Unclaimed Benefits: Non-Take-Up of German Means-Tested Benefits

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Abstract

This study provides comprehensive estimates of non-take-up rates of three closely related German means-tested benefits and their associated determinants. While prior research has examined almost exclusively the extent and determinants of non-take-up of basic income support, little is known about housing allowance ("Wohngeld") and supplementary child benefits ("Kinderzuschlag"), despite their increasing importance in the German benefit system and the complex interactions among these programs. This paper addresses this gap using a microsimulation model that replicates the German tax and benefit system, accounts for interactions between different benefits, and is based on official German microdata ("Mikrozensus"), one of the largest datasets covering German households. The analysis reveals markedly higher non-take-up rates for housing allowance and supplementary child benefits compared to basic income support, with results for the latter aligning with previous studies and thereby enhancing the credibility of our findings. By exploring cross-benefit non-take-up, the study uncovers interdependencies between programs, suggesting that participation decisions in one benefit scheme may influence engagement in others. A regression-based analysis provides novel insights into the determinants of non-take-up, advancing the discourse on access barriers to social benefits.

Keywords: Welfare benefits, housing allowance, child supplement, social assistance, non-take-up, microsimulation
JEL: C15, I32, I38, H31, H53

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1. Introduction

The effectiveness of social benefit programs depends on the willingness and ability of eligible households to access their entitled benefits. Failure to take up these benefits can leave essential needs unmet. However, there is a considerable gap between eligible households and those reporting to receive the benefit, documented for a wide range of benefit types and countries, often affecting more than half of the eligible population (Dubois et al., 2015; Marc et al., 2022; Lucas et al., 2021).

In Germany, research has predominantly focused on the non-take-up of Basic Income Support (BIS), despite the country's multi-layered welfare system where housing allowance and supplementary child benefits play an important role. Early studies, such as Riphahn (2001), estimated non-take-up for basic income support at around 60%, while subsequent research by Frick and Groh-Samberg (2007) and Bruckmeier and Wiemers (2012, 2018) reported rates between 43% and 67%. These rates are attributed to various factors, including informational deficits, anticipated application costs, and social stigma. While these studies have documented the extent and determinants of non-take-up of basic income support, little is known regarding the utilization of housing allowance and supplementary child benefits. These benefits target households that, while not qualifying for BIS, still face significant financial hardship. In the context of rising rents and high inflation, housing allowance and supplementary child benefits have become essential for ensuring a minimum standard of living and access to adequate housing. The goal of this paper is to fill these gaps in the literature by examining the non-take-up rates for the three closely related German means-tested benefit programs (Basic Income Support, housing allowance, and supplementary child allowance) using a microsimulation model that replicates the German tax and benefit system. The model is based on the German microcensus that is considerably larger than alternative household surveys. Specifically, it seeks to:

1. estimate the extent of non-take-up for each program using the German microzensus, the largest household survey in Germany.
2. identify the key variables associated with non-take-up using regression analysis
3. identify interactions of non-take-up between means-tested benefit programs

By addressing these research questions, this study aims to contribute to the broader understanding of non-take-up in the German welfare system.

The results indicate that the simulated non-take-up rate for basic income support is consistent with previous studies, corroborating earlier estimates derived from a new dataset and enhancing the credibility of our model. Our analysis further reveals that the underutilization of housing benefits is substantial, exceeding 60%, while the non-take-up rate for the child supplement is even higher. Notably, individuals who do not claim housing benefits receive little compensation from other benefits, offering minimal relief from the consequences of non-claim. In contrast, non-utilizers of the child supplement tend to receive other forms of support, including housing benefits, which may partially mitigate the adverse effects of not claiming this benefit. As anticipated, benefit take-up increases with higher entitlement levels. Additionally, pensioners are more likely to claim housing benefits, whereas individuals with a migration background are less likely to utilize the child supplement. These findings have considerable practical implications. Non-take-up of social benefits is a major concern even for households above the lowest income levels and is more pronounced than for basic income support. Policymakers must ensure that both the benefits and the necessary information reach eligible households. Notably, both the child supplement and housing benefit have been substantially expanded in recent years; however, the absence of suitable microdata means that the impact of these reforms remains insufficiently examined, highlighting the need for further research.

This paper is structured as follows. Chapter 2 provides an overview of the German welfare system, focusing on the three means-tested benefit programs examined in this study. Chapter 3 outlines the data and identification strategy, including the application of the FIT-NEM microsimulation model, which uses data from the German Mikrozensus to estimate both cross and program-specific non-take-up rates. Chapter 4 describes the econometric modeling approach employed to identify the key determinants of non-take-up and presents the corresponding empirical results. The study summarizes and concludes in chapter 5.

2. Institutional Environment: The German Means-Tested Benefit Programs

Germany's welfare system is characterized by a multi-layered framework of tax regulations and coexisting social transfers, aiming to provide financial security for vulnerable groups. A key characteristic of this system are decentralized means-tested benefits, which play a critical role in supporting individuals and households whose incomes and assets fall below certain thresholds. These benefits, which require active application and proof of eligibility, are designed to prevent financial distress and ensure that basic needs, such as housing and child-related expenses, are met. However, the gap between those eligible and those who actually receive these benefits presents a challenge to the effectiveness of the welfare state. The German system of means-tested benefits can be divided into two main categories: primary benefits, which aim to provide targeted support to prevent deeper reliance on welfare, and Basic Income Support, which acts as a last-resort safety net.

Primary Benefits

Primary benefits serve as the initial safeguard against poverty, targeting low-income households that can meet their basic needs but struggle with additional expenses such as housing and child-related costs. By providing targeted support, these benefits help prevent reliance on more comprehensive programs like Basic Income Support, thereby reducing the risk of entrenched welfare dependency.

Housing allowance is a means-tested benefit designed to help low-income households offset a portion of their housing expenses. Eligibility is determined by household size, income, and local rent levels, ensuring access to adequate housing for those facing affordability challenges. The importance of housing allowance has grown in recent years due to rising housing costs, particularly in urban areas, and increased heating expenses. This benefit is available to a wide range of households, including pensioners and individuals with modest incomes who do not qualify for other forms of social assistance.

Supplementary Child Allowance is intended to support low-income families that, while capable of covering their own basic needs, struggle with the additional financial burdens of raising children. Complementing the universal child benefit (Kindergeld), it provides an extra layer of

financial assistance to families in need, reducing the likelihood of poverty and the subsequent dependence on Basic Income Support.

Basic Income Support

When primary benefits are insufficient to meet the minimum standard of living, Basic Income Support acts as a safety net. This means-tested program ensures that individuals and households with no or very low income receive the financial assistance necessary to meet their basic needs. Basic Income Support in Germany is divided into two main categories:

- **Income Support for Jobseekers (Grundsicherung für Arbeitssuchende)**, which is targeted at individuals who are capable of working but are either unemployed or underemployed.
- **Basic Income Support for the Elderly and Permanently Disabled (Grundsicherung im Alter und bei Erwerbsminderung)**, which provides financial support to those who are unable to work due to old age or permanent disability.

In addition to basic income for living costs, these programs cover housing and heating expenses (except electricity).

Interaction between welfare benefits

The interaction between primary benefits and Basic Income Support is forms a complex system of financial programs. However, while Basic Income Support is managed by Job Centers, primary benefits like housing allowance and child allowance are often administered by municipal authorities. This division introduces additional complexity, as households may have to apply for multiple programs, each with its own separate application processes and eligibility criteria. Although primary benefits are intended to prevent households from becoming reliant on Basic Income Support by addressing specific financial needs, the lack of coordination between programs can make the system difficult to navigate. Furthermore, changes in eligibility criteria for these programs are often made independently, creating situations where individuals at the margins must switch between programs, leading to a "revolving door" effect. This administrative fragmentation may contribute

to inefficiencies and increase the likelihood of non-take-up, as households face additional hurdles when trying to access the support for which they are eligible.

Additional Benefits: The Logic of Unemployment Benefits and Child Benefits

Germany's welfare system also includes Unemployment Benefit I (Arbeitslosengeld I), a contributory benefit for individuals who have previously been employed and made unemployment insurance contributions. This program provides temporary financial support during periods of unemployment, with payments based on the individual's prior earnings. While not means-tested, Unemployment Benefit I plays a role in the broader social safety net by helping individuals avoid falling into reliance on Basic Income Support. In addition, Child Benefit (Kindergeld) is a universal benefit provided to all families with children, regardless of income. This program helps cover the basic costs of raising children, complementing the more targeted supplementary child allowance for low-income families.

3. Methodology I: How to measure non-take-up?

Estimating non-take-up requires identifying households that are theoretically eligible but do not receive the benefits. This section outlines the methodology employed to identify and estimate non-take-up using the Fraunhofer FIT Niedrigeinkommensmodell (FIT-NEM) microsimulation model, based on survey data from the German Mikrozensus. The approach is similar to related studies (e.g. Bruckmeier and Wiemers, 2012; Harnisch, 2019) but uses a micrsomulation model based on the Mikrozensus instead of the Socioeconomic-Panel (GSOEP).

Data and Microsimulation Model

To estimate non-take-up, I use a microsimulation model, FIT-NEM, which replicates the eligibility criteria of the German tax and transfer system. The model applies these rules to individual households in the dataset, allowing for an estimation of theoretical eligibility for means-tested benefits. The main dataset used for this purpose is the German Mikrozensus, a large and representative household survey, which contains information on income, household composition, housing costs, and indicators for social benefit receipt. Survey weights are re-adjusted to administrative statistics to ensure that the sample is representative of the benefit population.

Microsimulation is essential in this context because eligibility for benefits is not directly observable in the data. Eligibility must be imputed based on household characteristics. The FIT-NEM uses these characteristicsts to simulate the eligibility of households for benefits such as housing allowance and supplementary child allowance, allowing us to compare theoretically eligible households with those who report receiving the benefits.

Weights in the Mikrozensus and FIT-NEM

Survey weights in the Mikrozensus are designed to reflect the characteristics of the overall population, not specific subgroups, such as those receiving means-tested benefits. This limits the generalizability of the analysis when focusing on low-income households or benefit recipients.

The Mikrozensus survey weights are constructed through a two-stage process. First, they adjust for common survey errors such as non-response and sampling biases. In the second stage, the weighted sample distributions are aligned with benchmarks from the official population projection and the central register of foreign nationals. This adjustment accounts for key demographic factors, including age (grouped as under 15 years, 15-44 years, and 45+ years), nationality (German, Turkish, EU-28, non-EU-28), gender, and regional distribution. The calibration procedure, known as Generalized Regression Estimation, ensures that individuals within the same household receive identical weights, maintaining consistency in household-level analyses (?)

However, since these weights do not specifically target benefit receipt, they can misrepresent the population of benefit recipients when compared to administrative data. To address this discrepancy, the weights are further adjusted to match the official statistics on social benefit recipients, thereby improving the representativeness of the analysis for the target population and restoring generalizability.

[TEXT ON REWEIGHTING PROCEDURE?]

Defining Non-take-up

Non-take-up is defined as the proportion of households that are theoretically eligible for a benefit but do not report to receive it. Formally, the non-take-up rate for a benefit b is defined as

Table 1: Means-Tested Benefits Receipt in Mikrozensus vs. Official Statistics, 2018

Benefit Type	NEM	MZ	Official Statistics
	Weights		Sum
Basic Income Support	2.981.321	1.611.814	2.988.340
Housing Allowance	519.174	280.128	519.600
Supplementary Child Allowance	87.152	63.760	87.000
Total	3.587.647	1.955.702	3.594.940

Note. The table compares the sum of households receiving means-tested benefits in the Mikrozensus using different weights and compare it to official statistics.

$$NTR_b = 1 - \frac{\text{Sum (take-up hh)}}{\text{Sum (eligible hh)}} \tag{1}$$

$$= 1 - \frac{|T_b \cap E_b|}{|E_b|} \tag{2}$$

where T_b is the set of households reporting take-up of benefit b and E_b is the set of households simulated to be eligible for benefit b. $T_b \cap E_b$ is the intersection of the set of individuals who are eligible for benefit b and report to receive it. Non-take-up occurs when a household is eligible ($E_b = 1$) but does not report to receive the benefit ($T_b = 0$).

Table 2: Classification by eligibility and take-up

		Eligibility (E)	
		Positive	Negative
Self-reported take-up (T)	Positive	True take-up	Misclassified take-up
	Negative	Non-take-up	True ineligible

Note. The table shows

True eligibility is generally unobserved and requires estimation which is done using microsimulation modeling.

Eligibility Estimation and Take-up Data

Eligibility for means-tested benefits is estimated using the FIT-NEM model M, which applies the rules of the tax and transfer system to reported characteristics X_i from survey data to simulate eligibility $\hat{E}_i$.

[HERE: FLOW CHART OF THE MICROSIMULATION MODEL]

The microsimulation model maps sociodemographic characteristics and policy parameters P_t to a theoretical benefit amount $\hat{B}$.

$$M : (X, P) \mapsto \hat{B} \tag{3}$$

The observable outcome T_i^j represents the self-reported take-up of a household $i = \{1, ..., N\}$ for benefit $j = \{\text{Basic Income Support, Housing Allowance, Supplemenetary Child Allowance}\}$. On the individual level, this can be written as:

$$\hat{B}_i^j = g(X_i; B_t^j) \tag{4}$$

$$\hat{E}_i^j = \mathbf{1}[\hat{B}_i^j \geq \tau^j] \tag{5}$$

Consequently, T_i^j indicates self-reported benefit take-up for entity i and benefit type j. Specifically,

$$T_i^j = \begin{cases} 1 & \text{if household i reports to receive benefit j,} \\ 0 & \text{otherwise.} \end{cases} \tag{6}$$

The model calculates the theoretical benefit entitlement for each household based on these inputs. Households are classifiec as eligible if their simulated benefit exceeds a threshold tau_b determined by the program's eligibility criteria. Self-reported take-up of benefits is derived directly from the survey data, where respondents indicate whether they receive a specific benefit.

By cross-tabulating simulated eligibility with reported take-up status, households can be categorized into four different groups:

1. **True take-up households** ($T = 1|E = 1$)**:** Simulated-Eligible who report receiving benefits.
2. **Non-take-up households** ($T = 1|E = 0$)**:** Simulated-Eligible who do not report receiving benefits.

3. **Misclassified take-up households ($T = 1|E = 0$):** Simulated-Ineligible who report receiving benefits.
4. **Ineligible households ($T = 0|E = 0$):** Simulated-Ineligible who do not report receiving benefits.

This classification enables to derive several quantities of interest. The primary objective of this study is to estimate non-take-up and to relate take-up to associated factors among households who do not report to receive benefits despite eligibility. Accordingly, the proportion of eligible take-up households with eligibility to benefit b is of significant interest. The estimated equivalent to previously defined take-up rate is defined as

$$TR_b = \frac{\text{Sum (take-up hh)}}{\text{Sum (eligible hh)}} \tag{7}$$

$$= \frac{|T_b \cap E_b|}{|E_b|} \tag{8}$$

where $T_b \cap E_b$ is the intersection of the set of individuals who are eligible for benefit b and report to receive it. In accordance with established conventions of this field, this study employs the non-take-up rate (NTR) as its counterpart, i.e.

$$NTR_b = 1 - TR_b \tag{9}$$

The NTR is a crucial metric for evaluating the extent to which social benefit programs fail to reach intended recipients. A high non-take-up rate indicates inefficiencies in the delivery mechanisms of social welfare programs. This raises questions about the effectiveness of these programs in fulfilling their intended social and economic objectives. Furthermore, if certain demographic groups are disproportionately represented among those not receiving benefits, this may indicate underlying social inequalities or information asymmetries, where eligible individuals or households are unaware of their eligibility or the process for claiming benefits.

Misreporting and Sensitivity Analysis

One challenge in measuring non-take-up is the potential for misreporting in survey data (?). Some households may report receiving a benefit when they are not eligible according to the simulation, or

they may underreport receipt of benefits (?). To account for this, we conduct a sensitivity analysis by adjusting key variables, such as income and household composition, and re-estimating eligibility. Additionally, we check the consistency of our results by comparing non-take-up estimates to administrative data on benefit receipt.

[TODO]

Beta Error and Simulation Quality

One important quality measurement of microsimulation models is the beta error rate, which represents the proportion of households that report receiving a benefit but are classified as ineligible by the model. The metric can be used to assess how often the model fail to detect eligibility and is defined as

$$BER = \frac{\text{Sum (misclassified take-up households)}}{\text{Sum (take-up households)}} \tag{10}$$

$$= \frac{|T_b \cap \hat{E}'|}{|T_b|} \tag{11}$$

where $\hat{E}'$ is the complement set of households classified as ineligible by the simulation. A high beta error indicates that the model may be missing some eligibility criteria or that there are issues with survey reporting. Results indicate a relatively low beta error, meaning few households or

Table 3: Beta Error Rate

	Beta Error Rate	
Benefit Type	Unweighted	NEM
Basic Income Support	0.0013	0.0013
Housing Allowance	0.0602	0.0621
Supplementary Child Allowance	0.0513	0.0503

Note. The table shows weighted and unweighted beta error rates of the microsimulation model.

individuals were missed in the simulation. However, a low beta error also hints at a potentially

higher alpha error, which implies that the model may be more prone to false positives, i.e. incorrectly classifying households or individuals as eligible when they are not. This trade-off needs careful consideration to ensure the overall accuracy and reliability of the simulation. In a small number of cases, the model incorrectly classifies households that report to receive a benefit, as ineligible. In these cases, this study assumes a rightful claim despite the possibility of mistakes on the reporting side. These issues typically arise from misreporting errors, incomplete or incorrect survey information. Estimated eligibility is modified according to

$$\hat{E}_b = \begin{cases} 1 & \text{if } T_b = 1 | \hat{E} = 0 \\ \hat{E}_b & \text{otherwise.} \end{cases} \tag{12}$$

The estimated take-up rate can then be expressed analogously to its theoretical counterpart as

$$\widehat{TR_b} = \frac{\text{Sum (take-up hh)}}{\text{Sum (eligible hh + misclassified take-up hh)}} \tag{13}$$

$$= \frac{|T_b \cap \hat{E}_b|}{|\hat{E}_b|} \tag{14}$$

where the misclassified take-up households are included in the denominator. Again, the non-take-up rate is then formulated as

$$\widehat{NTR_b} = 1 - \widehat{TR_b} \tag{15}$$

Results: Non-take-up Rates

The following table presents the estimated non-take-up rates for the three main benefit programs examined in this study: The findings indicate that non-take-up rates for Basic Income Support in this analysis are slightly higher than those typically reported in the literature (?), possibly due to a relatively low beta error, which may lead the model to overestimate eligibility. There are significant variations in non-take-up across different benefit types, suggesting that individuals engage with social assistance programs in diverse ways.

Cross-benefit non-take-up

Non-take-up rates for individual benefits may overstate the extent of unmet need, as households may receive other benefits that partially address their financial needs. To address this, we also

Table 4: Non-take-up rates of means-tested benefits

	Weights	
Benefit Type	Mikrozensus	FIT-NEM
Basic Income Support	0.71	0.61
Housing Allowance	0.79	0.68
Supplementary Child Allowance	0.88	0.85

Note. The table shows the non-take-up rates for various means-tested welfare benefits against official statistics.

Table 5: NTR by Categories

	Basic Income Support	Housing Allowance	Supplementary Child Allowance
By Household Type			
Single	xx.x	xx.x	xx.x
Single Parent	xx.x	xx.x	xx.x
Couple with Children	xx.x	xx.x	xx.x
Childless Couple	xx.x	xx.x	xx.x
By Number of Children			
No Children	xx.x	xx.x	xx.x
One Child	xx.x	xx.x	xx.x
Two Children	xx.x	xx.x	xx.x
Three or More Children	xx.x	xx.x	xx.x
By X			
...	xx.x	xx.x	xx.x

Table 6: Descriptive Statistics - Eligibility of Means-Tested Welfare Benefits

Eligibility	(1) Basic Income Support		(2) Housing Allowance		(3) Suppl. Child Allowance	
Take-up of benefit	Yes	No	Yes	No	Yes	No
Simulated benefit / 100 EUR	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Mean Age of hh	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Male hh	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Migration background of hh	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Education level						
High	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Medium	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Low	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Income Status (ref. Other)						
Receives pension	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Receives labor income	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Family Status (ref. Single)						
Single parent	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Family with children	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Family without children	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Young child (< 6 years)	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Eastern Germany	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Household owns residence	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
Monthly rent / 100 EUR	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*	*X.XX*
N	X,XXX		X,XXX		X,XXX	

Note. Descriptive Statistics of simulated eligible households by benefit type indicating self-reported take-up vs non-take-up.

estimate cross-benefit non-take-up, which measures whether households that do not receive one benefit (e.g., housing allowance) may receive another (e.g., basic income support). The cross-benefit non-take-up rate ($CNTR_{b,c}$) is defined as the proportion of households that are eligible for benefit b but do not receive either benefit b or benefit c:

$$\widehat{CTR_{b,c}} = \frac{\text{Sum (take-up hh + cross-take-up hh)}}{\text{Sum(eligible hh benefit b)}} \tag{16}$$

$$= \frac{|(T_b \cup T_c) \cap \hat{E}_b)|}{|\hat{E}_b|} \tag{17}$$

This analysis provides a more comprehensive view of how households interact with the welfare system and helps to identify gaps in the coverage of means-tested benefits. Furthermore, widespread cross-benefit take-up indicates that while individuals may claim one benefit, they could still be eligible for others. As a result, direct non-take-up rates likely overstate the extent of hidden poverty, as many individuals classified as non-recipients may still receive support through other programs. Furthermore, the analysis highlights that non-take-up of Housing Allowance and Supplementary Child Allowance is relatively higher compared to Basic Income Support, but cross-benefit take-up is widespread, indicating that many individuals engage with alternative benefit programs.

4. Methodology II: What determines non-take-up?

The non-take-up of means-tested benefits arises from a variety of factors, both monetary and non-monetary, that influence an individual's decision to apply for and receive available benefits. This section outlines the conceptual and empirical approach used to model and understand the determinants of non-take-up, with a particular focus on housing allowance, supplementary child allowance, and basic income support in Germany. The methodology follows a latent utility framework, where the decision to take up benefits depends on the comparison of utility associated with receiving or forgoing the benefit ("pain of applying").

Utility considerations

The decision to take up or forgo a benefit can be modeled as a choice between two utility outcomes: the utility derived from receiving the benefit (u_i^T) and the utility derived from non-take-up (u_i^{NT}).

Table 7: Cross-benefit Non-take-up

	Non-take-up and and Eligibility ($T'_b \cap E_b$)		
	Basic Income Support	Housing Allowance	Supplementary Child Allowance
By Cross-benefit non-take-up (T'_c)			
Basic Income Support	0.61	x	x
Housing Allowance	x	0.68	0.70
Supplementary Child Allowance	x	0.66	0.85
Parental Leave	0.60	0.66	0.76
Unemployment Benefit	0.60	0.65	0.79
Other	0.56	0.66	0.81
Non-take-up of any benefit	0.53	0.59	0.55

Note. The table presents weighted cross-benefit non-take-up rates. It shows the intersection of households or individuals that did not claim neither benefit b nor c despite meeting simulated eligibility criteria for benefit b.

Individuals will choose to take up the benefit if the utility from receiving it exceeds the utility from not receiving it. Formally, this decision can be expressed as:

$$T_i = \begin{cases} 1, \text{ if } u_i^T > u_i^{NT} \\ 0, \text{ otherwise} \end{cases}$$

where T_i is the indicator variable representing take-up ($T_i = 1$ if the individual takes up the benefit, and $T_i = 0$ otherwise). The utility from take-up (u_i^T) is a function of the individual's income with the benefit ($y_i + B_i$), a set of covariates X, and the disutility associated with take-up costs, such as stigma, administrative burden, and transaction costs, denoted as $c_i(X)$. In contrast, the utility from non-take-up (u_i^{NT}) is based on the individual's income without the benefit (y_i) and the same covariates X. Thus, the utility equations are as follows:

$$u_i^T = u_i(y_i + B_i, X) - c_i(X)$$
$$u_i^{NT} = u_i(y_i, X)$$

Disutility considerations

Non-monetary factors, such as the perceived stigma associated with receiving welfare benefits, the complexity of the application process, and the time or psychological costs involved, are important determinants of non-take-up. These disutility factors or "costs/pain of applying", captured by $c_i(X)$ in the utility framework, may vary by individual characteristics, such as education, migration background, or family status. For instance, individuals with higher education may be more sensitive to the stigma associated with welfare receipt, while migrant households may face greater informational or bureaucratic barriers. These costs contribute to the overall disutility of benefit take-up, making the decision to forgo benefits more likely when they are perceived to outweigh the monetary gain.

Modeling non-take-up

o empirically estimate the determinants of non-take-up, we employ a latent utility model using a probit regression framework. The binary outcome variable is whether or not an eligible household takes up the benefit ($T_i = 1$ or $T_i = 0$). The probit model estimates the probability of take-up

as a function of observed characteristics X and the simulated benefit amount B_i. The likelihood of take-up is modeled as:

$$Pr(T_i = 1) = \Phi(X_i\beta + \gamma B_i - \delta c_i(X)) \tag{18}$$

where X_i is a vector of covariates (e.g. age, education, family status), B_i is the simulated benefit amount, $c_i(X)$ captures the disutility factors associated with take-up, Φ represents the cumulative distribution function of the standard normal distribution. This specification allows us to estimate the marginal effects of each covariate on the probability of take-up and identify the key determinants of non-take-up.

Empirical Results

The regression results indicate that several variables significantly influence the likelihood of non-take-up across the three benefit programs under study. Below are some key findings from the probit model for housing allowance, supplementary child allowance, and basic income support.

Housing Allowance

The results for housing allowance show that larger simulated benefit amounts significantly increase the likelihood of take-up, as expected. However, several demographic factors also play an important role. Households headed by older individuals, households receiving pensions, and households in Eastern Germany are more likely to take up housing allowance. In contrast, higher education levels and homeownership are associated with lower take-up, possibly reflecting greater sensitivity to stigma or lower perceived need.

Supplementary Child Allowance

For supplementary child allowance, the results suggest that take-up is less responsive to benefit size compared to housing allowance. Households receiving other benefits, such as housing allowance, are more likely to take up supplementary child allowance, while higher education levels and a migration background are associated with lower take-up. The limited significance of several variables in the supplementary child allowance model suggests that other, unobserved factors may be driving non-take-up in this context.

Table 8: Regression I (Probit) - Marginal effects on take-up decision of housing allowance

Dependent variable: take-up of HA	(1) Unweighted		(2) Weighted		(3) Weighted, all	
	Coef.	SE	Coef.	SE	Coef.	SE
Simulated benefit / 100 EUR	0.079***	(0.016)	0.128***	(0.038)	0.078**	(0.031)
Age of hh (ref. 0 - 24)						
25 - 34 years	0.376***	(0.097)	0.435**	(0.221)	0.348*	(0.191)
35 - 44 years	0.344***	(0.098)	0.376*	(0.216)	0.292	(0.193)
45 - 54 years	0.496***	(0.098)	0.551**	(0.221)	0.466**	(0.196)
55+ years	0.256***	(0.098)	0.367*	(0.221)	0.213	(0.195)
Male hh	0.028	(0.047)	0.043*	(0.112)	0.037	(0.098)
Migration background of hh	0.146**	(0.064)	0.175	(0.153)	0.190	(0.130)
Education level (ref. medium)						
High	−0.200***	(0.045)	−0.314***	(0.108)	−0.219**	(0.092)
Low	0.099**	(0.041)	0.135	(0.094)	0.129	(0.084)
Income Status (ref. Other)						
Receives pension	0.563***	(0.064)	0.665***	(0.157)	0.590***	(0.132)
Receives labor income	0.008	(0.056)	0.015	(0.131)	0.031	(0.114)
Family Status (ref. Single)						
Single parent	0.167**	(0.067)	0.105	(0.161)	0.165	(0.138)
Family with children	0.186**	(0.085)	−0.067	(0.213)	0.143	(0.175)
Family without children	−0.297***	(0.098)	−0.065	(0.343)	−0.353*	(0.206)
Young child (< 6 years)	−0.024	(0.058)	−0.042	(0.129)	−0.019	(0.116)
Eastern Germany	0.176***	(0.041)	0.177*	(0.095)	0.190**	(0.085)
Household owns residence	−0.804***	(0.044)			−0.819***	(0.091)
Monthly rent / 100 EUR	−0.088***	(0.011)	−0.035	(0.028)	−0.083***	(0.022)
N	8,152		5,052		8,152	
Log-Likelihood	-3670.5		-689.2		-881.0	

Note. Significance levels: */**/*** denote statistically significant results (standard errors in parentheses) at the significance level of 0.1/0.05/0.01. "hh" stands for head of household.

Table 9: Regression II (Probit) - Marginal effects on take-up decision of supplementary child allowance

Dependent variable: take-up of SCA	(1) Unweighted		(2) Unweighted, alt.	
	Coef.	SE	Coef.	SE
Simulated benefit / 100 EUR	−0.034*	(0.020)	−0.067***	(0.021)
Receives alternative benefit				
Housing Allowance			0.472***	(0.075)
Unemployment Benefit			−0.393**	(0.154)
Parental Leave			−0.006	(0.104)
Age of hh (ref. 0 - 24)				
25 - 34 years	−0.412*	(0.226)	−0.355	(0.231)
35 - 44 years	−0.337	(0.226)	−0.261	(0.232)
45 - 54 years	−0.365	(0.235)	−0.299	(0.241)
55+ years	−0.229	(0.279)	−0.152	(−0.284)
Male hh	0.150	(0.212)	0.247	(0.215)
Migration background of hh	−0.148**	(0.025)	−0.163**	(0.068)
Education level (ref. medium)				
High	0.213***	(0.073)	0.219***	(0.074)
Low	0.117	(0.077)	0.116	(0.078)
Single parent	−0.014	(0.210)	0.063	(0.213)
Young child (age < 6 years)	−0.197***	(0.072)	−0.175**	(0.075)
Eastern Germany	−0.157*	(0.085)	−0.161*	(0.086)
Household owns residence	0.039	(0.070)	0.101	(0.071)
Monthly rent / 100 EUR	0.091***	(0.014)	0.097***	(0.014)
N	3,127		3,127	
Log-Likelihood	-1,122.9		-1,100.1	

Note. Asterisks */**/*** denote statistically significant results (standard errors in parentheses) at the significance level of 0.1/0.05/0.01. "hh" stands for head of household.

Basic Income Support

The results for basic income support largely confirm the findings from previous studies (?), with non-take-up driven by similar factors across different demographic groups. Higher benefit levels, lower education, being a single parent, and residing in Eastern Germany are associated with higher take-up. On the other hand, individuals with labor income or who own their residence are less likely to take up basic income support. Migration background has a smaller but still significant negative effect on take-up.

Summary of Determinants

Across all three benefit types, several common patterns emerge:

- **Income and Benefit Levels:** Higher simulated benefit amounts are associated with increased take-up for Housing Allowance and Basic Income Support, indicating that individuals are more likely to engage with the welfare system when the financial gain is perceived as significant.
- **Education:** Higher education levels consistently decrease the likelihood of take-up, which may be attributed to greater sensitivity to stigma or lower perceived need for benefits among better-educated individuals.
- **Migration Background:** Migrants are more likely to take up benefits, which is consistent with the literature. Possibly due to network effects,[...], or lower fear of stigmatization.
- **Regional Differences:** Households in Eastern Germany are more likely to take up benefits, potentially reflecting regional economic disparities or cultural differences in welfare attitudes.
- **Family Status:** Single parents are more likely to take up benefits, likely due to their increased financial vulnerability and the higher costs associated with raising children on a single income.
- **Homeownership:** Households that own their residence are significantly less likely to take

Table 10: Regression III (Probit) - Marginal effects on take-up decision of Basic Income Support

Dependent variable: take-up of BIS	(1) Unweighted		(2) Weighted		(3) Weighted, all	
	Coef.	SE	Coef.	SE	Coef.	SE
Simulated benefit / 100 EUR	0.181***	(0.003)	0.181***	(0.006)	0.2245***	(0.007)
Age of hh (ref. 0 - 24)						
25 - 34 years	0.862***	(0.035)	0.812***	(0.070)	0.8891***	(0.083)
35 - 44 years	1.184***	(0.038)	1.117***	(0.075)	1.3024***	(0.089)
45 - 54 years	1.443***	(0.036)	1.374***	(0.074)	1.5485***	(0.089)
55+ years	1.495***	(0.035)	1.434***	(0.071)	1.5903***	(0.086)
Male hh	0.323***	(0.021)	0.335***	(0.045)	0.2219***	(0.055)
Migration background of hh	−0.119***	(0.037)	−0.114	(0.078)	−0.1992**	(0.099)
Education level (ref. medium)						
High	−0.176***	(0.023)	−0.170***	(0.050)	−0.2407***	(0.062)
Low	0.221***	(0.019)	0.235***	(0.041)	0.2383***	(0.050)
Income Status (ref. Other)						
Receives pension	−0.085***	(0.028)	−0.230***	(0.062)	0.0673	(0.080)
Receives labor income	−0.755***	(0.022)	−0.773***	(0.045)	−0.6623***	(0.055)
Family Status (ref. Single)						
Single parent	0.551***	(0.032)	0.633***	(0.067)	0.3739***	(0.081)
Family with children	0.251***	(0.041)	0.300***	(0.088)	0.0641	(0.115)
Family without children	−0.254***	(0.032)	−0.210***	0.070	−0.1092	(0.092)
Young child (age < 6 years)	0.031	(0.039)	0.006	(0.082)	0.2431**	(0.099)
Eastern Germany	0.199***	(0.020)	0.229***	(0.043)	0.2093***	(0.053)
Household owns residence	−0.785***	(0.019)	−0.730***	(0.042)		
Monthly rent / 100 EUR	−0.296***	(0.004)	−0.297***	(0.009)	−0.3476***	(0.014)
N	48,436		48,436		26,164	
Log-Likelihood	-14,156		3,046		-2,040	
Homeowner	Yes		Yes		No	

Note. Asterisks */**/*** denote statistically significant results (standard errors in parentheses) at the significance level of 0.1/0.05/0.01. "hh" stands for head of household.

up benefits, suggesting that homeownership may serve as a buffer against financial hardship (?), reducing the perceived need for welfare support.

- **TODO:** Distinguish by Benefit Program

5. Conclusion

This paper is among the first to utilize the FIT-NEM microsimulation model, based on the German Mikrozensus, to estimate non-take-up rates across multiple means-tested benefit programs. The results indicate that far more than half of eligible individuals or households do not report receiving the benefits to which they are entitled. For Basic Income Support, the findings align with existing literature, though the estimated non-take-up rates in this study tend to be on the higher end. However, for Housing Allowance and Supplementary Child Allowance, the non-take-up rates are found to be notably higher than for Basic Income Support, indicating that these programs may face additional barriers to access.

Compared to Bruckmeier and Wiemers (2018), one of the few studies to provide estimates for these benefits in a unified framework, my findings suggest slightly lower non-take-up rates, though the differences are marginal. This suggests that while the non-take-up phenomenon is pervasive, there are important program-specific dynamics that merit further exploration.

A key strength of this study is the application of the FIT-NEM microsimulation model to a large dataset like the Mikrozensus, which provides significantly more observations for means-tested benefits than previous studies. The re-weighting of the dataset to align with official statistics on social benefit receipt addresses limitations in the standard survey weights, which do not account for benefit receipt and may lead to discrepancies in the analysis. By adjusting for these discrepancies, this study improves the generalizability of the findings and offers more accurate estimates of non-take-up rates for these key social benefit programs.

The findings highlight the persistent issue of non-take-up in Germany's welfare system. Reducing non-take-up, particularly for Housing Allowance and Supplementary Child Allowance, will require targeted interventions to address informational barriers, administrative burdens, and the stigma associated with welfare receipt. Future research should continue to explore the deter-

minants of non-take-up across different programs and population groups, as well as the potential causal impact of policy reforms aimed at increasing benefit take-up.

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Appendix A.

Table A.11: Non-take-up rates in Germany (basic income support)

Study	**Non-take-up Rate**	**Data**	**Year**
Riphahn (2001)	0.63	EVS	1993
Kayser and Frick (2001)	0.63	SOEP	1996
Becker and Hauser (2005)	0.46-0.6	EVS/NIEP/GSOEP	1998-1999
Frick and Groh-Samberg (2007)	0.67	SOEP	2002
Bruckmeier and Wiemers (2012)	0.49-0.58	SOEP	2005
Bruckmeier and Wiemers (2012)*	0.41-0.46	SOEP	2006-2007
Bruckmeier and Wiemers (2018)	0.43	SOEP	2013
Harnisch (2019)	0.54-0.58	SOEP	2005-2014
Bruckmeier et al. (2021)	0.35-0.40	PASS/Administrative Data	2007-2013

Note. The table summarizes non-take-up rates of selected papers covering the basic income support system in Germany.

Welfare Type	Welfare Program	Eligibility Criteria	Income Considerations	Motivation	Restrictions
Basic Income Support (Grundsicherung)	Basic income support for jobseekers (Unemployment benefit II + Sozialgeld)	Capable of working at least 3 hours per day	Ensure a minimum standard of living	Provide minimum financial support to individuals without enough income	Income and Asset thresholds
	Social assistance (Basic income support in old-age and reduced earning capacity; Livelihood support)	For individuals of retirement age or those with a permanent reduction in earning capacity	Determined by a means test assessing both income and assets to ensure basic needs are met	To support individuals who are unable to participate in the workforce due to age or disability	Insufficient or no pension benefits and meet the means test criteria
Primary Benefits (Vorrangige Leistungen)	Housing Allowance (Wohngeld)	Low to medium income earners needing housing cost support	Eligibility based on income, rent amount, and family size	Provide assistance with housing costs to ensure adequate living conditions	Must not be receiving Basic Income Support or related benefits
	Child Benefit Supplement (Kinderzuschlag)	Families with children and low to medium income	Income must be above a minimum level but not high enough to cover the family's needs	To prevent child poverty by supplementing the income of families with children	Available to families who earn enough to cover their basic needs but need additional support for their children

Table A.12: Overview of Welfare Programs in Germany