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Decomposing the net fiscal position of migrants in Europe

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Abstract

In this study, we examine differences in the net fiscal positions of migrants and native-born individuals across 15 EU countries between 2007 and 2018. To do so, we combine EU-SILC cross-sectional data on individual characteristics, income, and welfare benefits with OECD information on personal income taxes and social security contributions. Using OLS regressions, we find that an intra-EU migration background always has a statistically significant positive effect on the individual net fiscal position, whereas an extra-EU migration background has a positive effect when background characteristics are excluded but turns negative and significant once they are included. To explore the sources of these differences, we apply the Oaxaca-Blinder decomposition for the first time in this context. The findings reveal that, to varying degrees, age, education, and country effects are the largest contributors to the observed differential between the net fiscal positions of natives (more negative) and migrants (more positive). Remarkably, education has a significant positive effect on the net fiscal position of intra-EU migrants but is nearly irrelevant for extra-EU migrants. The findings offer valuable insights for policymakers seeking to design integration and fiscal policies that address the specific factors underlying fiscal disparities between migrants and natives in Europe.

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1 Introduction

Migration to and within the European Union (EU), and its implications for the welfare systems of host countries, has long been a subject of political and public debate. This debate has intensified in recent years due to events such as the large influx of asylum seekers in 2015 and the rise of populist parties across Europe promoting restrictive immigration policies, which have renewed concerns and interest among both policymakers and the public (Kahanec & Zimmermann, 2010; Österman et al., 2024; Ruist, 2020). As globalisation and international mobility continue to reshape the demographics of many EU countries, understanding differences between migrants and natives and the assimilation of the former into host societies is crucial for governments and researchers (Fiorio et al., 2024; OECD & European Commission, 2023). In this study, we contribute to the existing literature by examining the net fiscal position (NFP) of migrants and natives in 15 EU countries from 2007 to 2018.[1] We do so by employing the Oaxaca-Blinder decomposition to assess the underlying factors contributing to differences in NFP between migrants and natives.

Free movement of people within the EU and immigration from extra-EU countries have significant implications for both the economies and societies of the member states. As a result of push and pull factors that ultimately determine who migrates (and who stays after migration), migrants arrive in host societies with diverse sets of skills, education levels, and socioeconomic backgrounds (Christl et al., 2022). These differences affect their economic integration and their potential reliance on welfare programs. Importantly, since the early 2000s, intra- and extra-EU migration flows have considerably changed in magnitude, composition, and countries of origin (Ruist, 2020). Therefore, it is crucial to consider a long-term perspective and possible future developments. Furthermore, European welfare systems vary widely in their design, generosity, and accessibility, making it relevant to conduct multi-country analyses when studying the fiscal impact of immigration (Hansen et al., 2017).

The existing literature on the NFP of migrants in Europe primarily consists of country-specific studies yielding somewhat mixed results. Generally, intra-EU migrants tend to have a more positive NFP compared to extra-EU migrants, due to higher employment rates among the former (Bogdanov et al., 2014; Dustmann & Frattini,

[1] Throughout this study we use the expression NFP to refer to the net fiscal effect of immigration. Other studies use the words *impact* or *contribution* instead of *position*. Even though we do not have a particular preference, and the words are rather interchangeable, the term *position* stresses the individual and static aspects of our study.

2014; Hansen et al., 2017; Ruist, 2014).[2] The NFP also depends on the generosity of the welfare system of the host country. For instance, migrants in Northern European countries, where welfare states are more generous, tend to display a relatively negative NFP. By contrast, in less generous Southern European countries, migrants often show a more positive NFP, thereby helping to alleviate the fiscal burden of the ageing native population (Berger et al., 2016; Chojnicki et al., 2022; Furlanetto & Robstad, 2019; Izquierdo et al., 2010).

Differences in empirical results between country-specific studies can be attributed to the heterogeneity of migrant populations, the institutional design of tax-benefit systems, and variations in methodologies and data sources (Clemens, 2022). International comparative studies would solve methodological and data-related inconsistencies, but large cross-country surveys of the resident European population have become available only relatively recently. For this reason, the available comparative evidence is scarce (Boeri, 2010; Boffi et al., 2024; Christl et al., 2022; Fiorio et al., 2024; Nyman & Alshkog, 2018; Österman et al., 2024).

We contribute to this literature by providing a rigorous assessment of the factors explaining the differences between the NFP of migrants and natives. Fiorio et al. (2024) have shown that these differences are partly related background characteristics which make migrants net fiscal contributors. With respect to this study, we seek to make three novel contributions. First, we use the Oaxaca-Blinder decomposition to decompose the differences between the NFP of natives and migrants and to assess to what extent these differences can be attributed to specific background characteristics (e.g., age, education, health). As such, we advance the methodological approaches used in the literature on the fiscal impact of immigration, aiming to offer a nuanced understanding of the endowment and coefficient effects that drive fiscal disparities. Second, we differentiate between intra-EU and extra-EU migrants, thereby providing a more refined account of the fiscal impact of immigration. Third, we extend the period of study from 5 to 12 years and increase the number of countries in the sample from 14 to 15.

In addition, our study also offers three contributions for policymakers. First, it provides crucial insights for informed migration policy design, enabling integration strategies to address the specific factors driving fiscal disparities between migrants and natives. Second, it allows for the assessment of the net fiscal impact of immigration on European economies (Auerbach & Oreopoulos, 2000). Third, it helps ground the public perception of the direct fiscal effects of immigration in robust empirical evidence. In other words, it aids in understanding who the migrants contributing to the European welfare states are and how they differ from natives and among themselves.

The 15 EU countries selected for this study represent a diverse range of economic, demographic, and migration profiles. These include both traditional destination coun-

[2] People who move within the EU are most often not categorized as migrants in official EU migration statistics. That is because the EU is a single supranational entity in which citizens of the member states do not require visas for internal cross-country movements. They are most often referred to as 'EU mobile citizens'. For the purpose of the present study, as commonly done in the literature, we refer to them as 'intra-EU migrants'.

tries for migrants, such as Germany and France, as well as countries with a more recent history of emigration patterns, such as Czechia, Estonia, Latvia, and Slovenia. By examining a geographically and economically diverse set of EU member states, we provide a comprehensive overview of the welfare disparities experienced by migrants and natives across the EU. The timeframe of the analysis, spanning from 2007 to 2018, captures the impact of the global financial crisis of 2008, the European sovereign debt crisis of 2011, and the peak in refugee inflow of 2015. This twelve-year period has seen significant changes in the economy and demography of the EU, which in turn have influenced the welfare dynamics among migrants and natives differently in each country.

To conduct our analysis, we employ repeated cross-sectional data at the individual level from the European Union Statistics on Income and Living Conditions (EU-SILC) for (gross) personal income and recipiency of contributory (education, unemployment, retirement, sickness, survival) and non-contributory benefits (children, housing, social exclusion) of permanent residents in Europe, migrants and natives. We combine them with fiscal information from the OECD on rates, thresholds, maximum contributions, and allowances for personal income taxes and social security contributions at the national and local levels. We use these data to calculate the NFP of natives and migrants across 15 countries, for 12 years. We adopt a static, direct, and bottom-up approach that consists of subtracting welfare benefits received in the form of cash transfers from taxes and social security contributions paid at the individual level.

We start the empirical analysis by estimating an OLS regression of individual NFP on migration background. This serves as a first step toward a more structured assessment of the factors underpinning the differences between the NFP of migrants and natives. In the OLS analysis, we first consider migration background without controls, then add country and year effects (and their interactions), and finally include also background characteristics (age, gender, civil status, number of adults and number children in the household, education, and health). We initially study the general group of migrants and then run separate regressions for intra-EU and extra-EU migrants. The findings show that an intra-EU migration background always has a statistically significant positive effect on the individual NFP, whether including country and year effects and background characteristics or not. Instead, an extra-EU migration background has a significant positive effect when excluding controls but turns negative and statistically significant when including background characteristics.

Next, we apply an Oaxaca-Blinder decomposition to assess the contributions of background characteristics to the NFP gap between migrants and natives. This method divides the gap into two components: the explained part (or endowment effect) and the unexplained part (or coefficient effect). The explained part captures the share of the gap attributable to differences in endowments of observable characteristics included in the analysis, such as age, education, or household composition. The unexplained part captures three elements: differences in the returns to the observable characteristics included in the analysis, the influence of relevant observables

not included in the analysis, and unobserved factors. Since these three elements are jointly estimated and it is not possible to disentangle them, we interpret the unexplained part of the decomposition with particular caution (Blinder, 1973; Jann, 2008; Oaxaca, 1973).

The findings of the decomposition reveal that age and education are the personal characteristics contributing the most to the explained part of the difference between the NFP of migrants and natives. However, we observe important differences between intra- and extra-EU migrants. For instance, both age and education show large and statistically significant contributions to the gap between intra-EU migrants and natives. Instead, for extra-EU migrants, while the contribution of age becomes even more substantial, the effect of education becomes close to zero and statistically insignificant. This latter finding indicates that there is little positive impact of extra-EU education and training on the economic integration of migrants in Europe. This is in line with earlier findings on skill mismatches, overqualifications, and employment gaps between intra-EU and extra-EU migrants (Bevelander & Pendakur, 2014; Brücker et al., 2021; Montt, 2017; OECD & European Commission, 2023; Visintin et al., 2015).

The rest of the study is structured as follows. Section "Literature Review" discusses the available evidence on the NFP of migrants in Europe. It also pays special attention to previous contributions using the Oaxaca-Blinder decomposition in migration studies. Section "Data" presents the data and summary statistics. Section "Methodology" discusses the methodology employed in the analysis. Section "Results" presents the results. Section "conclusion" concludes.

2 Literature review

2.1 Previous evidence on the net fiscal position of migrants in Europe

Mostly due to reasons of data availability, the empirical evidence on the NFP of migrants from a European-wide perspective is relatively recent. Based on EU-SILC data, Boeri (2010) conducts the first multi-country work on the fiscal impact of migrants in Europe. Using repeated cross-sections from 2004 to 2007, he finds that migrants are over-represented among recipients of non-contributory transfers, with indications that education and family structure affect the individual fiscal balance. Nyman and Alshkog (2018) extend the use of EU-SILC data from 2004 to 2015, combining them with information from national accounts and focusing exclusively on intra-EU migration. They show that intra-EU migrant households, on average, are higher net fiscal contributors than native households across most European countries, generating net fiscal contributions of around €5000 per year. Using the same data, Österman et al. (2024) build on previous results by studying the net fiscal contributions of intra-EU migrants in different welfare state regimes. Their evidence suggests that migrants fiscally contribute more than natives in all welfare regimes in Europe,

with a particularly strong effect in Southern European countries, where social expenditure is relatively lower and more oriented towards retirement benefits for the native population.

Relying on the tax-benefit simulation model Euromod and EU-SILC data for 2015, Christl et al. (2022) examine present and future contributions of natives, intra-EU, and extra-EU migrants. In their analysis, all population groups appear as net fiscal recipients, but the NFP of migrants is less negative than that of natives. Furthermore, when estimating lifetime net fiscal contributions, they predict that the average NFP of natives will likely worsen in the coming years due to the rapid ageing of the native European population. Fiorio et al. (2024) focus on the period immediately before and after the large influx of asylum seekers in 2015–2016. They select the 14 EU member countries prior to the eastern enlargement (excluding the United Kingdom) for the period 2014 to 2018 and find that, on average, migrants make larger net fiscal contributions than natives across most countries and years, even when compared to natives in the same position of the national income distribution.

Overall, these results highlight the complex relationship between immigration and fiscal outcomes, influenced by various factors including the duration of stay in the host country, the institutional design of tax and benefits systems, year effects, and the migration background of individuals (whether intra-EU or extra-EU).[3] Most of the aforementioned studies provide extensive descriptive evidence on the NFP of different groups of migrants and natives in various European countries and years (Hennessey & Hagen-Zanker, 2020; OECD, 2021b). Some include also additional empirical evidence by regressing the NFP of migrants on variables like the years since migration, the individual skill level, and the welfare state type (Boeri, 2010; Fiorio et al., 2024; Österman et al., 2024). However, there is a substantial knowledge gap in the analysis of the factors determining the difference between the NFP of migrants and natives across countries and over time. What factors determine the generally more positive NFP of migrants in Europe? Are these country and year characteristics or personal characteristics? What variations can we observe across countries and over time? To answer these questions, we employ an Oaxaca-Blinder decomposition.

2.2 Previous applications of the Oaxaca-Blinder decomposition

The Oaxaca-Blinder decomposition, originally developed by Oaxaca (1973) and extended by Blinder (1973), is a widely employed analytical tool in population economics and discrimination studies.[4] It decomposes outcome gaps, such as wage or

[3] For more, Hennessey and Hagen-Zanker (2020) provide a recent literature review of most empirical evidence on the NFP of migrants and natives based on the data, methods, and findings of each study. OECD (2021b) is another good starting point for an overview of the available evidence.

[4] In the social sciences, the origin of the decomposition technique is disputed. Kitagawa (1955) proposed an earlier method to decompose differentials in outcome variables for two demographic groups by controlling for differences in selected characteristics between these groups. Consequently, some scholars refer to the decomposition as the Kitagawa-Oaxaca-Blinder (KOB) decomposition. While the Kitagawa decomposition is mostly applied in sociology, the Oaxaca-Blinder decomposition remains widely used in economics. Therefore, we refer to it as the Oaxaca-Blinder decomposition. For more on this debate, see Oaxaca and Sierminska (2025).

income differences between migrants and natives, into an explained part (endowment effect) and an unexplained part (coefficient effect). The explained part captures the portion of the gap attributable to differences in endowments of observable characteristics included in the analysis. The unexplained part captures differences in the returns to these characteristics, as well as the effect of relevant observables not included in the analysis and of unobservables. Because it is impossible to disentangle the returns to the observables included in the analysis from the effect of the observables not included and of the unobservables, the unexplained part is inherently more difficult to interpret (Blinder, 1973; Jann, 2008; Oaxaca, 1973).

Several studies have applied the Oaxaca-Blinder decomposition to analyse various gaps between migrants and natives. These works have often revealed substantial wage or income gaps in favour of native-born individuals. Among the earliest adopters of this method in migration studies, Chiswick (1978) analyses the earnings gap among immigrants in the United States, finding a considerable portion of the gap attributable to differences in endowments, particularly education. Borjas (1993) reaches a similar finding on the critical importance of education for migrants in the United States. Within this literature, it has become clearer over time that it is important to consider diversity within migrant populations, such as differences in the country of origin, migration status, and skill level (Altonji & Card, 1991; Borjas, 1993).

In Europe, most studies employing the decomposition are country-specific and have looked at wage disparities between migrants and natives. For Sweden, Hammarstedt and Palme (2012) find that migrants experience less intergenerational mobility than natives and that their earnings remain lower in the following generations, based on their analysis of detailed administrative data. Employing EU-SILC data for 2005, Kahanec and Zaiceva (2009) find that foreign origin is of key importance in determining wage levels in Western EU states. They also find that both foreign origin and citizenship are more influential in Eastern EU member states, with their effects varying between men and women.

Using EU-SILC cross-sectional data for 2009, Huber and Oberdabernig (2016) are the first to employ the Oaxaca-Blinder decomposition to study the recipiency of welfare benefits, in the form of cash transfers, by migrants in Europe. Their findings show that differences in benefit receipt between migrants and natives diminish or disappear altogether after controlling for differences in observable characteristics. The largest part of this gap is explained by differences in benefit receipt rather than benefit levels conditional on receipt. For contributory benefits, age is the personal characteristic contributing the most to native-immigrant differences. For non-contributory benefits, differences in household size and composition appear to be the most important. Using the EU-SILC cross-sections from 2010 to 2015, Jakubiak (2020) finds that migrants rely on social assistance less often and receive lower amounts than natives. Those conclusions are reversed, however, when old-age benefits are not considered, especially in the case of extra-EU migrants. Using administrative data for the Netherlands from 2004 to 2014, with a special focus on migrants from Central and Eastern Europe, Suari-Andreu and van Vliet (2023) find in their decomposition

that the factors contributing the most to the differences in benefit receipt between migrants and natives are age and family structure. Furthermore, they conclude that the gap between the two groups gradually closes the longer the migrants stay in the host country.

In the present study, we contribute to the literature by being the first to employ an Oaxaca-Blinder decomposition to analyse the factors contributing to the differences in NFP between migrants and natives in Europe, thus not focusing exclusively on benefit receipt, for as many as 15 EU countries and as long as 12 years.

3 Data

All the individual-level data on gross personal income and welfare benefits come from the European Union Statistics on Income and Living Conditions (EU-SILC). This dataset is based on surveys conducted by national statistical agencies and merged by Eurostat. It contains harmonised data on income, welfare benefits and background characteristics at the individual and household level for all EU member countries from 2003 onwards.[5] Therefore, it is the most suitable dataset for analysing the NFP of migrants and natives across a large number of European countries over a relatively long period of time.[6]

For our study, we select the period from 2007 (when most countries joined the dataset) to 2018. All the countries reporting full information on gross personal income and welfare benefits for the years selected are included. These are Austria, Belgium, Czechia, Estonia, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Portugal, Slovenia, Spain, and Sweden (collectively they accounted for about 74% of the EU-27's population and 86% of its GDP in 2018 (Eurostat, 2024b, 2024c)). Four countries do not allow to distinguish between intra-EU and extra-EU. These are Estonia, Germany, Latvia, and Slovenia. For them, only the overall 'migrant' category is available. The sample of selected countries covers the variety of tax and benefit systems present in the EU fairly well. This is illustrated by Figs. 1 and 2, which show direct tax revenues and public social expenditure as a percentage of GDP in 2018.[7] Roughly speaking, the highest levels of social spending and taxes can be found in Nordic (Sweden) and continental (Austria, Belgium, France, Germany, Luxembourg)

[5] Wirth and Pforr (2022) provide a recent review of the scope and the implementation of the EU-SILC.

[6] Although the EU-SILC is designed to be representative of the total resident population in the EU, migrants, especially irregular and very recent arrivals, are likely underrepresented, due to sampling frames, language barriers, and mobility patterns. This has been recently highlighted, among others, by Fiorio et al. (2024) and OECD (2021b). For studies such as theirs, which adopt a dynamic approach aiming to include all fiscal items and projecting future fiscal contributions, this constitutes a major issue that requires reweighting. By contrast, our static analysis of the NFP focuses only on direct taxes and cash transfers. For this purpose, the underrepresentation of irregular and short-term migrants is less problematic, since these groups typically contribute less to, and benefit less from, the tax-benefit system. Our estimates therefore primarily reflect the fiscal position of longer-settled migrants, who are adequately captured by EU-SILC, better integrated into the welfare state, and the most relevant population group for comparison with natives.

[7] Clearly, these measures only provide a rough indication of the differences in direct taxes and social benefits. For instance, social spending is driven by both benefit levels and the number of recipients.

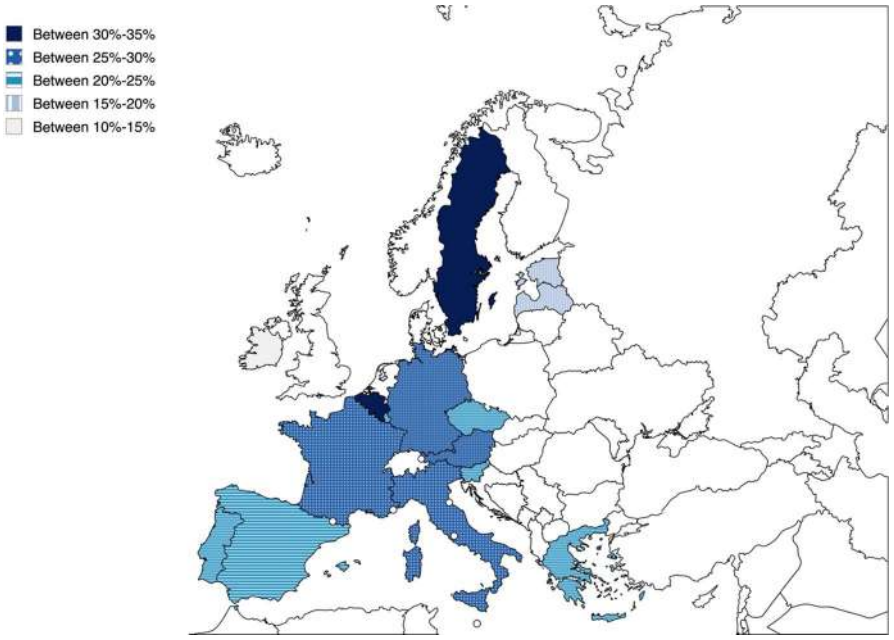


Fig. 1 Direct tax revenues as % of GDP, 2018. Notes: Direct taxes include: personal income taxes, social security contributions, and wealth taxes. *Source*: authors' elaboration from the data (EU-SILC, 2007–2018; Eurostat, 2024b)

countries. In Southern European countries (Greece, Italy, Portugal, Spain) these levels are somewhat lower. In Anglo-Saxon countries (Ireland), social spending and direct tax revenues tend to be the lowest, followed by Central and Eastern European countries (Czechia, Estonia, Latvia, Slovenia).

Information on personal income taxes and social security contributions, including thresholds, rates, minimum and maximum contributions, surtaxes, and deductibles at both the national and local levels, is drawn from the OECD *Taxing Wages* database.[8] This information is combined with EU-SILC gross personal income data to estimate yearly taxes and social security contributions at the individual level. Wealth taxes constitute the only exception, as they are directly reported in EU-SILC and therefore do not require complementary OECD information. On this basis, we construct an approximate yet consistent measure of total direct taxation at the individual level. The integration of EU-SILC and OECD data enables us to capture the majority of direct taxes levied in the countries under study; as shown in Table 1, direct tax revenues represent the main component of public finances across all countries in our sample. In 2018, the most recent year available, they accounted on average for 57.1% of total tax revenues (and 23.1% of GDP), with some cross-country variation.

[8] The OECD's *Taxing Wages* database provides information on personal income tax rates and social security contributions at different levels of government (national and local). It also provides different rates for employed and self-employed individuals. It does not, however, offer breakdowns by additional personal characteristics, such as age or household structure.

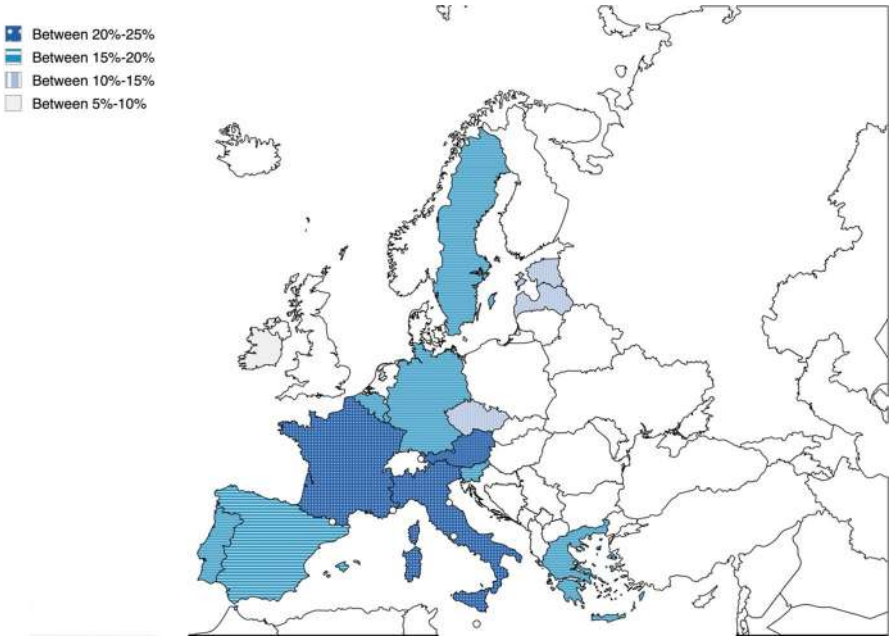


Fig. 2 Public spending for social protection as % of GDP, 2018. *Notes*: Social protection includes cash and in-kind benefits. In-kind benefits are not included in the EU-SILC. *Source*: authors' elaboration from the data (Eurostat, 2024b)

Table 1 Direct tax revenues as shares of all tax revenues (%) in 2018

Country	Personal income taxes	Social security contributions	Wealth taxes	Total
Austria	23.7	35.1	1.0	59.8
Belgium	30.8	32.0	3.1	65.9
Czechia	9.8	44.5	1.0	55.3
Estonia	15.6	37.1	0.8	53.5
France	18.8	36.2	4.0	59.0
Germany	24.0	38.1	2.0	64.1
Greece	14.1	35.3	1.3	50.7
Ireland	29.5	16.2	0.6	46.3
Italy	23.1	32.8	3.0	58.9
Latvia	20.1	30.4	2.1	52.6
Luxembourg	23.9	29.7	2.3	55.9
Portugal	21.4	29.3	3.2	53.9
Slovenia	15.3	35.4	1.5	52.2
Spain	22.7	35.3	2.4	60.4
Sweden	30.0	37.0	1.0	68.0
Average	21.5	33.6	2.0	57.1

Source: authors' calculation from the data (Eurostat, 2024b)

Regarding welfare benefits, the EU-SILC captures social insurance and social assistance received by private households in the form of direct cash transfers, categorised respectively as contributory and non-contributory benefits.[9] Contributory benefits are linked to individuals' previous payments to the government, such as old-age or unemployment benefits. Non-contributory benefits, like child or housing benefits, are not dependent on prior contributions but may consider other variables like household size. In the EU-SILC, contributory benefits are measured at the individual level and include those for unemployment, disability, old-age, sickness, survival, and education. Non-contributory benefits are instead measured at the household level and include those for child support, housing, and social assistance. Given that our analysis is at the individual level, as common practice in the literature, individual non-contributory benefits are calculated by dividing the amount received at the household level by the number of adults in the household (Christl et al., 2022). Finally, we use Eurostat databases on price levels to adjust benefits and contributions for inflation and differences in purchasing power across countries.

After dropping observations for individuals younger than eighteen (-94,862) and for those not reporting information on migration background, gross disposable income, and personal characteristics (age, sex, civil status, household composition, education level, and health) (-380,840), our final sample consists of 2,785,244 observations corresponding to adult individuals in 15 EU countries, from 2007 to 2018. Migrants, which we define as foreign-born residents, make up 10.7% (3.8% intra-EU and 6.9% extra-EU) of the observations (299,040).[10]

4 Summary statistics

Table 2 presents the summary statistics for the sample. Regarding personal characteristics, on average, migrants are younger than natives, more likely to be females, less likely to have never been married, have more children at home, are more likely to have higher education, and with rather similar health conditions.

The summary statistics vary greatly across the countries in our sample. Migrants may self-select into specific destination countries (and decide whether to stay or migrate again) based on historical ties, previously-established migrant communities, linguistic closeness, geographical proximity, labour market opportunities, and cultural heritage, among other factors (OECD & European Commission, 2023). Figure 3 shows that in Estonia, France, Germany, Ireland, and Sweden, migrants tend to be older, more educated, and more likely to be married than in Greece, Italy, and Spain. Figure 4 does not display major differences between migrants in different

[9] The EU-SILC does not capture the full spectrum of social protection, as it excludes in-kind benefits (e.g., public health care, public education), given the difficulty of precisely quantifying their monetary value at the individual level. This does not constitute a major limitation for us, as we focus on in-transfer (cash) benefits, which are more easily and more precisely recorded.

[10] The alternative approach would be to define as migrants all foreign nationals resident in a country. However, citizenship laws and naturalization procedures differ greatly among the countries in the sample.

Table 2 Summary statistics by general migration background, across countries and years (2007–2018)

	Native-born	Migrant
Net fiscal position (€, mean)	−1619.7	−936.1
Age (mean)	50.5	48.3
Age: 18–25 (%)	12.7	16.6
Age: 25–34 (%)	16.6	21.9
Age: 35–44 (%)	18.3	20.1
Age: 45–54 (%)	17.5	15.3
Age: 55–64 (%)	25.7	19.7
Age: 65 and older (%)	9.2	6.5
Female (%)	52.8	55.4
Civil status: never married (%)	27.6	20.6
Civil status: married (%)	55.7	61.3
Civil status: separated (%)	1.4	1.9
Civil status: widowed (%)	8.9	7.5
Civil status: divorced (%)	6.5	8.7
Household: n. of adults (mean)	2.3	2.3
Household: n. of children (mean)	0.4	0.7
Health: very good (%)	19.7	21.1
Health: good (%)	45.1	43.3
Health: fair (%)	24.8	24.1
Health: bad (%)	8.4	9.3
Health: very bad (%)	2.1	2.2
Education: primary (%)	17.8	15.1
Education: secondary (%)	59.4	57.5
Education: higher (%)	22.9	27.5
N	2,486,204	299,040

Notes: The NFP is calculated as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. All the values are adjusted for inflation and purchasing power parity.
Source: authors' calculation from the data (EU-SILC and OECD, 2007–2018)

years. However, the later years in the sample show more marked differences between migrants and natives. In 2018, migrants tend to be younger, with more children, and healthier than natives compared to 2007. This descriptive evidence is line with the reported rapid ageing of the native European population (Eurostat, 2024c). As a relevant caveat is important to consider here that most of the small differences observed in Fig. 3 and Fig. 4 are not statistically significant.

In addition to differences in personal characteristics, Table 2 shows that both groups display an average negative NFP. The individual NFP is generally defined as the difference between the taxes paid to the government and the monetary value of public services and benefits received. The most elaborate calculations of this parameter include indirect general equilibrium effects (i.e., fiscal effects via the influence of individual behaviour on national economic activity, unemployment, and prices, among others) and dynamic effects (i.e., present value of future fiscal effects based on assumptions about future employment levels and stay rates, among others) (Clemens, 2022; Hinte & Zimmermann, 2014; Preston, 2014). Estimating general equilibrium and dynamic effects requires strong assumptions about future migration trends, the economic impact of immigration, emigration patterns, and the labour market partici-

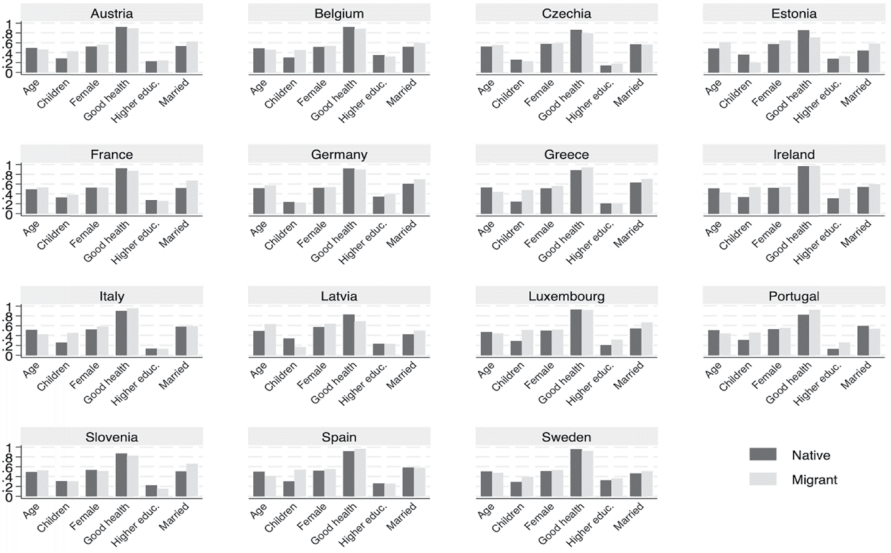


Fig. 3 Country-specific summary statistics for the general pool of migrants (2007–2018). *Notes*: *Age* is reported as *Age*/100 to not disrupt the readability of the other variables displayed. *Source*: author's elaboration from the data (EU-SILC, 2007–2018)

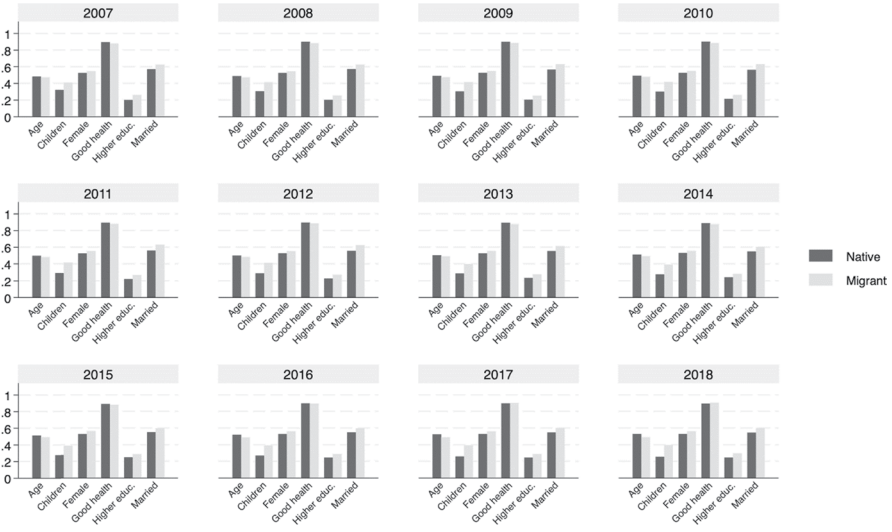


Fig. 4 Year-specific summary statistics for the general pool of migrants, across countries. *Notes*: *Age* is reported as *Age*/100 to not disrupt the readability of the other variables displayed. *Source*: author's elaboration from the data (EU-SILC, 2007–2018)

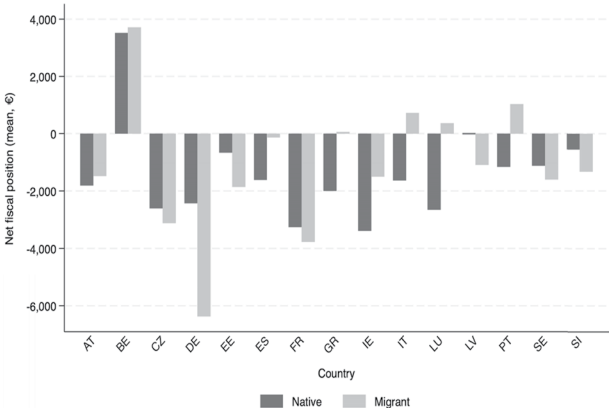


Fig. 5 NFP across countries (2007–2018). *Notes*: The NFP is defined as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. All the values are adjusted for inflation and purchasing power parity. *Source*: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)

pation of both migrants and natives. These are hardly testable across the large number of countries and years in our dataset. For this reason, we choose to adopt a static, direct, and bottom-up approach (i.e., starting from individual data), which consists of subtracting welfare benefits received in the form of cash transfers from taxes and social security contributions paid at the individual level.[11]

Our approach has the disadvantage of not considering dynamic and general equilibrium effects. However, it has the advantage of not relying on restrictive assumptions while providing a clear and direct snapshot of the difference between benefits received and contributions made across countries and over time. Even if we omit indirect and dynamic effects, our dataset spans a long period, which is uncommon in the literature. This feature introduces a dynamic element into our analysis by allowing us to trace important changes in the NFP over time.

The finding that both population groups report negative NFP values (Table 2), the one of migrants less so than that of natives, should not be interpreted as evidence that public finances are structurally unsustainable. First, as explained above, our measure of the NFP does not aim to provide a comprehensive account of all individual fiscal items. Our approach excludes in-kind benefits (e.g., public education, healthcare services) and indirect taxes (e.g., VAT, excise duties), which, if included, would likely make the NFP less negative. Second, a negative average individual NFP is not necessarily problematic from a macro-fiscal perspective, since most EU countries run budget deficits in many years, and public systems are designed to smooth expenditures over time. Therefore, throughout this study we focus on the relative differences in NFP across groups rather than on the absolute levels.

[11] For a more detailed overview of all the methods available for the calculation of the NFP, see Boffi et al. (2024).

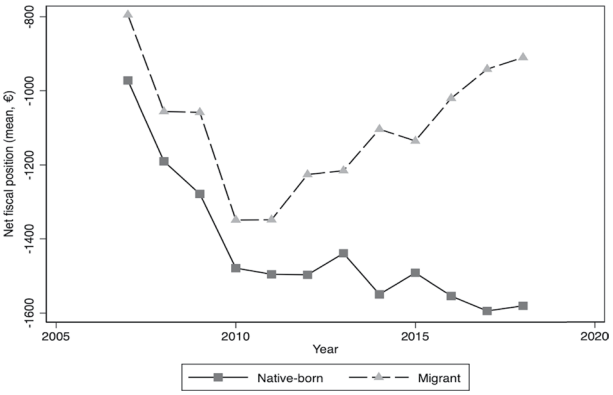


Fig. 6 NFP over the years, across countries. *Notes*: The NFP is defined as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. All the values are adjusted for inflation and purchasing power parity. *Source*: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)

Figure 5 presents the NFP summary statistics from Table 2 across countries; on average, migrants have a less negative (or more positive) NFP than natives in eight out of the 15 countries in the sample. Germany constitutes a notable exception, with migrants displaying a particularly negative NFP. This outcome is plausibly driven by the substantial share of asylum seekers received during the period under consideration, who encounter greater barriers to labour market integration and consequently contribute relatively little in fiscal terms, rather than by idiosyncratic features of the German tax-benefit system (Ruist, 2020). A noteworthy pattern also emerges in Spain, Italy, and Portugal, where natives display a negative NFP while migrants display a positive one. This divergence cannot be attributed solely to the comparatively lower generosity of Southern European welfare states, as such an explanation would imply a larger gap in even more restrictive welfare states like those of Central and Eastern European countries, which is not observed. It likely also reflects the greater reliance of natives on contributory benefits, particularly pensions, which account for the largest share of social expenditure in Southern European countries, as well as the specific demographic and occupational profile of the migrant population (Berger et al., 2016; Furlanetto & Robstad, 2019).

Figure 6 presents the NFP summary statistics from Table 2 over the years; the NFP of natives and the one of migrants follow parallel downwards trends from 2007 until 2010, due to the global financial crisis. From 2011, the NFP of migrants starts a steady recovering, while the one of natives keeps stagnating. The result is a growing gap between the NFP of migrants and the one of natives.

Table 3 shows the summary statistics for the restricted sample of 11 countries that distinguish between intra-EU and extra-EU migrants, without Estonia, Germany, Latvia, and Slovenia. Extra-EU migrants are on average younger, have more children, and are less likely to hold higher educational qualifications than intra-EU migrants.

Table 3 Summary statistics by specific migration background, across countries and years (2007–2018)

	Native-born	Intra-EU migrant	Extra-EU migrant
Net fiscal position (€, mean)	−1708.2	−70.4	−350.2
Age (mean)	50.7	46.8	43.3
Age: 18–25 (%)	12.8	18.3	21.0
Age: 25–34 (%)	16.6	23.8	26.9
Age: 35–44 (%)	18.1	20.5	21.6
Age: 45–54 (%)	17.4	1.5	12.6
Age: 55–64 (%)	2.6	15.9	8.8
Age: 65 and older (%)	9.1	6.5	9.1
Female (%)	52.4	54.6	54.3
Civil status: never married (%)	27.5	23.4	24.4
Civil status: married (%)	56.6	60.1	62.7
Civil status: separated (%)	1.3	1.8	2.0
Civil status: widowed (%)	9.0	5.7	4.1
Civil status: divorced (%)	5.6	8.9	6.9
Household: n. of adults (mean)	2.4	2.2	2.4
Household: n. of children (mean)	0.4	0.7	0.9
Health: very good (%)	21.9	25.8	25.5
Health: good (%)	45.0	46.4	47.8
Health: fair (%)	23.1	19.1	18.7
Health: bad (%)	8.0	7.0	6.4
Health: very bad (%)	0.02	1.6	1.6
Education: primary (%)	0.2	19.4	17.6
Education: secondary (%)	56.5	50.5	58.4
Education: higher (%)	21.2	30.0	24.0
N	1,937,165	106,020	120,522

Notes: The NFP is calculated as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. All the values are adjusted for inflation and purchasing power parity. *Source*: authors' calculation from the data (EU-SILC and OECD, 2007–2018)

Natives exhibit the most negative NFP, while intra-EU migrants display the least negative (or relatively most positive) NFP. Extra-EU migrants fall in between, with an NFP that is more negative than that of intra-EU migrants but less negative than that of natives.[12] Importantly, the NFP of both migrant groups becomes considerably less negative than the average migrant NFP reported in Table 2, suggesting that the values for the four countries excluded, Germany in particular as seen in Fig. 5, drive the more negative average value in Table 2. We turn now to the strategy employed for the empirical analysis.

[12] Figures 13 14 15 and 16 in the Appendix display summary statistics and NFP trends for the 11 countries in the restricted sample. For concision, they are not discussed in the main text.

5 Methodology

We start the empirical analysis by calculating the impact of having a migration background on the individual NFP. To do so, we estimate by means of OLS the following equation:

$$NFP_i = \beta_0 + \beta_1 MB_i + \boldsymbol{X}_i\prime\boldsymbol{\beta}_2 + \varepsilon_i \tag{1}$$

where NFP_i is the net fiscal position of individual *i*, MB_i is a dummy variable for the individual migration background (migrant or native), $\boldsymbol{X}_i$ is a vector of control variables including personal characteristics (age in categories, gender, civil status, household size, number of children in the household, education level, and health condition) and year and country effects for individual *i*, and ε_i is the individual error term.[13] We estimate Eq. (1) for the combined sample of migrants and natives. This constitutes a pooled model, where migrants and natives are pooled together in a single regression which includes a migration-background dummy as explanatory variable. The coefficients of the covariates then reflect the average returns to individual characteristics across both groups. We perform the estimation using the OLS estimator with the standard errors clustered at the household level to avoid within-household correlation. We also estimate Eq. (1) for intra-EU and extra-EU migrants separately to explore heterogeneity in their NFP.

We proceed by employing the Oaxaca-Blinder decomposition to disentangle the contributions of all the controls included in $\boldsymbol{X}_i$ to the differences between the NFP of natives and migrants. This consists of two steps. First, the estimation of the baseline equations separately for migrants (*m*) and natives (*n*), second, the subtraction of the expected value of the latter from the former. In their simplest form, these two steps can be written as:

$$NFP_{mi} = \beta_{0m} + \boldsymbol{X}_{mi}\prime\boldsymbol{\beta}_m + \mu_{mi} \tag{2}$$

$$NFP_{ni} = \beta_{0n} + \boldsymbol{X}_{ni}\prime\boldsymbol{\beta}_n + \mu_{ni} \tag{3}$$

and

$$E\left(NFP_{mi}\right) - E\left(NFP_{ni}\right) = E\left(X_{mi}\right)'\beta_m - E\left(X_{ni}\right)'\beta_n \tag{4}$$

where NFP_i is the individual net fiscal position for either migrants (*m*) or natives (*n*), $\mathbf{X}_i$ is the vector of controls for each of the two groups, and $\boldsymbol{\beta}$ is a vector containing all parameter estimates for each of the two groups. By adding and subtracting $E\left(\mathbf{X}_{mi}\right)'\boldsymbol{\beta}_n$, Eq. (4) can be rewritten as:

$$E\left(NFP_{mi}\right) - E\left(NFP_{ni}\right) = \left[E\left(\boldsymbol{X}_{mi}\right) - E\left(\boldsymbol{X}_{ni}\right)\right]\prime\boldsymbol{\beta}_n + E\left(\boldsymbol{X}_{mi}\right)\prime\left(\boldsymbol{\beta}_m - \boldsymbol{\beta}_n\right) \tag{5}$$

[13] Contrary to Fiorio et al. (2024), in our model we do not include variables such as earnings and employment status as these would be outcome variables, or at least mediators for the individual NFP.

The first term on the right-hand side of Eq. (5) represents the explained part of the NFP gap: it measures how differences in observed characteristics between migrants and natives, weighted by the coefficients for natives, contribute to the expected outcome (endowment effect). The second term represents the unexplained part, capturing differences in the returns to those characteristics (coefficient effect), as well as the influence of relevant variables not included in the analysis. In this formulation, the decomposition uses the coefficients for natives as the reference, implicitly assuming that they apply to both groups. However, it is possible, if not likely, that the background variables have different effects for each group. For this reason, we use a variation of the decomposition proposed by Oaxaca and Ransom (1994, 1998) and applied by Fortin (2008) and Suari-Andreu and van Vliet (2023), among others. Therefore, instead of adding and subtracting $E\left(\mathbf{X}_{mi}\right)' \boldsymbol{\beta}_n$ to Eq. (4), we add and subtract $\left[E\left(\boldsymbol{X}_{mit}\right) - E\left(\boldsymbol{X}_{nit}\right)\right]' \boldsymbol{\beta}_2$, where $\boldsymbol{\beta}_2$ is the vector of coefficients from the pooled model in Eq. (1). In this way, we obtain:

$$E\left(NFP_{mi}\right) - E\left(NFP_{ni}\right) = \left[E\left(\boldsymbol{X}_{mi}\right) - E\left(\boldsymbol{X}_{ni}\right)\right]\prime\boldsymbol{\beta}_2 + E\left(\boldsymbol{X}_{mi}\right)\prime\left(\beta_m - \beta_2\right) - E\left(\boldsymbol{X}_{ni}\right)\prime\left(\beta_n - \beta_2\right) \quad (6)$$

where the unexplained part is divided into two further components, the first capturing the impact of differences in the coefficients for migrants compared to the pooled group, and the second doing the same but for natives. Equation (6) has the advantage of maintaining a direct link between the baseline OLS analysis and the Oaxaca-Blinder decomposition, since Eq. (1) estimates the pooled model used in the decomposition. This approach avoids the arbitrary choice of either migrants or natives as the benchmark group, ensures full consistency with the initial regression framework, and facilitates a clearer interpretation of the results as average returns for the full sample. As a robustness check, we additionally compute the unpooled decomposition, where the difference in NFP is split into explained, unexplained, and interaction components. The results are consistent in both direction and magnitude (Table 11 in the Appendix).

6 Results

6.1 Baseline results

Table 4 shows the baseline OLS estimates we obtain for the general migrant group (that is, not separating between intra-EU and extra-EU), across countries and years.[14]

In Column 1 of Table 4 the NFP is regressed on the individual migration background without controls. In this first specification, migrants present a more positive NFP than natives of €683.6, across countries and years, significant at 1%. This is consistent with recent findings in the literature on the more positive NFP of migrants in Europe (Boffi et al., 2024; Christl et al., 2022) and with the descriptive evidence from Table 2, where the migrant group shows a similarly higher average individual

[14] OLS baseline results have been estimated also for every country and year in the sample. For concision, not all countries and years are discussed in the main text. They are available upon request.

Table 4 Baseline analysis (OLS) for a general migration background

	(1)	(2)	(3)	(4)
VARIABLES	NFP	NFP	NFP	NFP
Migrant	683.6***	481.5***	−264.5***	−207.8***
	(23.76)	(23.80)	(21.45)	(21.30)
Age: 25–35			1034***	1365***
			(15.41)	(15.91)
Age: 35–45			1,300***	1682***
			(17.38)	(19.73)
Age: 45–55			−4010***	−3541***
			(22.20)	(27.24)
Age: 55–65			−11,487***	−10,621***
			(14.97)	(24.73)
Age: over 65			−1911***	−1534***
			(12.19)	(13.91)
Female				185.0***
				(11.14)
Civil status: married				393.0***
				(16.47)
Civil status: separated				−513.0***
				(45.24)
Civil status: widowed				−831.9***
				(25.58)
Civil status: divorced				−282.9***
				(27.96)
Household: n. of adults				46.84***
				(5.437)
Household: n. of children				−315.3***
				(8.074)
Education: secondary				−1040***
				(15.05)
Education: higher				980.7***
				(24.09)
Health: good				−962.3***
				(16.83)
Health: fair				−1831***
				(19.92)
Health: bad				−2,102***
				(24.01)
Health: very bad				−2343***
				(35.77)
Country, Year, and Country × Year fixed-effects	No	Yes	Yes	Yes
Constant	−1,620***	−2089***	741.2***	1746***
	(7.514)	(116.3)	(92.66)	(94.65)
Observations	2,785,244	2,785,244	2,785,244	2,785,244
R-squared	0.000	0.021	0.276	0.289

Notes: The estimates are obtained using the specification in Eq. (1). Robust standard errors clustered at the household level in parentheses. The reference category for *Age* is *18–25*. The reference category for *Civil Status* is *Never Been Married*. The reference category for *Education* is *Primary*. The reference category for *Health* is *Very Good*. *Country* effects include Austria, Belgium, Czechia, Estonia, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Portugal, Slovenia, Spain, and Sweden. *Year* effects include all the years from 2007 to 2018. *significant at the 10% level, **significant at the 5% level, ***significant at the 1% level. *Source*: authors' calculation from the data (EU-SILC and OECD, 2007–2018)

NFP. In Column 2, country and year effects and their interactions are included. Notably, the effect size of having a migration background decreases to €481.5. This gives preliminary evidence that differences across countries and years contribute positively to the observed difference between the NFP of natives and migrants. In Column 3, age group dummies are added. *Age* is introduced before the other individual characteristics, because the literature consistently identifies it as the single most important determinant of an individual's NFP, particularly among migrants (OECD, 2021b; Suari-Andreu & van Vliet, 2023). As Table 2 shows, migrants and natives differ substantially in their age structure, and accounting for this is essential to understanding differences in NFP. Once *Age* is controlled for, the *Migrant* coefficient turns negative at -€264.5, significant at 1%. This highlights that the younger age distribution of migrants explains all of their initially more positive NFP, while an unexplained negative difference remains.

In Column 4, the full set of individual characteristics is included. The *Migrant* coefficient remains negative at -€207.8, indicating that even after accounting for all observable factors, migrants still display a lower NFP than natives. These individual-level variables allow us to control for the differences in NFP between migrants and natives that may be caused by the discrepancies between the two groups observed in Tables 2 and 3. The remaining negative difference can be due to observable characteristics not available in our data (e.g., language skills, year of immigration, country of education, legal status, migration motive, and type of visa) and to unobservables (e.g., discrimination, labour market barriers, preferences and attitudes).[15] In this last specification, the effects of all background characteristics are statistically significant at 1%. Among these, *Age* categories appear to have the largest impact on the NFP. The effect peaks for the age group between 35 and 45 years. Being in that group has a positive effect of €1,682 on the NFP relative to individuals under 25. The estimate is the lowest for the age group between 55 and 65, with an effect of -€10,621 compared to individuals under 25. Being in the prime working age (25–54) is known in the literature as being an important determinant of the NFP of an individual (OECD, 2021b; Suari-Andreu & van Vliet, 2023).[16]

Among the other personal characteristics, females appear to have a more positive NFP of €185 compared to males. Being married is also associated with a more positive NFP of €393 compared to being single, while being divorced, separated, or

[15] Year of immigration (in five-year bands) is recorded in the EU-SILC. However, contrary to Fiorio et al. (2024), we do not include it in the analysis, as the variable is missing for Germany and Slovenia and, where available, is often not reported for arrivals before 1990, limiting comparability across countries. Moreover, because the immigrant subsample in EU-SILC is representative but relatively small, even modest missingness can result in insufficient cases for detailed analysis. The migration motive is recorded in the European Union Labour Force Survey (EU-LFS) ad-hoc migration module, which is administered only in specific years (2008, 2014, and 2021), depending on country coverage, and is missing in the EU-SILC.

[16] To further explore the effect of *Age* on the average individual NFP, we estimated a model with a continuous *Age* variable and its square (Table 10 in the Appendix). The results confirm an inverted-U relationship: NFP increases with age up to approximately age 37, then begins to decline. This pattern is consistent with individuals reaching peak tax contributions in midlife, followed by a reduction in contributions and greater benefit reliance in older age.

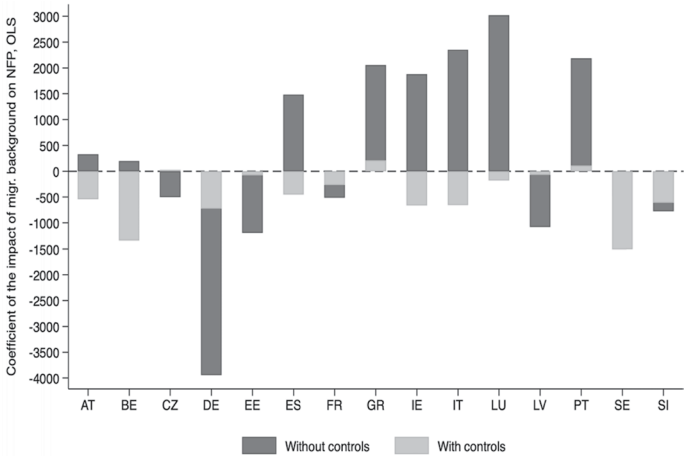


Fig. 7 Country-specific impact of a general migration background on NFP, OLS (2007–2018). *Notes*: The estimates are obtained using the specification in Eq. (1). The NFP is defined as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. All the values are adjusted for inflation and purchasing power parity. *Source*: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)

widowed is associated with a more negative NFP. While the presence of an additional adult in the household increases the NFP by €46.8, the presence of one more child decreases it by €315.3. Regarding education, individuals with higher education have a more positive NFP of €980 compared to those with just primary education. Finally, as expected, the NFP progressively declines with the deterioration of health. Individuals self-reporting 'very bad' health present a lower NFP of -€2,343 compared to those self-reporting 'very good' health.[17]

It is important to note that these background characteristics likely influence an individual's labour market position, which in turn affects their NFP. For instance, younger and more educated individuals typically have higher employment probabilities, leading to higher earnings and consequently a more positive NFP. Conversely, older individuals or those with poorer health may face lower employment probabilities, reducing their earnings and increasing their reliance on welfare benefits, resulting in a more negative NFP (Boeri, 2010; Brell et al., 2020; Fiorio et al., 2024; Montt, 2017; OECD, 2021b; Visintin et al., 2015).

Figure 7 provides the OLS results we obtain when analysing each country separately, with and without controls. When excluding controls, having a migration background shows a significant positive impact on the individual NFP in Austria, Belgium, Greece, Ireland, Italy, Luxembourg, Portugal, and Spain. It is noteworthy that Southern European countries appear as those where having a migration back-

[17] As an additional specification (not reported), the baseline results have been estimated also by including all background variables except for *Country*, *Year*, and *Country* × *Year* effects (the opposite of what we do in Column 2 of Table 4). The estimates from this additional specification do not present major differences from the ones in Column 4 of Table 4. This can be interpreted as a further indication that individual background characteristics, especially age, play a bigger role than country and year effects in explaining the NFP of migrants.

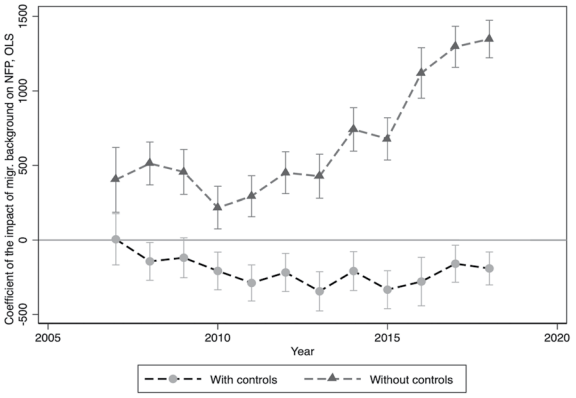


Fig. 8 Year-specific impact of a general migration background on NFP, across countries (OLS). *Notes*: The estimates are obtained using the specification in Eq. (1). The NFP is defined as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. All the values are adjusted for inflation and purchasing power parity. *Source*: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)

ground has the most positive impact on the individual NFP, in line with Nyman and Ahlskog (2018) and Österman et al. (2024). When including controls, the effect turns negative for every country, except for Greece and Portugal. In addition to the aforementioned key role of background characteristics in explaining the more positive NFP of migrants, this also suggests that our findings are considerably influenced by the country-specific composition of the migrant population, as visible in Fig. 3, and by differences in tax and benefit systems across countries, as recently shown by Boffi et al. (2024) and Österman et al. (2024). Germany stands out as the country with the most negative average migrant NFP, when controls are excluded. As suggested by significantly negative average migrant value in Table 2, when Germany is included, and by less negative value in Table 3, where Germany is excluded, the magnitude of this negative NFP is more due to the background characteristics of migrants residing in Germany more than because of the institutional characteristics of the German tax and benefits system.

Figure 8 displays the OLS results we obtain when analysing each year separately, with and without controls. It shows that across countries, when excluding controls, the impact of a general migration background on the NFP is more positive in more recent years, with a marked increase from 2016 onwards. This is in line with the descriptive evidence from Fig. 6 and with recent findings pointing at a widening fiscal gap between migrants and natives (Boffi et al., 2024). Instead, when including controls, the effect turns negative and progressively more so from 2007 until 2015 (after 2015, it becomes slightly less negative). Among all the controls included, this effect is largely driven by age, which seems to explain a large part of the more positive NFP of migrants. Also, the widening gap between migrants and natives is driven by the increasing average age of natives, while the age of migrants remains rather constant. As visible in Fig. 4, the average age of natives in the sample is 48 in 2007 and gradually increases to 53 by 2018.

To scrutinise the effects of different migration backgrounds, Tables 5 and 6 replicate the baseline analysis for intra-EU and extra-EU migrants separately (that is, for only the eleven countries making such distinction). Table 5 shows that having an intra-EU migration background leads to a more positive NFP regardless of the specification considered. The estimate is €1,590 when including just year and country effects and their interactions (Column 2), and €329.8 when also including all

Table 5 Baseline analysis (OLS) for intra-EU migrants

	(1)	(2)	(3)	(4)
VARIABLES	NFP	NFP	NFP	NFP
Migrant	1638***	1590***	414.7***	329.8***
	(51.65)	(54.70)	(49.88)	(49.28)
Age: 25–35			1072***	1324***
			(18.70)	(19.62)
Age: 35–45			1325***	1719***
			(21.44)	(24.61)
Age: 45–55			−4592***	−4116***
			(27.42)	(34.52)
Age: 55–65			−12,018***	v11,119***
			(17.87)	(31.52)
Age: over 65			−2046***	−1466***
			(14.83)	(17.03)
Female				163.4***
				(13.73)
Civil status: married				441.5***
				(20.71)
Civil status: separated				−371.3***
				(60.37)
Civil status: widowed				−1208***
				(31.68)
Civil status: divorced				−294.7***
				(37.39)
Household: n. of adults				27.63***
				(6.797)
Household: n. of children				−185.0***
				(10.54)
Education: secondary				−1541***
				(17.24)
Education: higher				930.0***
				(30.08)
Health: good				−757.1***
				(19.64)
Health: fair				−1617***
				(23.78)
Health: bad				−2021***
				(29.14)
Health: very bad				−2342***
				(42.88)
Country, Year, and Country × Year fixed-effects		Yes		Yes
Constant	−1708***	−2185***	981.2***	2242***
	(8.840)	(125.6)	(99.12)	(102.7)
Observations	2,043,185	2,043,185	2,043,185	2,043,185
R-squared	0.001	0.022	0.278	0.293

Notes: The estimates are obtained using the specification in Eq. (1). Robust standard errors clustered at the household level in parentheses. The reference category for *Age* is *18–25*. The reference category for *Civil Status* is *Never Been Married*. The reference category for *Education* is *Primary*. The reference category for *Health* is *Very Good*. *Country* effects include Austria, Belgium, Czechia, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, and Sweden. *Year* effects include all the years from 2007 to 2018. *significant at the 10% level, **significant at the 5% level, ***significant at the 1% level. *Source*: authors' calculation from the data (EU-SILC and OECD, 2007–2018)

personal characteristics (Column 4), all significant at 1%. Figure 9 shows that, when excluding controls, Czechia, France, and Sweden are the only countries where the impact of an intra-EU migration background on the NFP is negative. Instead, when including controls, the number of such countries increases to eight. We can interpret this as an additional sign that background characteristics and compositional effects are fundamental for the more positive NFP of intra-EU migrants in most countries.

Furthermore, Fig. 10 reveals how, when controls are excluded, the estimated impact of an intra-EU migration background on the NFP greatly fluctuates in the years considered. When controls are included, the effect exhibits a sharp deterioration from 2007 to 2013, although it remains positive throughout, followed by a partial recovery. Several factors may explain these fluctuations. First, time effects may play a role: the impact declines during the global financial crisis of 2008–2009 and stays low through the European sovereign debt crisis of 2011–2012 (all years on the left side of Fig. 10). Second, intra-EU migration flows changed substantially during this period, driven by increased mobility, especially from Eastern to Western Europe and, to a lesser extent, from Southern to Northern Europe, the global financial crisis, and Brexit. Finally, after the 2004 EU enlargement, migrants from Central and Eastern Europe often faced transitional periods of up to seven years before gaining full access to welfare benefits in older member states.[18] This may partly explain why intra-EU migrants from these countries appear as stronger net fiscal contributors in the years before obtaining full access to welfare benefits, i.e., roughly from 2004 to 2011 (left half of Fig. 10).

Extra-EU migrants present several differences compared to intra-EU migrants regarding their NFP and the factors influencing it.[19] Column 2 of Table 6 shows that, when including only year and country effects and their interactions, the impact of having an extra-EU migration background on the individual NFP is similar to that of having an intra-EU one. However, when age and the other personal characteristics are included (Column 3 and 4), the estimate of the effect becomes strongly negative, -€1,106 and -€992.3 respectively, significant at 1%. Regarding the background characteristics in the last specification, most of them appear with similar effect sizes and statistical significance as they do for intra-EU migrants. Only the impact of having higher education shows a lower estimated effect size compared to the same variable in the intra-EU migrant specification, €810.2 versus €980.7, both significant at 1%.

As pictured in Fig. 11, including controls makes the effect of having an extra-EU migration background on the average individual NFP more negative in all countries in the sample. Czechia, Greece, and Portugal are the only three countries where the effect remains positive, though to a lesser degree, after including controls. This can probably be attributed to the relatively little generosity of the welfare states in these

[18] In our sample, this applies to migrants from Czechia, Estonia, Latvia, and Slovenia.

[19] Part of this difference may be because extra-EU migrants include refugees. Out of all arrivals of extra-EU migrants in Europe in 2019, just under 10% where asylum seekers who got refugee status. Their presence may condition our results since often they face difficulties to enter the labour market, and thus, make lower fiscal contributions. As mentioned throughout the text, the EU-SILC does not record migrants' migration motive(s), visa, or legal status. It is therefore not possible to distinguish between, for example, asylum seekers, refugees, international students, and family-reunification migrants. On the representativity of the dataset, see Footnote 6.

Table 6 Baseline analysis (OLS) for extra-EU migrants

	(1)	(2)	(3)	(4)
VARIABLES	NFP	NFP	NFP	NFP
Migrant	1358***	1226***	−1106***	−992.3***
	(28.53)	(28.71)	(26.46)	(26.08)
Age: 25–35			1012***	1283***
			(18.05)	(18.79)
Age: 35–45			1255***	1612***
			(20.33)	(22.78)
Age: 45–55			−4492***	−4068***
			(25.82)	(31.69)
Age: 55–65			−11,895***	−11,047***
			(17.23)	(28.77)
Age: over 65			−1940***	−1449***
			(14.42)	(16.30)
Female				187.0***
				(13.07)
Civil status: married				408.0***
				(19.30)
Civil status: separated				−401.4***
				(56.98)
Civil status: widowed				−1196***
				(30.23)
Civil status: divorced				−278.6***
				(35.79)
Household: n. of adults				57.27***
				(6.496)
Household: n. of children				−217.4***
				(9.844)
Education: secondary				−1490***
				(16.55)
Education: higher				810.2***
				(28.79)
Health: good				−698.9***
				(18.06)
Health: fair				−1565***
				(22.14)
Health: bad				−1974***
				(27.55)
Health: very bad				−2294***
				(41.47)
Country, Year, and Country × Year fixed-effects		Yes	Yes	Yes
Constant	−1708***	−2062***	1010***	2215***
	(8.840)	(116.5)	(92.24)	(95.80)
Observations	2,057,687	2,057,687	2,057,687	2,057,687
R-squared	0.001	0.022	0.287	0.302

Notes: Results are obtained using the specification in Eq. (1). Robust standard errors clustered at the household level in parentheses. The reference category for *Age* is *18–25*. The reference category for *Civil Status* is *Never Been Married*. The reference category for *Education* is *Primary*. The reference category for *Health* is *Very Good*. *Country* effects include Austria, Belgium, Czechia, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, and Sweden. *Year* effects include all the years from 2007 to 2018. *significant at the 10% level, **significant at the 5% level, ***significant at the 1% level. *Source*: authors' calculation from the data (EU-SILC and OECD, 2007–2018)

countries. Finally, Fig. 12 illustrates how, when excluding controls, the effect of having an extra-EU migration background on the NFP is continuously increasing for all the years from 2011 onwards, across countries. When included, the estimated effect becomes negative for all years and remains rather constant over time, suggesting that personal characteristics of extra-EU migrants, and in particular their younger age, are able to fully explain their more positive NFP (compared to natives) regardless of the years considered.

To summarise, even though Table 2 shows that both migrants and natives have an average negative NFP, when controls are excluded, we find that the NFP of all

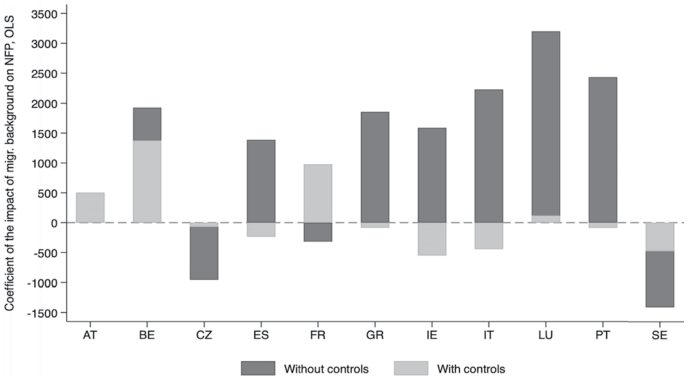
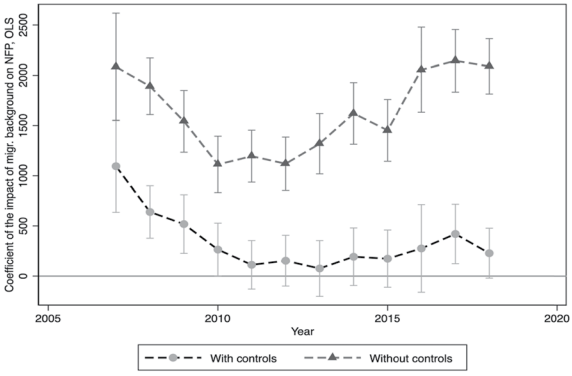


Fig. 9 Country-specific impact of an intra-EU migration background on NFP, OLS (2007–2018). *Notes*: The estimates are obtained using the specification in Eq. (1). The NFP is defined as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. All the values are adjusted for inflation and purchasing power parity. *Source*: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)

Fig. 10 Year-specific impact of an intra-EU migration background on NFP, across countries. *Notes*: The estimates are obtained using the specification in Eq. (1). The NFP is defined as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. All the values are adjusted for inflation and purchasing power parity. *Source*: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)



migrants is more positive (less negative) than that of natives. When controls are included, the NFP of intra-EU migrants remains positive, while the one of extra-EU migrants turns negative. Tables 4, 5, and 6, show strong compositional effects in

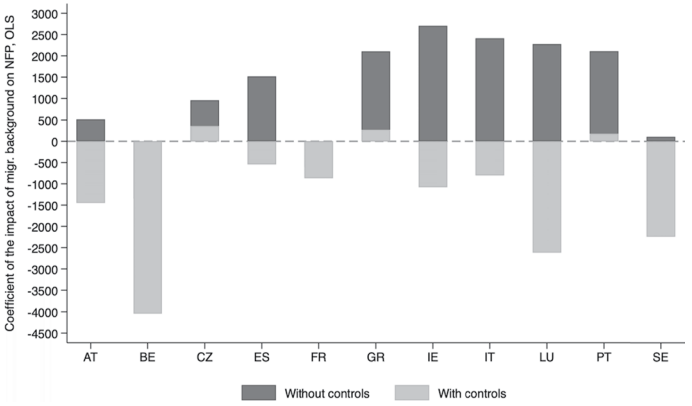


Fig. 11 Country-specific impact of an extra-EU migration background on the NFP, (2007–2018). *Notes*: The estimates are obtained using the specification in Eq. (1). The NFP is defined as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. *Source*: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)

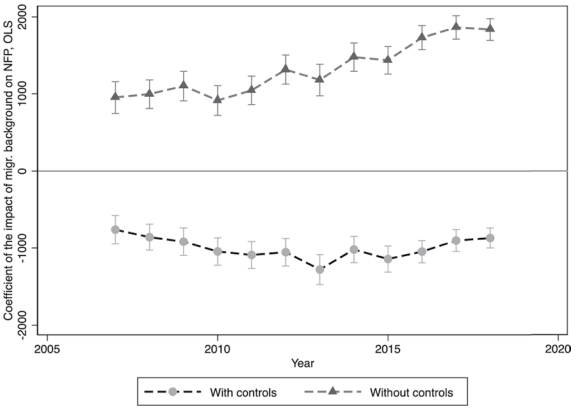


Fig. 12 Year-specific impact of an extra-EU migration background on the NFP, across countries. *Notes*: The estimates are obtained using the specification in Eq. (1). The NFP is defined as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. All the values are adjusted for inflation and purchasing power parity. *Source*: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)

terms of the background characteristics that we observe. These explain most of the positive effect of having an intra-EU migration background on the NFP, and fully explain the one of having an extra-EU migration background, indicating the presence of unobserved variables turning the estimate negative. More specifically, Tables 4, 5, and 6 show sizeable and statistically significant effects for age, which appears to be explaining most of the more positive NFP of migrant compared to natives, sex, civil status, family structure, education, and health. Given the relevant differences between migrants and natives in terms of these variables (Table 2 and Figs. 3 and 4) they are likely to be important drivers of the aforementioned composition effects. To further investigate the contribution of the variables we observe to the NFP gap between migrants and natives, in the next section we delve into the results of the decomposition analysis.

Table 7 Oaxaca-Blinder decomposition for a general migration background

	(1)	(2)	(3)
VARIABLES	Overall	Explained	Unexplained
Age		857.0***	505.2***
		(10.79)	(49.95)
Female		4.817***	−412.8***
		(0.330)	(22.62)
Civil status		25.29***	−198.8***
		(1.468)	(49.65)
Household: n. of adults		−2.406***	130.0***
		(0.315)	(44.94)
Household: n. of children		−77.75***	−291.4***
		(2.178)	(15.27)
Health		8.247***	−406.0***
		(1.663)	(54.75)
Education		64.49***	2,056***
		(2.222)	(42.43)
Country		143.2***	1073***
		(35.72)	(257.5)
Year		−4.320*	−534.9***
		(2.485)	(157.8)
Country × Year		−127.2***	214.6*
		(34.22)	(130.3)
Migrant	−936.1***		
	(22.64)		
Native	−1620***		
	(7.332)		
Difference	683.6***		
	(23.59)		
Explained	891.4***		
	(13.56)		
Unexplained	−207.8***		
	(21.32)		
Constant			−2342***
			(271.9)
Observations	2,785,244	2,785,244	2,785,244

Notes: The estimates are obtained using the specification in Eq. (6). Robust standard errors clustered at the household level in parentheses. Country effects include Austria, Belgium, Czechia, Estonia, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Portugal, Slovenia, Spain, and Sweden. Year effects include all the years from 2007 to 2018. *significant at the 10% level, **significant at the 5% level, ***significant at the 1% level. *Source*: authors' calculation from the data (EU-SILC and OECD, 2007–2018)

6.2 Oaxaca-Blinder decomposition results

Tables 7, 8 , and 9 present the results of the Oaxaca-Blinder decomposition of the NFP gap between migrants and natives across countries and years, using the specification in Eq. (6). The decomposition results are obtained as the products of the expected values of the variables in the vector of background characteristics and the corresponding coefficient estimates. Following Jann (2008), this approach allows us to identify the contribution of each variable to the explained and unexplained components of the decomposition. The corresponding standard errors, computed using the delta method (Oaxaca & Ransom, 1998), account for both the uncertainty in the estimated coefficients and the sampling variability of the control variables. We first present the results for all migrants combined and then separately for intra-EU and

Table 8 Oaxaca-Blinder decomposition for intra-EU migrants

	(1)	(2)	(3)
VARIABLES	Overall	Explained	Unexplained
Age		1397***	584.6***
		(17.60)	(99.10)
Female		3.676***	−855.0***
		(0.381)	(50.26)
Civil status		43.40***	82.29
		(2.167)	(104.8)
Household: n. of adults		−4.133***	−321.5***
		(1.024)	(106.2)
Household: n. of children		−43.77***	−387.3***
		(2.611)	(34.07)
Health		83.47***	−669.8***
		(2.627)	(101.5)
Education		174.7***	3034***
		(4.649)	(75.06)
Country		−59.71	2448***
		(92.07)	(587.1)
Year		−37.01***	−644.6
		(5.052)	(392.2)
Country × Year		−249.4***	106.3
		(87.85)	(363.3)
Migrant	−70.45		
	(50.66)		
Native	−1708***		
	(8.639)		
Difference	1638***		
	(51.29)		
Explained	1308***		
	(26.46)		
Unexplained	329.8***		
	(49.42)		
Constant			−3047***
			(632.5)
Observations	2,043,185	2,043,185	2,043,185

Notes: The estimates are obtained using the specification in Eq. (6). Robust standard errors clustered at the household level in parentheses. Country effects include Austria, Belgium, Czechia, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, and Sweden. Year effects include all the years from 2007 to 2018. *significant at the 10% level, **significant at the 5% level, ***significant at the 1% level. *Source*: authors' calculation from the data (EU-SILC and OECD, 2007–2018)

extra-EU migrants. Column 1 of Table 7 shows that the raw difference in the NFP between migrants and natives equals €683.6, consistent with the result reported in Column 1 of Table 4.

The explained part of this difference, i.e., the part explained by differences in endowments of background characteristics, adds up to €891.4, significant at 1% (Columns 1 and 2). Age, civil status, education, year, and country of residence positively contribute to the explained part of the difference, all significant at 1%. More specifically, age plays the main role in explaining the more positive NFP of migrants compared to natives, with a positive contribution of €857. Country of residence and education are the second and third variables with the highest positive contributions to the observed fiscal gap. This finding is consistent not only with previous findings in the literature, as individuals tend to migrate in their most productive years (Huber

Table 9 Oaxaca-Blinder decomposition for extra-EU migrants

	(1)	(2)	(3)
VARIABLES	Overall	Explained	Unexplained
Age		2281***	500.2***
		(14.71)	(43.53)
Female		3.593***	−586.0***
		(0.347)	(26.74)
Civil status		77.88***	−99.21**
		(1.920)	(47.92)
Household: n. of adults		5.144***	547.9***
		(0.668)	(53.79)
Household: n. of children		−105.9***	−468.2***
		(4.922)	(22.27)
Health		91.77***	−39.87
		(2.532)	(47.16)
Education		−5.610	1584***
		(3.758)	(46.00)
Country		0.768	599.4***
		(12.07)	(212.9)
Year		24.86***	−682.6**
		(6.945)	(293.5)
Country × Year		−22.92*	68.12
		(13.17)	(249.6)
Migrant	−350.2***		
	(27.20)		
Native	−1708***		
	(8.639)		
Difference	1358***		
	(28.41)		
Explained	2350***		
	(17.49)		
Unexplained	−992.3***		
	(26.22)		
Constant			−2416***
			(219.6)
Observations	2,057,687	2,057,687	2,057,687

Notes: The estimates are obtained using the specification in Eq. (6). Robust standard errors clustered at the household level in parentheses. Country effects include Austria, Belgium, Czechia, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, and Sweden. Year effects include all the years from 2007 to 2018. *significant at the 10% level, **significant at the 5% level, ***significant at the 1% level. *Source*: authors' calculation from the data (EU-SILC and OECD, 2007–2018)

& Oberdabernig, 2016; OECD, 2021b; Suari-Andreu & van Vliet, 2023), but also with the summary statistics discussed in Sect. "data"; the migrants in our sample are younger and more educated than natives in most of the countries and the years that we study (Figs. 3 and 4) The number of children in the household and country and year effects are the only background variables that negatively contribute to the explained part of the difference between the NFP of migrants and natives, aligning with findings from Boeri (2010) and Jakubiak (2020).

Regarding the unexplained part, it is negative and equals -€207.8 (Columns 1 and 3).[20] The unexplained part of the difference is difficult to interpret because it

[20] As explained in Sect. 4, Eq. 6 divides the unexplained part of the difference into two components. The first captures the impact of differences in the coefficients associated with observable characteristics for

captures three elements within one estimate: the differences in the returns to the characteristics included in the analysis, the influence of relevant observables not available in the data (e.g., language skills, legal status, migration motive, and year of immigration), and unobserved factors (e.g., discrimination and preferences). Among the background characteristics that we do observe, age, household size, education, country effects, and country-and-year effects positively contribute to the unexplained part of the difference between the NFP of migrants and natives (thus, improving the NFP of migrants). The returns to education and country effects are particularly large, €2,056 and €1,073 respectively, significant at 1%. On the contrary, being a female, civil status, number of children in the household, and year effects show large negative contributions, all significant at 1%.

The large and positive contribution of education to the unexplained part indicates that, regardless of the contribution of the different educational endowments (captured by the explained part), migrants enjoy higher returns to education. However, as mentioned above, the unexplained part is difficult to interpret because it captures not only the differences in returns but also the effect of variables that we do not observe. For the case of education for instance, we do not observe the type of educational degree and the country where the degree was issued. The positive returns we measure for migrants may be for instance due to the fact the European countries often attract high skilled migrants to take up jobs and tasks that cannot be easily filled with just the native population. To be able to better understand this result future work should focus on estimating separate returns for low- and high-skilled migrants.

Focusing on the eleven countries that separate intra-EU and extra-EU migrants, Column 1 of Table 8 shows that the difference between the NFP of intra-EU migrants and natives equals €1,638, significant at 1%. Contrary to the findings of the decomposition for the general pool of migrants (Table 7), both the explained and the unexplained parts of the difference between the NFP of intra-EU migrants and natives report positive values, €1,308 and €329.8 respectively, significant at 1%. All background characteristics are significant at 1%. Regarding the explained part (Column 2), age and education are the ones making the largest positive contributions, €1,397 and €174.7 respectively. Country-and-year effects report instead the largest negative contribution, -€249.4. The negative sign does not tell us much about the cause of such effects, but it indicates that there are large and significant. They could possibly include two complementary mechanisms. First, different EU countries might attract different types of intra-EU migrants in different years; for example, some countries might attract lower-skilled or lower-wage workers, impacting the overall NFP negatively. Second, there may be strong variation in the tax and benefits systems across countries and years.

Regarding the unexplained part (Column 3), most variables appear with the same effect sizes and signs as the ones of the decomposition for the general pool of migrant. Notably, the contributions of education and country grow even more, totalling €3,034 and €2,448 respectively. This may suggest that intra-EU migrants are able to convert

migrants compared to the pooled group, while the second does the same but for natives. For simplicity, in Tables 7, 8, and 9, the two components of the unexplained part are reported together and are not separately displayed.

their education and country-related characteristics into higher net fiscal contributions than natives, even after controlling for background characteristics. A possible explanation is that their qualifications and skills may be more easily transferable across EU member states, as found by Salamońska (2025). In addition, they may be positively selected on unobserved characteristics such as motivation and adaptability, or benefit from host-country labour market conditions that favour educated migrants. Given the composite nature of the unexplained part, it is not possible to further explore these hypotheses with the present data, but they may serve as useful starting point for future research.

For extra-EU migrants, Column 1 of Table 9 shows that the difference between their NFP and the one of natives equals €1,358. Unlike intra-EU migrants, while the explained part of this difference is strongly positive and equals €2,350, the unexplained part is negative and equals -€992.3, significant at 1%. As shown in Column 2, age appears to matter even more for the explained part of the difference between the NFP of extra-EU migrants and natives, compared to what find for intra-EU migrants (Table 8); its positive contribution tops €2,281, significant at 1%. This may originate from the fact that extra-EU migrants are generally younger than intra-EU migrants and natives (Eurostat, 2024a). In our sample, considering only the eleven countries that allow to distinguish between intra-EU and extra-EU migrants, 48% of extra-EU migrants are under 35, compared to 42% of intra-EU migrants.

The contribution of education to the explained part of the difference equals -€5.6 and is statistically insignificant. In other words, despite the summary statistics show that extra-EU migrants are on average more educated than natives for most countries and years in the sample (Table 3, and Figs. 13 and 14 in the Appendix), higher education endowments do not seem to increase their NFP. This interesting finding is in line with previous evidence demonstrating that extra-EU educational degrees, qualifications, and training have little positive impact on the economic integration of migrants in Europe (Bevelander & Pendakur, 2014; Montt, 2017; OECD & European Commission, 2023; Visintin et al., 2015). Similarly, the contribution of country effects to the NFP of extra-EU migrants is also very small in effect size (0.768) and statistically insignificant, suggesting that extra-EU migrants are a rather homogenous group of migrants across the countries in the sample.

Regarding the unexplained part (Column 3), most variables appear with the same sign and significance level as for intra-EU migrants. One notable exception is the number of adults in the household, which for intra-EU migrants has a large negative contribution (-€321.5), while for extra-EU migrants it holds a large positive contribution (€547.9). Given the nature of the unexplained part, it is impossible to provide a univocal interpretation of this asymmetry in the effect of the number of adults in the household for the two migrant groups. For instance, intra-EU migrants might have easier access to family benefits due to EU regulations compared to extra-EU migrants, which can result in higher benefit claims per household, particularly in larger households, leading to a negative fiscal impact. Interestingly, education and country effects, which show large and positive contributions to the unexplained part of the difference for intra-EU migrants, appear with smaller but still positive and significant effects for extra-EU migrants. This may be because differences in the returns to education and country of origin between extra-EU migrants and natives are less

pronounced than for intra-EU migrants, partly reflecting barriers to qualification recognition and greater heterogeneity of sending countries.

7 Conclusion

In this study, we examine the differences between the NFP of migrants and natives in 15 EU countries from 2007 to 2018. To do so, we use repeated cross-sectional individual data on income and welfare benefits from the EU-SILC and combine these with information on personal income taxes and social security contributions from the OECD. We employ an Oaxaca-Blinder decomposition to dissect the factors which drive the differences between the NFP of intra-EU migrants, extra-EU migrants and natives. Our results provide a contribution to the understanding of the specific factors determining the different NFP of migrants and natives in Europe.

Overall, migrants tend to have a relatively more positive average individual NFP compared to natives, with the effect being dependent on the migration background considered and the personal characteristics included in the specification. When excluding controls, migrants exhibit a more positive NFP by €683.6. This is consistent with recent evidence indicating that migrants often make net fiscal contributions to the host countries (Boffi et al., 2024; Christl et al., 2022; Fiorio et al., 2024). However, when controlling for country and year effects and personal characteristics, the effect becomes negative (-€207.8). Separating between intra-EU and extra-EU migrants, we find that having an intra-EU migration background has always a positive and statistically significant effect on the average individual NFP (€329.8, when including controls). Instead, having an extra-EU migration background has a negative and statistically significant effect (-€992.3, when including controls). The different effects for intra-EU and extra-EU migrants are a common finding in various single-country studies in the literature. They reflect not only the importance of investigating personal characteristics and the welfare state typology of the host country, but also that the countries and the years of selection matter as well (Bogdanov et al., 2014; Chojnicki et al., 2022; Dustmann & Frattini, 2014; Furlanetto & Robstad, 2019; Hansen et al., 2017; Izquierdo et al., 2010; Österman et al., 2024; Ruist, 2014).

For this reason, we apply an Oaxaca-Blinder decomposition to dissect the differences between the NFP of migrants and natives into the factors contributing to its explained and unexplained parts. The findings reveal that age, education, and country effects are the largest contributors to the difference between the NFP of migrants and natives. Among these, age is identified as the biggest contributor to the explained part of the difference. This is in line with previous evidence highlighting age as a key determinant for migrants' welfare receipt (Barrett & Maître, 2013; Huber & Oberdabernig, 2016; Jakubiak, 2020; OECD, 2021b; Suari-Andreu & van Vliet, 2023). Education plays an important role as well, but only for intra-EU migrants (€174.5). The contribution of education to the explained part of the difference between the NFP of extra-EU migrants and natives is close to zero and statistically insignificant. Other personal characteristics such as gender, health, civil status, and the number of adults and of children in the household contribute to the explained and unexplained parts, with varying effect sizes. Overall, the personal characteristics of intra-EU migrants

show more positive contributions to both the explained and unexplained parts of the difference. In contrast, extra-EU migrants exhibit a blurrier picture, with no common pattern among their personal characteristics.

The findings suggest that disentangling the specific variables influencing the relationship between immigration, welfare integration, and personal characteristics is of paramount importance for governments and researchers. For example, European policymakers should consider that, over a long period of time and across a large number of countries, migrants are (mostly) young individuals who do not represent a fiscal burden to the host country, especially if coming from another EU member state. Additionally, large country-effects suggest that certain mechanisms may be at work. One mechanism could be that different countries attract different types of migrants, which calls for more equitable and clearer attraction and retention policies. A second mechanism could be that there are significant differences between the tax and benefits systems of EU countries, which calls for a careful scrutiny of the imbalances between different fiscal regimes.

Another important result from a policy perspective is the divergence between the contribution of education to the NFP of intra-EU and extra-EU migrants. Education positively contributes to the NFP of intra-EU migrants, while it is nearly irrelevant for extra-EU migrants. This finding is consistent with the conclusions of previous research on skill mismatches, overqualifications and employment gaps between intra-EU and extra-EU migrants (Bevelander & Pendakur, 2014; Brücker et al., 2021; Montt, 2017; OECD & European Commission 2023; Visintin et al., 2015).

An important limitation of our study is that our method does not account for dynamic and indirect general equilibrium effects. Fully incorporating these would require several strong assumptions, which are not testable in a study covering 15 countries for 12 years. A promising avenue for future research is to exploit the growing availability of longitudinal data at the European level. Such data would allow researchers to examine how migrants with different personal characteristics integrate at varying speeds across welfare state regimes, thereby introducing more dynamic elements into the analysis. Ultimately, by linking migrants' personal characteristics to their fiscal trajectories relative to natives, it would be possible to design more effective integration strategies to address the challenges and opportunities that different population groups present to national welfare systems and to the EU as a whole.

Appendix

See Figs. 13, 14, 15 and 16.

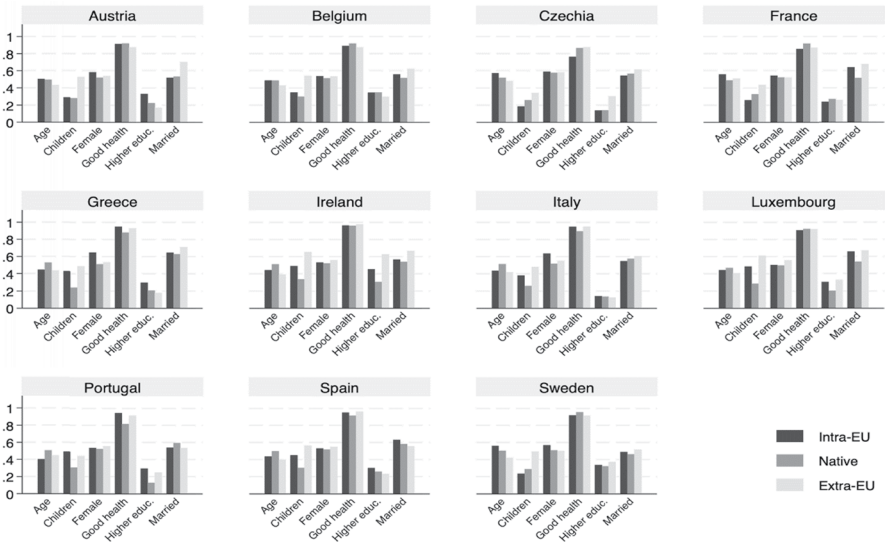


Fig. 13 Country-specific summary statistics across migration backgrounds (2007–2018). *Notes*: Age is reported as *Age*/100 to not disrupt the readability of the other variables displayed.
Source: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)

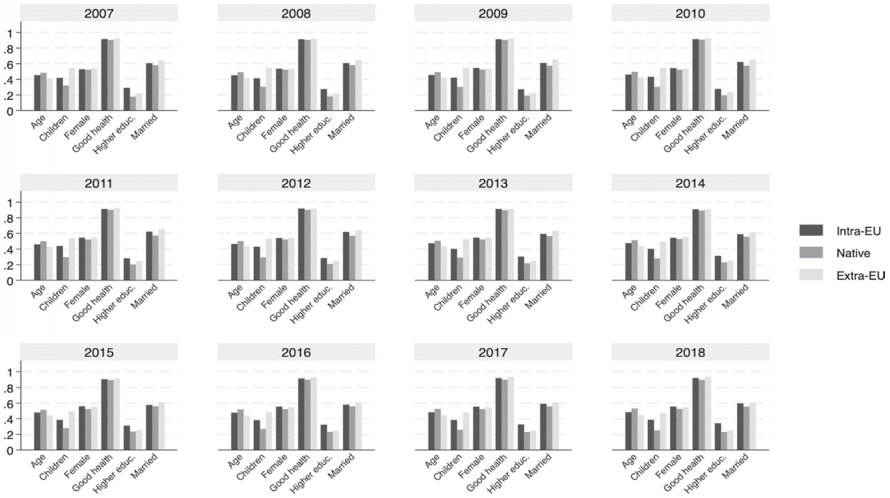


Fig. 14 Year-specific summary statistics across migration backgrounds, across countries. *Notes*: Age is reported as *Age*/100 to not disrupt the readability of the other variables displayed.
Source: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)

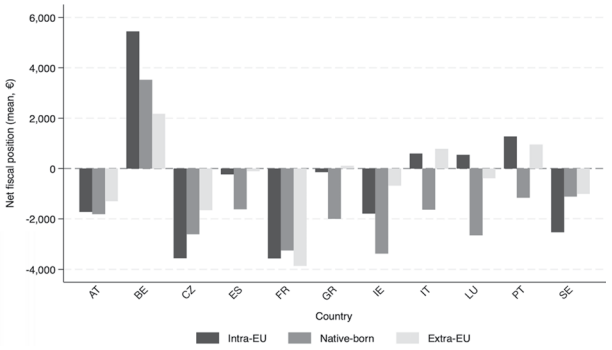


Fig. 15 NFP by origin, across countries (2007–2018). *Notes*: The NFP is defined as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. All the values are adjusted for inflation and purchasing power parity.
Source: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)

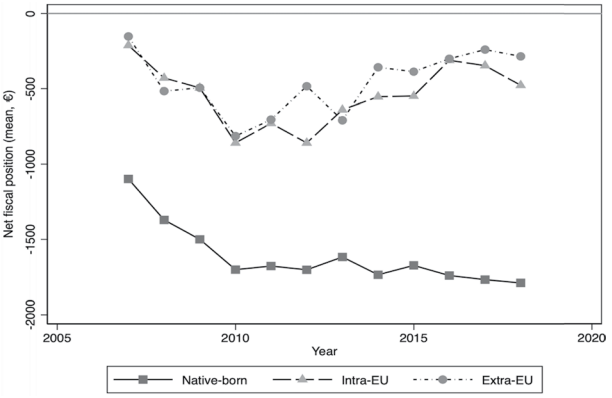


Fig. 16 NFP by origin over the years. *Notes*: The NFP is defined as the total direct fiscal contributions paid by an individual minus the total welfare benefits they receive in the form of direct cash transfers. All the values are adjusted for inflation and purchasing power parity.
Source: authors' elaboration from the data (EU-SILC and OECD, 2007–2018)

See Tables 10 and 11.

Table 10 Baseline analysis (OLS) for a general migration background, with *Age* as a continuous variable

	(1)
Variables	NFP
Migrant	−250.5***
	(21.62)
Age	611.4***
	(1.940)
Age squared	−8.277***
	(0.0191)
Female	157.0***
	(11.14)
Civil status: married	501.1***
	(17.19)
Civil status: separated	−166.4***
	(45.95)
Civil status: widowed	200.6***
	(27.46)
Civil status: divorced	78.34***
	(28.66)
Household: n. of adults	144.5***
	(5.576)
Household: n. of children	−112.4***
	(7.803)
Education: secondary	−1123***
	(15.72)
Education: higher	932.0***
	(24.60)
Health: good	−919.2***
	(17.20)
Health: fair	−1797***
	(20.43)
Health: bad	−1,760***
	(24.77)
Health: very bad	−1705***
	(37.33)
Country, Year, and Country × Year fixed-effects	Yes
Constant	−8848***
	(105.3)
Observations	2,785,244
R-squared	0.260

Notes: Except for *Age*, the estimates are obtained using the specification in Eq. (1). Robust standard errors clustered at the household level in parentheses. The reference category for *Civil Status* is *Never Been Married*. The reference category for *Education* is *Primary*. The reference category for *Health* is *Very Good*. *Country* effects include Austria, Belgium, Czechia, Estonia, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Portugal, Slovenia, Spain, and Sweden. *Year* effects include all the years from 2007 to 2018. *significant at the 10% level, **significant at the 5% level, ***significant at the 1% level. *Source*: authors' calculation from the data (EU-SILC and OECD, 2007–2018)

Table 11 Oaxaca-Blinder decomposition for a general migration background, unpooled model

Variables	(1)	(2)	(3)	(4)
	Overall	Explained	Unexplained	Interaction
Age		873.9***	610.8***	−122.5***
		(10.99)	(54.47)	(6.902)
Female		6.804***	−395.3***	−19.50***
		(0.372)	(21.66)	(1.242)
Civil Status		30.67***	−168.3***	−35.88***
		(1.520)	(46.10)	(4.462)
Household: n. adults		−2.562***	133.1***	−2.924***
		(0.330)	(45.84)	(1.022)
Household: n. children		−55.63***	−204.2***	−109.3***
		(2.214)	(10.54)	(5.771)
Health		7.665***	−405.9***	0.441
		(1.586)	(55.53)	(1.292)
Education		50.34***	1973***	97.03***
		(2.182)	(40.63)	(3.843)
Country		109.8***	842.5***	483.1***
		(24.60)	(261.7)	(71.43)
Year		−5.532*	−538.5***	4.839
		(3.056)	(155.5)	(7.315)
Country × Year		34.22	266.6**	−213.4***
		(21.43)	(112.8)	(69.99)
Migrant	−936.1***			
	(22.64)			
Native	−1,620***			
	(7.332)			
Difference	683.6***			
	(23.59)			
Explained	830.1***			
	(14.82)			
Unexplained	−228.4***			
	(20.42)			
Interaction	81.87***			
	(15.23)			
Constant			−2342***	
			(271.9)	
Observations	2,785,244	2,785,244	2,785,244	2,785,244

Notes: The estimates are obtained using an unpooled estimator. Robust standard errors clustered at the household level in parentheses. Country effects include Austria, Belgium, Czechia, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, and Sweden. Year effects include all the years from 2007 to 2018. *significant at the 10% level, **significant at the 5% level, ***significant at the 1% level. *Source*: authors' calculation from the data (EU-SILC and OECD, 2007–2018)

Author contributions G.B. designed the study, conducted the study, and wrote the manuscript. E.S.A. and O.V.F. edited the manuscript. All authors reviewed the manuscript.

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Data availability This study is based on data from Eurostat, EU Statistics on Income and Living Conditions (EU-SILC, 2007–2018). The responsibility for all conclusions drawn from the data lies entirely with the authors.

Declarations

Conflict of interest The authors declare no competing interests.

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