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Decomposing welfare wedges: An analysis of welfare dependence of immigrants and natives in Europe

Peter Huber* and Doris A. Oberdabernig†‡

January 28, 2014

Abstract

We study differences in contributory and non-contributory welfare benefit receipt between immigrants and natives for 16 EU countries. In contrast to previous studies we analyze differences in benefit levels allowing for potentially different take-up rates between immigrants and natives and use Oaxaca-Blinder decompositions to discuss residual welfare dependence. Results point to substantial heterogeneity in welfare dependence between countries when not controlling for observed characteristics of immigrants and natives. This is primarily due to different selection into benefits between immigrants and natives and differences in their characteristics (mainly income, personal, and household characteristics). Once this is controlled for, immigrants participate at most equally often in both types of benefits as natives and usually also receive lower or comparable benefit levels.

Keywords: EU countries, immigration, Oaxaca-Blinder decompositions, welfare benefits
JEL-Codes: J61, J15, H53, I38

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1 Introduction

In the last decades, the European Union (EU) has experienced a steady increase in the share of immigrants residing on its territory and immigration has become the primary source of population growth (Eurostat, 2011). Some analysts (e.g. Razin and Sadka, 1999; Zimmermann, 2008) argue that such immigration inflows are beneficial for European welfare states as they generate additional revenues to finance the increasing expenditures related to population aging. In the public debate of most EU countries, by contrast, concern has been raised that immigrants might cause additional expenditures on account of receiving higher benefits than natives and may thus represent a burden to welfare states.

This discussion has motivated a large number of empirical studies that investigate the welfare dependence of immigrants relative to natives.[1] These mostly focus on benefit take-up rates[2] and are interested in residual welfare dependence (i.e. whether after controlling for characteristics the coefficient of a dummy variable for migrant status indicates significant differences in the probability of receiving benefits between natives and immigrants). By contrast, only a very limited number of studies looks at the effect of migrant status on benefit levels. In an early contribution Blau (1984) notices that information on benefit levels is censored as it is conditional on positive take-up rates. Due to a lack of identifying variables—which are correlated to take-up rates but not to benefits—the author relies on ordinary least square (OLS) regressions arguing that there

[1] Barrett and McCarthy (2008) and OECD (2013) provide a comprehensive overview of European studies. Studies on the EU include Barrett and Maître (2013); Boeri and Monti (2007); Boeri (2010); and Brücker *et al.* (2002). Many studies focus on individual European countries like Denmark (Blume and Verner, 2007), Germany (Castronova *et al.*, 2001; Fertig and Schmidt, 2001; Riphahn, 1998, 2004), Ireland (Barrett and McCarthy, 2007), Italy (Pellizari, 2013), Spain (Muñoz de Bustillo and Antón, 2009), Sweden (Ekberg, 2006; Hansen and Lofstrom, 2003, 2009), Switzerland (Winkelmann, 2002), and the UK (Dustmann *et al.*, 2010). For US studies see Bean *et al.* (1997); Blau (1984); Borjas and Trejo (1991); Borjas and Hilton (1996); and Tienda and Jensen (1986).

[2] For instance Bean *et al.* (1997); Blau (1984); Borjas and Trejo (1991); Tienda and Jensen (1986); Barrett and Maître (2013); Boeri and Monti (2007); Boeri (2010); Brücker *et al.* (2002); Barrett and McCarthy (2007); Castronova *et al.* (2001); Dustmann *et al.* (2010); Fertig and Schmidt (2001); Hansen and Lofstrom (2003); Muñoz de Bustillo and Antón (2009); Pellizari (2013); Riphahn (1998, 2004).

is no reason to suppose that natives and immigrants are differently affected by censoring bias. Barrett and McCarthy (2007) and Muñoz de Bustillo and Antón (2009) use a tobit framework to account for the censoring of benefit levels and find that migration status does not only have an impact on benefit take-up rates but also on benefit levels.

While these studies provide important insights, their assumption that censoring bias affects natives and immigrants in the same way only holds if there are no systematic differences in eligibility rules for benefits and actual take-up rates of benefits between immigrants and natives. Such systematic differences could, however, arise from unobserved ability components of immigrants that make them have lower earnings and higher eligibility for benefit receipt. For instance, if good health is a requirement for migration as argued by the literature on the healthy migrant effect (e.g. McDonald and Kennedy, 2004) the selection of healthier immigrants leads to a lower demand for sickness benefits by them. Also limitations of legal access to benefits can be responsible for differences in eligibility rates between immigrants and natives. For example if eligibility requires a minimum number of years of residence and/or contributions to the system. Furthermore, language difficulties, lack of information on welfare services, fear of stigmatization as well as discrimination of immigrants on the basis of ethnicity might affect benefit receipt (Brücker *et al.*, 2002; van Oorschot, 1991). Ignoring these differences in selection runs the risk of generating estimation bias, which seems to be high, given the empirical evidence for differences in take-up rates. In this light, the work of Blau (1984), as well as the studies of Barrett and McCarthy (2007) and Muñoz de Bustillo and Antón (2009), which do not account for different means of censoring between natives and immigrants, may be subject to such bias.

In this paper we provide a detailed analysis of the differences between natives and immigrants in both take-up rates and levels of contributory and non-contributory welfare benefits in 16 EU countries. We methodologically improve on previous contributions by appropriately accounting for different selection probabilities into benefit take-up be-

tween natives and immigrants and by using Oaxaca-Blinder decompositions to analyze the causes of asymmetries in benefit payments to the two groups. By this, we avoid potential parameter bias when analyzing benefit levels and are able to decompose the difference in benefit levels between the two groups into three parts: A part explained by discrepancies in observable characteristics, a part that is due to differences in selection probabilities, and an unexplained component that is caused by differences in parameters. In addition, we can decompose differences in take-up rates into an explained and an unexplained part and determine the contribution of every explanatory variable to each of these components.

We find that in most countries a large part of the wedge in welfare benefits between natives and immigrants can be attributed to differences in take-up rates. Whenever differences between natives and immigrants in either benefit take-up or benefit levels are significant, the largest part of these can be explained by differences in observable characteristics between natives and immigrants. In almost all countries in our sample, immigrants—after controlling for individual characteristics—receive benefits either as often as or less often than natives. Also their benefit levels are comparable or lower as a rule. The most important characteristics driving welfare wedges are differences in income and personal characteristics (i.e. age, gender, and marital status) for contributory benefits, and household characteristics (i.e. household size and composition, population density, and houseownership) for non-contributory benefits. This suggests that selecting immigrants with more favorable characteristics (e.g. younger persons with better income prospects) is likely to be the most effective policy measure to reduce welfare payments to migrant households.

The article is structured as follows. Section 2 describes the data and provides summary statistics for the variables of interest. The estimation framework is outlined in section 3. It describes the methodologies of two-stage Heckman estimations and Oaxaca-Blinder decompositions, followed by a summary of model specifications. Section 4 reports

the main results while robustness is discussed in section 5. Section 6 concludes.

2 Data and Stylized Facts

2.1 Database description

We base our analysis on data from the EU Survey of Income and Living Conditions (EU-SILC), which has also been used by most recent studies of differences in welfare receipts of natives and immigrants in the EU.[3] The survey reports data based on a nationally representative probability sample covering all private households and their current members, irrespective of language, nationality or legal residence status for most EU countries on an annual basis starting in 2004.[4] To complement the variables permanently collected in EU-SILC a different *ad-hoc* module is temporarily added each year. In this study we use the 2009 version of EU-SILC taking advantage of variables included in the module on material deprivation, which is available only for that year.

The data provide information on the country of birth and the citizenship of individuals, distinguishing between locals and EU- and extra-EU immigrants, and on all sources of income of interviewees and their households. This allows us to analyze the receipt of contributory welfare benefits, which are measured at the individual level (as the sum of unemployment benefits, old-age benefits, survivors pensions, sickness benefits, and disability benefits), and non-contributory benefits, measured at the household level (the sum of housing, family and children related allowances, and payments to those at risk of

[3] See Boeri and Monti (2007); Boeri (2010); Barrett and Maître (2013); Barrett and McCarthy (2007); and Muñoz de Bustillo and Antón (2009) for recent studies using EU-SILC data and Central Statistics Office (2010) for a detailed description.

[4] We had to drop some countries on account of a low number of foreign born and/or missing data problems. This applies to Bulgaria, Denmark, Finland, Hungary, Italy, Malta, the Netherlands, Poland, Romania, Slovakia and Slovenia. Persons living in collective households and institutions are excluded from the target population. This might lead to an under-representation of refugees and temporary immigrants in the empirical analysis. In addition, households in which all members do not know the language of the country of residence well enough to respond to the questionnaire and nobody outside the household can provide the required information, are not available in the data. Since such households are unlikely to be able to apply for benefits, our analysis provides conservative estimates of immigrant's welfare dependence.

social exclusion), separately. While for contributory welfare benefits the natural choice of the unit of analysis is the person, we focus on households for non-contributory benefits. We define individuals as natives if they were born in their country of residence, and as immigrants if they were born in another (EU or extra-EU) country than they reside in.[5] Native households are defined as households composed of only native adults (older than 15 years), while households with at least one foreign born adult are classified as immigrant households.[6] On account of the substantial institutional differences in welfare benefit provision across countries on the one hand, and because data limitations impede modeling the country choice of immigrants—which may be endogenous to the welfare state—on the other hand, we conduct our analysis on a country by country level.

2.2 Descriptive statistics

Descriptive statistics on benefit take-up rates and benefit levels suggest that differences between natives and foreign born in the level of benefits and take-up rates, are closely related (columns 3 and 4 of Table 1 and 2). Although many of the benefits vary in levels as they are often earnings related (see Central Statistics Office, 2010), this variation is only of low importance. In all countries in which benefit take-up rates are higher among immigrants than among natives, also the average (log)benefit levels are higher for the former. Similarly, in all countries in which take-up rates are higher among natives than immigrants the same applies to (log)benefit levels. Furthermore, a comparison of benefit levels unconditional and conditional on participation (see the bottom two panels of Table 1 and 2) shows that for all countries but Sweden the difference in benefits levels

[5]We prefer this definition over one based on citizenship because the latter would introduce bias due to cross-country differences in naturalization laws. Previous studies find that the potential bias arising from classifying citizens of the native country born abroad in the group of immigrants is of second order importance (Boeri, 2010). Also, the main results of the analysis below are robust to identifying immigrants based on citizenship instead of country of birth, although there are some changes in significance levels for individual countries.

[6]Differences between mixed and only migrant household were analyzed in an earlier version of this paper and are available from the authors. We also do not distinguish between EU and extra-EU immigrants in the main analysis on account of a low number of observations for EU immigrants. This issue is addressed in the robustness section of the paper.

conditional on participation (i.e. average benefits per participant) is smaller than the difference in unconditional benefit levels (i.e. average benefits per inhabitant). This effect is quantitatively important and for instance in the case of Germany, as the most extreme case, accounts for about 90% of the unconditional difference in benefit levels. This highlights the importance of taking selection into benefits into account when explaining differences in benefit levels between natives and immigrants.

[Table 1: Around here]

[Table 2: Around here]

Differences in welfare use between natives and immigrants also heavily depend on the type of benefits under investigation and there is also substantial heterogeneity in relative welfare use of immigrants between countries. As shown by the ratios reported in columns 5 to 9 (7) of Table 1 (Table 2), in which a number higher (smaller) than 1 indicates that immigrants receive benefits more (less) often or respectively higher (lower) benefits than natives, immigrants are typically over-represented in some benefit groups, while they are under-represented in others. For contributory benefits, old-age benefits drive the aggregate pattern—whenever immigrants are under-represented (over-represented) in the use of old-age benefits the same applies for aggregate contributory benefits, because old-age benefits are the largest component of contributory benefits for every country analyzed (columns 1 to 5 of Table B.1 in the appendix). Similarly, non-contributory benefits closely follow the pattern of family and child related allowances, which constitute the biggest share of non-contributory benefits by far (columns 6 to 8 of Table B.1). Furthermore in 9 of the 16 countries analyzed immigrants are under-represented in contributory benefits and in the other 7 the opposite applies. For non-contributory benefits immigrants are underrepresented among the recipients in 6 of the 16 countries. These vast differences can be explained by different eligibility rules for welfare receipt between countries and by compositional effects, which will be analyzed in more detail below.

3 Estimation framework

3.1 Heckman model

Given the descriptive evidence we model welfare dependence of immigrants and natives as a two step process, where in the first step immigrants (indexed by m) and natives (indexed by n) are selected into benefit receipt. In the second step, given participation, the benefit levels are determined.

In the first step we assume that the latent variable governing the participation in benefits for the j^{th} individual (T_j^*) depends linearly on a vector of individual and household characteristics (Z_j) influencing the probability to receive benefits (i.e. $T_j^* = \gamma^i Z_j + \eta_j$, where i is defined over migrant status, γ^i is a vector of parameters for group i and η_j is an identically and independently standard normally distributed error term). We denote this equation, which we call the participation equation below, by:

$$P(T_j^* > 0) = \Phi(\gamma^i Z_j) \tag{1}$$

where

$$T_j = 1 \quad \text{if} \quad T_j^* > 0$$

$$T_j = 0 \quad \text{if} \quad T_j^* \leq 0$$

Φ is the standard normal cumulative density function, and T_j is an indicator if individual j receives a benefit or not.

In the second step, conditional on participation, the level of the benefits (τ_j) is determined by a number of observable characteristics X_j. The influence of these determinants of the benefit level for the j^{th} individual conditional on participation can be consistently estimated by the standard Heckman (1979) two step procedure. The level equation,

which is estimated by ordinary least squares, takes the form:

$$E(\tau_j|T_j^* > 0) = \beta^i X_j + \theta^i \lambda_j + \upsilon_j \tag{2}$$

where $\lambda_j = \phi(\gamma^i Z_j)/\Phi(\gamma^i Z_j)$ (with $\phi(\cdot)$ the density function of the normal distribution) is the inverse mills ratio, υ_j is an identically and independently normally distributed error term with mean zero and variance σ_j, and $\theta^i = \rho^i \sigma^i$ with ρ^i the correlation between υ_j and η_j.

To identify equation (2) we include measures of social contacts and leisure activities of the individual or household head, respectively, in Z_j, but not in X_j. The idea with using these variables for identification is that such contacts may generate information concerning the availability of and application process for social benefits and influence fixed costs that arise when applying for welfare benefits, or may provide information on job-opportunities and thus exogenously reduce the need for such benefits (see e.g. Bertrand *et al.*, 2000, for a discussion). Such contacts will therefore affect the likelihood of applying for benefit receipt, without affecting benefit levels.

3.2 Oaxaca-Blinder decompositions

Given estimates of equations (1) and (2) a natural question that arises is to which extent the differences found can be attributed to differences in observable characteristics between natives and immigrants (such as age or education) and differences in unobservable characteristics (such as a lack of information on welfare benefits, lower language skills, or psychological traumata of immigrants) or any kind of discrimination. Previous literature has mostly addressed this issue by residual dependence regressions focusing on benefit take-up rates. While this approach is informative as to whether immigrants are significantly over- or under-represented in the group of welfare recipients after controlling for observable characteristics, it does not provide further insights into the causes

for the differences found. Such insights can, however, be gained by separately estimating the model in equations (1) and (2) for immigrants and natives and then applying Oaxaca-Blinder decompositions (see Blinder, 1973; Oaxaca, 1973 for a derivation, Yun, 2005b, and Madden, 2000 for recent applications, and Jann, 2005 for standard errors). Defining $\widehat{\beta}^m$, $\widehat{\beta}^n$ as the coefficient estimates for the level equation (2), omitting individual subscripts j for simplicity, and using natives as the base group for the decomposition analyses (since these can be expected to not be discriminated against in our context), differences between immigrants and natives in benefit levels conditional on receipt can be decomposed into three effects:

$$\begin{aligned} E(\tau^m|T^{m*}>0) - E(\tau^n|T^{n*}>0) = \\ = [\overline{X}^m\widehat{\beta}^n - \overline{X}^n\widehat{\beta}^n] + [\overline{X}^m\widehat{\beta}^m - \overline{X}^m\widehat{\beta}^n] + [\widehat{\theta}^m\overline{\lambda}^m - \widehat{\theta}^n\overline{\lambda}^n] \end{aligned} \tag{3}$$

with $\overline{X}^m$ and $\overline{X}^n$ the mean characteristics of immigrants and natives and λ^i and θ^i the mills ratios and their coefficients. The first term in square brackets on the right hand side of equation (3) is the part of the total difference of benefit levels that can be explained by differences in observable characteristics between immigrants and natives (difference in characteristics effect), the second term in square brackets reflects unexplained differences between immigrants and natives with respect to the level of benefits received (difference in parameters effect), and the third term in square brackets accounts for differences in selection into benefits between natives and immigrants (selection effect).

Defining $\widehat{\gamma}^m$ and $\widehat{\gamma}^n$ as the parameter estimates of the participation equation (1) for immigrants and natives respectively, different take-up rates of welfare benefits can be decomposed as (see Yun, 2005a; Bauer and Sinning, 2008; Fairlie, 2005):

$$P(T^m) - P(T^n) = [\bar{\Phi}(Z^m\widehat{\gamma^n}) - \bar{\Phi}(Z^n\widehat{\gamma^n})] + [\bar{\Phi}(Z^m\widehat{\gamma^m}) - \bar{\Phi}(Z^m\widehat{\gamma^n})] \tag{4}$$

Once more, the first term in square brackets is a difference in characteristics effect and

the second term an unexplained difference in parameters effect.

In the level equation (2) the contribution of the k^{th} variable to the difference in characteristics effect is given by $\overline{X}_k^m \widehat{\beta}_k^n - \overline{X}_k^n \widehat{\beta}_k^n$ and the contribution to the difference in parameters effect by $\overline{X}_k^m \widehat{\beta}_k^m - \overline{X}_k^m \widehat{\beta}_k^n$ respectively. For the nonlinear participation equation (1) Yun (2005a) proposes a detailed decomposition where the contribution to the difference in characteristics effect can be calculated by $\frac{(\bar{Z}_k^m - \bar{Z}_k^n)\widehat{\gamma_k^n}}{(\bar{Z}^m - \bar{Z}^n)\widehat{\gamma^n}}[\bar{\Phi}(Z^m\widehat{\gamma^n}) - \bar{\Phi}(Z^n\widehat{\gamma^n})]$ and the contribution to the difference in parameters effect effect by $\frac{\bar{Z}_k^m(\widehat{\gamma_k^m} - \widehat{\gamma_k^n})}{\bar{Z}^m(\widehat{\gamma^m} - \widehat{\gamma^n})}[\bar{\Phi}(Z^m\widehat{\gamma^m}) - \bar{\Phi}(Z^m\widehat{\gamma^n})]$.

3.3 Model specification

For the estimations we specify a set of control variables that is common to the participation and level equation. This consists of four groups of variables: (1) personal characteristics (age and its square, gender, and a dummy variable for single persons), (2) education (dummy variables for higher secondary and tertiary education), (3) income (the natural logarithm of gross income and its square), (4) and household characteristics (dummy variables for densely populated areas with more than 500 inhabitants per square kilometer and a total population of at least 50,000 inhabitants, house ownership, presence of children, and a household size of three, and four or more persons). For identification we additionally include network variables, which measure the intensity of contacts with friends and family (dummy variables for meeting friends/family (relatives) at least once a month and regular participation in a leisure activity), in the participation equation.[7]

The personal characteristics are included to account for the higher probability of older persons (e.g. pensioners) to obtain benefits, while the education variables account

[7]Whenever the unit of analysis is the household, individual characteristics refer to characteristics of the household head (see appendix A for a definition) and income to the logarithm of equivalized gross household income while gender is excluded. To avoid the sensitivity of detailed decomposition results to the choice of base categories for dummy variables, we follow Yun (2008) and parametrize estimates such that coefficients sum to zero.

for higher unemployment rates and higher poverty rates of lower educated persons. As some transfers are related to marital status (e.g. pensions for widowers) we include the indicator for singles.[8] Variables like income and household characteristics impact on welfare dependence because many benefit types aim to provide income support to low income groups or households with children. The indicator for urban areas is included to account for lower application costs for benefits in urban areas due to better accessibility (and potential differences in generosity) of benefit granting institutions. This may be important given the marked difference in settlement structure of immigrants found in section 3.3 below. The use of network variables for identification finally is justified by the hypothesis that social contacts with friends and family may exogenously affect benefit take-up rates without impacting on benefit levels for the reasons explained in section 3.1.

[Table 3: Around here]

The ratios of the means of these variables for immigrants relative to natives are reported in Table 3. There is substantial heterogeneity in the structure of immigrants across EU countries. This highlights the potential role of compositional effects to explain these large differences. For instance, while on average over all countries in our sample immigrants are of a similar age as natives and are more often tertiary educated, they are less often tertiary educated than natives in Austria, Belgium, Spain, France, Greece, and Sweden and on average older than natives in the Czech Republic, Germany, Estonia, France, Lithuania, and Latvia. In aggregate, immigrants are also less often single and have a higher share of males than natives. In France, Sweden, and the UK the share of females is, however, higher among natives and in Portugal they immigrants are more often single. Immigrants in the cross country average are also less often house owners than natives and have fewer social contacts, bigger households and live together with children more often. Also for these variables there are some exceptions in individual countries.

[8]Indicator variables for unemployed individuals, pensioners, or widowers are not included as these are perfect predictors of benefit receipt.

On average, immigrants have higher individual but lower equivalized household incomes than natives, but again this does not apply to all countries, since higher personal incomes of immigrants are particularly often observed in countries in which immigrants are on average better educated than natives.[9] The only stylized fact applying to all countries in our sample is that immigrants reside in urban areas more often than natives.

4 Results

4.1 Contributory benefits

Table 4 summarizes the results of the Oaxaca-Blinder decomposition, for both take-up rates and levels of contributory benefits. It shows the differences between immigrants and natives in take-up rates and the (log)level of benefits respectively, where a negative (positive) value indicates an under-representation (over-representation) of immigrants relative to natives. The first three columns report results for the participation equation: Column 1 shows total differences in benefit take-up, which differ from the number reported in Table 1 only due to the nonlinearity of the probit regressions (see Fairlie, 2005). This is decomposed into the difference in characteristics and difference in parameters effects in columns 2 and 3, respectively. These two columns show the percentage point contribution of the respective effect to the total differences found. Columns 4 to 7 report the results for the level equation. The average difference in log levels of benefits conditional on benefit receipt is presented in column 4. Column 5 reports the part of this difference that remains after controlling for different selection probabilities of immigrants and natives. This term is then further decomposed into the difference in characteristics and difference in parameters effect in columns 6 and 7.

[Table 4: Around here]

[9] The only countries for which higher income among immigrants cannot be explained by a low share of less qualified immigrants are the Baltic countries, where the age of immigrants may be driving results, and Austria.

The results reported in this table provide only very little evidence of higher benefit take-up rates on the one hand, and (log)benefit levels on the other, among immigrants relative to natives, after controlling for observable characteristics. In 6 of the 16 countries analyzed (the Czech Republic, Germany, Estonia, France, Lithuania, and Latvia) participation in contributory welfare benefits is significantly higher among immigrants than among natives before controlling for observable characteristics. In all of these countries but Germany this higher participation can be explained by differences in observable characteristics between natives and foreign born. The difference in parameters effect is insignificant or even significantly negative for participation in contributory benefits by immigrants in all of the remaining countries. Also, in the 9 countries in which participation in contributory welfare benefits is significantly lower among immigrants than among natives, the difference in parameters effect indicates an insignificant difference in welfare participation between immigrants and natives, or a significantly lower participation of immigrants, after controlling for differences in characteristics. In sum, in all countries but Germany the probability of immigrant's participating in contributory benefits is either significantly lower or comparable to native's after controlling for differences in observable characteristics between the two groups.[10]

Results for the difference in characteristics effect indicate much more heterogeneity than the findings for the difference in parameter effect. This reflects the heterogeneity of immigrants with respect to education, income, and household, as well as personal, characteristics in different countries shown in Table 3. The difference in characteristics effect also provides the largest contribution to the difference in the participation rate in contributory benefits and is significant in all countries but Belgium. In 8 of the 16 countries included in our analysis (Austria, Cyprus, Spain, Greece, Ireland, Luxembourg, Portugal

[10]Our country level results are consistent with the findings of previous studies by Barrett and McCarthy (2007), Boeri and Monti (2007), Boeri (2010), Barrett and Maître (2013), and Muñoz de Bustillo and Antón (2009). The exceptions are Barrett and Maître (2013) who find positive residual dependence in Sweden, when excluding old-age benefits in the analysis, and Boeri and Monti (2007) who find positive residual dependence in Estonia for 2004-2006.

and the UK) immigrants have characteristics that should make them less dependent on welfare transfers than natives. These are also the countries in which immigrants unconditionally participate significantly less often in contributory benefits. In the remaining countries but Belgium migrant's characteristics suggest higher participation in contributory benefits. With the exception of Sweden, these are also the countries in which immigrants unconditionally participate significantly more often in contributory benefit receipt.

The results for the levels equation, corroborate these findings and point to a relatively low importance of the difference in parameters effect and a heterogeneous but more often significant difference in characteristics effect. In the level equation the difference in parameters effect is significantly negative in 6 countries and significantly positive only in Ireland. The difference in characteristics effect, by contrast, is significantly positive in 6 countries and significantly negative in another 5. In addition, as shown in column 4 of Table 4, the results point to a sizable influence of the selection effect on differences in contributory benefit levels. After controlling for selection, significant differences between immigrants and natives in average (log)contributory benefit levels remain only in half of the countries analyzed, with the results indicating significantly lower contributory benefits for foreign born after controlling for selectivity in Austria, Belgium, Estonia, Luxembourg, Sweden, and the UK, and significantly higher ones in Germany and Ireland.

4.2 Non-contributory benefits

Results for non-contributory benefits point in a similar direction. As for contributory benefits there is substantial heterogeneity between countries in relative take-up rates and benefit levels (see column 1 and 4 of Table 5). As for contributory benefits, a large part of the difference in take-up rates and its variance across countries can be explained by differences in observable characteristics as reflected in the difference of characteristics effect. By contrast, the difference in parameters effect of the participation equation is

either insignificant or significantly negative in all countries but Greece.[11]

Results for the difference in benefit levels—also in accordance with the results for contributory benefits—suggest that selection into benefit receipt accounts for a large part of the conditional difference in benefit levels in most countries in which differences in conditional benefit levels are statistically significant. After taking selection-differences between native and migrant households into account, a significantly positive difference in benefit levels remains only in France and Ireland. Also for non-contributory benefits the differences in characteristics between native and immigrant households are more important in explaining differences in benefit levels than differences in parameters. These characteristics, if statistically significant, suggest a higher level of benefits for migrant households in all countries except for the Baltic countries and Greece. Positive difference in parameter effects are found for France and Ireland, while in Cyprus and Luxembourg these are significantly negative.

[Table 5: Around here]

4.3 The influence of characteristics

One advantage of Oaxaca-Blinder decompositions is that they allow for a detailed analysis of how much of the differences in characteristics and parameters effects can be attributed to individual groups of variables such as the personal characteristics, education, income status, and household characteristics, as well as network variables included in the regressions. Looking at the results of these detailed decompositions, the individual groups of variables mostly remain insignificant contributors to the difference in parameters effect for both the participation and levels equation in the receipt of contributory (Table 6) and non-contributory benefits (Table 7). This reflects the relatively low importance of this component.

[11]The country level results are once more consistent with previous research. The exceptions are Boeri and Monti (2007)'s results for Germany and Luxembourg and Greece. Results for Germany and Luxembourg are, however, in line with Barrett and Maître (2013) who focus on family related allowances, and for Greece results accord with Boeri (2010), who excludes family allowances from the analysis.

[Table 6: Around here]

The terms of the differences in characteristics effect are more often statistically significant. For contributory benefits they suggest that differences in personal characteristics contribute the most to the explained difference for take-up rates in all countries but Sweden. For benefit levels, personal characteristics and income are the most important contributors in the majority of countries. Household characteristics account for the largest part of the difference in characteristics effect in Latvia and Sweden, while for Cyprus education differences are most important.

The signs of these effects and their heterogeneity across countries can be easily explained for most countries. The effect of personal characteristics on take-up rates of contributory benefits is statistically significant in all countries but Sweden. In the majority of countries (Austria, Belgium, Cyprus, Greece, Ireland, Luxembourg, Portugal, Spain, and the UK) immigrant's personal characteristics make them significantly less often eligible for contributory benefits, while in the rest of countries the opposite applies. Comparing these results to the descriptive statistics in Table 3 indicates that in all countries of the first group immigrants are on average younger than natives, while immigrants are consistently older in the second group. This is due to the important contribution of old-age benefits to total contributory benefits. In Sweden, which is the only country where personal characteristics do not contribute the largest part to the difference characteristics effect in benefit take-up, household characteristics of immigrants are the largest contributor. Immigrants in Sweden have larger households and more children than in many other countries. This explains their higher eligibility for non-contributory benefits.

In countries in which immigrants receive significantly higher benefit levels due to their income (Czech Republic, Germany, the Baltic countries, France, and Sweden) this is explained by their relatively lower income compared to natives.[12] The opposite applies

[12]This can be explained by the substitution of income by receipt of all types of contributory benefits.

to most countries in which income differences between immigrants and natives contribute significantly to higher eligibility of immigrants (Austria, Belgium, Cyprus, Spain, Greece, Ireland, Luxembourg, and Portugal). Differences in educational attainment between immigrants and natives mostly work to increase the relative benefit levels. Differences in education contribute significantly and positively to the difference in characteristics effect in 10 countries and are the largest contributor in Cyprus, while this effect works in the opposite direction only for France.

[Table 7: Around here]

For non-contributory benefits household characteristics contribute most to the difference in characteristics effect for take-up rates in the majority of countries (Table 7). Whenever household characteristics of migrant households lead to higher take-up rates (as in Austria, Belgium, Cyprus, France, Greece, Ireland, Luxembourg, Portugal, Spain, Sweden, and the UK), the total difference in characteristics effect is positive. Whenever household characteristics of migrant households lead to lower take-up rates the opposite applies. In all countries with a positive difference in characteristics effect immigrant households are larger (with the exception of Cyprus) and have more children living in their household than native households. In countries characterized by a negative difference in characteristics effect, immigrant households have fewer children and are usually smaller than native households. This finding is due to the large part of non-contributory benefits connected to child birth or dependent children. In Germany and the Czech Republic personal characteristics contribute the most to lower benefit take-up rates of migrant households. This can be explained by the lower probability of dependent children living in households with an older household head. This may also explain why the differences in welfare dependence between immigrants and natives often have opposing signs for contributory and non-contributory benefits. Older immigrants lead to a higher probability of obtaining old-age benefits (contributory benefits) but also to a lower probability of receiving child and family related allowances (lower non-contributory

benefits).

Household characteristics are also the biggest contributor to the difference in characteristics effect for levels of non-contributory benefits in most countries. Here too, fewer children in migrant households on average reduce the level of benefits, while more children increase it. In the Czech Republic, Germany, and Greece personal characteristics drive the lower benefit levels of migrant households, while in Sweden higher benefit levels of migrant households can be explained by differences in educational attainment.

5 Robustness

The results presented above refer to a comparison of aggregate contributory or non-contributory benefits between the overall immigrant population and natives. This may be a caveat to the analysis, because in many EU countries the public debate on the potentially high costs of immigrants to the welfare state focuses on certain migrant groups (e.g. those from extra-EU countries or recent immigrants) or on certain benefit types (e.g. unemployment benefits or family related allowances). As a consequence, we are interested in how robust the above results are to changes in comparison groups and or the inclusion or exclusion of certain benefit types. First, following Barrett and McCarthy (2007); Barrett and Maître (2013); Blume and Verner (2007) and Hansen and Lofstrom (2003, 2009) we conduct the same analysis as above excluding old-age benefits as the most important component of contributory benefits, and family and children related allowances as the most important component of non-contributory benefits. In this way we assess to what degree the results reported above are due to the specifics of individual important benefit types. Second, we follow Boeri (2010); Brücker *et al.* (2002); and Muñoz de Bustillo and Antón (2009) by focusing only on extra-EU immigrants and thus excluding EU immigrants from the analysis. This allows to analyze to what

degree differences between EU and extra-EU immigrants drive our results.[13] Third, we follow Fertig and Schmidt (2001), who argue that differences in the level of integration of immigrants can be proxied by combining information on citizenship and country of birth in order to distinguish between immigrants with a longer and a shorter duration of stay. We therefore compare persons who are born in and are citizens of the country of residence to persons who are born in another (EU or extra-EU) country and hold a foreign citizenship. Excluding the foreign born with a citizenship of the country of residence (i.e. naturalized immigrants) allows focusing mainly on more recent immigrants since citizenship is only grated to immigrants after some minimal time of residence in the host country.[14]

The results of these robustness checks are reported in Tables B.2 to B.4 in the appendix. Most of them accord with the conclusions of the above analysis. Throughout, differences in selection into benefit receipt between immigrants and natives account for an important part of differences in benefit levels in the majority of countries. Differences in characteristics between natives and immigrants are the most important factor for explaining differences in take-up rates as well as differences in benefit levels. Finally, after controlling for observable characteristics, immigrants as a rule participate about as often as or less often than natives in both contributory and non-contributory benefits. Given participation they also receive lower or comparable benefit levels. Exceptions to this last result are found in the case in which we exclude family benefits from the non-contributory aggregate. In this setup significantly positive difference in parameters effects are found in 4 countries for benefit take-up rates (Czech, Republic, France, Lithuania, and Sweden) and in 2 countries (France and Ireland) for benefit levels.[15]

Despite this large accordance of overall results, on the country level the changes

[13] Since EU-SILC data does not distinguish between EU and extra-EU immigrants in Estonia, Germany, and Latvia we had to exclude these countries from this robustness check.

[14] In this analysis Lithuania (for contributory and non-contributory) and Portugal (for non-contributory benefits) had to be dropped on account of a small number of recent immigrants.

[15] This is partly due to the higher weight of benefits for socially excluded households in this set-up, which inter alia target refugees and migrants.

in definitions and comparison groups do lead to some differences in results. These are smallest for the case in which we compare natives to extra-EU immigrants only (Table B.2). In this case only some effects change their significance level, but none of the previously significantly positive (negative) values turn significantly negative (positive). When excluding old-age benefits from the aggregate contributory benefits (Table B.3) some changes of significantly positive to significantly negative values or vice versa do occur. In contrast to previous results both unconditional benefit levels and benefit take-up rates are significantly higher for immigrants in Sweden. For Austria the same applies to take-up rates and for Luxembourg to conditional benefit levels. Furthermore, in Germany immigrants have lower take-up rates and obtain lower benefit levels. Also the difference in characteristics effect for take-up rates changes sign in many countries. In particular, observable characteristics of immigrants suggest lower benefit levels among immigrants than among natives in Germany and the Baltic countries and also in contrast to previous results the difference in parameters effect is significantly positive for benefit take-up rates in France and negative for take-up rates and benefit levels in Germany.[16] Excluding family and child related allowances from non-contributory benefits only leads to a change in signs of significant coefficients in the selection equation for the Czech Republic and Greece, as well as for Lithuania and Luxembourg (where the difference in parameter effect changes signs relative to our baseline specification). We find a significantly positive difference in parameters effect in more countries than before (five relative to one previously).[17] Finally, comparing natives to recent immigrants (Table B.4) we

[16] Our results for contributory benefit levels (excluding old-age benefits) indicate a significantly positive difference in parameters effect for Ireland. This contradicts the findings of Barrett and McCarthy (2007) of negative residual dependence for benefit levels. In contrast to the study of Barrett and McCarthy (2007) we account for differences in selection of natives and immigrants into benefit receipt. Pooled regressions that consider immigrants and natives together would mistakenly allocate the effect of differences in selection to the residual welfare dependence component. This provides a potential explanation for the difference between our results and those of Barrett and McCarthy (2007).

[17] In a further robustness check we also exclude unemployment benefits from the contributory aggregate in order to account for the possibility that the global economic crisis of 2008 impacted differently on unemployment rates of natives and immigrants. Once more this does not change the general patterns found above, but the significance level of some effects are altered in individual countries. These results

find a change in the difference in both take-up rates as well as benefit levels between natives and foreign born for contributory benefits in the Czech Republic and Germany. For both countries now these differences turn significantly negative, as do the difference in characteristics effects. By contrast, the difference in take-up rates between natives and immigrants turns negative for France. For non-contributory benefits such changes in sign of significant effects apply to take-up rates in Germany and the difference in characteristics effect in take-up rates for Germany and the Czech Republic.

6 Summary and Discussion

This paper provides a detailed comparative study on differences in access to contributory and non-contributory welfare benefits of immigrants and natives for 16 EU countries. In contrast to previous studies we analyze differences in benefit levels for a large number of countries and improve on methodology by allowing for potentially different benefit take-up rates between immigrants and natives. This allows us to account for censoring bias that arises when focusing on benefit levels received and results in unbiased estimates even if the selection into benefit receipt differs between natives and immigrants. Furthermore, we use Oaxaca-Blinder decompositions to decompose the differences between immigrants and natives into a part that can be explained by differences in observable characteristics and an unexplained part that is due to differences in parameters, for both, the equation accounting for selection into benefits, and the equation determining benefit levels. We show that these methodological innovations allow a substantially more detailed analysis of differences in welfare dependence between natives and foreign born than has been previously available.

We find substantial heterogeneity in welfare dependence of immigrants between countries when not controlling for observed characteristics of immigrants and natives. In this

are available from the authors upon request.

case immigrants have a significantly higher (lower) welfare dependence in nine (seven) countries for contributory benefits and in ten (six) countries for non-contributory benefits. Controlling for differences between natives and immigrants shows that this heterogeneity is primarily due to differences in characteristics between the two groups. The largest contribution to this difference in characteristics effect stems from differences in personal characteristics (i.e. age, gender, and marital status) and income for contributory benefits and household characteristics (i.e. population density, house ownership, and household size and composition) for non-contributory benefits. Once these differences in characteristics are controlled for, immigrants as a rule participate about as often as or less often than natives in both contributory and non-contributory benefits. Given participation they also receive lower or comparable benefit levels. This suggests that in countries with a high welfare dependence among immigrants, policies aiming to change the structure of migration (by for instance actively attracting more able immigrants) and to avoid job-market discrimination of immigrants are likely to be the most effective means to reduce immigrant's relative welfare dependence.

The differences in contributory and non-contributory benefit levels are also strongly influenced by selection differences between immigrants and natives. After appropriately accounting for selection, differences in benefit levels between the two groups strongly decrease. The remaining difference can be explained by observable characteristics in many cases. Furthermore, when significant, the difference in parameters effect is negative in most countries with the only exceptions being Ireland for both benefit types and France for non-contributory benefits.

With respect to the selection process, after controlling for observable characteristics immigrants have a significantly lower probability to participate in both types of welfare benefits than natives in most countries analyzed. A significantly higher participation of immigrants in such benefits, after controlling for observable characteristics, can only be found in Germany (for contributory benefits) and Greece (for non-contributory benefits).

Immigrants are more often underrepresented in benefit receipt than overrepresented after controlling for observable characteristics, potentially on account of language problems and/or lacking familiarity with host country specific regulations.

These general results are robust to a number of changes in the definition of benefits and to different choices of comparison groups. On the individual country level, however, results do to some extent depend on the exact definition of the types of benefits and comparison groups considered. This suggests that future research should concentrate on detailed country level analysis for different groups of immigrants and benefit types, to filter out in more detail the country specific reasons for differences in the access to welfare benefits between natives and immigrants.

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Table 1: Differences in take-up rates and levels of contributory benefits

	Contributory benefits				**By type (ratios)**				
	Natives	Immigrants	Difference	Ratio	unemployed	old-age	survivor	sickness	disability
				Take-up rates					
AT	0.383	0.350	-0.033	0.91	2.31	0.67	0.46	1.21	0.66
BE	0.347	0.283	-0.063	0.82	1.09	0.59	0.67	1.07	1.23
CY	0.292	0.155	-0.136	0.53	0.91	0.47	0.13	2.06	0.34
CZ	0.461	0.614	0.153	1.33	0.90	1.57	1.65	0.79	1.35
DE	0.374	0.610	0.237	1.63	0.83	2.05	0.44	0.85	0.39
EE	0.423	0.666	0.243	1.58	1.24	2.18	0.40	1.01	0.94
ES	0.299	0.177	-0.122	0.59	1.42	0.30	0.22	0.66	0.40
FR	0.413	0.451	0.038	1.09	1.38	1.03	1.68	0.73	1.66
GR	0.335	0.144	-0.190	0.43	2.25	0.30	0.27	1.96	0.17
IE (a)	0.468	0.324	-0.144	0.69	1.43	0.36	0.54	0.00	0.68
LT	0.536	0.690	0.154	1.29	1.49	1.57	0.52	1.00	1.01
LU	0.341	0.193	-0.148	0.57	2.81	0.34	0.36	4.62	1.04
LV	0.438	0.665	0.226	1.52	0.62	2.00	0.48	1.02	1.22
PT	0.320	0.151	-0.169	0.47	1.17	0.29	0.48	1.05	0.71
SE	0.508	0.509	0.001	1.00	1.44	0.84	1.08	1.04	1.70
UK	0.462	0.310	-0.152	0.67	1.32	0.64	1.45	0.67	0.66
				Log(levels)					
AT	3.593	3.112	-0.481	0.87	2.31	0.66	0.48	1.20	0.65
BE	3.148	2.551	-0.597	0.81	1.10	0.58	0.65	1.08	1.26
CY	2.597	1.321	-1.276	0.51	0.94	0.45	0.13	2.02	0.34
CZ	3.667	5.036	1.369	1.37	0.87	1.56	1.65	0.82	1.34
DE	3.398	5.675	2.277	1.67	0.82	2.06	0.44	0.82	0.38
EE	3.047	5.040	1.993	1.65	1.39	2.17	0.40	1.01	0.93
ES	2.645	1.476	-1.169	0.56	1.42	0.29	0.22	0.65	0.39
FR	3.736	4.069	0.333	1.09	1.42	1.02	1.73	0.75	1.62
GR	3.009	1.207	-1.802	0.40	2.21	0.30	0.27	1.78	0.16
IE (a)	4.300	2.846	-1.455	0.66	1.44	0.35	0.50	0.00	0.63
LT	3.895	5.176	1.281	1.33	1.43	1.56	0.45	1.02	1.02
LU	3.395	1.822	-1.572	0.54	2.66	0.32	0.36	4.62	1.01
LV	3.153	4.996	1.843	1.58	0.63	1.99	0.51	1.02	1.23
PT	2.761	1.277	-1.485	0.46	1.11	0.29	0.49	1.16	0.72
SE	4.365	4.362	-0.003	1.00	1.43	0.83	0.95	1.06	1.70
UK	4.098	2.684	-1.414	0.65	1.33	0.62	1.49	0.67	0.66
				Log(levels) conditional on take-up					
AT	9.377	8.900	-0.477	0.95	1.00	0.99	1.04	0.99	0.98
BE	9.084	9.012	-0.072	0.99	1.01	0.99	0.96	1.01	1.02
CY	8.902	8.495	-0.407	0.95	1.02	0.97	1.06	0.98	0.99
CZ	7.957	8.198	0.241	1.03	0.97	1.00	1.00	1.03	0.99
DE	9.090	9.297	0.207	1.02	0.99	1.01	0.99	0.96	0.97
EE	7.211	7.571	0.359	1.05	1.12	1.00	0.98	1.00	0.99
ES	8.845	8.318	-0.527	0.94	1.00	0.98	1.01	0.99	0.97
FR	9.052	9.026	-0.026	1.00	1.03	0.98	1.03	1.03	0.98
GR	8.994	8.354	-0.640	0.93	0.98	0.98	0.98	0.91	0.96
IE (a)	9.182	8.775	-0.407	0.96	1.01	0.98	0.94		0.93
LT	7.267	7.501	0.235	1.03	0.96	1.00	0.86	1.02	1.01
LU	9.969	9.444	-0.525	0.95	0.94	0.97	0.99	1.00	0.97
LV	7.192	7.516	0.324	1.05	1.02	0.99	1.05	1.01	1.01
PT	8.617	8.430	-0.187	0.98	0.95	1.02	1.01	1.10	1.01
SE	8.584	8.563	-0.022	1.00	0.99	0.98	0.88	1.02	1.00
UK	8.868	8.659	-0.209	0.98	1.01	0.98	1.03	1.00	0.99

Source: EU-SILC, 2009. Individual level. (a) Only natives obtain sickness benefits in the sample. Panel labeled log(benefits) reports log benefit levels per person in that group, Panel labeled log(benefits) conditional on take-up reports log benefit levels per person receiving benefits in that group.

Table 2: Differences in take-up rates and levels of non-contributory benefits

	Non-contributory benefits				**By type (ratios)**		
	Natives	Immigrants	Difference	Ratio	family/children	social exclusion	housing
				Take-up rates			
AT	0.367	0.465	0.098	1.27	1.29	1.20	2.01
BE	0.357	0.485	0.128	1.36	1.29	10.54	1.63
CY	0.532	0.507	-0.025	0.95	0.94	1.83	2.09
CZ	0.168	0.166	-0.002	0.99	0.88	3.19	1.94
DE	0.350	0.260	-0.090	0.74	0.74	1.02	0.79
EE	0.437	0.316	-0.122	0.72	0.70	0.60	1.39
ES	0.053	0.078	0.024	1.46	1.34	1.82	1.53
FR	0.421	0.514	0.093	1.22	1.24	1.33	1.52
GR	0.202	0.272	0.070	1.35	1.59	0.71	4.00
IE	0.687	0.687	0.000	1.00	1.69	1.39	0.58
LT	0.285	0.220	-0.064	0.77	0.65	1.13	1.10
LU	0.365	0.593	0.228	1.62	1.72	2.36	1.30
LV	0.406	0.300	-0.106	0.74	0.64	0.78	1.41
PT	0.306	0.396	0.089	1.29	1.39	0.56	1.34
SE	0.352	0.489	0.137	1.39	1.38	6.69	2.08
UK	0.385	0.454	0.069	1.18	1.33	1.08	1.01
				Log(levels)			
AT	2.971	3.893	0.921	1.31	1.32	1.36	2.10
BE	2.818	3.890	1.072	1.38	1.30	10.88	1.64
CY	3.735	3.550	-0.185	0.95	0.93	1.87	2.03
CZ	1.195	1.184	-0.011	0.99	0.88	3.46	2.05
DE	2.805	2.092	-0.713	0.75	0.74	1.03	0.83
EE	2.801	1.941	-0.860	0.69	0.68	0.59	1.31
ES	0.392	0.576	0.184	1.47	1.34	1.89	1.60
FR	3.270	4.114	0.844	1.26	1.26	1.34	1.57
GR	1.485	1.959	0.475	1.32	1.56	0.67	4.04
IE	5.411	5.775	0.364	1.07	1.69	1.54	0.60
LT	1.663	1.264	-0.398	0.76	0.64	1.19	1.11
LU	3.210	5.333	2.123	1.66	1.74	2.25	1.35
LV	2.389	1.658	-0.731	0.69	0.61	0.75	1.43
PT	1.942	2.530	0.588	1.30	1.40	0.63	1.40
SE	2.766	3.922	1.156	1.42	1.36	7.58	2.19
UK	3.096	3.666	0.570	1.18	1.32	1.13	1.03
				Log(levels) conditional on take-up			
AT	8.104	8.375	0.271	1.03	1.02	1.13	1.04
BE	7.890	8.018	0.128	1.02	1.01	1.03	1.01
CY	7.019	7.006	-0.013	1.00	0.99	1.02	0.97
CZ	7.125	7.126	0.001	1.00	1.00	1.08	1.05
DE	8.012	8.058	0.046	1.01	1.00	1.01	1.05
EE	6.403	6.143	-0.259	0.96	0.97	0.98	0.94
ES	7.350	7.408	0.058	1.01	1.00	1.04	1.04
FR	7.773	8.001	0.228	1.03	1.02	1.01	1.03
GR	7.364	7.215	-0.149	0.98	0.98	0.94	1.01
IE	7.877	8.407	0.530	1.07	1.00	1.11	1.04
LT	5.838	5.736	-0.102	0.98	0.99	1.05	1.01
LU	8.786	8.988	0.202	1.02	1.01	0.95	1.04
LV	5.881	5.522	-0.359	0.94	0.95	0.96	1.01
PT	6.339	6.394	0.055	1.01	1.01	1.12	1.05
SE	7.857	8.025	0.168	1.02	0.99	1.13	1.05
UK	8.048	8.078	0.030	1.00	1.00	1.04	1.02

Source: EU-SILC, 2009. Household level. Panel labeled log(benefits) reports log benefit levels per household in that group, Panel labeled log(benefits) conditional on take-up reports log benefit levels per household receiving benefits in that group.

Table 3: Descriptives of explanatory variables

country	all	AT	BE	CY	CZ	DE	EE	ES	FR	GR	IE	LT	LU	LV	PT	SE	UK
								person level									
age	1.00	0.93	0.95	0.88	1.18	1.17	1.34	0.83	1.10	0.81	0.80	1.22	0.88	1.32	0.83	0.99	0.90
age^2	0.98	0.86	0.89	0.75	1.32	1.34	1.61	0.68	1.15	0.66	0.64	1.36	0.74	1.57	0.68	0.96	0.82
male (d)	0.95	0.95	0.95	0.72	0.93	1.00	0.86	0.94	1.01	0.92	0.99	0.95	0.99	0.87	0.96	1.01	1.01
single (d)	0.83	0.76	0.83	0.96	0.95	0.69	0.67	0.99	0.67	0.88	0.89	0.84	0.76	0.82	1.28	0.93	0.84
less educ (d)	1.00	1.35	1.14	0.62	1.94	1.35	0.83	0.80	1.50	0.84	0.44	0.83	1.11	0.93	0.70	1.22	0.90
secondary (d)	0.85	0.86	0.96	0.99	0.75	0.83	0.93	1.59	0.67	1.31	1.08	0.77	0.59	0.99	1.89	0.92	0.54
tertiary (d)	1.23	0.97	0.90	1.72	1.11	1.09	1.35	0.97	0.91	0.95	1.79	1.26	1.56	1.10	1.97	0.97	1.75
log(gross income)	1.08	1.04	0.92	1.21	0.77	0.58	0.88	1.25	0.92	1.53	1.42	0.90	1.41	0.79	1.38	0.89	1.09
(log(gross income))^2	1.09	1.02	0.91	1.15	0.77	0.57	0.87	1.21	0.91	1.47	1.41	0.91	1.38	0.79	1.39	0.88	1.09
houseowner (d)	0.73	0.42	0.69	0.72	0.78	0.89	1.03	0.52	0.78	0.51	0.58	0.99	0.59	1.01	0.88	0.77	0.74
urban area (d)	1.42	2.16	1.45	1.13	1.23	1.14	2.52	1.11	1.60	1.37	1.19	1.49	1.51	1.68	1.43	1.58	1.20
children (d)	1.31	1.55	1.38	1.20	0.73	0.77	0.57	1.79	1.13	1.82	1.68	0.55	1.83	0.51	1.56	1.34	1.43
3 person hh (d)	0.98	0.87	0.95	1.32	0.82	0.78	1.00	0.90	0.94	1.16	1.18	0.96	0.99	0.93	1.26	1.08	1.17
>3 person hh (d)	1.07	1.26	1.18	0.86	0.56	0.68	0.61	1.23	1.23	1.29	1.37	0.69	1.36	0.51	1.13	1.30	1.50
social contacts (d)	0.94	0.90	0.86	0.95	0.93	0.88	1.00	0.92	0.93	1.04	0.98	0.83	0.88	0.82	1.09	0.97	0.98
leisure activities (d)	0.87	0.73	0.76	1.01	0.72	0.86	0.71	0.88	0.74	0.86	1.01	0.58	0.84	0.53	1.11	0.81	0.90
								household level									
age	0.94	0.92	0.90	0.84	1.07	1.13	1.08	0.85	1.00	0.82	0.79	1.01	0.82	1.09	0.84	0.94	0.88
age^2	0.89	0.85	0.80	0.70	1.12	1.27	1.16	0.71	0.99	0.66	0.63	1.02	0.66	1.16	0.70	0.89	0.79
single (d)	0.82	0.76	0.82	0.83	0.94	0.63	0.85	0.89	0.73	0.74	0.71	0.95	0.77	0.90	1.04	0.90	0.74
less educ (d)	0.93	1.29	1.02	0.54	2.02	1.41	1.07	0.80	1.27	0.80	0.43	0.71	1.10	0.99	0.71	1.23	0.73
secondary (d)	0.90	0.89	0.99	1.02	0.84	0.85	0.90	1.50	0.79	1.27	1.09	1.04	0.64	1.00	2.19	0.89	0.66
tertiary (d)	1.20	1.03	0.99	1.80	0.95	1.08	1.14	1.03	1.03	1.05	1.81	1.14	1.46	1.01	1.70	1.00	1.62
log(gross income)	1.00	0.98	0.98	1.00	0.99	0.99	0.99	0.97	0.99	0.98	1.01	1.00	0.98	1.00	1.02	0.98	1.00
(log(gross income))^2	1.01	0.96	0.97	0.99	0.98	0.98	0.98	0.95	0.98	0.96	1.03	1.01	0.97	0.99	1.03	0.97	1.01
houseowner (d)	0.82	0.55	0.75	0.83	0.84	1.02	1.07	0.61	0.88	0.60	0.72	0.99	0.62	1.04	0.94	0.84	0.85
urban area (d)	1.35	1.84	1.36	1.10	1.14	1.05	2.66	1.12	1.49	1.31	1.16	1.47	1.37	1.70	1.35	1.62	1.17
children (d)	1.34	1.59	1.46	1.38	0.82	0.77	0.67	1.72	1.20	1.91	1.94	0.67	2.06	0.61	1.71	1.38	1.49
3 person hh (d)	1.16	1.09	1.17	1.59	0.93	0.96	1.08	1.01	1.18	1.36	1.52	1.14	1.38	1.05	1.44	1.28	1.32
>3 person hh (d)	1.32	1.51	1.56	1.10	0.82	0.75	0.86	1.41	1.49	1.55	1.87	1.05	1.85	0.79	1.49	1.46	1.76
social contacts (d)	0.97	0.94	0.92	0.97	0.97	0.91	1.06	0.96	0.96	1.08	1.03	0.95	0.91	0.90	1.11	0.97	1.01
leisure activities (d)	0.94	0.78	0.84	1.15	0.79	0.91	0.85	0.93	0.86	0.96	1.06	0.91	0.88	0.72	1.17	0.86	1.01

Source: EU-SILC, 2009. Table reports the averages of the respective variables of immigrants relative to natives. Values larger than 1 indicate higher averages for immigrants than natives, values smaller than 1 lower averages for immigrants than natives.
(d) Variable is a dummy variable.

Table 4: Oaxaca-Blinder decomposition results for contributory benefits

	Take-up rates						**Log(Levels)**					
Country	Difference		Characteristics		Parameters		Conditional		Adjusted		Chracteristics		Parameters	
AT	-0.034	***	-0.044	***	0.009		-0.477	***	-0.459	**	-0.303	***	-0.156	
BE	-0.065	***	0.014		-0.079	***	-0.072		-1.280	***	-0.055	*	-1.225	***
CY	-0.139	***	-0.108	***	-0.031	***	-0.407	***	0.172		0.183	***	-0.012	
CZ	0.150	***	0.163	***	-0.013		0.241	***	0.002		0.092	***	-0.090	*
DE	0.234	***	0.221	***	0.014	**	0.207	***	0.161	**	0.202	***	-0.040	
EE	0.243	***	0.243	***	0.000		0.359	***	-0.214	**	-0.049		-0.165	**
ES	-0.124	***	-0.084	***	-0.040	***	-0.527	***	0.762		-0.372	***	1.134	
FR	0.039	***	0.056	***	-0.017	*	-0.026		-0.061		0.088	***	-0.149	
GR	-0.191	***	-0.171	***	-0.020	**	-0.640	***	-0.533		-0.320	***	-0.212	
IE (a)	-0.146	***	-0.113	***	-0.033	**	-0.407	***	1.052	*	0.001		1.051	*
LT	0.154	***	0.160	***	-0.006		0.235	***	0.096		0.123	***	-0.027	
LU	-0.148	***	-0.148	***	0.000		-0.525	***	-1.563	***	-0.510	***	-1.053	***
LV	0.224	***	0.240	***	-0.017	*	0.324	***	0.052		0.113	***	-0.061	
PT	-0.171	***	-0.159	***	-0.012		-0.187		-0.271		-0.140		-0.131	
SE	0.001		0.045	***	-0.043	**	-0.022		-0.639	*	-0.031		-0.608	*
UK	-0.152	***	-0.111	***	-0.041	***	-0.209	***	-0.238	**	-0.015		-0.223	**

Source: EU-SILC, 2009. Table reports results of Oaxaca-Blinder decompositions for aggregate contributory benefits (the sum of unemployment, old-age, survivors pensions, sickness, and disability benefits) based on regressions on individual level data. Results of the underlying regressions are available from the authors. Values are differences between natives and immigrants. Natives serve as the base category in the decompositions. Negative (positive) values indicate that immigrants are under- (over-)represented among recipients of benefits, or conditional on participating obtain lower (higher) benefit levels. ***, (**), [*] signify significance of the effects at the 1%, (5%) [10%] level, respectively. (a) Only natives obtain sickness benefits in the sample.

Table 5: Oaxaca-Blinder decomposition results for non-contributory benefits

	Take-up rates						**Log(Levels)**					
Country	Difference		Characteristics		Parameters		Conditional		Adjusted		Characteristics		Parameters	
AT	0.096	***	0.143	***	-0.046	***	0.271	***	0.194		0.237	***	-0.044	
BE	0.127	***	0.145	***	-0.019	*	0.128	***	0.157		0.171	***	-0.014	
CY	-0.023		0.054	***	-0.078	***	-0.013		-0.185		0.246	***	-0.431	*
CZ	-0.006		-0.013	**	0.006		0.001		-0.041		-0.075		0.033	
DE	-0.091	***	-0.074	***	-0.017	***	0.046		0.004		0.022		-0.018	
EE	-0.121	***	-0.057	***	-0.065	***	-0.259	***	-0.095		-0.113	**	0.018	
ES	0.025	***	0.049	***	-0.025	***	0.058		3.141		0.081		3.059	
FR	0.094	***	0.089	***	0.004		0.228	***	0.435	***	0.201	***	0.234	***
GR	0.070	***	0.040	***	0.030	*	-0.149	**	-0.171		-0.128	***	-0.043	
IE	0.001		0.008		-0.007		0.530	***	0.707	***	0.591	***	0.116	*
LT	-0.065	***	-0.050	***	-0.016		-0.102		-0.997		-0.207	**	-0.790	
LU	0.226	***	0.254	***	-0.028	***	0.202	***	0.067		0.241	***	-0.174	***
LV	-0.106	***	-0.076	***	-0.030	**	-0.359	***	-0.393		-0.339	***	-0.055	
PT	0.089	***	0.149	***	-0.060	***	0.055		0.430		0.112	*	0.318	
SE	0.137	***	0.120	***	0.016		0.168	***	0.179		0.087	*	0.092	
UK	0.063	***	0.122	***	-0.060	***	0.030		-0.008		0.087	**	-0.095	

Source: EU-SILC, 2009. Table reports results of Oaxaca-Blinder decompositions for aggregate contributory benefits (the sum of housing, family and children related allowances, and payments to those at risk of social exclusion) based on regressions on household level data. Results of the underlying regressions are available from the authors. Values are differences between natives and immigrants. Natives serve as the base category in the decompositions. Negative (positive) values indicate that immigrants are under- (over-)represented among recipients of benefits, or conditional on participating obtain lower (higher) benefit levels. ***, (**), [*] signify significance of the effects at the 1%, (5%) [10%] level, respectively.

Table 6: Detailed Oaxaca-Blinder decomposition results for contributory benefits

	Take-up rates										**Log (Levels)**							
	Personal		Education		Income		Household		Network		Personal		Education		Income		Household	
	Difference in characteristics																	
AT	*-0.0880*	***	-0.0013		0.0108	**	0.0228	***	0.0121	***	*-0.1738*	***	-0.0048		-0.1256	***	0.0014	
BE	*-0.0206*	***	0.0004		0.0137	**	0.0168	***	0.0037	**	0.0074		-0.0097		*-0.0278*		-0.0253	**
CY	*-0.1586*	***	0.0082	***	0.0283	***	0.0127	***	0.0016		0.0063		*0.2453*	***	-0.0575	**	-0.0109	
CZ	*0.1404*	***	-0.0075	***	0.0136	***	0.0066	***	0.0102	***	0.0159		-0.0040		*0.0808*	***	-0.0007	
DE	*0.1350*	***	-0.0029	***	0.0740	***	0.0080	***	0.0067	***	*0.1201*	***	0.0133	***	0.0658	***	0.0024	
EE	*0.2205*	***	-0.0027	***	0.0034	***	0.0129	***	0.0089	***	*-0.1114*	***	0.0115	***	0.0748	***	-0.0238	*
ES	*-0.1346*	***	-0.0070	***	0.0322	***	0.0193	***	0.0060	***	-0.1844	***	0.0872	***	*-0.2230*	***	-0.0514	***
FR	*0.0489*	***	-0.0033	**	0.0079	***	-0.0021		0.0042	***	*0.0686*	***	-0.0266	***	0.0326	*	0.0138	
GR	*-0.1848*	***	0.0005		0.0164	***	-0.0051		0.0018	**	-0.2400	***	0.1602	***	*-0.2516*	***	0.0110	
IE (a)	*-0.1345*	***	0.0025		-0.0115	***	0.0305	***	0.0001		0.0539		0.0978	***	*-0.1216*	***	-0.0292	*
LT	*0.1594*	***	-0.0025	**	-0.0030	**	-0.0021		0.0082	***	0.0065		0.0151	***	*0.0563*	***	0.0447	***
LU	*-0.1635*	***	0.0001		-0.0194	***	0.0319	***	0.0032		*-0.3630*	***	0.0301	***	-0.1453	***	-0.0321	
LV	*0.2471*	***	0.0000		0.0000		-0.0148	***	0.0078	***	0.0121		0.0001		0.0256	***	*0.0750*	***
PT	*-0.1439*	***	0.0093	***	-0.0365	***	0.0132	***	-0.0012		*-0.2583*	***	0.2035	***	-0.1066	***	0.0216	
SE	-0.0203		-0.0041	**	0.0265	***	*0.0327*	***	0.0099	***	0.0263		0.0008		0.0466	**	*-0.1043*	*
UK	*-0.1198*	***	0.0024		-0.0090	***	0.0131	***	0.0024	***	*-0.0322*		0.0292	***	-0.0046		-0.0076	
	Difference in parameters																	
AT	-0.1675		0.0006		0.0158		-0.0087		0.0079		-0.5943		0.0172		0.0628		-0.0159	
BE	-0.2215	*	0.0010		0.0289	*	-0.0159	*	0.0055		1.9293	*	0.0535	**	-0.0254		-0.0262	
CY	-0.5894		-0.0029		0.0099		-0.0239		0.0359		-1.4368		-0.0209		-0.0630		-0.0998	
CZ	0.0868		-0.0040		-0.0012		-0.0001		0.0022		0.9026		0.0003		0.0282		0.0180	
DE	-0.0766	*	-0.0024		0.0074	**	-0.0022		0.0007		0.6562		0.0073		-0.0058		-0.1195	*
EE	0.0009		0.0000		0.0001		0.0001		0.0000		2.8439	***	0.0122	**	0.1045	***	-0.0692	
ES	-0.1872		-0.0006		0.0461	*	-0.0038		0.0189		-2.5394	**	-0.0039		-0.0533		0.0332	*
FR	0.0081		0.0025		-0.0263	***	-0.0039		0.0141	*	-0.8259		0.0193		0.0678	**	0.0235	
GR	0.5639		-0.0152		-0.0684		0.0093		0.0599		-3.6069	***	0.0234		-0.0282		0.0206	
IE (a)	0.0204		-0.0131	**	0.0039		0.0033		0.0030		-2.5956	***	0.0203		0.0608		-0.1722	***
LT	0.0293		-0.0002		-0.0009		-0.0009		0.0009		0.0319		-0.0158		0.0705	**	-0.0373	
LU	-0.0037		0.0000		0.0000		0.0001		-0.0001		0.1645		0.0539	***	-0.1240	**	0.0656	**
LV	-0.6116		0.0010		-0.1041		0.1426		0.0082		1.1145	*	0.0012		0.0786	***	-0.2279	***
PT	0.0875		-0.0250		-0.0687		-0.0211		-0.0130		-0.4621		0.1350	*	-0.0951		-0.0869	
SE	-0.0589		-0.0043		0.1037	***	0.0063		-0.0218		2.8605	**	0.0353	**	-0.4007	***	-0.1674	**
UK	-0.0377		-0.0054		0.0020		-0.0140		-0.0001		-0.3752		-0.0168		0.0193		0.1290	

Source: EU-SILC, 2009. Table presents detailed Oaxaca-Blinder decomposition results for aggregate contributory benefits (unemployment, old-age, survivors pensions, sickness, and disability benefits) based on individual level regressions (available from the authors). Values are differences between natives and immigrants due to the differences in characteristics effect and due to differences in parameters effect between natives and immigrants. Differences in intercepts are not reported. Natives serve as the base category in the decomposition analysis. Negative (positive) values indicate that immigrants should be/are under (over)-represented among recipients of benefits or obtain lower (higher) levels of benefits due to differences in characteristics or differences in parameters. Characteristics with highest influence on the difference in parameters effect in italics. ***, (**), [*] signify significance of the effects at the 1%, (5%) [10%] level, respectively. (a) Only natives obtain sickness benefits in the sample.

Table 7: Detailed Oaxaca-Blinder decomposition results for non-contributory benefits

	Take-up rates										**Log (Levels)**							
	Personal		Education		Income		Household		Network		Personal		Education		Income		Household	
	Difference in characteristics																	
AT	0.0098	***	0.0021	**	0.0195	***	*0.1083*	***	0.0028	*	0.0394	*	-0.0200	***	-0.0102		*0.2279*	***
BE	0.0319	***	-0.0004		0.0062		*0.1042*	***	0.0036	**	-0.0205	***	-0.0266	***	0.1071	***	*0.1107*	***
CY	-0.0213	**	-0.0081		-0.0037		*0.0943*	***	-0.0071	***	-0.0674	***	-0.0327	**	-0.0095		*0.3561*	***
CZ	*-0.0217*	***	0.0049		0.0171	*	-0.0187	***	0.0059	*	*-0.0569*	**	-0.0053		0.0436		-0.0561	
DE	*-0.0466*	***	0.0021	***	0.0051	***	-0.0373	***	0.0028	***	*-0.0287*	***	0.0178	***	0.0068	*	0.0265	
EE	-0.0178	***	0.0008		0.0069	***	*-0.0452*	***	-0.0012		-0.0554	***	0.0015		0.0044		*-0.0631*	
ES	0.0163	***	-0.0003		-0.0014		*0.0338*	***	0.0009	*	0.0209		-0.0047		-0.1059	***	*0.1711*	*
FR	-0.0026		0.0023	**	0.0190	***	*0.0676*	***	0.0031	***	-0.0639	***	0.0161	**	0.1136	***	*0.1351*	***
GR	-0.0364	***	-0.0071	***	0.0074		*0.0785*	***	-0.0024		*-0.0850*	*	-0.0038		-0.0186	*	-0.0222	
IE	-0.0109		-0.0009		-0.0009		*0.0211*		-0.0003		0.0510	*	-0.0346	***	-0.0402	***	*0.6152*	***
LT	-0.0013		-0.0008		-0.0064	*	*-0.0419*	***	0.0008		-0.0700	***	0.0034		0.0000		*-0.1399*	
LU	0.0277	***	0.0008		0.0259	***	*0.1918*	***	0.0079	***	-0.0126		0.0220	*	0.0700	***	*0.1621*	***
LV	-0.0043	*	0.0001		0.0054	**	*-0.0809*	***	0.0039	*	-0.0435	***	-0.0004		-0.0113		*-0.2834*	***
PT	0.0619	***	-0.0043		-0.0057	**	*0.1041*	***	-0.0065	***	0.0341	**	-0.0191		-0.0084		*0.1050*	**
SE	-0.0042	*	0.0040	**	-0.0193		*0.1264*	***	0.0134	***	0.0106		0.0068		*0.0374*	**	0.0319	
UK	-0.0047		-0.0014		-0.0166	***	*0.1455*	***	-0.0004		-0.0264	**	-0.0033		-0.0182		*0.1347*	***
	Difference in parameters																	
AT	-0.0967	*	0.0023		-0.2431		0.0093	**	0.0060		-0.0427		-0.0297	**	2.9423		0.0963	
BE	0.0126		-0.0004		-0.1994		0.0046		0.0003		-0.5392		-0.0040		3.6907		-0.1513	
CY	-0.0507		0.0053		0.6534		0.0197	***	-0.0146		1.0000		0.0394		8.4954		0.1444	
CZ	-0.0255		0.0110		-2.2458		-0.0067		0.0025		1.1375		-0.0220		-4.0891		0.0516	
DE	0.0216		0.0066	*	-0.2646		0.0109		0.0007		-0.5247		0.0438	**	7.9004	*	0.0018	
EE	-0.1568		0.0090	*	0.0673		-0.0012		-0.0040		0.3089		-0.0092		-4.0583		-0.1132	
ES	0.1866		0.0014		0.0934		0.0053		-0.0024		3.8803	**	-0.0113		1.5335		-0.5442	
FR	0.0449		0.0001		-4.9214		0.0036		0.0047		0.3344		0.0162	*	-7.3883		-0.0648	*
GR	-0.4444		-0.0006		-0.3536		-0.0023		-0.0167		0.8520		-0.0246		3.9790		0.0569	
IE	0.0257		-0.0010		-0.0974		0.0020		-0.0014		1.3481	***	0.0154		-5.0036		-0.0789	*
LT	0.1071		-0.0054		0.6042		0.0087		-0.0015		1.4402		-0.0442		-12.2374		0.0937	
LU	0.0215		0.0001		-0.2466		0.0003		0.0027		0.7330		-0.0144	*	14.9152	*	0.0879	
LV	0.0577		0.0003		0.8303		0.0213		-0.0049		1.4683	***	0.0067		0.5020		-0.0137	
PT	0.2243		0.0025		-0.5242		0.0024		0.0012		0.8570		-0.0740		8.0331		-0.3044	
SE	0.0731		0.0001		-0.7895	*	0.0025		-0.0044		0.7076	*	-0.0010		4.9476		-0.1421	
UK	0.1067	*	-0.0035		-0.2770		0.0261	***	-0.0006		-0.2183		-0.0183		0.2465		-0.1413	*

Source: EU-SILC, 2009. Table presents detailed Oaxaca-Blinder decomposition results for aggregate non-contributory benefits (unemployment, old-age, survivors pensions, sickness, and disability benefits) based on household level regressions (available from the authors). Values are differences between natives and immigrants due to the differences in characteristics effect and due to differences in parameters effect between natives and immigrants. Differences in intercepts are not reported. Natives serve as the base category in the decomposition analysis. Negative (positive) values indicate that immigrants should be/are under (over)-represented among recipients of benefits or obtain lower (higher) levels of benefits due to differences in characteristics or differences in parameters. Characteristics with highest influence on the explained difference in italics. ***, (**), [*] signify significance of the effects at the 1%, (5%) [10%] level, respectively.

Appendix

A Data preparation

Before starting our analysis we checked or data in order to remove potential bias arising from misreporting and to make sure to focus on the same number of observations throughout all of our analysis. We therefore dropped individuals reporting negative income and benefits from our data. In addition—to avoid problems with individual outliers—individual (or respectively households) in the top 0.1 percentile of the distribution of those variables were dropped. Furthermore, we also excluded individuals with missing observations in the variables used as regressors.

To identify household heads we follow Eurostat in defining the head of the household as the person with the highest personal income in the household. Whenever we could not identify the household head based on income (if two or more members in the household had the same income, that applies to about 16% of households), we made decisions based on working hours (13% of unclear cases remained), children-parents relations (12%), pension payments (2%), educational attainment (1%), and work experience.

In the regressions we use the control variables that are explained in section 3.3. While for person based regressions we use personal gross income as income variable, we make use of equivalized gross household income in household based regressions. This variable is calculated by dividing total gross income of the household by the equivalized household size.

B Supplementary tables

[Table B.1 Around here]

[Table B.2 Around here]

[Table B.3 Around here]

[Table B.4 Around here]

Table B.1: Share of individual types in contributory and non-contributory benefits

	Contributory Benefits					**Non-contributory benefits**		
	unemployment	*old-age*	*survivor*	*sickness*	*disability*	*family/children*	*social exclusion*	*housing*
				Take-up rates				
AT	16%	67%	3%	8%	6%	79%	10%	10%
BE	33%	50%	2%	5%	10%	95%	3%	2%
CY	9%	77%	3%	3%	8%	96%	1%	3%
CZ	3%	53%	17%	14%	14%	84%	7%	9%
DE	18%	69%	3%	3%	7%	85%	11%	4%
EE	4%	53%	2%	26%	16%	91%	5%	4%
ES	26%	58%	5%	4%	6%	68%	13%	19%
FR	19%	64%	1%	9%	7%	48%	12%	41%
GR	8%	73%	13%	1%	5%	65%	30%	5%
IE (a)	27%	50%	3%	0%	21%	44%	5%	51%
LT	3%	55%	3%	26%	13%	72%	13%	15%
LU	14%	58%	16%	2%	11%	77%	13%	11%
LV	10%	59%	3%	19%	9%	74%	17%	9%
PT	9%	67%	13%	3%	7%	80%	7%	13%
SE	8%	48%	1%	29%	12%	76%	5%	19%
UK	4%	81%	1%	6%	8%	55%	20%	26%
				Log(levels) unconditional and conditional on take-up				
AT	15%	74%	3%	6%	7%	90%	8%	10%
BE	32%	55%	2%	5%	10%	97%	3%	1%
CY	8%	80%	3%	3%	8%	97%	1%	4%
CZ	3%	69%	18%	13%	17%	94%	6%	9%
DE	17%	74%	3%	2%	7%	92%	12%	3%
EE	4%	62%	2%	20%	17%	95%	5%	3%
ES	24%	62%	5%	4%	6%	73%	13%	19%
FR	18%	74%	1%	8%	7%	65%	15%	51%
GR	7%	78%	14%	1%	5%	67%	33%	5%
IE (a)	26%	55%	3%	0%	20%	57%	4%	54%
LT	3%	65%	3%	21%	14%	79%	15%	12%
LU	14%	66%	14%	1%	12%	92%	14%	10%
LV	9%	70%	3%	16%	10%	83%	17%	8%
PT	9%	75%	14%	3%	8%	88%	9%	14%
SE	9%	61%	2%	27%	15%	84%	6%	19%
UK	4%	86%	1%	6%	8%	72%	26%	35%

Source: EU-SILC, 2009. Contributory benefits are measured on the individual level, non-contributory benefits on the household level. Table reports the share of individuals receiving a benefit type in total recipients of contributory or non-contributory benefits (panel labeled take-up rates) or share of a particular type of benefits in total benefits distributed (panel labeled log levels unconditional and conditional on take-up) as either contributory or non-contributory benefits. (a) Only natives obtain sickness benefits in the sample.

Table B.2: Oaxaca-Blinder decomposition results of natives vs. extra-EU immigrants

	Take-up rates						**Log(Levels)**					
Country	Difference		Characteristics		Parameters		Conditional		Adjusted		Characteristics		Parameters	
							Contributory benefits							
AT	-0.089	***	-0.108	***	0.019		-0.879	***	-1.417	***	-0.640	***	-0.776	*
BE	-0.132	***	-0.007		-0.126	***	-0.194	**	-0.200		-0.111	**	-0.089	
CY	-0.189	***	-0.138	***	-0.051	***	-0.632	***	-0.823		0.240	***	-1.063	
CZ	-0.025		0.070	**	-0.095	***	0.190		-0.249		0.085	*	-0.335	**
DE	0.234	***	0.221	***	0.014	**	0.207	***	0.161	**	0.202	***	-0.040	
EE	0.243	***	0.243	***	0.000		0.359	***	-0.214	**	-0.049		-0.165	**
ES	-0.142	***	-0.094	***	-0.047	***	-0.626	***	-2.467		-0.492	***	-1.975	
FR	0.020		0.026	***	-0.006		-0.105	*	-0.182		0.032		-0.214	
GR	-0.188	***	-0.171	***	-0.017	*	-0.683	***	-0.683	*	-0.346	***	-0.337	
IE (a)	-0.271	***	-0.166	***	-0.105	***	-0.505	***	1.258		0.142	*	1.115	
LT	0.152	***	0.162	***	-0.010		0.263	***	0.158	*	0.130	***	0.028	
LU	-0.202	***	-0.172	***	-0.030	**	-0.799	***	-0.348		-0.522	***	0.174	
LV	0.224	***	0.240	***	-0.017	*	0.324	***	0.052		0.113	***	-0.061	
PT	-0.156	***	-0.151	***	-0.004		-0.197		-0.293		-0.141		-0.152	
SE	-0.059	**	-0.006		-0.052	**	-0.413	***	-1.977	***	-0.266	***	-1.711	***
UK	-0.179	***	-0.133	***	-0.047	***	-0.242	***	-0.213		-0.099	**	-0.114	
							Non-contributory benefits							
AT	0.162	***	0.209	***	-0.048	***	0.376	***	0.348	***	0.340	***	0.008	
BE	0.195	***	0.210	***	-0.014		0.139	***	0.205	**	0.182	***	0.022	
CY	0.035	*	0.091	***	-0.056	***	0.005		-0.085		0.273	***	-0.358	*
CZ	0.023		0.015	*	0.008		0.100		1.185	*	0.022		1.163	*
DE	-0.091	***	-0.074	***	-0.017	***	0.046		0.004		0.022		-0.018	
EE	-0.121	***	-0.057	***	-0.065	***	-0.259	***	-0.095		-0.113	**	0.018	
ES	0.027	***	0.049	***	-0.022	**	0.027		2.511		0.021		2.490	
FR	0.117	***	0.112	***	0.004		0.281	***	0.478	***	0.268	***	0.210	***
GR	0.088	***	0.047	***	0.041	**	-0.152	**	-0.094		-0.130	***	0.035	
IE	0.049	***	0.023	*	0.026		0.566	***	0.631	***	0.552	***	0.079	
LT	-0.067	***	-0.047	***	-0.019		-0.123		-0.989		-0.179	*	-0.81	
LU	0.279	***	0.293	***	-0.014		0.219	***	0.059		0.205	***	-0.146	**
LV	-0.106	***	-0.076	***	-0.030	**	-0.359	***	-0.393		-0.339	***	-0.055	
PT	0.087	***	0.152	***	-0.065	***	0.017		0.419		0.110	*	0.308	
SE	0.177	***	0.163	***	0.013		0.191	***	0.205		0.122	**	0.084	
UK	0.077	***	0.128	***	-0.050	***	0.043		0.006		0.034		-0.028	

Source: EU-SILC, 2009. Table reports results of Oaxaca-Blinder decompositions for aggregate contributory and non-contributory benefits (excluding EU-migrants) based on regressions on individual (contributory benefits) or household level (non-contributory benefits) data. Results of the underlying regressions are available from the authors. Values are differences between natives and extra-EU immigrants. Natives serve as the base category in the decompositions. Negative (positive) values indicate that immigrants are under- (over-)represented among recipients of benefits, or conditional on participating obtain lower (higher) benefit levels. ***, (**), [*] signify significance of the effects at the 1%, (5%) [10%] level, respectively. (a) Only natives obtain sickness benefits in the sample.

Table B.3: Oaxaca-Blinder decomposition results without old-age and family benefits

Country	Take-up rates: Difference		Characteristics		Parameters		Log(Levels): Conditional		Adjusted		Characteristics		Parameters	
Contributory benefits without old-age allowances														
AT	0.056	***	0.043	***	0.012		-0.209	***	-0.424		-0.201	***	-0.223	
BE	0.010		0.085	***	-0.075	***	0.183	***	-1.780		0.031		-1.811	
CY	-0.017	**	0.051	***	-0.068	***	-0.462	**	2.463		-0.321	***	2.784	
CZ	0.055	***	0.069	***	-0.014		0.176	**	-0.488		0.053		-0.541	
DE	-0.039	***	-0.024	***	-0.015	**	-0.183	**	-1.525	**	-0.106	*	-1.419	**
EE	-0.003		-0.014	**	0.011		0.001		0.999		-0.043		1.042	
ES	0.005		0.049	***	-0.043	***	-0.187	***	0.517		-0.215	***	0.732	
FR	0.036	***	0.016	***	0.020	**	0.314	***	-0.879		0.231	***	-1.110	
GR	-0.020	***	-0.001		-0.019	**	-0.764	***	-0.938		-0.380	***	-0.558	
IE (a)	0.013		0.071	***	-0.057	***	-0.150	*	1.899	**	-0.194	***	2.093	**
LT	-0.004		-0.019	***	0.015		0.084		1.541		0.114	*	1.427	
LU	0.006		0.009		-0.003		0.141	*	0.792		0.098		0.695	
LV	-0.016		-0.017	***	0.001		0.063		1.263		0.023		1.241	
PT	-0.027	**	-0.018	***	-0.009		0.007		-3.129		-0.230	**	-2.900	
SE	0.060	***	0.082	***	-0.022		0.330	***	0.226		0.325	***	-0.098	
UK	-0.010		0.029	***	-0.039	***	-0.093		0.982		0.039	*	0.943	
Non-contributory benefits without family related allowances														
AT	0.047	***	0.047	***	0.000		0.674	***	2.170		0.644	***	1.525	
BE	0.041	***	0.008	**	0.033	***	1.017	***	-6.180		-0.358		-5.822	
CY	0.013	*	0.008	*	0.005		-0.106		-1.759		-0.006		-1.754	
CZ (b)	0.031	***	0.010	***	0.021	***	0.377		-3.105		0.211		-3.316	
DE	-0.002		-0.009	***	0.007		0.207		0.210		-0.061		0.271	
EE	-0.004		-0.001		-0.004		-0.320		-6.651		0.165		-6.815	
ES	0.010	**	0.020	***	-0.010		0.296		5.799		0.338		5.461	
FR	0.111	***	0.073	***	0.039	***	0.206	***	1.603	***	0.379	***	1.223	***
GR	0.006		-0.012	**	0.018		-0.296	**	-0.143		-0.117		-0.027	
IE	-0.175	***	-0.168	***	-0.007		0.246	***	0.848	***	-0.042		0.890	***
LT	0.010		-0.011	***	0.021	*	0.149		-2.869		0.071		-2.940	
LU	0.072	***	0.107	***	-0.035	*	0.087		-0.181		0.225		-0.406	
LV	-0.002		-0.001		-0.001		-0.142		3.506		0.031		3.475	
PT	0.006		0.028	***	-0.022		0.108		-1.330		-0.173		-1.158	
SE	0.091	***	0.034		0.057	***	0.745	***	0.119		0.078		0.041	
UK	0.006		0.032	***	-0.026	**	0.233	***	0.144		0.044		0.100	

Source: EU-SILC, 2009. Table reports results of Oaxaca-Blinder decompositions for aggregate contributory (excluding old-age benefits) and non-contributory benefits (excluding family allowances) based on regressions on individual (contributory benefits) or household level (non-contributory benefits) data. Results of the underlying regressions are available from the authors. Values are differences between natives and immigrants. Natives serve as the base category in the decompositions. Negative (positive) values indicate that immigrants are under- (over-)represented among recipients of benefits, or conditional on participating obtain lower (higher) benefit levels. ***, (**), [*] signify significance of the effects at the 1%, (5%) [10%] level, respectively. (a) Only natives obtain sickness benefits in the sample. (b) Tertiary education is grouped together with secondary education.

Table B.4: Oaxaca-Blinder decomposition results of natives vs. recent immigrants

	Take-up rates						**Log(Levels)**					
Country	Difference		Characteristics		Parameters		Conditional		Adjusted		Characteristics		Parameters	
					Contributory benefits									
AT	-0.124	***	-0.115	***	-0.010		-0.873	***	-1.252	**	-0.562	***	-0.690	
BE	-0.082	***	0.016		-0.098	***	-0.098		-1.649	***	-0.059	*	-1.590	***
CY	-0.142	***	-0.098	***	-0.044	***	-0.470	***	0.538		0.160	***	0.378	
CZ	-0.211	***	-0.120	***	-0.092	***	-0.366	*	-0.688		-0.143	*	-0.545	
DE	-0.101	***	-0.073	***	-0.028		-0.499	***	-0.592		-0.397	***	-0.194	
EE	0.228	***	0.249	***	-0.021		0.364	***	-0.237	**	-0.038		-0.199	**
ES	-0.141	***	-0.089	***	-0.052	***	-0.659	***	-1.427		-0.460	***	-0.967	
FR	-0.038	**	-0.008		-0.030	**	-0.320	***	-0.135		-0.058		-0.078	
GR	-0.242	***	-0.218	***	-0.024	**	-0.975	***	-1.558	**	-0.663	***	-0.894	
IE (a)	-0.172	***	-0.117	***	-0.055	***	-0.482	***	1.021		-0.028		1.049	
LU	-0.181	***	-0.186	***	0.005		-0.596	***	-1.879	***	-0.656	***	-1.223	***
LV	0.255	***	0.272	***	-0.017	*	0.305	***	-0.033		0.118	***	-0.150	**
PT	-0.198	***	-0.147	***	-0.051	*	-0.291		-0.974	*	-0.153		-0.821	*
SE	-0.104	***	0.027		-0.131	***	-0.229		-0.441		0.062		-0.503	
UK	-0.289	***	-0.224	***	-0.065	***	-0.420	***	-0.373	**	-0.068		-0.305	*
					Non-contributory benefits									
AT	0.166	***	0.241	***	-0.075	***	0.405	***	0.460	***	0.388	***	0.071	
BE	0.123	***	0.140	***	-0.017		0.151	***	0.093		0.184	***	-0.091	
CY	-0.051	**	0.035	**	-0.087	***	0.019		-0.417		0.222	***	-0.639	*
CZ	0.095	***	0.090	***	0.005		0.155		-0.745		0.026		-0.771	
DE	0.147	***	0.165	***	-0.018		0.124	**	0.161	*	0.136	***	0.025	
EE	-0.127	***	-0.076	***	-0.051	***	-0.312	***	-0.260		-0.208	***	-0.052	
ES	0.022	**	0.062	***	-0.040	***	0.046		1.478		0.190		1.287	
FR	0.219	***	0.223	***	-0.004		0.359	***	0.662	***	0.404	***	0.258	***
GR	0.018		0.048	***	-0.030		-0.225	**	2.656		-0.178	***	2.834	
IE	-0.051	**	0.002		-0.053	***	0.503	***	0.741	***	0.678	***	0.063	
LU	0.234	***	0.263	***	-0.029	***	0.209	***	0.089		0.242	***	-0.153	***
LV	-0.126	***	-0.087	***	-0.039	***	-0.413	***	-0.003		-0.376	***	0.374	
SE	0.086	***	0.086	***	0.001		0.271	**	0.112		0.123		-0.011	
UK	0.050	**	0.171	***	-0.121	***	0.040		0.256		0.210	***	0.046	

Source: EU-SILC, 2009. Table reports results of Oaxaca-Blinder decompositions for aggregate contributory and non-contributory benefits. Recent immigrants are defined as persons born abroad that also have a foreign citizenship. Natives are persons that are both born in their country of residence and have a citizenship of this country. Results are based on regressions on individual (contributory benefits) or household level (non-contributory benefits) data. Results of the underlying regressions are available from the authors. Values are differences between natives (country of birth and citizenship is the country of residence) and recent immigrants (born abroad and with foreign citizenship). Natives serve as the base category in the decompositions. Negative (positive) values indicate that immigrants are under- (over-)represented among recipients of benefits, or conditional on participating obtain lower (higher) benefit levels. ***, (**), [*] signify significance of the effects at the 1%, (5%) [10%] level, respectively. (a) Only natives obtain sickness benefits in the sample.