-take-up rates

Our microsimulation results indicate that the non-take-up-rate of BAföG, among theoretically eligible students ranged from approximately 50–70% across the survey years 2007–2021, with an average of 60% (Table 4).

Our microsimulation results indicate that the non-take-up-rate of BAföG, among theoretically eligible students ranged from approximately 50–70% across the survey years 2007–2021, with an average of 59.7% (Table 4). These estimates are broadly in line with previous findings on non-take-up of social benefits in Germany, which generally falls between 40–67%, depending on the program and time period (see Table 1). While our estimates are broadly consistent with prior research, they are noticeably higher than the 36–40% non-take-up rate for BAföG reported by [Herber et al. \(2019\)](#), who also use SOEP survey data, but for the period 2002–2013.

Year	Non-Take-Up Pr(NTU = 1 M = 1)	Take-Up Rate Pr(TU = 1 M = 1)	Beta Error Pr(TU = 1 M = 0)
2007	60.6	39.4	13.6
2008	63.5	36.5	17.1
2009	61.0	39.0	18.6
2010	60.9	39.1	17.7
2011	53.8	46.2	16.1
2012	51.5	48.5	18.9
2013	50.0	50.0	15.9
2014	55.1	44.9	16.1
2015	64.0	36.0	12.6
2016	56.5	43.5	12.4
2017	62.6	37.4	10.1
2018	63.9	36.1	15.3
2019	67.5	32.5	11.7
2020	63.7	36.3	13.6
2021	66.7	33.3	12.3
Average	59.7	40.3	15.3

Table 4: Non-Take-Up, Take-Up, and Beta Error Rates by Survey Year (%). Non-take-up is the share of theoretically eligible students ($M = 1$) who do not receive BAföG. The take-up rate is simply the complement, i.e., the share of eligible students who do receive BAföG ($1 - \text{Pr}(\text{NTU} = 1 \mid M = 1)$). Beta error is the share of ineligible students ($M = 0$) who nevertheless receive BAföG.

Notes: SOEP v39, 2007–2021, weighted with individual weights

This discrepancy may be attributable to several factors, including differences in the estimation of theoretical eligibility. These factors include the specific SOEP variables used to capture income and reported BAföG receipt, the time periods under study (with our analysis covering 2007–2021, compared to [Herber et al. \(2019\)](#), which covers 2002–2013), as well as other differences in the microsimulation design and modeling approach.

Elaborate further on this in discussion chapter

While there is some variation in non-take-up across years, NTU remains consistently quite high throughout the period. The rate fluctuates between a low of 50% in 2013 and a high of around 68% in 2019. This pattern is clearly illustrated in Figure 2, which shows a visible decline from 2010 to 2013, followed by a gradual upward trend leading up to 2019. The increase in NTU in the years preceding 2019 could potentially reflect behavioural or institutional factors such as changes in awareness, perceived complexity, or attitudes toward debt. It could also be partly driven by policy changes. Several BAföG reforms were introduced during this period — including increases in grant amounts and adjustments to income thresholds — which may have influenced both eligibility and the perceived attractiveness of the program. Since the simulation accounts for these legal changes, the results shown in the figure capture not only behavioural responses but also how reforms may have affected take-up incentives over time.

Maybe further elaborations belong in the discussion part?

The third column in Table 4 shows the estimated beta error, which is the share of students who are classified as ineligible by the simulation but report receiving BAföG. On average, the beta error is about 15% across the full period. This level of misclassification is in line with what other studies face when working with survey data, where income reporting and timing mismatches are common issues ([Frick and Groh-Samberg, 2007](#)). While this level of beta error is not negligible, the simulation seems to capture eligibility status fairly well overall, even if some noise is unavoidable.

Taken together, the results suggest that a large share of eligible students do not take up BAföG, and that this has been the case fairly consistently over time. The high average non-take-up rate, around 60%, points to persistent barriers such as lack of information or procedural hurdles. The financial attractiveness of BAföG may also be a factor. Although support amounts were increased at several points, the need-based allowances have

consistently failed to keep pace with the actual cost of living for students (Staack, 2017). This could help explain why some students perceive the benefit as not worth the effort of applying. These findings underline the importance of outreach efforts and suggest that further reforms may be needed to make the program more accessible and appealing.

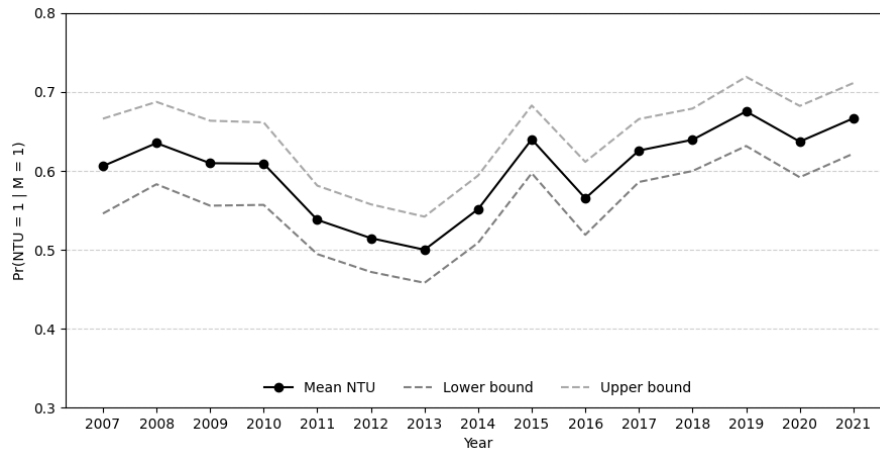


Figure 2: Development of the probability of non-take-up from 2007–2021.

5.2 Determinants of Non-take-up

”Clarify explicitly why you chose average marginal effects (AME) for interpreting Logit/Probit, emphasizing their intuitive appeal over raw coefficients.”

”Address explicitly in the discussion the puzzling aspect of income effects (noted confusion around AMEs), perhaps suggesting potential reasons for this inconsistency or ambiguity.”

5.2.1 Binary Choice Model

To check the robustness of our findings, both logit and probit models are estimated and their average marginal effects (AMEs) are compared. As shown in Table 5, the results are very similar across the two models. The estimated effects have the same signs, similar magnitudes and are statistically significant in both cases. In particular, the simulated BAföG amount has a negative association with the probability of non-take-up. A 100 EUR increase in the simulated entitlement is linked to a decrease in the likelihood of non-take-up by about 2.9 to 3.0 percentage points. This supports the idea that students are more likely to apply when the potential benefit is higher.

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As an additional check, we estimate a linear probability model (LPM), reported in Table 5. Although the LPM comes with known limitations, it allows for a straightforward interpretation of coefficients. The key results remain consistent. The marginal effect of the BAföG amount is estimated to be minus 2.1 percentage points per 100 EUR, and the direction and significance of the main explanatory variables remain stable.

All in all, the consistency of results across logit, probit, and LPM models suggests that the findings aren't sensitive to the choice of estimation method. This increases confidence in the reliability of the identified determinants of non-take-up.

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Interpretation of Average Marginal Effects from the Probit Model. All interpretations below are based on the average marginal effects (AMEs) from the Probit model presented in Table 3.

Student age is found to be significantly associated with NTU of BAföG. On average, each additional year of age increases the probability of NTU by 2.8 percentage points, holding all other variables constant. Similarly, student income has a significant effect, as a 100 EUR increase in gross monthly income is associated with a 1.2 percentage point increase in the probability of NTU, suggesting that higher-earning students may be less inclined to rely on BAföG support.

Other variables that have to do with family background were also found to have an effect. For example, having an older sibling who previously received BAföG reduces the probability of NTU by 9.6 percentage points on average, suggesting that familiarity with the system encourages take-up. Migration background is significant only for students with an indirect migration background (those born in Germany to foreign-born parents). For

$$\Pr(\text{NTU} = 1 \mid \mathbf{X})$$

	Logit		Probit		LPM
	Coef.	AME	Coef.	AME	Coef.
Main predictor					
Simulated BAföG amount ^o	-0.160*** (0.058)	-0.029*** (0.010)	-0.095*** (0.034)	-0.030*** (0.010)	-0.021** (0.010)
Demographics and Socioeconomic Predictors					
Age	0.099*** (0.019)	0.018*** (0.003)	0.058*** (0.011)	0.018*** (0.003)	0.037*** (0.003)
Female	-0.059 (0.256)	-0.011 (0.047)	-0.020 (0.149)	-0.006 (0.046)	0.004 (0.046)
Has partner	1.429* (0.810)	0.262* (0.149)	0.874** (0.444)	0.271** (0.137)	0.157* (0.084)
Direct Migration background	-0.700* (0.378)	-0.128* (0.068)	-0.419* (0.219)	-0.130* (0.067)	-0.130* (0.068)
Indirect Migration background	-0.689** (0.299)	-0.127** (0.053)	-0.407** (0.179)	-0.126** (0.054)	-0.121** (0.058)
Institutional and Informational Predictors					
Living at parents' home	-0.019 (0.270)	-0.004 (0.049)	-0.008 (0.160)	-0.002 (0.050)	0.034 (0.048)
Sibling claimed BAföG before	-0.554* (0.285)	-0.102** (0.051)	-0.321* (0.171)	-0.100* (0.052)	-0.107* (0.056)
East background	-1.253*** (0.313)	-0.230*** (0.052)	-0.749*** (0.186)	-0.232*** (0.054)	-0.252*** (0.061)
Parents are highly educated	-0.015 (0.293)	-0.003 (0.054)	0.004 (0.175)	0.001 (0.054)	0.018 (0.052)
Behavioural Predictors					
Patience	0.030 (0.065)	0.006 (0.012)	0.015 (0.040)	0.005 (0.012)	0.005 (0.012)
Impulsiveness	-0.039 (0.068)	-0.007 (0.012)	-0.021 (0.042)	-0.006 (0.013)	-0.009 (0.012)
Risk Appetite	-0.022 (0.037)	-0.004 (0.007)	-0.014 (0.021)	-0.004 (0.007)	-0.002 (0.006)
McFadden Pseudo R^2	0.10		0.10		
Likelihood Ratio Test	53.33 (p = 0.00)		53.20 (p = 0.00)		
Adjusted R^2					0.74
F-statistic					103.8 (p = 0.00)
Observations	458		458		458

Table 5: Logit, Probit, and LPM (Linear Probability Model) coefficients. Logit and Probit also report average marginal effects. Standard errors are in parentheses. The LPM is estimated via OLS with MacKinnon and White (1985) robust (HC3) standard errors.

Notes: Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors clustered at the student level. ^o Indicates per 100 EUR.

this group, the probability of NTU is 8 percentage points lower on average compared to those without a migration background. Gender, partnership status, and household size do not appear to significantly affect NTU.

Students from East Germany are much less likely to forgo BAföG than their West German counterparts. The results show that having an East German background decreases the probability of NTU by about 25.9 percentage points, on average. This substantial difference could reflect regional variation in attitudes towards public support or perceived entitlement.

Lastly, the estimated theoretical BAföG amount is negatively associated with non-take-up, suggesting that an expected higher amount makes you more likely to apply in the first place.

We haven't interpreted the variables enough here. FIX!

5.3 Sensitivity and Specification Analysis

5.3.1 Stability of Simulated Non-Take-Up under Income Noise

Table 7 presents conditional probabilities of take-up behavior under varying levels of artificially introduced measurement error in income. To assess the stability of our non-take-up classification, we introduce normally distributed noise to the log-transformed income variables prior to recalculating theoretical BAföG entitlements and resulting eligibility indicators. The standard deviation of this noise is varied from 0% (baseline) to 30%.

The results show that simulated take-up probabilities are remarkably robust to income misreporting. Across all survey years, the probability of observed take-up among those identified as eligible in the simulation ($\Pr(\text{NTU} = 1 \mid M = 1)$) changes only marginally—even at the highest noise level. Likewise, the probability of non-eligibility and non-take-up ($\Pr(\text{NTU} = 0 \mid M = 0)$) remains virtually unchanged.

This stability suggests that small to moderate deviations in reported incomes do not substantially affect eligibility classification or population-level take-up estimates. It also provides indirect evidence on the structure of the BAföG eligibility formula: in many cases, small changes in income may not be sufficient to move individuals across relevant thresholds due to the formula's discontinuities, flat regions, or built-in buffers.

Table 6: Conditional probabilities by survey year and noise level

Year	0%			10%			20%			30%		
2007	13.6	60.6	39.4	13.6	60.0	40.0	13.5	58.1	41.9	13.8	60.3	39.7
2008	17.1	63.5	36.5	16.9	64.0	36.0	16.8	64.5	35.5	17.7	67.0	33.0
2009	18.6	61.0	39.0	18.6	61.0	39.0	18.4	60.2	39.8	18.2	60.0	40.0
2010	17.7	60.9	39.1	16.3	56.5	43.5	16.2	55.1	44.9	15.8	54.8	45.2
2011	16.1	53.8	46.2	16.8	55.3	44.7	17.6	57.1	42.9	18.6	59.1	40.9
2012	18.9	51.5	48.5	18.6	51.1	48.9	18.7	50.4	49.6	19.9	53.0	47.0
2013	15.9	50.0	50.0	16.2	50.4	49.6	16.1	51.0	49.0	16.8	51.4	48.6
2014	16.1	55.1	44.9	16.7	55.6	44.4	16.7	55.6	44.4	16.7	55.6	44.4
2015	12.6	64.0	36.0	12.6	63.7	36.3	12.7	63.3	36.7	11.8	62.4	37.6
2016	12.4	56.5	43.5	12.3	56.1	43.9	11.1	53.9	46.1	13.4	57.3	42.7
2017	10.1	62.6	37.4	10.2	61.7	38.3	11.0	62.9	37.1	11.0	62.9	37.1
2018	15.3	63.9	36.1	16.0	65.1	34.9	16.3	65.8	34.2	16.5	65.5	34.5
2019	11.7	67.5	32.5	11.6	67.3	32.7	12.1	69.0	31.0	12.2	69.2	30.8
2020	13.6	63.7	36.3	13.5	64.4	35.6	13.3	65.0	35.0	13.0	64.5	35.5
2021	12.3	66.7	33.3	12.4	67.3	32.7	12.4	67.5	32.5	12.8	68.1	31.9
Total	15.0	59.7	40.3	15.0	59.7	40.3	15.0	59.9	40.1	15.4	60.6	39.4

Table 7: For each noise level (% std. dev. in log-space). Columns are: (1) $P(\text{NTU} = 0 | M = 0)$, (2) $P(\text{NTU} = 1 | M = 1)$, (3) $P(\text{NTU} = 0 | M = 1)$.

In sum, this analysis supports the reliability of our simulation-based approach and shows that the resulting classification of non-take-up is not overly sensitive to plausible levels of income measurement error.

5.3.2 Behaviourally Motivated Eligibility Threshold

In addition to the baseline eligibility criterion—which considers any positive entitlement as sufficient for inclusion, we explore an alternative, behaviourally informed threshold. Specifically, we restrict the sample to students with simulated monthly entitlements of at least 200 EUR. This cut off reflects the idea that very small entitlements may not justify the administrative effort or perceived complexity of applying for BAföG and thus may not correspond to practical eligibility from the student’s perspective.

This alternative specification allows us to assess whether our main findings are sensitive to assumptions about the behavioural salience of entitlements. As reported in Appendix A, Table A4, the results remain substantively unchanged. The entitlement amount continues to exhibit a negative and significant association with non-take-up, and key predictors such as age, partnership status, and East German background retain both their sign and statistical significance.

These findings suggest that our model captures stable relationships between observable characteristics and take-up behavior, and that the main drivers of non-take-up are not confined to marginally eligible individuals. Rather, they appear consistent across a broader and more practically meaningful range of the eligible population.

6 Discussion

This paper examines the non-take-up (NTU) of Germany’s BAföG student aid program, focusing on why eligible students forgo what is effectively “free money”, a combination of a 50% grant and a 50% interest-free loan.

To investigate the individual-level determinants of BAföG non-take-up, we use microdata from the German Socio-Economic Panel (SOEP), which provides rich information on students’ family background, financial situation, and behavioural traits relevant to financial aid decisions. Although SOEP has a panel structure, we treat the data as a pooled cross-section and assume the relationship between explanatory variables and non-take-up is stable across years.

We estimate three types of binary response models: a logit model, a probit model, and a linear probability model (LPM). These models allow us to assess the relationship between individual characteristics and the likelihood of non-take-up. Logit and probit models are used to account for the nonlinear nature of binary outcomes, while the LPM offers a straightforward linear benchmark and facilitates interpretation. Standard errors are clustered at the individual level to account for potential intra-respondent correlation in the presence of repeated observations. Table 5 presents the results from these three specifications, including estimated coefficients and average marginal effects where applicable.

Our results indicate that the most relevant explanatory variables for BAföG non-take-up are demographic characteristics, such as age, having a partner, and migration background. These factors suggest that individual life circumstances and aspects of social capital may influence both awareness of the program and the perceived need for financial aid.

Moreover, the significant role of East German background points to potential regional differences in attitudes toward state support. This could reflect divergent historical experiences and institutional trust, where East German students may be more inclined to view

public assistance as legitimate, while in West Germany, stigma surrounding the uptake of state-subsidized aid may still persist.

In contrast, we find no evidence that behavioural traits such as patience, impulsiveness, or risk appetite significantly influence non-take-up. This suggests that psychological or personality-related factors are not the primary drivers behind the decision to forgo applying for BAföG.

6.1 Policy Implications

Addressing the issue of non-take-up of social benefits is politically sensitive. Promoting policies that increase benefit take-up is often perceived as advocating for higher public expenditure, which may face resistance, even if the objective is to improve access and fairness within existing frameworks.

However, the very purpose of BAföG is to ensure that financial constraints do not prevent access to higher education. Our findings suggest that the current system places a considerable administrative burden on applicants, which may deter eligible students, especially those entitled to smaller amounts from applying. (Maria: Source for the amount of hours it takes to apply!) This is at odds with the program’s intention to support students from less affluent backgrounds.

If the primary goal is to target financial need effectively, policymakers should consider simplifying the means-testing procedure to reduce unnecessary barriers. While some form of income assessment remains essential to ensure targeted support, the process should not be so complex or burdensome that it discourages eligible students from applying. Simplified procedures, increased use of pre-filled data from tax records, or more automated eligibility checks could help strike a better balance between precision and accessibility.

Ultimately, non-take-up driven by administrative complexity represents a failure of design rather than intent. A more user-friendly system could improve both the efficiency and equity of BAföG, ensuring that support reaches those who need it most—without necessarily requiring increased overall expenditure.

As previously mentioned, this study only takes to

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Appendix A: Tables

Category	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Household Type															
1-Person Household	52.38	52.38	64.71	72.22	60.00	38.71	41.18	37.93	56.00	55.56	46.67	64.29	54.55	59.38	63.33
Couple Without Children	80.00	50.00	75.00	100.00	75.00	50.00	63.64	88.89	36.36	85.71	69.23	46.15	60.00	90.00	71.43
Couple With Children	66.67	70.83	56.86	56.86	51.90	56.96	51.69	59.49	71.43	53.13	66.67	66.67	73.24	67.27	77.27
Migration Background															
No migration background	61.22	64.41	66.10	65.08	53.33	53.47	52.44	59.04	65.85	62.32	67.39	63.04	67.11	63.29	65.43
With migration background	58.82	61.54	47.83	50.00	54.76	45.71	46.67	49.06	60.47	47.83	54.55	65.46	68.42	64.71	70.00
Sex															
Male	68.97	69.44	58.54	69.23	50.00	53.73	47.89	53.52	61.91	64.00	70.31	64.79	64.29	58.33	68.00
Female	54.05	59.18	63.42	54.17	56.94	49.28	52.11	56.92	66.13	50.77	56.63	63.16	70.69	67.69	65.57
Region															
West Germany	73.17	69.70	67.21	62.50	56.70	59.14	50.00	59.63	67.00	62.22	67.80	67.23	70.97	71.11	72.62
East Germany	40.00	42.11	42.86	56.52	45.71	34.88	50.00	37.04	52.00	36.00	41.38	50.00	52.38	34.78	48.15
Sibling BAföG history															
No sibling received BAföG	65.52	63.33	53.85	60.87	64.87	61.29	56.76	73.17	58.97	72.41	70.27	52.50	75.68	66.67	63.33
Sibling received BAföG	61.54	64.71	46.15	53.33	48.48	32.14	37.50	56.00	68.18	44.44	44.74	63.64	60.00	43.75	55.56

Table A1: Non-take-up rates by household type, migration background, sex, region, number of siblings, and sibling BAföG history.

Year	Consumer Price Index		Average Payout (EUR)		Financial Expenditure (EUR 1,000)	
	Index	Price Factor	Nominal	Real (2023)	Nominal	Real (2023)
1991	61	1.885	290	547	1,538,590	2,900,701
1992	65	1.795	290	521	1,539,929	2,764,764
1993	67	1.719	297	510	1,458,164	2,506,152
1994	69	1.674	295	494	1,257,002	2,104,621
1995	71	1.644	304	500	1,133,989	1,863,894
1996	72	1.621	322	522	1,059,270	1,716,900
1997	73	1.590	319	507	910,038	1,446,886
1998	74	1.577	316	498	861,688	1,358,905
1999	74	1.566	321	503	871,140	1,364,591
2000	75	1.546	326	504	906,857	1,401,724
2001	77	1.516	365	553	1,161,922	1,760,990
2002	78	1.494	371	554	1,350,543	2,018,032
2003	78	1.479	370	547	1,446,120	2,138,937
2004	80	1.455	371	540	1,513,641	2,202,517
2005	81	1.432	375	537	1,554,602	2,226,037
2006	82	1.409	375	529	1,538,770	2,168,773
2007	84	1.378	375	517	1,490,718	2,053,917
2008	86	1.343	398	534	1,590,638	2,136,104
2009	87	1.338	434	581	1,875,731	2,510,295
2010	88	1.325	436	578	2,019,078	2,674,533
2011	90	1.297	452	586	2,269,706	2,943,052
2012	91	1.273	448	570	2,364,963	3,009,718
2013	93	1.253	446	559	2,349,400	2,944,951
2014	94	1.241	448	556	2,280,748	2,831,524
2015	94	1.235	448	553	2,157,634	2,664,506
2016	95	1.228	464	570	2,099,110	2,578,590
2017	96	1.211	499	604	2,181,049	2,640,336
2018	98	1.190	493	586	2,001,732	2,381,265
2019	99	1.173	514	603	1,954,449	2,292,303
2020	100	1.167	574	670	2,210,920	2,580,143
2021	103	1.132	579	655	2,316,926	2,622,553
2022	110	1.059	611	647	2,454,392	2,599,161
2023	116	1.000	663	663	2,863,514	2,863,514

Table A2: Average nominal and inflation-adjusted payout under the Federal Training Assistance Act (BAföG) for student recipients (excluding pupils), based on official data published by Destatis. The table includes the Consumer Price Index (CPI, variable **PREIS1**, base year 2020 = 100) and a derived price factor (column “Price Factor”) calculated using these CPI values to express nominal amounts in 2023 euros. The inflation-adjusted average payouts and total financial expenditures were computed using this deflator and are not reported as such in the original Destatis tables.

Year	Students	Number of Supported Students			Proportion Supported (%)		
		Total	Fully	Partially	Total	Fully	Partially
2023	2,868,311	501,425	245,255	256,170	17.5	8.6	8.9
2022	2,920,263	489,347	244,559	244,788	16.8	8.4	8.4
2021	2,941,915	467,595	200,369	267,226	15.9	6.8	9.1
2020	2,944,145	465,543	205,093	260,450	15.8	7.0	8.8
2019	2,891,049	489,313	212,217	277,096	16.9	7.3	9.6
2018	2,868,222	517,675	218,427	299,248	18.0	7.6	10.4
2017	2,844,978	556,573	229,053	327,520	19.6	8.1	11.5
2016	2,807,010	583,567	235,163	348,404	20.8	8.4	12.4
2015	2,757,799	611,377	231,477	379,900	22.2	8.4	13.8
2014	2,698,910	646,576	246,901	399,675	24.0	9.1	14.8
2013	2,616,881	665,928	253,371	412,557	25.4	9.7	15.8
2012	2,499,409	671,042	254,769	416,273	26.8	10.2	16.7
2011	2,380,974	643,578	246,895	396,683	27.0	10.4	16.7
2010	2,217,294	592,430	232,796	359,633	26.7	10.5	16.2
2009	2,121,178	550,369	211,881	338,488	25.9	10.0	16.0
2008	2,025,307	510,409	217,933	292,476	25.2	10.8	14.4
2007	1,941,405	494,480	191,268	303,212	25.5	9.9	15.6
2006	1,979,043	498,565	189,022	309,543	25.2	9.6	15.6
2005	1,985,765	506,880	193,285	313,595	25.5	9.7	15.8
2004	1,963,108	497,257	186,956	310,301	25.3	9.5	15.8
2003	2,019,465	481,594	179,755	301,839	23.8	8.9	14.9
2002	1,938,811	451,505	168,890	282,615	23.3	8.7	14.6
2001	1,868,331	406,776	134,933	271,843	21.8	7.2	14.6
2000	1,798,863	348,799	100,913	247,886	19.4	5.6	13.8
1999	1,770,489	338,427	103,239	235,188	19.1	5.8	13.3
1998	1,800,651	336,355	97,539	238,810	18.7	5.4	13.3

Table A3: Number and percentage of students receiving BAföG support. Columns: **BIL002** = total number of students; **PER010** = total supported students; **PER011** = fully supported students; **PER012** = partially supported students.

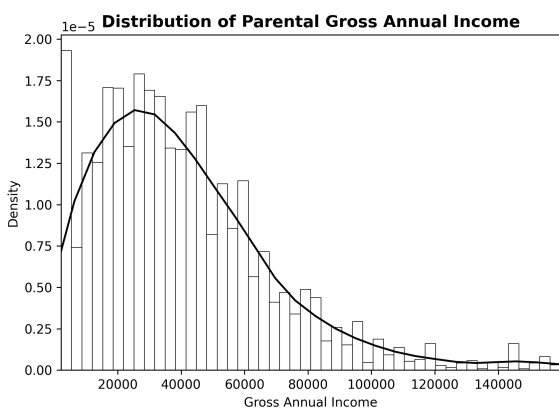
$$\Pr(\text{NTU} = 1 \mid \mathbf{X})$$

	Logit		Probit		LPM
	Coef.	AME	Coef.	AME	Coef.
Main explanatory variables					
Simulated BAföG amount ^o	-0.181** (0.077)	-0.034** (0.014)	-0.109** (0.045)	-0.034** (0.014)	-0.022 (0.014)
Controls: Demographics					
Age	0.101*** (0.024)	0.019*** (0.004)	0.060*** (0.014)	0.019*** (0.004)	0.037*** (0.004)
Female	0.007 (0.290)	0.001 (0.054)	0.020 (0.169)	0.006 (0.053)	0.016 (0.053)
Has partner	1.480* (0.882)	0.277* (0.164)	0.906* (0.483)	0.286* (0.151)	0.190* (0.102)
Direct Migration background	-0.347 (0.450)	-0.065 (0.084)	-0.195 (0.262)	-0.061 (0.082)	-0.070 (0.075)
Indirect Migration background	-0.740** (0.324)	-0.138** (0.058)	-0.439** (0.194)	-0.138** (0.059)	-0.133** (0.064)
Controls: Household and Socioeconomic Background					
Living at parents' home	0.070 (0.311)	0.013 (0.058)	0.050 (0.183)	0.016 (0.058)	0.054 (0.056)
Sibling claimed BAföG before	-0.633* (0.331)	-0.119** (0.060)	-0.368* (0.198)	-0.116* (0.061)	-0.128* (0.066)
East background	-1.437*** (0.369)	-0.269*** (0.061)	-0.865*** (0.218)	-0.273*** (0.062)	-0.300*** (0.072)
Parents are highly educated	0.002 (0.360)	0.000 (0.067)	0.009 (0.213)	0.003 (0.067)	0.015 (0.066)
Controls: Behaviour					
Patience	0.042 (0.072)	0.008 (0.013)	0.021 (0.044)	0.007 (0.014)	0.006 (0.013)
Impulsiveness	-0.047 (0.075)	-0.009 (0.014)	-0.024 (0.046)	-0.008 (0.015)	-0.008 (0.013)
Risk Appetite	-0.014 (0.042)	-0.003 (0.008)	-0.008 (0.025)	-0.003 (0.008)	-0.000 (0.007)
McFadden Pseudo R^2	0.11		0.11		
Cox and Snell Pseudo R^2	0.13		0.13		
Nagelkerke Pseudo R^2	0.18		0.18		
Likelihood Ratio Test	48.46 (p = 0.00)		48.39 (p = 0.00)		
Adjusted R^2					0.72
F-statistic					71.5 (p = 0.00)
Observations	352				

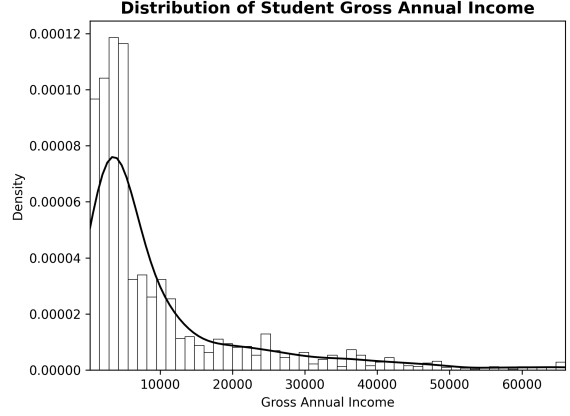
Table A4: Estimates corresponding to Table A4, using the same model specifications but classifying students as eligible if their theoretical entitlement exceeds 200 EUR.

Notes: Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors clustered at the student level. ^o Indicates per 100 EUR.

Appendix B: Figures

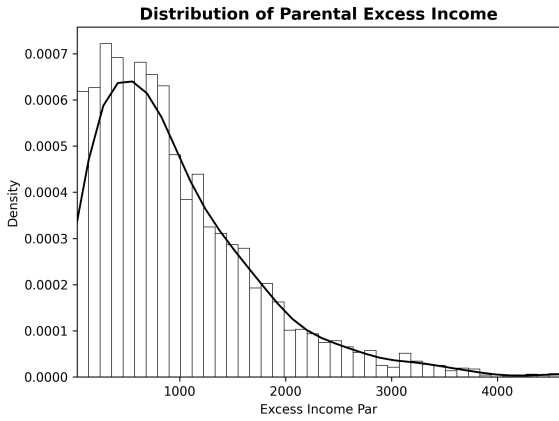


(a) Parental income

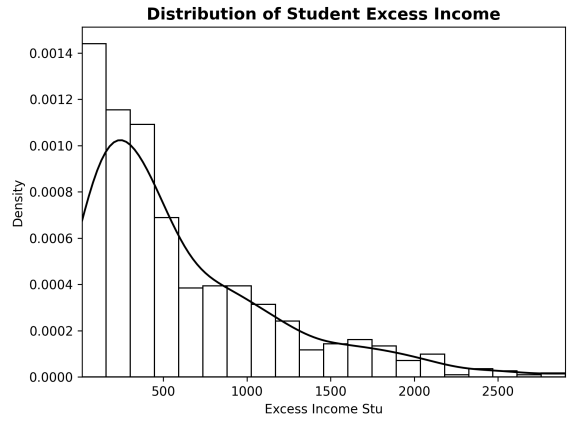


(b) Student income

Figure B1: Simulated mean excess income for parents (a) and students (b).

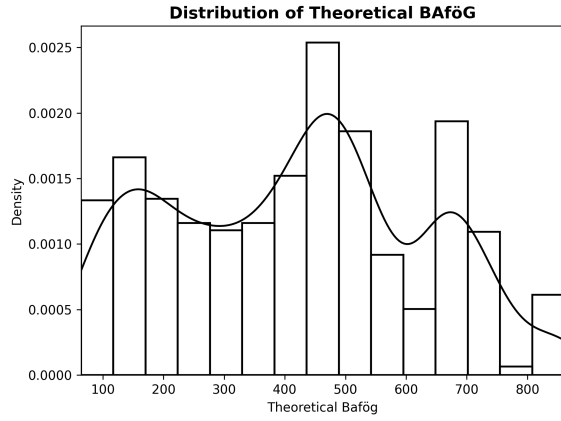


(a) Parental joint excess income

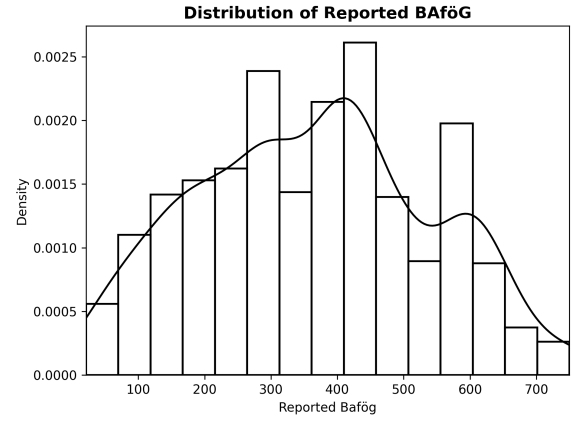


(b) Student excess income

Figure B2: Simulated mean excess income for parents (a) and students (b).

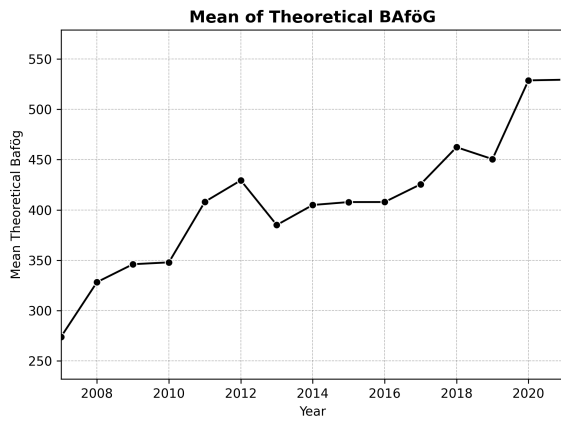


(a) Simulated distribution of theoretical BAföG awards based on microsimulation.

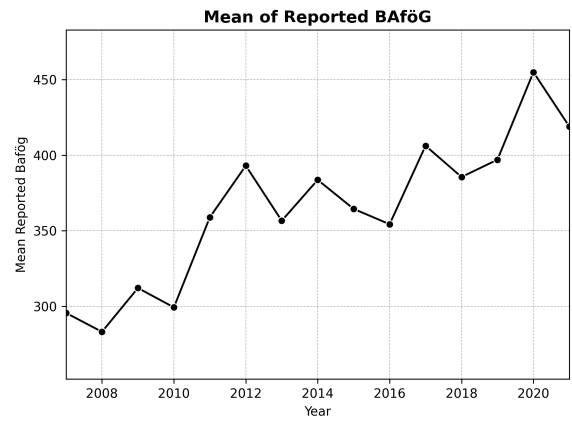


(b) Observed distribution of reported BAföG receipt in SOEP survey data.

Figure B3: Comparison of theoretical BAföG award simulation with actual reported take-up.



(a) Simulated distribution of theoretical BAföG awards based on microsimulation.



(b) Observed distribution of reported BAföG receipt in SOEP survey data.

Figure B4: Comparison of theoretical BAföG award simulation with actual reported take-up over time.

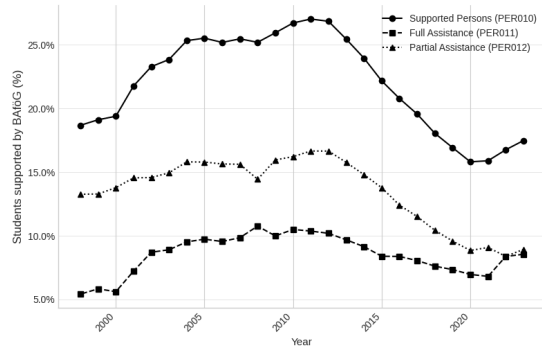


Figure B5: Fraction of enrolled students in Germany receiving partial, full, or combined BAföG support (loans and grants). Based on official statistics from Destatis. *Own illustration.*

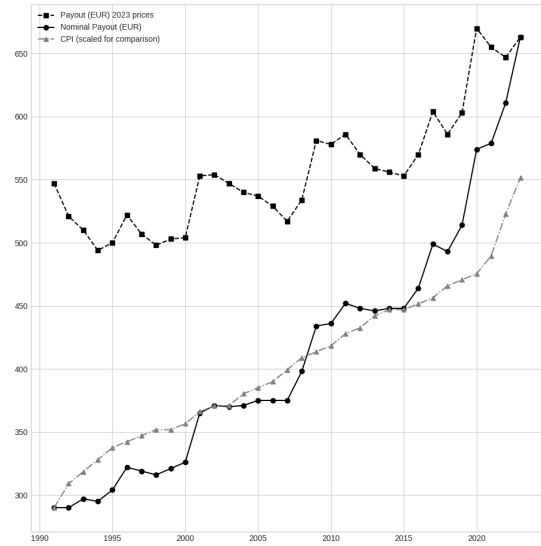


Figure B6: Average nominal and real monthly BAföG payout for students (excluding pupils), based on Destatis time series. *Own illustration.*

Appendix C: Microsimulation Pipeline (Technical Appendix)⁴

This appendix documents the microsimulation pipeline used to construct the analysis dataset from raw SOEP extracts. The aim is to ensure transparency, reproducibility, and alignment with the legal and institutional framework governing student aid eligibility in Germany.

The pipeline comprises five primary components: the student module, sociodemographic enrichment module, student income module, assets module, and parental income module. Each module is detailed below.

C.1 Sociodemographic Module

This module constructs core demographic characteristics required throughout the pipeline. It derives sex, age, federal state, and household type. The federal state is used to classify students as residing in East or West Germany, which influences BAföG eligibility.

Key data sources:

- `ppath1`: sex, birth year and month
- `hgen`: household type
- `region1`: federal state of residence

These variables are merged into the student module and used for eligibility filtering, modeling allowances, and accounting for regional policy differences.

C.2 Student Module

The student module is the core of the microsimulation. It identifies individuals in SOEP who qualify as students and enriches their profiles with relevant characteristics for BAföG simulation. These include education status, household composition, parental identifiers, employment, and relationship status.

It integrates data from the following sources:

⁴This section documents the simulation code and data processing steps. Code is on GitHub [Byström and Antonsdóttir \(2025\)](#). § denotes legal paragraphs; EStG = Einkommensteuergesetz; BAföG = Bundesausbildungsförderungsgesetz.

- Education and religion: `pl` (`plg0012.h`, `plh0258.h`)
- Living with parents: inferred from household and parental IDs in `ppath1`
- Employment status: `pgen` (`pgemplst`)
- Number of children: derived from `bioparen` (where the student is listed as a parent)
- Partnership status: derived from `partner` and household records
- Number of siblings: from `biosib`

The output is a filtered and annotated dataset of eligible students, ready for further processing.

C.3 Student-Income Module

This module calculates the student’s BAföG-relevant income. Starting with gross labour income, it applies the following steps:

- Merge reported income from the assessment year (typically the prior calendar year)
- Deduct Werbungskosten as per § 9a EStG
- Apply the social insurance allowance per § 21 BAföG
- Calculate and deduct income tax, church tax, and solidarity surcharge
- Compare resulting income against exemption thresholds per § 23 BAföG

The result is net income above allowances, which may reduce BAföG entitlements.

C.4 Assets Module

The assets module compiles asset information from the `pwealth` dataset. Asset categories include:

- **Financial assets:** accounts, savings, stocks, bonds (`f0100a–f0100e`)
- **Real estate:** owned property or partial stakes (`e0111a–e0111e`)
- **Business assets:** private businesses or self-employment stakes (`b0100a–b0100e`)
- **Private insurance:** life, pension, and building loan contracts (`i0100a–i0100e`)

- **Vehicles:** personal transport (v0100a–v0100e)
- **Tangible assets:** valuables (e.g., jewelry, art, furniture) (t0100a–t0100e)
- **Liabilities:** total outstanding debt, excluding student loans (w0011a–w0011e)

All asset types are aggregated into a single student-level asset value, which is then compared to the allowance threshold defined in § 29 BAföG (*Freibeträge vom Vermögen*). Students exceeding the threshold may be deemed ineligible.

C.5 Parental-Income Module

This module estimates the parental contribution to student support. It proceeds through:

- Matching students to parents via **bioparen**
- Extracting gross income from **pgen**
- Deducting Werbungskosten and social insurance contributions
- Applying allowances per § 25 BAföG (base allowance, sibling allowance, and partnership status)

If data for both parents is available, their contributions are summed to determine the total parental support obligation.

C.6 BAföG Calculation

The final module integrates all variables to compute theoretical BAföG entitlements. The calculation follows this logic:

- Subtract allowable income from the student’s income
- Subtract estimated parental contribution
- Exclude students who exceed asset limits

The output is an estimated monthly BAföG benefit, which can be used to assess take-up behavior and simulate policy reforms.

C.7 Variable Dictionary for Microsimulation Datasets

Table C5: Variable Dictionary by Dataset

Dataset	Variable	Description	Data Type / Scale
IDENTIFIERS AND CORE DEMOGRAPHICS			
ppathl	pid	Person identifier	int
ppathl	hid	Household ID	int
ppathl	syear	Survey year	date
ppathl	gebjahr	Year of birth	int
ppathl	gebmonat	Month of birth	int
ppathl	sex	Sex	Categorical
ppathl	partner	Partnership status	Categorical
ppathl	migback	Migration background	Categorical
regionl	hid	Household ID	int
regionl	syear	Survey year	date
regionl	bula	Federal state (Bundesland)	Categorical
EDUCATION			
pl	pid	Person identifier	int
pl	syear	Survey year	date
pl	plg0012_h	Currently in education	Ordinal
pl	plg0014_v5	Education level, 1999–2008	Ordinal
pl	plg0014_v6	Education level, 2009–2012	Ordinal
pl	plg0014_v7	Education level, 2013–2021	Ordinal
RELIGION AND STUDENT AID			
pl	plh0258_h	Religion / church membership	Categorical
pl	plc0167_h	BAföG eligibility	Binary
pl	plc0168_h	BAföG / scholarship (gross, monthly)	int
pequiv	pid	Person identifier	int
pequiv	syear	Survey year	date
pequiv	istuy	Student grants received	int
EMPLOYMENT AND INCOME			
pgen	pid	Person identifier	int
pgen	syear	Survey year	date
pgen	pglabgro	Labour income (gross)	int
pgen	pgemplst	Employment status	Categorical
pgen	pgpartnr	Partner indicator	int
biol	pid	Person identifier	int
biol	syear	Survey year	date

(continued on next page)

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Dataset	Variable	Description	Data Type / Scale
biol	lb0267_v1	Employment status	Categorical
HOUSING AND RENT			
pkal	pid	Person identifier	int
pkal	syear	Survey year	date
pkal	ka12a02	Monthly rent including utilities	int
pkal	ka12a03_h	Housing benefit	int
WEALTH AND ASSETS			
pwealth	pid	Person identifier	int
pwealth	syear	Survey year	date
pwealth	f0100a--f0100e	Financial assets	int
pwealth	e0111a--e0111e	Real estate (net value shares)	int
pwealth	b0100a--b0100e	Business assets	int
pwealth	i0100a--i0100e	Private insurances	int
pwealth	v0100a--v0100e	Vehicles	int
pwealth	t0100a--t0100e	Tangible assets	int
pwealth	w0011a--w0011e	Liabilities and debts	int
FAMILY RELATIONSHIPS			
biosib	pid	Person identifier	int
biosib	sibpnr1--sibpnr11	Sibling person numbers	int
bioparen	pid	Person identifier	int
bioparen	fnr	Father's person ID	int
bioparen	mnr	Mother's person ID	int
HOUSEHOLD COMPOSITION			
hgen	hid	Household ID	int
hgen	syear	Survey year	date
hgen	hgtyp1hh	Household type	Categorical

Appendix D: Example Calculation: Theoretical BAföG Eligibility⁵

This appendix documents the step-by-step calculation of theoretical BAföG eligibility for a selected individual from the SOEP-Core dataset. The example is based on data from survey year 2018 and focuses on a university student identified by `pid = 20156903`.

The purpose of this example is to illustrate how legal rules governing student financial aid—particularly those defined in the Federal Training Assistance Act (BAföG)—are operationalized within the microsimulation pipeline. Each component of the calculation is made transparent, including the determination of the student’s assessed need, applicable supplements, and deductions based on income and assets.

The case selected is representative of a full-time student living independently, with modest student income, limited parental support, and non-negligible declared assets. The final theoretical BAföG award is computed by subtracting excess income and asset contributions from the total assessed need.

A summary of the key outcome variables is presented in Table D15. Subsequent sections decompose and document the logic and parameters behind each component in detail.

D.1 Total Base Need

D.1.1 Base Need

The base need (`base_need`) is a flat-rate amount representing the monthly minimum subsistence level for students in higher education. It is specified in § 13(1) Nr. 1 of the Federal Training Assistance Act (BAföG) and does not vary by income, living arrangement, or demographic characteristics.

For all eligible university students during the relevant period, the base need was set at 399 EUR. Since the student in this case study meets the criteria for university-level BAföG support, this full amount is assigned without adjustment.

Component	Explanation	Value (EUR)
Base Need	Flat-rate monthly amount for university students	399

Table D6: Base need (`base_need`) for `pid 20156903`, in accordance with § 13(1) Nr. 1 BAföG.

⁵Based on calculations using the microsimulation pipeline introduced in Appendix C.

D.1.2 Housing Allowance

The housing allowance (`housing_allowance`) compensates students for living expenses incurred while living outside the parental home. According to § 13(1) Nr. 2 BAföG, students who do not reside with their parents are entitled to a fixed monthly supplement to cover rent and related costs.

In this example, the student was classified as living independently. While the statutory maximum at the time was 399 EUR, the simulation applies a standardized flat amount of 250 EUR to align with data quality and institutional thresholds reflected in the SOEP housing variables.

Component	Explanation	Value (EUR)
Housing Allowance	Standard flat rate applied for non-parental housing	250

Table D7: Housing allowance (`housing_allowance`) for pid 20156903, based on § 13(1) Nr. 2 BAföG.

D.1.3 Insurance Supplement

Students with statutory health and long-term care insurance are entitled to receive flat-rate supplements as defined in § 13a(1) BAföG. These rates vary by time period and are adjusted periodically by legal amendment.

For survey year 2018, the applicable values—according to the 2020-08-01 rates still valid at the time—were:

- 61 EUR for health insurance (§ 13a(1) Nr. 1 BAföG)
- 25 EUR for long-term care insurance (§ 13a(1) Nr. 2 BAföG)

These two components sum to 86 EUR, which is assigned as the total insurance supplement for this individual.

Component	Explanation	Value (EUR)
Insurance Supplement	Sum of flat-rate statutory insurance allowances	86
Health insurance	§ 13a(1) Nr. 1 BAföG (statutory health insurance)	61
Care insurance	§ 13a(1) Nr. 2 BAföG (statutory long-term care insurance)	25

Table D8: Insurance supplement (`insurance_supplement`) for pid 20156903. Rates valid for the 2018 survey year.

D.2 Student Excess Income

The student's excess income (`excess_income_stu`) represents the amount by which their own annual income—after standard deductions—exceeds the personal allowance defined under § 23(1) Nr. 1 BAföG. This component is subtracted from the total assessed need to determine theoretical eligibility.

Step 1: Estimating Gross Annual Income The student's income is derived from the SOEP variable `ka12a03_h`, which reports average gross monthly earnings. This value is multiplied by the number of working months in the previous calendar year (`ka12a02`) to estimate gross annual income. For `pid = 20156903`:

- Gross monthly income: 523 EUR
- Months worked: 12
- \Rightarrow Gross annual income: $523 \times 12 = 6,276$ EUR

Step 2: Standard Deductions Two statutory deductions are applied to estimate net taxable income:

- **Werbungskostenpauschale** (fixed deduction for work-related expenses): 290 EUR (2018)
- **Sozialversicherungs-Pauschale** (fixed social insurance deduction): 17.2% of remaining income, capped at 17,200 EUR
- Step 1: $6,276 - 290 = 5,986$ EUR
- Step 2: $5,986 \times 0.828 = 4,152.21$ EUR (after 17.2% deduction)

Step 3: Applying Income Tax The BAföG calculator applies German income tax tables to compute statutory income tax liabilities. In this case, the taxable income falls below the basic allowance threshold (9,000 EUR in 2018), so no income tax, church tax, or solidarity surcharge is applied:

- Income tax: 0 EUR
- Church tax: 0 EUR

- Solidarity surcharge: 0 EUR
- \Rightarrow Net annual income: 4,152.21 EUR

Step 4: Monthly Net Income and Allowance The student's net monthly income is calculated as:

$$\frac{4,152.21}{12} \approx 346.02 \text{ EUR}$$

The personal allowance specified in § 23(1) Nr. 1 BAföG for the year 2018 was 290 EUR per month. Thus, the student's excess income is:

$$346.02 - 290 = 56.02 \text{ EUR}$$

Component	Explanation	Value (EUR)
Gross monthly income	From SOEP variable <code>ka12a03_h</code>	523
Working months (previous year)	From SOEP variable <code>ka12a02</code>	12
Gross annual income	Estimated income before deductions	6,276
Werbungskostenpauschale	Work-related fixed deduction (§ 21(2) BAföG)	290
Sozialversicherungs-Pauschale	17.2% statutory deduction	1,133.79
Net annual income	Income after deductions	4,152.21
Net monthly income	Annual net income divided by 12	346.02
Personal allowance	§ 23(1) Nr. 1 BAföG (2018)	290
Student excess income	Amount exceeding allowance	56.02

Table D9: Calculation of student's excess income (`excess_income_stu`) for pid 20156903.

D.3 Parental Income Evaluation: Father (pid = 20156901)

This section documents the step-by-step derivation of net income for the student's father using variables from the SOEP-Core dataset and applying BAföG-compliant statutory deductions.

Step 1: Gross Income The parent reported a gross monthly income of 3,500 EUR and worked 12 months in the prior year, resulting in:

$$\text{Gross annual income} = 3,500 \times 12 = 42,000 \text{ EUR}$$

Step 2: Werbungskostenpauschale (§ 21 Abs. 2 BAföG) A fixed deduction of 1,000 EUR is applied to account for work-related expenses:

$$\text{inc}_w = 42,000 - 1,000 = 41,000 \text{ EUR}$$

Step 3: Sozialversicherungs-Pauschale (§ 21 Abs. 2 BAföG) Next, a 21.3% deduction is applied to the income after Werbungskosten:

$$\text{inc}_{si} = 41,000 \times (1 - 0.213) = 41,000 \times 0.787 = 32,267 \text{ EUR}$$

Step 4: Income Tax Calculation (§ 32a EStG) The parent is assessed as an individual (not jointly filed). Based on the 2018 tax table and a taxable income of 32,267 EUR, the following taxes are applied:

- **Income tax:** 6,062 EUR (per simulation based on § 32a EStG) - **Church tax:** 0 EUR (not church-affiliated in SOEP) - **Solidarity surcharge (Soli):** 333 EUR

The solidarity surcharge applies since taxable income exceeds the 2018 exemption threshold of 972 EUR (§ 32a Abs. 5 & 6 EStG, pre-2020 version). The surcharge is 5.5% of income tax, capped by taper rules.

Step 5: Net Annual and Monthly Income

$$\text{inc}_{net} = 32,267 - 6,062 - 0 - 333 = 25,872 \text{ EUR}$$

$$\text{net_monthly_income} = \frac{25,872}{12} = 2,156 \text{ EUR}$$

Component	Explanation	Value (EUR)
Gross monthly income	Reported by SOEP	3,500
Working months	From SOEP (previous year)	12
Gross annual income	$3,500 \times 12$	42,000
Werbungskostenpauschale	Fixed work-related deduction (§ 21(2))	1,000
Post-werbung income (inc_w)	After deduction	41,000
Sozialversicherungs-Pauschale	21.3% of inc_w	8,733
Income after SI (inc_si)	$41,000 \times 0.787$	32,267
Income tax	Based on § 32a EStG table	6,062
Church tax	SOEP indicates no affiliation	0
Solidarity surcharge	5.5% of income tax (capped)	333
Net annual income (inc_net)	After all taxes	25,872
Net monthly income	$25,872 \div 12$	2,156

Table D10: Income derivation for father (pid = 20156901) in 2018.

D.4 Parental Income Evaluation: Mother (pid = 20156902)

The same procedure is applied to evaluate the income of the student's mother. This parent reports a lower monthly income, but the same deductions are used to compute a BAföG-compliant net income value.

Step 1: Gross Income The mother reported a gross monthly income of 300 EUR and worked 12 months in the previous year:

$$\text{Gross annual income} = 300 \times 12 = 3,600 \text{ EUR}$$

Step 2: Werbungskostenpauschale (§ 21 Abs. 2 BAföG) A fixed work-related deduction of 1,000 EUR is applied:

$$\text{inc_w} = 3,600 - 1,000 = 2,600 \text{ EUR}$$

Step 3: Sozialversicherungs-Pauschale (§ 21 Abs. 2 BAföG) A 21.3% deduction is then applied:

$$\text{inc_si} = 2,600 \times 0.787 = 2,046.20 \text{ EUR}$$

Step 4: Income Tax and Surcharges Because the income falls well below the basic exemption threshold, no income tax or surcharges apply:

- Income tax: 0 EUR - Church tax: 0 EUR - Solidarity surcharge: 0 EUR

Step 5: Net Annual and Monthly Income

$$\text{inc_net} = 2,046.20 \text{ EUR} \quad \text{net_monthly_income} = \frac{2,046.20}{12} = 170.52 \text{ EUR}$$

Component	Explanation	Value (EUR)
Gross monthly income	Reported by SOEP	300
Working months	From SOEP (previous year)	12
Gross annual income	300×12	3,600
Werbungskostenpauschale	Fixed deduction (§ 21(2))	1,000
Post-werbung income (inc_w)	After deduction	2,600
Sozialversicherungs-Pauschale	21.3% of inc_w	553.80
Income after SI (inc_si)	$2,600 \times 0.787$	2,046.20
Income tax	Below exemption threshold	0
Church tax	SOEP indicates no affiliation	0
Solidarity surcharge	Below threshold	0
Net annual income (inc_net)	After all taxes	2,046.20
Net monthly income	$2,046.20 \div 12$	170.52

Table D11: Income derivation for mother (pid = 20156902) in 2018.

D.5 Joint Parental Income and Deductions

After calculating net income for each parent individually, their incomes are combined and assessed jointly, following the rules laid out in § 25 and § 21 of the BAföG Act. This section outlines how the parental income is evaluated as a unit, and how the applicable deductions reduce the contribution relevant for BAföG eligibility.

Step 1: Joint Income The net monthly incomes of both parents are summed to form the joint income base:

$$\text{joint_income} = 2,156 + 170.52 = 2,326.52 \text{ EUR}$$

Step 2: Parental Allowance (§ 25(1) Nr. 1 BAföG) Because both parents are financially active, the applicable allowance is the joint parental allowance. According to the BAföG schedule valid from 2015-01-01 (25. BAföGÄndG), the relevant allowance value is:

$$\text{total_allowance} = 1,715 \text{ EUR}$$

The remaining income after allowance is:

$$\text{joint_income_less_ba} = 2,326.52 - 1,715 = 611.52 \text{ EUR}$$

Step 3: Sibling Deduction (§ 25(3) BAföG) The student has two siblings who are eligible for sibling-related deductions. According to the 2015 allowance table:

- The sibling deduction per eligible sibling is 260 EUR - Total deduction: $2 \times 260 = 520$ EUR

$$\text{joint_income_less_ba_and_sib} = 611.52 - 520 = 91.52 \text{ EUR}$$

Step 4: Additional Allowance (§ 25(4) BAföG) In addition, § 25(4) BAföG entitles parents to a percentage-based deduction on the remaining income. According to the allowance rules:

- A base allowance of 50% of the remainder applies - Plus 5% per sibling with a positive deduction

Thus, the applied rate is:

$$50\% + (2 \times 5\%) = 60\%$$

$$\text{additional_allowance} = 91.52 \times 0.60 = 54.91 \text{ EUR}$$

Step 5: Final Excess Parental Income The final contribution from parental income is the remaining amount after all deductions:

$$\text{excess_income} = 91.52 - 54.91 = 36.61 \text{ EUR}$$

Component	Explanation	Value (EUR)
Joint income	Sum of both parents' net monthly incomes	2,326.52
Parental allowance	§ 25(1) Nr. 1 BAföG (joint allowance)	1,715
Remaining after allowance	$2,326.52 - 1,715$	611.52
Sibling deduction	2×260 (§ 25(3) BAföG)	520
Remaining after siblings	$611.52 - 520$	91.52
Additional allowance	60% of remaining income (§ 25(4))	54.91
Excess parental income	Final contribution to be deducted	36.61

Table D12: Calculation of joint parental excess income for pid 20156903 (2018).

D.6 Asset-Based Contribution

Students whose personal assets exceed a legally defined exemption threshold are required to contribute the excess toward their BAföG need (§ 29 BAföG). The following table lists all relevant asset categories reported in the SOEP and their treatment in the eligibility assessment for this individual.

Step 1: Declared Asset Categories The student's asset-related information for the 2018 survey year is as follows:

Asset Category	Value (EUR)
Financial assets (e.g., savings, stocks)	0
Real estate (e.g., land, housing property)	0
Business assets	0
Private insurance assets	0
Vehicles (e.g., car ownership)	7,940
Tangible assets (furniture, equipment)	0
Eligible debts (offsetting)	0
Total assets	7,940
Debts	0
Net assets	7,940

Table D13: Declared asset categories for pid 20156903 in 2018.

Step 2: Asset Allowance (§ 29 BAföG) Since the student was 25 years old in 2018 (i.e., under 30), the asset allowance for students under age 30 applied. According to the table valid from 2016-08-01 (25. BAföGÄndG), this exemption was:

$$\text{asset_allowance} = 7,500 \text{ EUR}$$

Step 3: Excess Asset Contribution The contribution from assets is computed as the difference between net assets and the legal allowance:

$$\text{excess_assets} = \max(7,940 - 7,500, 0) = 440 \text{ EUR}$$

Component	Explanation	Value (EUR)
Net assets	Total assets minus eligible debts	7,940
Asset allowance	§ 29 BAföG (U30 threshold in 2018)	7,500
Excess asset contribution	Final deduction from BAföG entitlement	440

Table D14: Excess asset calculation for pid 20156903 in 2018.

D.7 Final Theoretical BAföG Award

After accounting for all relevant supplements and income-based deductions, the theoretical BAföG award is computed by subtracting the student's and parents' contributions—as well as any asset-based contributions—from the total assessed need.

Step 1: Total Assessed Need The total monthly need is composed of:

- Base need (**base_need**): 399 EUR
- Housing allowance (**housing_allowance**): 250 EUR
- Insurance supplement (**insurance_supplement**): 86 EUR

$$\text{total_base_need} = 399 + 250 + 86 = 735 \text{ EUR}$$

Step 2: Total Deductions The following deductions apply:

- Student excess income: 56.02 EUR

- Parental excess income: 36.61 EUR
- Excess asset contribution: 440.00 EUR

$$\text{total_deductions} = 56.02 + 36.61 + 440 = 532.63 \text{ EUR}$$

Step 3: Theoretical Award Calculation

$$\text{theoretical_bafög} = \max(735 - 532.63, 0) = \mathbf{202.38 \text{ EUR}}$$

Component	Explanation	Value (EUR)
Base need	§ 13(1) Nr. 1 BAföG	399
Housing allowance	§ 13(1) Nr. 2 BAföG	250
Insurance supplement	§ 13a(1) BAföG	86
Total base need	Monthly assessed need	735
Student excess income	§ 23(1) Nr. 1 BAföG	56.02
Parental excess income	§ 25 BAföG + sibling adjustment	36.61
Excess asset contribution	§ 29 BAföG	440.00
Total deductions	Income and asset-based contributions	532.63
Theoretical BAföG award	Maximum eligible amount	202.38

Table D15: Final theoretical BAföG award for pid 20156903 in 2018.

Note on Eligibility Status This student qualifies for BAföG under the legal eligibility criteria defined by income, asset, and need thresholds. While their theoretical eligibility status is coded as 1 (eligible), they did not receive or report any BAföG support in the SOEP dataset:

- `received_bafög` = 0 EUR
- `reported_bafög` = 0 EUR
- `theoretical_eligibility` = 1 (eligible)