LUND UNIVERSITY

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Unclaimed Aid in the German Student Aid System

A Microsimulation of BAföG Eligibility and Non-Take-Up

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Abstract

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Keywords: 3 – 5 key words
JEL codes: Find appropriate codes all https://www.aeaweb.org/econlit/jelCodes.php?view=jel

1 Introduction

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Although there is some literature on the non-take-up of welfare benefits, non-take up of student aid (especially mixed grant-loan schemes like BAföG) is much less researched.

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2 Related Literature

- What we provide to the literature (short)

- What other studies have looked into

In broad terms, research on non take up can be split into studies applying traditional economic theory and studies applying behavioural economic theory. Traditional economic theory assumes rational behaviour and thus that agents optimise the trade off between benefit and cost. The field of behavioural economics, that has more recently emerged, instead emphasises deflections from the traditional assumptions on rational behaviour and highlights cognitive bias and behavioural obstacles (Mechelen, 2017).

Optimal policy design aims to target support to those who need it most, while keeping eligibility criteria clear and easy to understand. However, targeted programmes often involve complicated rules, such as income limits and asset tests. This complexity poses some difficulties, both for administrative workers and applicants. For administrators, it increases the risk of mistakes when assessing eligibility. For applicants, understanding the rules and completing the process can be time consuming and require substantial effort, especially if there are uncertainties about eligibility. This can discourage people from applying. Complexity can also result in tertiary non take up, where certain groups are excluded by design because the rules use rough indicators of need. One way to reduce non take up is to use simpler, categorical criteria based on things like age or household type. Although this may make targeting less precise, it can make the application process easier and more accessible (Mechelen, 2017).

3 The German Study Aid System

The Federal Training Assistance Act (g. Bundesausbildungsförderungsgesetz, BAföG) was introduced in 1971 with the aim to promote equal opportunities in the education system and unlock educational potential (Meier et al., 2024).

3.1 European Student Aid Systems

Schwarz and Rehburg (2004) address a worldwide trend that took place in the 1970s, where higher education expanded from being elite to becoming more accessible for the general population. This trend was also prominent in Europe, and brought about an exceptional increase in student enrolment.

With these developments, European nations had to take greater responsibility for supporting students financially. In doing so, different nations adopted different methods and shaped their support systems in different ways. It is thus not possible to claim a common European method of student financial aid.

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According to Gwosć and van der Beek (2022) there are two main design principles when it comes to public student funding, the welfare principle and the provision principle. They 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).

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For example, the nations differ when it comes to distribution and administration of financial aid. On one hand, there are the Nordic countries where financial aid is managed by national authorities, and on the other hand there are countries like Germany, where local authorities bear the responsibility (Schwarz and Rehburg, 2004).

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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).

3.2 Federal Training Assistance Act ("Bundesausbildungsförderungsgesetz")

The **Federal Training Assistance Act** (DE: **Bundesausbildungsförderungsgesetz**) is a student loan supplied by the **Federal Ministry of Education and Research** (DE: **Bundesministerium für Bildung und Forschung**). BAföG is designed to financially support students, with the primary aim of ensuring equal access to higher education. The eligibility criteria for the loan is therefore very strict to make sure that only students who are genuinely in need of the loan gets access to it.

3.2.1 History and Reforms

The loan was introduced in 1971 in the form of a 100 percent grant and was generally very successful with almost half (44.6%) 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, 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 had to once again be overhauled in the 1990s and BAföG was now half a grant, and half a loan, where the loan part has zero interest – the structure of which is still in force today (Lost, 2025).

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 A1 and figure B1).

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Initially, the funding was in the form of a non-repayable grant. In 1974, a monthly loan component of 70 DM was introduced, which has gradually increased to 150 DM as of 2015. In 1982, under Chancellor Helmut Kohl, the so-called "BAföG Kahlschlag" or BAföG clear-cut was introduced, which transformed BAföG into a fully repayable loan system. The current hybrid model was then established in 1990, where half the funding is in form of a grant and half in form of an interest-free loan. Further changes were made in 2001 when a repayment cap of 10.000 EUR was introduced (Staack, 2017).

3.2.2 The Income Exemption Threshold and the Support Rate

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 (Meier et al., 2024).

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., 2024). ...

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., 2024).

Interactions Between the Income Exemption Threshold and the Support Rate. 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 (Meier et al., 2024).

3.2.3 Declining Aid Rates

Some sources even 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., 2024).

It is however worth noting that declining financial aid rates do not inevitably indicate a deterioration of the situation, although that is also a possibility that can't be ruled out. Over the last two decades, income per capita has increased significantly in Germany. This, as well as demographic trends, could at least partly explain the drop in proportion of students in need of financial aid. 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., 2024).

3.2.4 Two Loan Repayment Models

The two main ways of financing studies in higher education (HE) using a loan is to either use a traditional **time-based repayment loan** (TBRL) which is of the same style as standard "mortgage-loans" where the principal is amortized on a fixed reimbursement schedule.

The alternative to the TBRL plans are **income contingent loans** (ICL), where the principal you are allowed to borrow and the rate at which you amortize the principal is contingent on your financial status. The principal you are allowed to borrow and the rate at which you amortize the principal is contingent on your earned and capital income. In some systems, as in the German one, the household earnings and capital gains are also considered when applying for the income contingent BAföG loan.

An obvious benefit of the ICL loan structure is that it eliminates the likelihood of defaulting on your debt, as the reimbursement period (and rate of amortisation) is adapted to the individual (or household) income. Time based repayments are known to overburden the poorer part of the population which decides to educate themselves. For instance, among the 20% of the poorest graduates in South Korea and United States almost all students have a repayment burden exceeding 100% of their income (Chapman et al., 2022). Income contingent loans therefore provides an insurance against low income for the debtor and promotes social benefits such as mobility and human capital formation.

However, there are some important drawbacks to income-contingent loans that policymakers should consider when implementing them. One concern is that, as long as the borrower has an outstanding

balance, the loan effectively acts as a marginal tax on income above the repayment threshold. This can potentially reduce the borrower's incentive to work more, as higher earnings lead to higher repayments. If borrowers respond by working less to avoid steeper repayment rates, the loan will be repaid more slowly, increasing the cost borne by the creditor — in this case, the state. Whether this is an actual problem is yet to be investigated further, but has been shown that for instance in the UK's income contingent repayment plan to not be an actual problem (Britton and Gruber, 2020).

In the case of BAföG, this issue is less pronounced, as the repayment system is only partially income-contingent. Repayments are capped at 130 EUR per month, and after a maximum of 77 installments (a total of 10,010 EUR), any remaining debt is forgiven (Studentenwerk Leipzig, nd).

4 Data

This study utilizes data from the German Socio-Economic Panel (SOEP), a nationally representative longitudinal survey conducted annually since 1984. The dataset provides individual and household-level information, including data on income, education, household composition, labor market behavior, and demographics. This study relies exclusively on SOEP-Core, the central and most comprehensive module.

We restrict our analysis to the period 2002–2022, following the introduction of the euro, to ensure consistency in income data. Our sample is limited to individuals who are currently enrolled in education, identified through a harmonized education variable in SOEP. This yields an unbalanced panel of students observed for varying numbers of years.

A key strength of the SOEP is its household structure, which allows us to link students to their parents, siblings and, in many cases, partners. Using this data, we construct a comprehensive 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. Where applicable, we also observe sibling characteristics such as enrollment status, income, and household composition. Finally, for students who report having a partner, we include the partner's income and household role.

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.

4.1 Sample Description

The final dataset contains approximately **N = [UPDATE THIS WHEN WE KNOW]** student-year observations. Each row represents a student in a particular year.

There is substantial variation in how long individuals remain in the panel. Some students appear in only one wave, while others are observed over multiple years. This reflects differences in educational paths, dropout rates, and survey participation.

4.2 Limitations

Although the SOEP provides comprehensive socioeconomic data, certain limitations persist.

Parental income coverage. Parental income data are essential for constructing a credible BAföG means test. Requiring information for both parents would exclude a substantial share of observations, which would bias simulated eligibility downward. Students with income data for at least one parent are therefore retained. For single- or split-parent households, this reflects actual circumstances and in two-parent households it may understate available resources. However, the gain in sample size and representativeness offsets this downward bias. This approach maintains alignment with the target population while minimizing selection bias.

Because the SOEP dataset does not identify BAföG-eligible respondents directly, we construct eligibility through a microsimulation that mirrors the legal rules of the Bundesausbildungsförderungsgesetz (BAföG) for the years 2002–2022 (Bundesministerium der Justiz, 2025; Bundestag, 1999, 2004, 2007, 2010, 2011, 2014, 2019, 2022b,a, 2024a). The model implements the need calculation in § 13 and the dynamic allowance schedule of § 25, updating thresholds in line with each amendment act. Although undocumented exceptions cannot be fully accounted for, the model follows the statutory rules and ensures consistent application across survey waves.

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 (Bundestag, 2024b; Buzer, 2024b,a, 2022b,a, 2020, 2018c,b, 2016b,a, 2015a,b, 2013b,a, 2011, 2007, 2006; Liebig, 2012). For years 2002–2006, where official schedules are unavailable, values are linearly interpolated. This approximation entails limited precision loss but enables consistent estimation across years, reproduces the primary tax burden, reflects statutory bracket reforms, and isolates income differences relevant for BAföG eligibility. Solidarity surcharge rates (5.5% until 2020, with phased reductions thereafter) follow Buzer (2018a, 2019, 2023). Church tax is applied at 9% (8% in Bavaria and Baden-Württemberg), conditional on reported church affiliation.

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.

5 Method

Non take up of welfare. We define non take up of welfare 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. It is worth noting, however, that these situations often prove to be more complicated. In some cases, some individuals might receive welfare even though they aren't eligible. This might for example happen due to fraud or errors made on the administrative level. This presents the issue of type two beta errors (Herber et al., 2019; Nelson and Nieuwenhuis, 2021).

Tertiary non take up of welfare. In 2017, Van Mechelen and Janssens defined tertiary non-take-up as a situation in which vulnerable individuals aren't entitled to social welfare due to eligibility rules, even if they are in need of support. Tertiary non-take up as defined here can thus be considered a specific form of non take up. Originally, this concept was defined narrowly to include only those who are not eligible within a vulnerable group. However, some have argued for a broader definition that includes everyone in the vulnerable group that does not actually receive the welfare benefit, regardless of whether they are eligible or not (Mechelen, 2017; Goedemé and Janssens, 2020).

The concept of non-tertiary take-up relates directly to the concept of targeting efficiency, which can be divided into vertical and horizontal efficiency. Vertical efficiency refers to how well a welfare system avoids giving support to individuals who fall outside the intended target group. In most cases, the target group is defined as those who are not considered economically vulnerable. It is essentially about minimising incorrect inclusion. One way to express this is through leakage, which is defined as the proportion of benefit recipients who are not a part of the reference population. The reference population is typically defined as people with low living standards, low income or other markers of economic vulnerability. In contrast, horizontal efficiency focuses on whether those within the target group actually receive the support. If many eligible or vulnerable individuals go without welfare benefits, the system is horizontally inefficient. This concept aligns closely with the broader definition of tertiary non-take-up, which includes all vulnerable individuals who are unable to access support, regardless of the reason (Mechelen, 2017; Goedemé and Janssens, 2020).

5.1 Overview of Simulation Approach

5.2 Pipeline Design

5.3 Modelling of non-take-up rate

After simulating statutory eligibility, we analyse the *behavioural* non-take-up: that is, the probability that a student refrains from taking up BAföG even though they are theoretically eligible according to

our statutory microsimulation. Formally, we model:

$$\Pr(\text{NTU}_i = 1 \mid \mathbf{X}_i), \quad \text{with } T_i = 1 \text{ for all } i, \tag{5.1}$$

where $T_i = 1$ indicates theoretical eligibility, and $\text{NTU}_i := \mathbf{1}\{A_i = 0\}$ is a binary indicator for non-take-up, derived from the observed take-up variable A_i in the SOEP-Core dataset.

Due to the binary nature of the dependent variable, we employ a Probit model with a standard normal link function. Specifically, we assume a latent index structure for the unobserved propensity to forego BAföG:

$$\text{NTU}_i^* = \mathbf{X}_i\beta + \varepsilon_i, \quad \varepsilon_i \sim \mathcal{N}(0,1), \tag{5.2}$$

and observe:

$$\text{NTU}_i = \mathbf{1}\{\text{NTU}_i^* > 0\}. \tag{5.3}$$

That is, $\text{NTU}_i = 1$ if and only if the student's latent utility for not applying exceeds zero.

This specification implies the following probability model:

$$\Pr(\text{NTU}_i = 1 \mid \mathbf{X}_i) = \Pr(\text{NTU}_i^* > 0 \mid \mathbf{X}_i) = \Phi(\mathbf{X}_i\beta), \tag{5.4}$$

where $\Phi(\cdot)$ denotes the cumulative distribution function (CDF) of the standard normal distribution.

Hence, the latent-index formulation yields the conditional non-take-up probability for each student, and aligns with our empirical target:

$$\Pr(A_i = 0 \mid \mathbf{X}_i) = \Phi(\mathbf{X}_i^\top \beta), \quad \text{for all } i \text{ such that } T_i = 1.$$

The condition $T_i = 1$ restricts the dataset to students for whom the microsimulation yields positive statutory entitlement. Therefore, all the inferences pertains to this eligible sub-population whom are *theoretically* (statutorily) eligible.

The design matrix ($\mathbf{X}$) combines three partitions

$$\mathbf{X}_i = \Big[\mathbf{Z}_i \mid \mathbf{B}_i \mid \mathbf{D}_i\Big] \tag{5.5}$$

where $\mathbf{Z}_i$ (such as *age, number of siblings*) contains continuous covariates, $\mathbf{B}_i$ containing binary indicators (such as *livings with parents*) and $\mathbf{D}_i$ containing dummy vectors (such as *sex, federal state, employment status*).

The parameters are estimated by maximum likelihood (ML), and inference is conducted using heteroskedasticity-robust standard errors of the **MacKinnon and White (1985) HC2** type (MacKinnon and White, 1985). These standard errors account for potential residual heteroskedasticity, which is common in large-

scale observational panel data such as the SOEP-Core.[1]

As raw Probit coefficients represents shifts in the latent index[2] and are not directly comparable across covariates. To make these comparable, we report the average marginal effects (AMEs) in the results section. This translates the covariate changes into percentage-point differences in the non-take-up probability of the individuals.

6 Results

RESULTS SECTION NOT STARTED ON YET, JUST PASTING SOME RESULTS DOWN BELOW FOR MEETING 7TH OF MAY.

Note (Draft – 7 May Meeting): The following tables report preliminary Probit regression results estimating the probability of BAföG non-take-up among theoretically eligible students ($Pr(\text{no award} \mid \text{eligibility} = 1)$). Variables are interpreted as follows:

- `z_age`: Age (standardised)
- `z_num_siblings`: Number of full siblings (standardised)
- `living_with_parent`: Lives with at least one parent (1 = yes)
- `east_background`: Lives in former East German states (1 = yes)
- `sex_2`: Female (1 = female; reference category: male)
- `empstat_{1,2,3,4}`: Employment status dummies
  - `empstat_1` = Full-time
  - `empstat_2` = Part-time
  - `empstat_3` = Vocational training
  - `empstat_4` = Marginal/irregular
  - Reference category: Not employed
- `migback_2`: Direct migration background
- `migback_3`: Indirect migration background

  Reference category: No migration background

[1] We use the HC2 estimator following MacKinnon and White (1985), which adjusts the residual variance by down-weighting high-leverage observations. Specifically, the variance-covariance matrix of the estimator is given by: $\widehat{\text{Var}}(\hat{\beta}) = (X^\top X)^{-1} X^\top \text{diag}\left(\frac{e_i^2}{1-h_{ii}}\right) X (X^\top X)^{-1}$, where e_i are the residuals and h_{ii} are the diagonal elements of the hat matrix $H = X(X^\top X)^{-1}X^\top$. This choice is motivated by Chesher (1989) and Chesher and Austin (1991, Section 4), who show that HC2 might be better as HC3 tends to be upward biased and HC1 downwards-biased.

[2] With the latent index we refer to the continuous "score" which drives the true/false decision, but is not itself observed. That is the unseen propensity that the model assumes sits underneath every given binary outcome.

All continuous variables are z-standardised; categorical variables use one-hot encoding with the first level as baseline. Standard errors are robust (HC2). These are exploratory results for discussion only.

Dep. Variable:	non_takeup	**No. Observations:**	3416
Model:	Probit	**Df Residuals:**	3404
Method:	MLE	**Df Model:**	11
Date:	Wed, 07 May 2025	**Pseudo R-squ.:**	0.04671
Time:	14:07:02	**Log-Likelihood:**	-1088.5
converged:	True	**LL-Null:**	-1141.8
Covariance Type:	HC2	**LLR p-value:**	8.432e-18

	coef	**std err**	**z**	**P> |z|**	**[0.025**	**0.975]**
const	-1.2497	0.082	-15.242	0.000	-1.410	-1.089
z_age	-0.1525	0.037	-4.158	0.000	-0.224	-0.081
z_num_siblings	0.0093	0.030	0.315	0.753	-0.049	0.067
living_with_parent	0.1775	0.071	2.495	0.013	0.038	0.317
east_background	-0.4373	0.070	-6.280	0.000	-0.574	-0.301
sex_2	-0.1772	0.061	-2.918	0.004	-0.296	-0.058
empstat_1	0.3392	0.193	1.760	0.078	-0.039	0.717
empstat_2	0.1832	0.171	1.068	0.285	-0.153	0.519
empstat_3	0.4284	0.098	4.360	0.000	0.236	0.621
empstat_4	-0.0316	0.088	-0.359	0.720	-0.204	0.141
migback_2	0.1796	0.099	1.813	0.070	-0.015	0.374
migback_3	0.0647	0.080	0.806	0.420	-0.093	0.222

Dep. Variable:	non_takeup						
Method:	dydx		**dy/dx**	**std err**	**z**	**P> |z|**	**[0.025**	**0.975]**
At:	overall						
	z_age		-0.0264	0.006	-4.161	0.000	-0.039	-0.014
	z_num_siblings		0.0016	0.005	0.315	0.753	-0.008	0.012
	living_with_parent		0.0307	0.012	2.497	0.013	0.007	0.055
	east_background		-0.0756	0.012	-6.246	0.000	-0.099	-0.052
	sex_2		-0.0306	0.010	-2.923	0.003	-0.051	-0.010
	empstat_1		0.0587	0.033	1.759	0.079	-0.007	0.124
	empstat_2		0.0317	0.030	1.067	0.286	-0.027	0.090
	empstat_3		0.0741	0.017	4.352	0.000	0.041	0.107
	empstat_4		-0.0055	0.015	-0.359	0.720	-0.035	0.024
	migback_2		0.0311	0.017	1.814	0.070	-0.003	0.065
	migback_3		0.0112	0.014	0.806	0.420	-0.016	0.038

Sample non-take-up rate: 10.42%

Predicted non-take-up rate ($\geq$0.10): 46.55%

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Appendix A: Tables

Year	BIL002	Supported Persons			Proportion Supported (%)		
		PER010	PER011	PER012	PER010	PER011	PER012
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 A1: Number and percentage of students receiving BAföG support (BIL002). PER010: Total supported students, PER011: Fully supported students, PER012: Partially supported students.

Year	**CPI (PREIS1)**		**Average Payout**		**Fin. Exp. (EUR 1000)**	
	Index (2020)	Factor (2023)	Nominal	2023 Prices	Nominal	2023 Prices
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 real payout under the Federal Training Assistance Act (BAföG) for category students (pupils excluded). Table also shows the total Financial Expenditures (Fin. Exp.) in nominal and real prices.

Appendix B: Figures

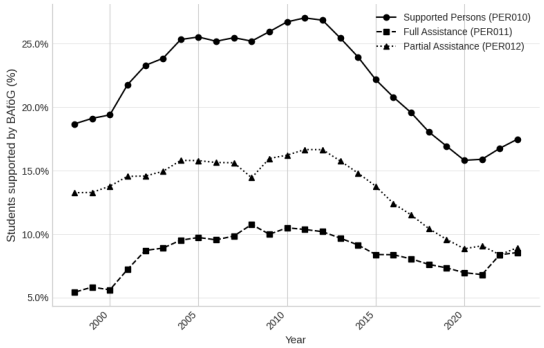

Figure B1: The figure illustrates the fraction of enrolled students in Germany receiving partial, full, or combined partial and full loans and grants over the same period. *Own illustration.*

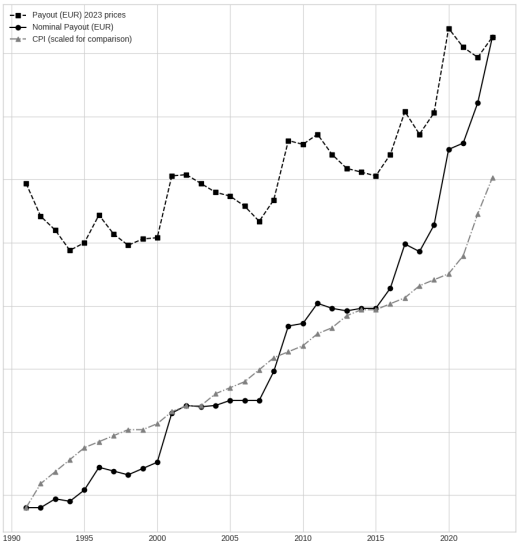

Figure B2: Average nominal and real payout under the Federal Training Assistance Act (BAföG) for category students (pupils excluded). *Own illustration.*

Appendix C: Microsimulation Pipeline

This appendix documents the microsimulation pipeline used to construct the analysis dataset from raw SOEP extracts. The goal is to make each step in the process transparent and reproducible.

The pipeline is organized into four main components: a sociodemographic module, a student status module, a student income module, and a parental income module.

Each of these is wrapped into a separate function and explained in this appendix.

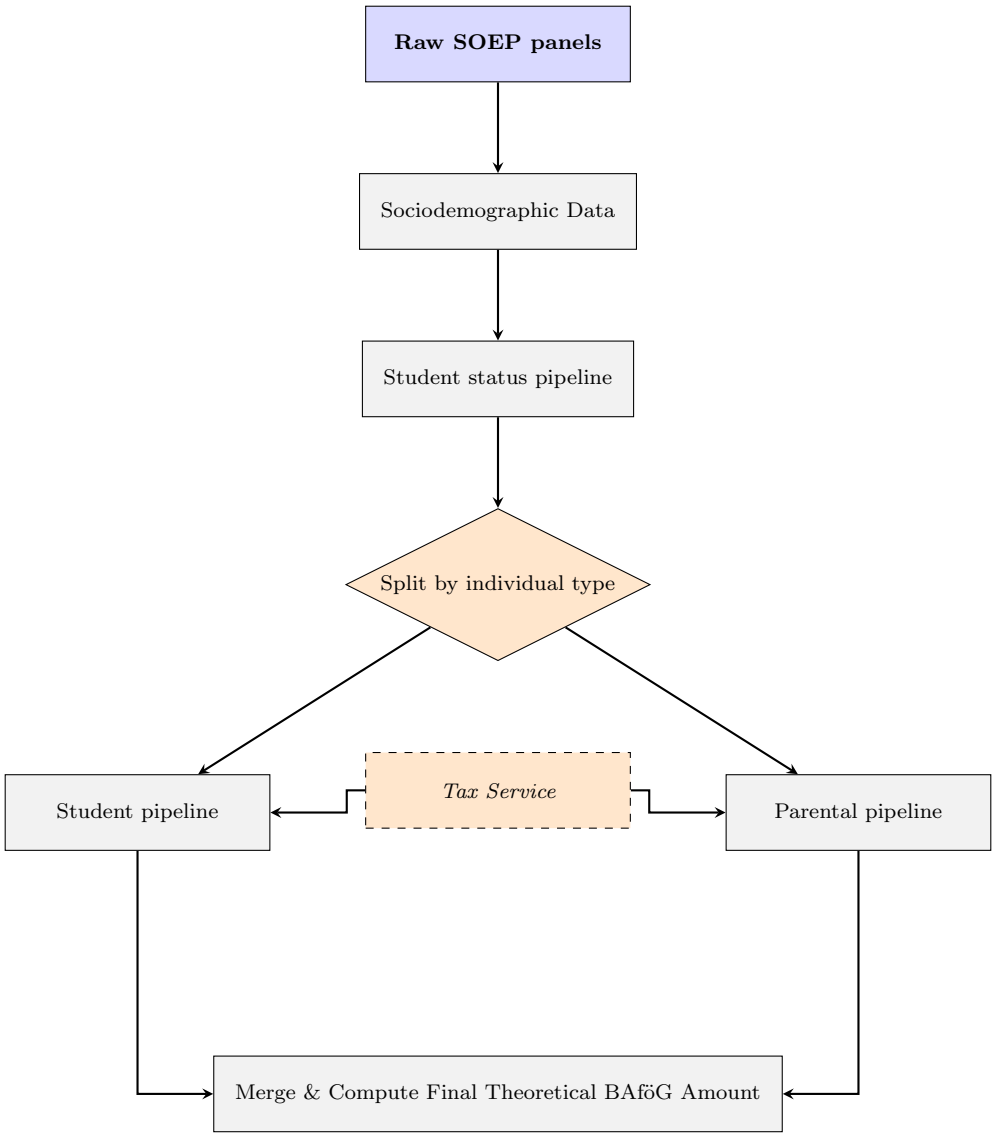

Figure C3: End-to-end pipeline overview

Figure C3 maps the entire data-flow. The remainder of this appendix zooms into each shaded box in the order shown and documents (i) the exact sequence of transformation functions, (ii) the statutory or econometric rationale, and (iii) any runtime optimisations implemented to keep the workflow scalable.

C.1 Student-Income Mini-Pipeline

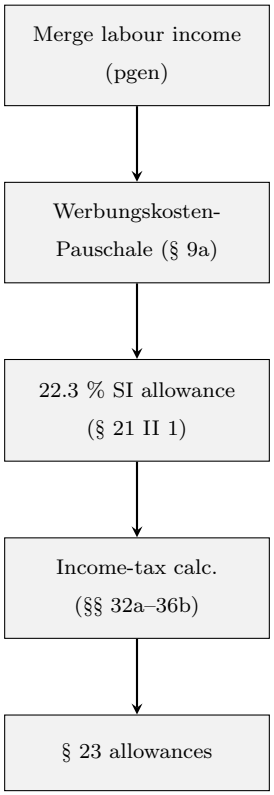

Figure C4: Student-income mini-pipeline

C.2 Parental-Income Mini-Pipeline

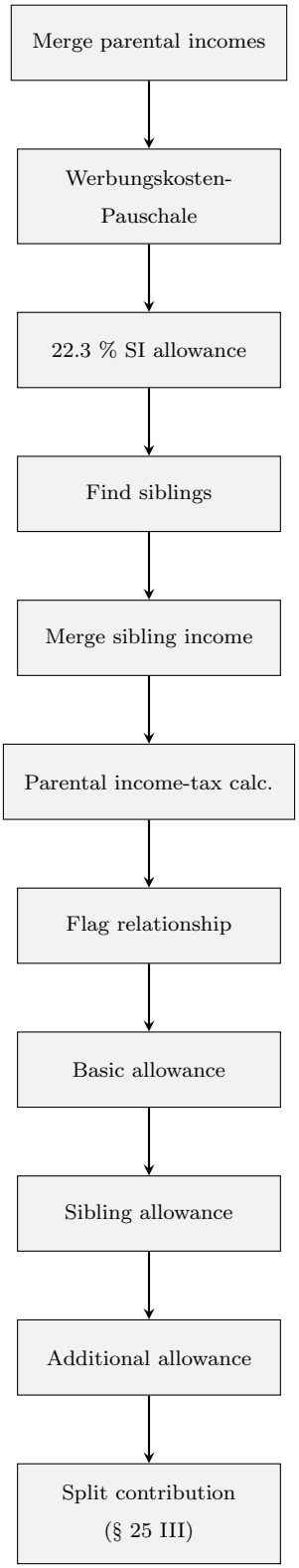

Figure C5: Parental-income mini-pipeline

C.3 Demographics Mini-Pipeline

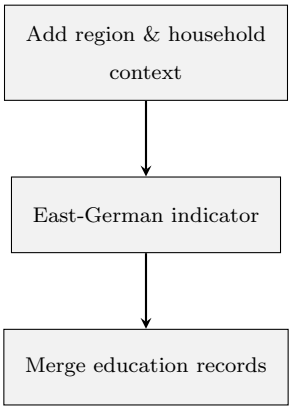

Figure C6: Demographics mini-pipeline

C.4 Student-Status Mini-Pipeline

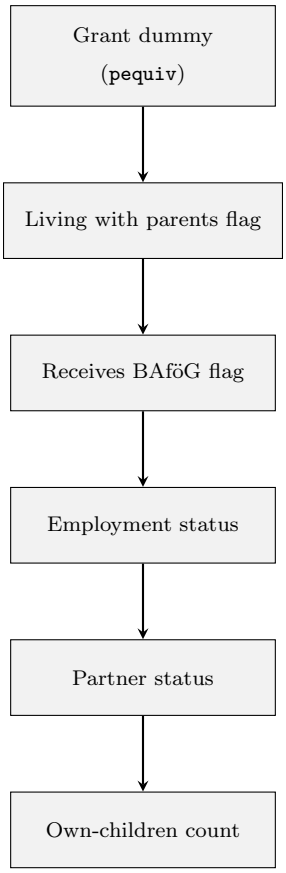

Figure C7: Student-status mini-pipeline

C.5 Benchmarking & Optimisation

C.6 Variable Dictionary