Differences in welfare take-up between immigrants and natives – A microsimulation study

Kerstin Bruckmeier[1] **Jürgen Wiemers**[1]

[1]Institute for Employment Research (IAB)
of the German Federal Employment Agency (BA)
Regensburger Strasse 104
D-90478 Nuremberg

Abstract

Research on welfare participation often shows significant differences between immigrants and natives that are often attributed to immigrants' higher risk of welfare dependence. We study whether immigrants in Germany also differ from their German counterparts in their take-up behavior conditional on being eligible for welfare benefits. The empirical approach intends (i) to determine eligibility for welfare benefits for a representative sample of the whole population of Germany using a microsimulation model (IAB-STSM) based on data from the German Socio-Economic Panel (GSOEP) and then (ii) to estimate probit models of observed welfare benefit take-up for the sample of eligible households. Our simulation results show that non take-up rates do not differ significantly between several groups of immigrants and natives. Additionally, the probit estimations do not reveal a significant effect of being a migrant on the probability to take up entitlements. Hence, our findings suggest that after controlling for observed and unobserved household characteristics immigrants are not more prone to take up welfare benefits.

JEL classification: I38, H31, C15

Keywords: Migration; Social assistance; Microsimulation; Non-Take-Up

1 Introduction

Higher rates of welfare take-up among immigrants relative to natives can be observed in many developed countries. The risk of receiving means-tested welfare benefits in Germany is twice as high for migrants as it is for their native counterparts.[1] Immigrants are also overrepresented relative to the group of employed individuals in Germany. Official statistics on welfare use and employment for Germany show that approximately 22 percent of all employable individuals between 15 and 64 years who receive means-tested welfare benefits do not have German citizenship, while the share of migrants in the population of dependent employees amounts to only 8 percent.[2] The higher welfare take-up rates found in the raw official data often dominate political and public discussions about the benefits and risks of migration for host countries. In Germany, this discussion has emerged recently due to recent waves of immigrants to Germany from other EU countries, especially from Eastern Europe.

The question of whether immigrants use welfare more intensively than natives addresses two different mechanisms. First, immigrants may be more likely to be eligible for welfare due to their observable characteristics. Second, immigrants may have a higher inclination than natives to take up benefits conditional on being eligible. In addition to observed characteristics, unobserved characteristics may explain higher take-up rates and migration may have a positive effect on welfare dependence itself. Brücker et al. (2002) discuss different reasons for the higher welfare dependence of migrants, as they focus on non-EU citizens in European states. Potential sources of a migration effect in addition to other observable personal characteristics are discrimination, migration-specific effects (such as language skills or psychological problems), negative network effects or the reduced access to public jobs. Furthermore, self-selection may also lead to a higher welfare dependence of migrants if migration is influenced by the generosity of the welfare system. It may be assumed that states with generous welfare systems are especially attractive to individuals with a low earnings capacity, which depends on observed and unobserved individual characteristics. Then, self-selection into migration would lead to a higher risk of welfare dependence for immigrants depending on their observed and unobserved characteristics.

Most of the empirical economic literature on immigrant-native differences in welfare use is concerned with the first mechanism. These studies analyze whether the relatively higher welfare dependence of migrants found in aggregated data still remains when individual characteristics are controlled for. Brücker et al. (2002) analyze the determinants of welfare dependence for several EU-countries and for different types of benefits using the European Community Household Panel (1994–1996). For Denmark, the Netherlands, France, Austria and Finland they find a significant positive effect of being a non-EU citizen on the probability of receiving unemployment

[1] See Federal Ministry of Labour and Social Affairs (2009). In that study migrants are defined as individuals without German citizenship who are not born in Germany or whose parents are foreigners and whose language spoken at home is not German.

[2] In the official statistics migrants are defined as individuals without German citizenship (see statistics from the Federal Employment Agency at http://statistik.arbeitsagentur.de/Navigation/Startseite/Startseite-Nav.html).

benefits. Anastassova and Paligorova (2006) focus on differences in social incomes – defined as the sum of various social benefits except pensions – between the households of natives, EU and non-EU immigrants in Norway, Sweden, Belgium, Germany and the U.S. They make use of data of the Luxembourg Income Study for the year 2000. They find larger differences between natives and non-EU immigrants than between natives and EU immigrants in some EU countries, which could mainly be explained by differences in the household composition (Sweden, Norway) or individual characteristics (Belgium). For Germany, their results indicate that the social income difference between immigrants and natives is negligible and not statistically significant, regardless of whether they focus on EU or non-EU immigrants. Barrett and McCarthy (2008) provide an overview of several studies on immigrant welfare use for the Unites States and Europe. In some countries, e.g. Germany, differences in welfare take-up between both groups disappear when welfare-related personal characteristics are controlled for. For Sweden, it seems that welfare dependence patterns differ between both groups even after controlling for observed characteristics. In a more recent study, Barrett and Maître (2013) analyze immigrant welfare receipt across a range of 19 European countries. Their descriptive analysis based on European Union statistics on income and living conditions (EU-SILC) shows higher rates of receipt of unemployment support among non-EU immigrants in many countries. After controlling for individual observed characteristics, the marginal effect of being a migrant on the probability of receiving unemployment benefits is significant and positive in seven countries.

Riphahn (1998) and Riphahn (2004) study the welfare take-up of immigrants in Germany. Both studies show that conditional on various control variables, immigrants are no more likely than citizens to receive welfare benefits. In a recent study Riphahn and Wunder (2014) analyze patterns of welfare dynamics among immigrants and natives. They conclude that the persistence in welfare receipt observed in the raw data in Germany is explained to a large extent by observed and unobserved individual characteristics. Only for the group of non-EU citizens, their results point to true state dependence with regard to welfare receipt after controlling for observed and unobserved characteristics.

In summary, the empirical evidence for Germany suggests that immigrants have a significantly higher risk than their native counterparts of being on welfare due to their observed characteristics, while there seems to be no additional migration effect after controlling for individual characteristics. Nevertheless, it remains unclear if immigrants are also more prone to take up benefits, conditional on being eligible. This question is important for political reasons. If reducing the welfare dependence of migrants is a policy goal under a given macroeconomic migration policy, two different policy implications follow from this two mechanisms. First, if higher welfare dependence is attributable to observed characteristics, then social policies to improve welfare recipients labor market prospects in general are challenged. Second, if higher welfare dependence is caused by a higher take-up conditional on being eligible, then reforming eligibility rules to reduce welfare dependence may be appropriate. This applies especially if path dependency is a key determinant of welfare dependence.

Castronova et al. (2001) explicitly focus on this second mechanism behind higher welfare take-up rates. They analyze the take-up of social assistance in Germany by immigrants and natives, conditional on being eligible, and hence focus on take-up behavior rather than on determinants of eligibility. Their analysis builds on a cross-section of the German Socio-Economic Panel study (GSOEP) from the year 1996. We build on Castronova et al. (2001) and analyze the take-up behavior of individuals who are entitled to basic means-tested welfare benefits for employable persons in Germany. Our analysis differs from Castronova et al. (2001) in four points. First, we provide evidence of immigrant-native differences in welfare benefit take-up under the new welfare system in Germany after its reorganization in 2005 due to far reaching social policy reforms. Bruckmeier and Wiemers (2012) provide evidence that non-take-up of basic means-tested welfare benefits has changed after the reforms. Second, we apply a microsimulation model of the complete tax and transfer system in Germany to determine welfare eligibility rather than using only one income- and needs-equation. This approach is more appropriate because welfare entitlements in Germany not only depend on a household's income and needs but also on other means-tested entitlements that are prioritized over basic welfare benefits. Third, we extend the analysis of Castronova et al. (2001) to a panel framework and take into account individual unobserved heterogeneity. Fourth, we distinguish between different groups of immigrants.

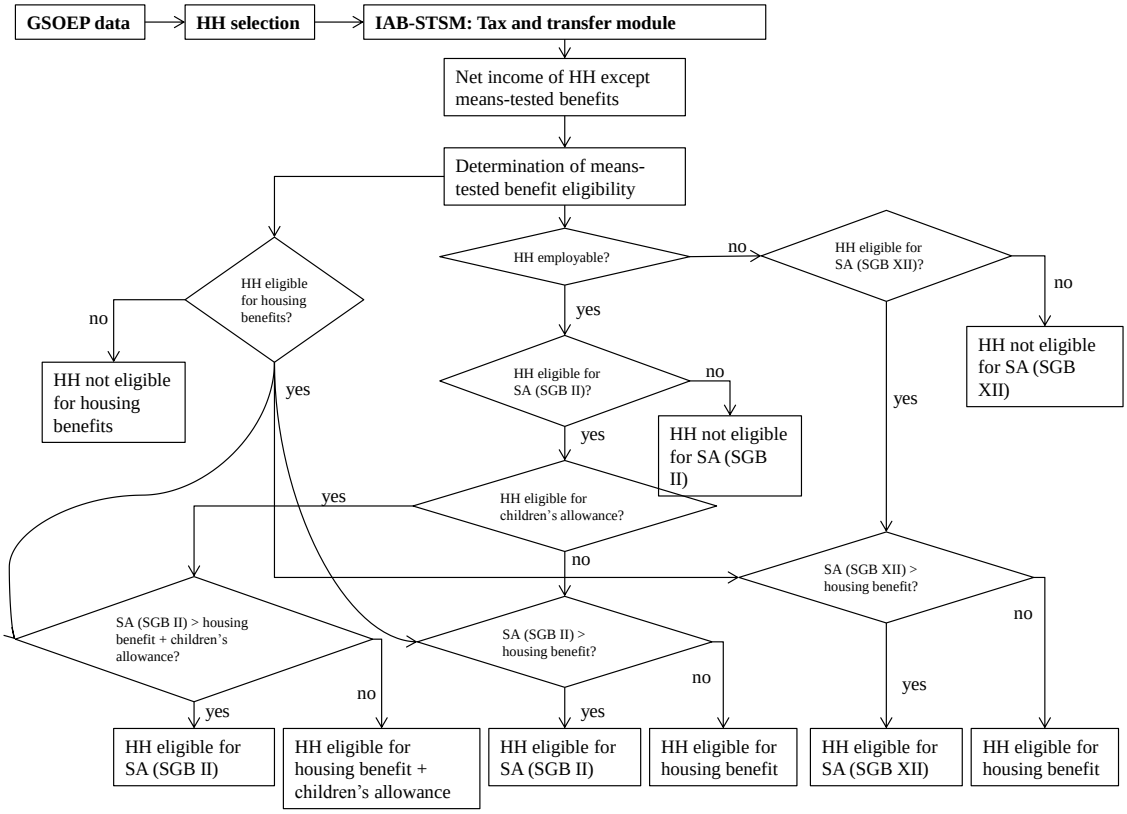
2 Microsimulation Model and Data

To simulate welfare entitlements, we employ the Tax-Transfer Microsimulation Model of the Institute for Employment Research (IAB) of the German Federal Employment Agency (IAB-STSM). The IAB-STSM is based on the *Steuer-Transfer-Mikrosimulationsmodell* (STSM) of the Centre for European Economic Research (ZEW).[3] The IAB-STSM is a static microsimulation model that consists of a detailed implementation of the German tax and transfer system as well as an econometrically estimated labor supply model. The model is mainly used for the ex ante evaluation of social policy reforms directed at low-income households in Germany. Its validity with regard to official statistics and its robustness referring to model assumptions and data selection has been verified in several studies (Arntz et al., 2007; Blos et al., 2007; Wiemers and Bruckmeier, 2009; Bruckmeier and Wiemers, 2012). The principal task of the IAB-STSM tax and transfer module is the computation of household net income under varying tax and transfer rules. Therefore, we use the gross incomes of the household, e.g., labor and capital incomes, as they can be found in the underlying data. All deductions from gross income and public transfers are simulated on the basis of the simulation model. Table A1 in the appendix describes the incomes, taxes and other income deductions considered in the computation of net household income. Important for our analysis is the simulation of welfare entitlements.

Figure 1 shows the calculation of the four nationwide means-tested benefits: 1) Social assistance for older and not employable persons (SGB XII), 2) social assistance for employable persons

[3] For a documentation of the STSM see Jacobebbinghaus and Steiner (2003).

Figure 1: Simulation of welfare entitlements in the IAB-STSM



Source: Bruckmeier and Wiemers (2011).

between 15 and 64 years (SGB II), 3) housing benefits and 4) the enhanced child benefits, which are prioritized over social assistance. This means that persons who are eligible for housing benefits and the enhanced child benefits and whose total entitlements from these two benefits are at least as high as the entitlement to social assistance would have to take-up the former benefits. The relevant institutions for our analysis are social assistance (SA) benefits for employable persons and for unemployable and older persons. In order to determine eligibility for SA, a person first has to be classified as either employable or not employable. The legal definition of employability is rather vague.[4] Thus, employability in the sense of the SGB II cannot be precisely determined using information from the GSOEP. In the model, we categorize a person as employable if he or she is aged between 15 and 64, does not work in a sheltered workshop and either has a degree of disability smaller than 80%[5] or receives earned income. If a household is categorized as unemployable and passes the eligibility check for SGB XII benefits, the model

[4]The legal definition given in § 8(1) SGB II loosely states that a person is employable if illness or disability does not disable her to work at least three hours a day under the regular conditions of the labor market for the forseeable future. In practice, employability is determined by public health officers.

[5]A disability degree of 80% is chosen to approximately calibrate the relative number of SGB II to SGB XII recipients in the model to the official numbers of SGB II and SGB XII recipients.

compares the claim of SA to a possible claim of housing benefits. The model assumes that the household will take up the higher benefit. If, on the other hand, the household is classified as employable and passes the eligibility check for SGB II benefits, the model also checks eligibility for the so-called "children's allowance" (CA). Households are eligible for CA, if the parents income is high enough to cover their own basic needs (determined by the SGB II) but not the basic needs of children in the household. In the case of eligibility for CA, the model compares the sum of the CA and possible claims to housing benefits to SGB II benefits and again assumes that the household claims the greater benefit. A detailed description of the calculation of a households needs and income and hence the households's entitlements in the IAB-STSM is provided by Bruckmeier and Wiemers (2011).

The IAB-STSM is based on data from the German Socio-Economic Panel (GSOEP), a representative yearly household panel study in Germany.[6] We make use of the GSOEP because the IAB-STSM is based on this dataset and it offers several advantages for our analysis. To simulate social assistance entitlements, information on several socio-demographic characteristics of the household members and on the household incomes are necessary, which are usually provided only in survey data like the GSOEP in Germany. Compared to other available survey data, the GSOEP has the advantage to allow us to exploit the panel structure of the data. Because the GSOEP was not designed for our specific research question, a potential drawback could be the small sample size when focusing on subgroups like immigrants who are eligible for social assistance. Although administrative research data on social assistance with large sample sizes exists, we cannot use this data because it covers only recipients of social assistance and not all eligible households, including non-take-up households. However, the GSOEP has the advantage that foreigners were oversampled in two special subsamples conducted in 1984 and 1995 to cover the immigration waves to Germany in the first decades after the Second World War and after the German reunification. Therefore, the GSOEP seems to be an appropriate database for our analysis.

We employ the GSOEP waves 2005 to 2012 with information on approximately 11,000 households and 20,000 individuals aged 17 and older in each wave. Due to the reorganization of the welfare system in Germany in 2005, data before 2005 are not suitable for our analysis. The GSOEP includes the required demographic variables, information on the incomes of persons and households (e.g., earned income, pensions, capital income, etc.) as well as information on current and past worked hours. In each wave of the GSOEP, approximately 80 % of the households are interviewed in the first four months of the year (Steiner et al., 2005). The tax-transfer module of the IAB-STSM also employs retrospective information (collected in wave $t + 1$) to compute net household income for the year $t = 2005, 2006, ..., 2011$.

[6] See Haisken-DeNew and Frick (2005) and Wagner et al. (2007) for documentation on the GSOEP.

3 Simulation Results

Our simulation of welfare entitlements results in 35.4 million (weighted) households (5,960 household by year observations) that are eligible for social assistance benefits for employable persons (SGB II) and for non-employable and older persons (SGB XII) over all seven waves. Hence, on average about five million households are eligible per wave. Most households are eligible for SGB II benefits (approximately 90 percent), which can also be found in official statistics.[7] Following Castronova et al. (2001), we focus on first generation immigrants – i.e. individuals who have immigrated to Germany by themselves – only.[8] We distinguish between three groups of migrants among the first generation immigrants according to their current citizenship. The first group consists of (1) foreigners who have citizenship in an EU country or in a country related to the European Union.[9] The second group consists of all (2) migrants with foreign citizenship not included in the first measure (Non-EU citizenship). The last group consists of (3) individuals with German citizenship.

Table 1 shows that the largest group of migrants is this third group; their share among the population of all households amounts to 4.8 percent. Notice that especially ethnic German immigrants from Eastern Europe belong to this group. The other two groups amount to 2.5 percent (second group) and 2.1 percent (first group) of all households. The contrast with the distribution of immigrants among the eligible households – shown in the second column of Table 1 – shows the higher welfare dependence of immigrant households. Especially immigrants who have a non-EU citizenship and with a German citizenship are largely overrepresented among the eligible households, since their share on all eligible households amounts to 7.6 percent and 8.8 percent, respectively.

On average, approximately 12.7 percent of all households are eligible for social assistance. In particular, non-EU citizens and immigrants with a German citizenship show highly significant differences (1% level) in the share of eligible households compared to natives (38.5/23.3 percent versus 11.4 percent). Migrants with an EU citizenship only have a moderately higher but statistical insignificant share of eligible households (14.4 percent) than natives.

Looking at the rates of non-take-up of SA among the eligible households, Table 1 shows that approximately 42.5 percent of all eligible households do not claim their entitlements, according to our simulation results. The resulting rate of non-take-up is comparable to the results of

[7] For the year 2012 official statistics report an annual average of 4.4 million SGB II benefit recipients and 0.9 million SGB XII recipients. See official data from the Federal employment agency (for SGB II) and from the Federal Statistical Office (for SGB XII) at http://statistik.arbeitsagentur.de and https://www.destatis.de/EN/FactsFigures/SocietyState/SocialStatistics/SocialBenefits/SocialBenefits.html.

[8] We make use of the variable “migback" included in the SOEP data, which indicates whether individuals immigrate to Germany. See the person-related meta-dataset documentation PPFAD at https://www.diw.de/documents/dokumentenarchiv/17/diw_{0}1.c.60060.de/ppfad.pdf.

[9] This definition comprises Greece, Italy, Spain, Austria, France, GB, Sweden, Denmark, Norway, Finland, Swiss, Romania, Poland, Hungary, Portugal, Bulgaria, Czechia, Ireland, Latvia, Luxembourg, Belgium, Netherlands, Slovenia, Slovakia and Lithuania.

Table 1: Rates of non-take-up of social assistance 2005-2011

	Share of all HH	Share of all eligible HH	Share of eligible HH in subgroup	Rate of non-take-up in subgroup
Natives	90.6	81.2	11.4	43.2
			(0.400)	(1.543)
EU citizens	2.1	2.4	14.4	49.6
			(2.546)	(8.149)
Non-EU citizens	2.5	7.6	38.5***	39.2
			(3.667)	(5.784)
Immig. w/o German citizenship	4.8	8.8	23.3***	36.7
			(2.318)	(4.866)
All	100.0	100	12.7	42.5
			(0.400)	(1.413)

All shares weighted and shown in percentages. Cluster robust standard errors in parentheses. Stars indicate rejection of the null hypothesis of equal shares of eligible households in subgroups compared to the group of natives (column 4) and rejection of the null hypothesis of equal rates of non-take-up compared to the group of natives (column 5) on the levels * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. *Source: GSOEP years 2005-2011, pooled data, IAB-STSM.*

Bruckmeier and Wiemers (2012), who find rates of non-take-up between 41 and 49 percent for the years 2005 to 2007 using the GSOEP data for SGB II and SGB XII benefits and those of Bruckmeier et al. (2013), who report rates of non-take-up for SGB II benefits between 34 and 43 percent based on data of the German Income and Expenditure Survey 2008 (EVS). Our results further show that the rates of non-take-up vary considerably across the different migration groups and natives (between 36.7 and 49.6 percent). Nonetheless, pairwise t-tests cannot reject the null hypothesis of equal rates of non-take-up for each of the three migrant groups compared to the group of natives on conventional levels.

Overall, the descriptive results point to substantial and statistically significant differences between migrant groups and natives for the likelihood of being eligible for SA. Additionally, we find considerable variation in the rates of non-take-up, possibly due to differences in the observable characteristics of these groups, as shown in Table A2. However, the differences in the take-up rates turn out to be statistically insignificant. In the next sections, we test whether migration background has a significant impact on the probability of take-up after controlling for additional observed and unobserved household characteristics.

4 Estimation Approach

We follow the literature on welfare benefit take-up and analyze take-up behavior within a discrete choice framework (Blundell et al., 1988; Riphahn, 2001; Wilde and Kubis, 2005; Whelan, 2010; Bruckmeier and Wiemers, 2012). Benefit take-up will be observed if the net level of utility from claiming a benefit exceeds the utility from not claiming the benefit. Because the decision to claim benefits hinges on unobservable factors, suitable observable proxies $\mathbf{x}$ for the utility and costs of claiming SA should be chosen. The literature suggests that the utility from claiming SA depends positively on the amount of the SA entitlement of the household (see, e.g., Moffitt, 1983; Blundell, Fry, and Walker, 1988). Thus, we use the simulated entitlement to SA as the most obvious proxy for utility from claiming benefits. Costs of claiming, on the other hand, can be differentiated into information costs (insufficient knowledge or the false interpretation of entitlement rules, insufficient knowledge of the claiming process or of administrative procedures) and stigma costs (fear of stigmatization, negative attitudes towards dependency on SA), see van Oorschot (1991). We build on the existing literature in choosing proxies for costs of claiming (see Riphahn, 2001; Becker and Hauser, 2005; Wilde and Kubis, 2005; Frick and Groh-Samberg, 2007; Bruckmeier and Wiemers, 2012). See Bruckmeier and Wiemers (2011) for a discussion on the expected effects of the proxies on the utility and costs of take-up.

Assuming linear forms for the utility and costs of claiming, the probability of observing take-up ($P = 1$) is given by

$$\begin{aligned} \Pr\left(P = 1 | b, \mathbf{x}\right) &= \Pr\left(\upsilon_1 > -\left(\beta_1 b + \beta_2' \mathbf{x}\right)\right) \\ &= 1 - F\left(-\left(\beta_1 b + \beta_2' \mathbf{x}\right)\right), \end{aligned} \tag{1}$$

where the vector $\mathbf{x}$ includes the observed characteristics that determine take-up, $\beta = (\beta_1, \beta_2)$ is the vector of coefficients, and $b \equiv b\left(y, \mathbf{x}^*\right) = \overline{b}\left(\mathbf{x}^*\right) - t_y - y$ is the benefit entitlement depending on household characteristics $\mathbf{x}^*$, the maximum level of benefits $\overline{b}\left(\mathbf{x}^*\right)$, earned income y and household transfers prioritized over means-tested SA, t_y. Finally, the distribution function of the error term υ_1 is denoted by $F\left(\cdot\right)$. Assuming Gaussian errors, $\upsilon_1 \sim N\left(0, \sigma^2\right)$, leads to our first specification, a pooled probit model (Model 1).

Benefit entitlement b is endogenous if the unobserved factors that influence the take-up decision are correlated with earned income y and thus benefits $b\left(y, \mathbf{x}^*\right)$. The endogeneity of b can be taken into account by applying an instrumental variable (IV) estimator. Modeling benefits b as a linear function of $\mathbf{x}$ and additional instruments $\mathbf{z}$,

$$b = \gamma_0 + \gamma_1' \mathbf{x} + \gamma_2' \mathbf{z} + \upsilon_2, \tag{2}$$

and assuming the joint normality of the error terms $\upsilon_1$and υ_2,

$$\left(\upsilon_1, \upsilon_2\right) \sim N\left(\mathbf{0}, \Sigma\right), \; \mathbf{\Sigma} = \begin{pmatrix} 1 & \sigma_{12} \\ \sigma_{12} & \sigma^2 \end{pmatrix}, \tag{3}$$

with covariance σ_{12} leads to an IV probit model, our second specification (Model 2). The potential endogeneity of b is rarely accounted for in the literature on take-up behavior. Notable exceptions are Wilde and Kubis (2005), who estimate the take-up and the labor supply equation simultaneously, as well as Whelan (2010) and Bruckmeier and Wiemers (2012), who also use the instrumental variable approach described above.

The estimation of equations (1-3) requires the choice of instruments for the benefit level. Following Bruckmeier and Wiemers (2012), we use the level of household income independent of the current choice of labor supply (including pension, widow's pension, child benefits, maternity allowance and rental income) as well as the maximum level of SGB II-/SGB XII-benefits, excluding housing costs.[10] These instruments are determinants of the computation of the level of SA and thus satisfy the requirement that the instrument has to be correlated with the endogenous variable. Additionally, both of these instruments are arguably not correlated with the unobserved factors determining the take-up decision.

In a third specification, we further exploit the panel structure of our data and estimate a random effects (RE) probit model of benefit take-up (Model 3). In this model, the probability of take-up for household i in period t is given by

$$\begin{aligned}\Pr\left(P_{it}=1|b_{it},\mathbf{x}_{it}\right) &= \Pr\left(\upsilon_{it} > -\left(\beta_1 b_{it}+\beta_2'\mathbf{x}_{it}+\nu_i\right)\right)\\ &= \Phi\left(\beta_1 b_{it}+\beta_2'\mathbf{x}_{it}+\nu_i\right), \end{aligned} \tag{4}$$

where υ_{it} are i.i.d. Gaussian errors with mean zero and variance $\sigma_\upsilon^2 = 1$, independent of the random effects ν_i, which are i.i.d. $N(0,\sigma_\nu^2)$. As usual, Φ denotes the standard normal cumulative distribution. The share of the total variance contributed by the panel-level variance component is given by $\rho = \sigma_\nu^2/\left(\sigma_\nu^2+1\right)$. In the case of $\rho = 0$, the random effects model coincides with the pooled probit model. Thus, a likelihood-ratio test of $\rho = 0$ can be employed to formally test the pooled probit against the panel probit estimator.

The IV probit ignores the panel nature of the data, while the RE probit does not account for the potential endogeneity of the level of SA. Therefore, in a final specification, we combine both models and estimate a random effects instrumental variable (RE-IV) probit model (Model 4). The model is given by

$$\begin{aligned} P_{it}^* &= \beta_1 b_{it}+\beta_2'\mathbf{x}_{it}+\nu_i+\upsilon_{1it},\\ b_{it} &= \gamma_0+\gamma_1'\mathbf{x}_{it}+\gamma_2'\mathbf{z}_{it}+\upsilon_{2it},\\ P_{it} &= \mathbf{1}\left(P_{it}^*>0\right), \end{aligned} \tag{5}$$

where $\mathbf{1}(\cdot)$ is the indicator function, $\mathbf{z}_{it}$ are the additional instruments and the error terms υ_{1it} and υ_{2it} are assumed to be contemporaneously jointly normal,

$$\left(\upsilon_{1it},\upsilon_{2it}\right)\sim N\left(\mathbf{0},\Sigma_{tt}\right),\ \mathbf{\Sigma}_{tt}=\begin{pmatrix}1 & \sigma_{12}\\ \sigma_{12} & \sigma^2\end{pmatrix},$$

[10] The maximum level of benefits is the legally defined benefit level before the own income of the household is deducted to calculate the level of entitlement.

and independent for $t \neq s$. As in model (4), the random effect ν_i is i.i.d. $N(0, \sigma_\nu^2)$ and independent from υ_{1it}.[11]

5 Results

Estimation results for our four alternative specifications are presented in Table 2.[12] In order to facilitate interpretation of the signs and magnitudes of the estimated effects, we present marginal effects calculated as the averages of the marginal effects for each household-by-year observation.[13]

Table 2: Marginal effects on probability of take-up (dependent variable).

	Model 1 Probit	Model 2 IV Probit	Model 3 RE Probit	Model 4 RE-IV Probit
EU migrants (ref.: no mig. backgr.)	-0.0881*	-0.0882*	-0.0576	-0.0651
	(0.0502)	(0.0506)	(0.0625)	(0.0701)
Non-EU migrants	0.0226	0.0206	0.0397	0.0465
	(0.0361)	(0.0366)	(0.0438)	(0.0736)
Migrants with German citizenship	0.0613**	0.0602*	0.0546	0.0584
	(0.0304)	(0.0308)	(0.0359)	(0.0514)
Simulated monthly benefit	0.0718***	0.0727***	0.0748***	0.0689***
(in 100 EUR)	(0.0020)	(0.0073)	(0.0022)	(0.0041)
Single	0.0502**	0.0639***	0.0311	0.0288
	(0.0205)	(0.0204)	(0.0246)	(0.0381)
Single parent	0.0559*	0.0731**	0.0518	0.0714
	(0.0295)	(0.0354)	(0.0359)	(0.0576)
Family with children	0.0128	0.0116	0.0129	0.0315
	(0.0304)	(0.0361)	(0.0371)	(0.0647)

[11] We estimate model (5) using the command `cmp` for Stata®, see Roodman (2011).

[12] Table A2 in the appendix provides means of the covariates used in our estimations.

[13] In order to examine the validity of the instruments used in the IV estimations (Model 2 and Model 4), we first test the overidentifying restrictions, since we have one instrument more than required to identify the parameters of the IV probit. The Amemiya-Lee-Newey minimum χ^2_{ALN} statistic (Lee, 1992) is $\chi^2_{ALN}(1) = 0.71$, which corresponds with a *p*-value of 0.40. Therefore, the null of both instruments being uncorrelated with the error term υ_1 in (1) cannot be rejected. As an additional validity test for the instruments, we also estimate the take-up model using 2SLS (see Table A3 in the Appendix), since some validity tests (underidentification and weak instrument tests) are only available for the linear model. All tests reported in Table A3 suggest that our instruments are valid. The estimated correlation between the error terms of the IV probit equations is $\widehat{\rho}_{12} = 0.13$ with a cluster robust standard error of 0.11, suggesting a positive but statistically insignificant relationship between the unobservable factors which determine the probability of claiming SA and the level of the calculated benefits. Accordingly, the Wald test reported in Table 2 cannot reject the null hypothesis of exogeneity of the simulated SA benefit at conventional significance levels for Model 2. In the RE-IV probit the correlation between υ_1 and υ_2 slightly increases to $\widehat{\rho}_{12} = 0.14$, but is estimated with much higher precision (standard error of 0.027). The corresponding Wald test implies rejection of the null hypothesis of exogeneity on the 1% level.

Table 2: (continued)

	Model 1 Probit	Model 2 IV Probit	Model 3 RE Probit	Model 4 RE-IV Probit
Number of children aged $<=3$ years	0.0543**	0.0479*	0.0702**	0.0837*
	(0.0237)	(0.0263)	(0.0288)	(0.0505)
Number of children aged >14 years	-0.0426***	-0.0462***	-0.0374**	-0.0329
	(0.0144)	(0.0151)	(0.0184)	(0.0323)
HHH retired	-0.0177	-0.0255	0.0068	-0.0215
	(0.0264)	(0.0396)	(0.0314)	(0.0550)
Disability of HHH	0.0630	0.0630	0.1077**	0.1112
	(0.0561)	(0.0567)	(0.0523)	(0.0991)
High qualif. HHH (ref.: med. qual.)	-0.1356***	-0.1370***	-0.1849***	-0.1937***
	(0.0241)	(0.0244)	(0.0271)	(0.0356)
Low qualif. HHH (ref.: med. qual.)	0.0300*	0.0291	0.0560***	0.0669**
	(0.0174)	(0.0194)	(0.0217)	(0.0339)
Age of HHH	0.0045***	0.0045***	0.0042***	0.0048***
	(0.0006)	(0.0009)	(0.0007)	(0.0011)
Male HHH	0.0227	0.0244	0.0367**	0.0436
	(0.0153)	(0.0162)	(0.0186)	(0.0296)
Home owner household	-0.1707***	-0.1696***	-0.2283***	-0.2528***
	(0.0251)	(0.0323)	(0.0279)	(0.0394)
Rural area (ref.: interm. area)	0.0358*	0.0369*	0.0411	0.0412
	(0.0216)	(0.0216)	(0.0271)	(0.0451)
Metropolitan area (ref.: interm. area)	-0.0030	-0.0026	-0.0063	-0.0056
	(0.0154)	(0.0155)	(0.0186)	(0.0295)
Eastern Germany	0.1434***	0.1427***	0.1842***	0.1938***
	(0.0157)	(0.0168)	(0.0199)	(0.0305)
Observations	5960	5960	5960	5960
(Pseudo)log-likelihood	-2747.41	-17330.56	-2368.98	-16953.11
ρ_{12} =Corr(υ_1, υ_2)		0.13 (0.11)		0.14 (0.027)
Wald test of exogeneity: $\chi^2(1)$		1.34		27.2***
Panel variance share ρ			0.72 (0.023)	0.71 (0.027)

Source: GSOEP, own calculations. HHH stands for head of household. Wave dummies included in all models. Cluster robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

The estimation results generally confirm our expectations about the influence of the control variables on the probability of take-up. In particular, the marginal effect of the simulated benefit implies that an increase of 100 Euro per month in SA increases the probability of take-up by approximately 7 percentage points for all estimated models. The size of this marginal effect is in line with the literature (see, e.g., Frick and Groh-Samberg, 2007; Whelan, 2010; Bruckmeier and Wiemers, 2012). Thus, considering the endogeneity of the simulated benefit in Model 2 and Model 4 has only a small impact on the marginal effect of the benefit level on the take-up decision.

The main variable of interest is the migration status. For the pooled probit (Model 1) and the pooled IV probit (Model 2) we find a significant negative effect (10% level) on the take-up probability if the head of the household is an EU-citizen. The results from Model 1 and Model 2 imply that these households have a reduced probability of claiming their entitlements of approximately 9 percentage points. For these models we also find that being a migrant with German citizenship significantly increases the probability of take-up (5% level vor Model 1, 10% level for Model 2) by about 6 percentage points.

A comparison of the pooled Models 1 and 2 with the RE probit and RE-IV probit (Models 3 and 4 in Table 2) reveals the importance of controlling for unobserved heterogeneity. The last row in the table shows that the proportion of the estimated total variance contributed by the individual panel-level variance component is large ($\widehat{\rho} = 0.72$ for the RE probit and $\widehat{\rho} = 0.71$ for the RE-IV probit) and highly significant.[14] While controlling for unobserved heterogeneity does not alter the marginal effects for most regressors (both in magnitude and significance) compared to the pooled models, the significant effects for the first and the third migrant indicator in the pooled models is lost in the RE panel models (Models 3 and 4 in Table 2 compared to Models 1 and 2). A test of whether the parameters for the three subgroups of migrants are jointly zero is rejected for the pooled models (on the 5% level), while the null hypothesis cannot be rejected for Models 3 and 4.

Thus, our results imply that the propensity to take-up benefits is not related to immigrant status per se. After controlling for other factors, immigrants are no more likely to claim benefits than natives are. This result holds for all subgroups of immigrants we considered.[15]

6 Conclusion

We study whether immigrants in Germany differ in their take-up behavior conditional on being eligible for receiving welfare benefits relative to their German counterparts. The empirical

[14] A likelihood-ratio test of $\rho = 0$ is rejected on the 1% level for Model 3 and Model 4.

[15] As suggested by Hansen and Lofstrom (2003), we also test whether there are differences in take-up between migrant cohorts (see Table A4 in the Appendix). To this end, we include dummy variables for three arrival cohorts of migrants. We define the first cohort as persons who immigrated to Germany between 1949-1967, the first wave of post-war immigration, which was dominated by turkish (at the time called) "guest workers", whose main motive of immigration was to take up work in Germany. In the next immigration cohort, which we define as the period 1968-1988, an increasing share of immigration was also motivated by joining family members already living in Germany. Our final immigration cohort starts in 1989 and is characterized by immigration from former Eastern bloc countries. The reference category for all the cohorts is "born in Germany". This specification leads to insignificant effects for all migration and cohort indicators in all models. This is arguably the result of a positive correlation between the migration and the cohort indicators. For example, approximately 75% of the migrants in the latest arrival cohort belong to the group of migrants with German citizenship. Hansen and Lofstrom (2003) additionally test the hypothesis whether there is assimilation into or out of welfare by adding the covariates "years since immigration" and "years since immigration squared" to the regressions. Because "years since immigration" is not defined for natives, the models have to be estimated for (subgroups of) immigration households only. Unfortunately, our sample size does not allow estimations for the subgroup of immigrant households.

approach aims (i) to determine eligibility for welfare benefits for a representative sample of the whole population in Germany using a microsimulation model based on data from the German Socio-Economic Panel (GSOEP) and then (ii) to estimate probit models of observed welfare benefit take-up for the sample of eligible households. Our analysis differs from previous work (Castronova et al., 2001) in four ways. We provide first evidence on this issue after major social policy reforms were implemented in Germany, which were likely to have affected the take-up behavior of eligible individuals. We also make use of a complex microsimulation model to determine welfare entitlements and to focus on different groups of immigrants. Finally, we use a panel-data approach and take into account unobserved individual heterogeneity.

Our descriptive results show that, although there are marked and statistically significant differences in the likelihood of being eligible for social assistance, the raw rates of benefit take-up for all considered migrant groups are not significantly different from the take-up rate of natives. Furthermore, our estimation results suggest that – after controlling for observed and unobserved household characteristics – there is no significant effect of being a migrant on the probability of taking up entitlements. This result is in line with Castronova et al. (2001). Controlling for unobserved heterogeneity is important when analyzing differences in take-up behavior between immigrants and natives, since a significant negative effect on the take-up probability for citizens from European countries as well as a positive effect for immigrants with German citizenship disappear after controlling for unobserved heterogeneity.

Our findings suggest that immigrants are not more likely to take-up welfare benefits. The higher welfare rates of immigrants are therefore explained mainly by their higher risk of welfare dependence. Thus, given that reducing the welfare dependence of immigrants is a political goal, social policy measures to improve welfare recipients' labor market prospects are challenged. However, restricting eligibility rules to reduce entitlements does not seem to be the appropriate measure, because the take-up probability does not differ between immigrants and natives after controlling for individual characteristics.

References

Anastassova, L. and T. Paligorova (2006). What is Behind Native-Immigrant Social Income Gaps? Luxembourg Income Study Working Paper Series, Working Paper 432.

Arntz, M., M. Clauss, M. Kraus, R. Schnabel, A. Spermann, and J. Wiemers (2007). Arbeitsangebotseffekte und Verteilungswirkungen der Hartz-IV-Reform. IAB Forschungsbericht 10/2007.

Barrett, A. and B. Maître (2013). Immigrant welfare receipt across Europe. *International Journal of Manpower 34(1)*, 8–23.

Barrett, A. and Y. McCarthy (2008). Immigrants and welfare programmes: exploring the interactions between immigrant characteristics, immigrant welfare dependence, and welfare policy. *Oxford Review of Economic Policy 24(3)*, 542–559.

Becker, I. and R. Hauser (2005). *Nicht-Inanspruchnahme zustehender Sozialhilfeleistungen (Dunkelzifferstudie) - Endbericht zur Studie im Auftrag des Bundesministeriums für Gesundheit und Soziale Sicherung*. Edition Sigma, Berlin.

Blos, K., M. Feil, H. Rudolph, U. Walwei, and J. Wiemers (2007). Förderung Existenz sichernder Beschäftigung im Niedriglohnbereich * Schätzung von Angebots-, Verteilungs- und fiskalischen Effekten des SMWA-Vorschlags. IAB Forschungsbericht 07/2007.

Blundell, R., V. Fry, and I. Walker (1988). Modelling the Take-up of Means-Tested Benefits: The Case of Housing Benefits in the United Kingdom. *Economic Journal 98*, 58–74.

Brücker, H., G. S. Epstein, B. McCormick, G. Saint-Paul, A. Venturini, and K. Zimmermann (2002). Welfare State Provision. In T. Boeri, G. Hanson, and B. McCormick (Eds.), *Immigration Policy and the Welfare System*, pp. 66–90. Oxford University Press, Oxford.

Bruckmeier, K., J. Pauser, U. Walwei, and J. Wiemers (2013). Simulationsrechnungen zum Ausmaß der Nicht-Inanspruchnahme von Leistungen der Grundsicherung. IAB-Forschungsbericht, 05/2013.

Bruckmeier, K. and J. Wiemers (2011). A New Targeting – A New Take-Up? Non-Take-Up of Social Assistance in Germany after Social Policy Reforms. IAB Discussion Paper No. 10/2011, Institute for Employment Research, Nuremberg.

Bruckmeier, K. and J. Wiemers (2012). A new targeting - a new take-up? * non-take-up of social assistance in Germany after social policy reforms. *Empirical Economics 43(2)*, 565–580.

Castronova, E. J., H. Kayser, J. R. Frick, and G. G. Wagner (2001). Immigrants, Natives and Social Assistance. Comparable Take-Up under Comparable Circumstances. *International Migration Review 35(3)*, 726–748.

Federal Ministry of Labour and Social Affairs (2009). Wirkungen des SGB II auf Personen mit Migrationshintergrund. BMAS Forschungsbericht F395.

Frick, J. R. and O. Groh-Samberg (2007, October). To Claim or Not to Claim: Estimating Non-Take-Up of Social Assistance in Germany and the Role of Measurement Error. SOEP Papers on Multidisciplinary Panel Data Research, No. 53, DIW, Berlin.

Haisken-DeNew, J. P. and J. R. Frick (2005). DTC Desktop Companion to the German Socio-Economic Panel (SOEP). Version 8.0, DIW Berlin.

Hansen, J. and M. Lofstrom (2003). Immigrant Assimilation annd Welfare Participation. *The Journal of Human Resources 38*, 74–98.

Jacobebbinghaus, P. and V. Steiner (2003). Dokumentation des Steuer-Transfer-Mikrosimulationsmodells STSM - Version 1995-1999. Dokumentation Nr. 03-06, Zentrum für Europäische Wirtschaftsforschung.

Kleibergen, F. and R. Paap (2006). Generalized Reduced Rank Tests Using the Singular Value Decomposition. *Journal of Econometrics 133*, 97–126.

Lee, L. (1992). Amemiya's generalized least squares and tests of overidentification in simultaneous equation models with qualitative or limited dependent variables. *Econometric Reviews 11*, 319–328.

Moffitt, R. (1983). An Economic Model of Welfare Stigma. *American Economic Review 73(5)*, 1023–1035.

Riphahn, R. T. (1998). Immigrant Participation in the German Welfare Program. *Finanzarchiv 55*, 163–185.

Riphahn, R. T. (2001). Rational Poverty of Poor Rationality? - The Take-up of Social Assistance Benefits. *Review of Income and Wealth 47(3)*, 379–398.

Riphahn, R. T. (2004). Immigrant Participation in Social Assistance Programs: Evidence from German Guestworkers. *Applied Economics Quarterly 50(4)*, 329–362.

Riphahn, R. T. and C. Wunder (2014). The dynamics of welfare entry and exit amongst natives and immigrants. *Review of Income and Wealth 66*(1), 580–604.

Roodman, D. (2011). Fitting fully observed recursive mixed-process models with cmp. *Stata Journal 11(2)*, 159–206.

Steiner, V., P. Haan, and K. Wrohlich (2005). Dokumentation des Steuer-Transfer-Mikrosimulationsmodells STSM 1999 - 2002. Data Documentation 9, Deutsches Institut für Wirtschaftsforschung.

Stock, J. H. and M. Yogo (2005). Generalized Reduced Rank Tests Using the Singular Value Decomposition. NBER Technical Working Paper 284.

van Oorschot, W. (1991). Non-Take-Up of Social Security Benefits in Europe. *Journal of European Social Policy 1(1)*, 15–30.

Wagner, G. G., J. R. Frick, and J. Schupp (2007). The German Socio-Economic Panel Study (SOEP)—Scope, Evolution and Enhancement. *Journal of Applied Social Studies 127(1)*, 139–169.

Whelan, S. (2010). The take-up of means-tested income support. *Empirical Economics 39(3)*, 847–875.

Wiemers, J. and K. Bruckmeier (2009). Forecasting Behavioural and Distributional Effects of the Bofinger-Walwei Model using Microsimulation. *Journal of Economics and Statistics 229(4)*, 492–511.

Wilde, J. and A. Kubis (2005). Nichtinanspruchnahme von Sozialhilfe - Eine empirische Analyse des Unerwarteten. *Jahrbücher für Nationalökonomie und Statistik 225*, 347–373.

Appendix

Table A1: Components of net household income in the IAB-STSM

		Income components	Determined in tax and transfer module?
1		Earned income	no
	+	Self-employed income	no
	+	Capital income	no
	+	Rental income	no
	+	Other incomes (pensions)	no
2	-	Social security contributions	yes
	-	Income tax	yes
	-	Alimony payments	yes
3	+	Child benefit	yes
	+	Child-raising allowance	yes
	+	Unemployment benefits	yes[a]
	+	Federal student support, stipends, claims to maintenance, widow's allowance, maternity allowance, reduced hours compensation	no
4	+	Housing allowance	yes
	+	Children's allowance	yes
	+	Social assistance for employable persons (SGB II)	yes
	+	Social assistance for unemployable persons (SGB XII)	yes
	=	Net household income	yes

[a] *Endogenous if labor supply reactions are considered. Otherwise we use reported unemployment benefits.*
Source: Bruckmeier and Wiemers (2011).

Table A2: Means of covariates used in the regression by migration status, pooled sample 2005 - 2011

	Natives	EU-Migrants	Non-EU-Migrants	Mig. w/ Ger. Cit.
Born in Germany	1	0.04	0.01	0.02
Immigrated between 1949-1968	0	0.12	0.05	0.07
Immigrated between 1968-1988	0	0.61	0.65	0.28
Immigrated after 1988	0	0.23	0.28	0.64
Simulated monthly benefit (in € 100)	4.79	5.02	5.85***	5.05
Singles	0.53	0.38***	0.19***	0.40***
Single parents	0.17	0.27***	0.08***	0.14*
Family with children	0.12	0.13	0.21***	0.17***
Number of children aged <=3 years	0.12	0.02***	0.06***	0.10
Number of children aged >14 years	0.18	0.43***	0.37***	0.28***
HHH retired	0.11	0.18**	0.32***	0.20***
Disability of HHH	0.02	0.01	0.02	0.01
High qualif. HHH (ref.: interm. qual.)	0.14	0.07**	0.14	0.19***
Low qualif. HHH (ref.: interm. qual.)	0.24	0.49***	0.64***	0.29***
Age	42.72	52.54***	53.96***	47.86***
Male HHH	0.42	0.33**	0.61***	0.47**
Home owner household	0.13	0.15	0.08**	0.10*
Rural area (ref.: interm. area)	0.14	0.11	0.08***	0.13
Metropolitan area (ref.: interm. area)	0.38	0.60***	0.55***	0.41
Eastern Germany	0.45	0.09***	0.09***	0.08***
Dummy 2006	0.17	0.17	0.19	0.19
Dummy 2007	0.16	0.19	0.17	0.17
Dummy 2008	0.15	0.15	0.13	0.14
Dummy 2009	0.15	0.10*	0.12	0.12
Dummy 2010	0.11	0.10	0.10	0.13
Dummy 2011	0.13	0.08*	0.09**	0.09***
Sample size	4991	136	355	478

*Source: GSOEP, authors' own computations based on IAB-STSM. Stars denote rejection of the F-test on equal means of the migrant subgroups versus natives on the significance levels * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. HHH = head of household. The sample sizes add up to the number of observations used in the take-up estimations, 5,960.*

Table A3: Two-stage least square regression, pooled sample 2005 - 2011

	2SLS 1. stage dep. var.: Sim. monthly benefit	2SLS 2. stage dep. var.: Observed take-up
instr.: SA base amount	1.03644***	
	(0.11766)	
instr.: prioritized transfers	-0.28243***	
	(0.02664)	
endog.: Simulated monthly benefit (in 100 EUR)		0.06844***
		(0.01054)
EU migrants (ref.: no mig. backgr.)	-0.40563	-0.08783
	(0.45964)	(0.05462)
Non-EU migrants	0.65461**	0.01499
	(0.29289)	(0.03929)
Migrants with German citizenship	0.22591	0.06113*
	(0.21824)	(0.03220)
Single	-1.47569***	0.06683***
	(0.19610)	(0.02296)
Single parent	0.28246	0.08965***
	(0.27243)	(0.03380)
Family with children	1.90126***	0.02115
	(0.28328)	(0.03472)
Number of children aged $<=3$ years	1.53876***	0.06453***
	(0.18958)	(0.02322)
Number of children aged >14 years	0.93446***	-0.06280***
	(0.15722)	(0.01426)
HHH retired	-2.02720***	-0.05834
	(0.21066)	(0.04587)
Disability of HHH	-0.09315	0.06951
	(0.27818)	(0.06612)
High qualif. HHH (ref.: med. qual.)	0.21361	-0.14728***
	(0.14063)	(0.02465)
Low qualif. HHH (ref.: med. qual.)	0.89206***	0.03087
	(0.14267)	(0.02035)
Age of HHH	0.10422***	0.02418***
	(0.01691)	(0.00383)
Age^2 of HHH	-0.00069***	-0.00021***
	(0.00018)	(0.00004)
Male HHH	0.37590***	0.02875*
	(0.12654)	(0.01707)
Home owner household	-1.38468***	-0.19600***
	(0.16160)	(0.03148)
Rural area (ref.: interm. area)	-0.25121	0.03777
	(0.16999)	(0.02350)

Table A3: (continued)

	2SLS 1. stage dep. var.: Sim. monthly benefit	2SLS 2. stage dep. var.: Observed take-up
Metropolitan area (ref.: interm. area)	0.07284	-0.00759
	(0.12137)	(0.01637)
Eastern Germany	0.12473	0.14394***
	(0.12323)	(0.01638)
Dummy 2006	0.09645	0.02861*
	(0.11207)	(0.01608)
Dummy 2007	-0.01575	0.03711**
	(0.11954)	(0.01743)
Dummy 2008	0.04630	0.00158
	(0.12316)	(0.01811)
Dummy 2009	0.44783***	0.01267
	(0.13288)	(0.01981)
Dummy 2010	0.27699**	0.02083
	(0.13305)	(0.02079)
Dummy 2011	0.23460*	0.01401
	(0.13653)	(0.02047)
Constant	-1.45277***	-0.50670***
	(0.55647)	(0.07653)
Observations (households-by-year)	5960	5960
Adj. R^2	0.32	0.39
Overidentification test: Sargan J		1.431
Underidentification test: Kleibergen-Paap rk LM	132.87***	
Weak instrument test: Kleibergen-Paap rk F	99.71	

Source: GSOEP, own calculations. HHH stands for head of household. Cluster robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. *The results for the first stage show that both instruments are highly significant (*$p < 0.001$*). The Sargan J statistic of overidentifying restrictions has a value of* $\chi^2_J\,(1) = 1.43$ *with a corresponding p-value of* 0.23*. Thus, the null hypothesis that the instruments are valid (uncorrelated with the error term and correctly excluded from the estimated equation) cannot be rejected. The underidentification test shows that all excluded instruments are relevant in the sense of being correlated with the endogenous regressor. Since we use cluster robust standard errors, the appropriate test is the Kleibergen and Paap (2006) rk LM statistic. With a value of* $\chi^2_{KP_{LM}}\,(2) = 132.87$ *the null hypothesis of no correlation with the endogenous regressor is strongly rejected (*1% *level). Finally, we report the Kleibergen-Paap Wald rk F statistic,* $F_{KP}\,(2, 2612) = 99.7$*. The statistic rejects the null hypothesis of weak instruments, since it strongly exceeds the critical value of* 19.93 *for a maximal test size of* 10%*, as tabulated in Stock and Yogo (2005).*

Table A4: Marginal effects on probability of take-up (dependent variable). Models include arrival cohort indicators.

	Model 1 Probit	Model 2 IV Probit	Model 3 RE Probit	Model 4 RE-IV Probit
EU migrants (ref.: no mig. backgr.)	0.0548	0.0570	0.0704	0.0918
	(0.1154)	(0.1166)	(0.1667)	(0.1747)
Non-EU migrants	0.1641	0.1644	0.1620	0.1952
	(0.1085)	(0.1123)	(0.1635)	(0.1645)
Migrants with German citizenship	0.1732	0.1741	0.1421	0.1722
	(0.1054)	(0.1085)	(0.1646)	(0.1654)
Immig. 1949-1967 (ref.: born in Ger.)	0.1085	-0.1119	-0.0951	-0.1313
	(0.1303)	(0.1336)	(0.1831)	(0.2217)
Immig. 1968-1988	0.1749	-0.1774	-0.1663	-0.1971
	(0.1100)	(0.1127)	(0.1608)	(0.1661)
Immig. since 1989	0.0959	-0.0974	-0.0547	-0.0828
	(0.1155)	(0.1180)	(0.1731)	(0.1801)
Simulated monthly benefit	0.0717***	0.0726***	0.0745***	0.0682***
(in 100 EUR)	(0.0020)	(0.0073)	(0.0023)	(0.0042)
Single	0.0506**	0.0649***	0.0323	0.0298
	(0.0205)	(0.0204)	(0.0244)	(0.0378)
Single parent	0.0558*	0.0738**	0.0518	0.0726
	(0.0294)	(0.0353)	(0.0357)	(0.0573)
Family with children	0.0128	0.0115	0.0125	0.0321
	(0.0303)	(0.0360)	(0.0369)	(0.0644)
Number of children aged $<=3$ years	0.0544**	0.0477*	0.0696**	0.0838*
	(0.0237)	(0.0263)	(0.0287)	(0.0504)
Number of children aged >14 years	-0.0430***	-0.0468***	-0.0374**	-0.0326
	(0.0144)	(0.0151)	(0.0184)	(0.0322)
HHH retired	-0.0153	-0.0236	0.0068	-0.0229
	(0.0262)	(0.0391)	(0.0313)	(0.0548)
Disability of HHH	0.0615	0.0615	0.1056**	0.1090
	(0.0560)	(0.0566)	(0.0519)	(0.0985)
High qualif. HHH (ref.: med. qual.)	-0.1370***	-0.1387***	-0.1861***	-0.1953***
	(0.0239)	(0.0241)	(0.0270)	(0.0356)
Low qualif. HHH (ref.: med. qual.)	0.0325*	0.0316	0.0582***	0.0700**
	(0.0174)	(0.0195)	(0.0216)	(0.0338)
Age of HHH	0.0045***	0.0045***	0.0042***	0.0050***
	(0.0006)	(0.0009)	(0.0007)	(0.0011)
Male HHH	0.0239	0.0256	0.0377**	0.0451
	(0.0152)	(0.0163)	(0.0185)	(0.0294)
Home owner household	-0.1691***	-0.1679***	-0.2262***	-0.2521***
	(0.0250)	(0.0322)	(0.0279)	(0.0396)
Rural area (ref.: interm. area)	0.0341	0.0352*	0.0405	0.0403
	(0.0214)	(0.0214)	(0.0268)	(0.0449)

Table A4: (continued)

	Model 1 Probit	Model 2 IV Probit	Model 3 RE Probit	Model 4 RE-IV Probit
Metropolitan area (ref.: interm. area)	-0.0022	-0.0018	-0.0047	-0.0039
	(0.0154)	(0.0155)	(0.0185)	(0.0292)
Eastern Germany	0.1439***	0.1433***	0.1840***	0.1941***
	(0.0157)	(0.0167)	(0.0198)	(0.0303)
Observations	5960	5960	5960	5960
(Pseudo)log-likelihood	-2742.05	-17317.83	-2365.95	-16942.77
ρ_{12} =Corr(υ_1, υ_2)		0.13 (0.11)		0.15 (0.027)
Wald test of exogeneity: $\chi^2(1)$		1.48		31.2***
Panel variance share ρ			0.71 (0.023)	0.71 (0.027)

Source: GSOEP, own calculations. HHH stands for head of household. Wave dummies included in all models. Cluster robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.