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The Net Fiscal Positition of Migrants in Europe: Trends and Insights

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The net fiscal position of migrants in Europe: trends and insights[i]

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ABSTRACT

In this study, we measure and compare the net fiscal positions of native-born individuals, intra-EU migrants, and extra-EU migrants in 15 EU countries from 2007 to 2018. We do so by employing repeated cross-sectional data from the EU-SILC on personal income and welfare benefits (contributory and non-contributory). We combine these with OECD information on personal income taxes and social security contributions at the national and local levels. For most countries and years, we find that all three population groups are net fiscal recipients. However, natives receive larger amounts of contributory benefits than migrants, while the opposite is true for non-contributory benefits. As a contribution to the literature, we examine trends in the net fiscal positions of three population groups over time. In earlier years (2008-2011), the net fiscal positions of all three groups are negatively affected by the global financial crisis. However, by 2017 migrants recover their pre-2008 net fiscal position while natives remain at a considerably lower level. As a result, natives have the relatively most negative net fiscal position across most countries and years, with a growing fiscal gap with migrants. This finding is more accentuated in Southern European countries, where migrants are often net fiscal contributors.

Keywords: net fiscal position; migration; welfare state regimes; European Union;
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1. Introduction

In 2020, 55 million foreign-born residents lived in the European Union (EU) (12.4% of its whole population): 37.5 million extra-EU migrants and 17.5 million intra-EU migrants[1] (Eurostat, 2022a). Within the European debate about migration, the fiscal position of migrants is typically one of the most contentious issues. The arrival of migrants is often controversial since, on the one hand, migration may put pressure on the welfare state by increasing competition for public services while, on the other hand, it may help sustain the welfare state by expanding the tax base (De Giorgi and Pellizzari, 2009; Preston, 2014). Especially since the large influx of refugees of 2015, newspapers have been filled with debates about whether or not to grant migrants the same welfare benefits as native-born residents (Alesina et al., 2023; Reeskens and van der Meer, 2019). This debate is often dominated by misinformation and political interests[2]. In the present study, we intend to improve it by providing empirical evidence on the net fiscal position (NFP) of migrants in the EU.

In its most basic form, the NFP of migrants is typically calculated as the difference between the taxes paid in the host country and the monetary value of public services and benefits received (Vargas-Silva et al., 2022). More elaborate versions of the NFP take into account indirect effects, i.e., effects on the public finances via the potential influence of immigration on wages, unemployment, and prices, among others, and dynamic effects, which are usually calculated as the present value of the future NFP and require assumptions about labour market trajectories and stay rates (Hinte and Zimmermann, 2014). In the present study, we calculate static and direct effects of immigration on public finances and explore trends over a long period of time (2007 to 2018) for a large group of 15 EU countries.

Most previous works on the subject are single-country studies that provide mixed evidence on the direction of the net fiscal contribution of migrants[3]. The latter appears to be dependent on the type of welfare state of the host country, migrant background characteristics, and the method employed for its calculation (Clemens, 2021). In general, the net fiscal contribution of migrants is estimated to be around +/- 1% of the host country's GDP (Hennessey and Hagen-Zanker, 2020). More specifically, single-country studies show evidence that migration tends to have relatively more negative fiscal impact in Scandinavian countries characterized by rich welfare assistance (Furlanetto and Robstad, 2019; Hansen et al., 2017; Ruist, 2014) and a relatively more positive one in Southern European countries characterized by a more restricted welfare access (Chojnicki et al., 2018; Izquierdo et al., 2010).

[1] 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 this paper, as commonly done in the literature, we categorize them as 'intra-EU migrants'.

[2] Alesina et al. (2023) and Markaki and Blinder (2019a, 2019b) report on the interesting misalignments between the perceptions European residents have of the welfare usage made by migrants and their actual welfare recipiency.

[3] It is also worth noticing that migrants generally reach the host country in their most productive years (i.e., the prime working age), while the host country does not pay for the human and social capital they accumulated in their origin country, for example through education.

However, Österman et al. (2023), focusing only on intra-EU migration, find no evidence supporting the idea that migrants generate a greater fiscal burden in more generous welfare states. Instead, they identify the main divide in the net fiscal impact of EU migrants to be between Western European and Eastern European countries. More in particular, they find that the net fiscal contribution of EU migrants in the Western European welfare states, especially in Mediterranean countries, is significantly higher than in Eastern European ones.

The literature shows that the type of immigration matters as well: earlier evidence suggests that high-skilled migrants are most often net contributors, whereas low-skilled migrants or refugees are mostly net recipients (Boeri, 2010). More recent contributions challenge this view, showing that the burden that low-skilled migrants put on public finances is limited if any[4] (Clemens, 2021). For instance, Ruist (2020), using UNHCR statistics on the world refugee population, calculates that if the EU received all refugees in Asia and Africa at that time, the consequent average annual fiscal cost over the lifetime of these refugees would be at most 0.6% of the whole EU's GDP. For the United States, Colas and Sachs (2021) find that unskilled migrants generate an average net fiscal contribution of $2,000 per year through indirect effects.

This study contributes to the literature in several ways. First, this is the first study to use a static, direct, and bottom-up approach entirely based on microdata at the individual level to estimate the NFP of migrants for as long as 12 years (2007-2018) and as many as 15 EU countries. While most existing studies focus on a single country or year, our study is based on a comparative approach in which we systematically analyse the trends in the NFP of migrants across countries and over time. Recent comparative works on the NFP of migrants in Europe are either focused on shorter periods, if using microdata (like Fiorio et al., (2023)), or built upon more complex methodologies, if for longer periods (like OECD, (2021)). In doing so, we provide an update of Boeri (2010), who uses a similar method to calculate the NFP of migrants for a rather similar group of countries for only four years of study. Furthermore, considering such a range of countries provides a good opportunity to study country-level heterogeneity. As the system of benefits and taxes can be expected to be one of the main determinants of the NFP, we examine whether the different types of welfare states of the countries are related to different NFP for migrants and natives. Finally, the period we consider is especially interesting since it provides a picture of the situation before, during, and after the global financial crisis of 2008 and the subsequent sovereign debt crisis of 2011, while it also includes the peak in refugee arrivals of 2015.

To conduct the empirical 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 contributory (education, unemployment, retirement, sickness, survival) and non-

[4] Whether migrants are employed and how much they earn has also an important impact on their estimated net fiscal contribution. The OECD (2021) compares estimates of the net contributions across 25 member countries, from 2006 to 2018. It finds that the age of migrants (specifically, being of prime working age, i.e., 25-54) is the single most important demographic factor explaining differences in their net fiscal contributions compared to the native-born population. A key reason for this is that migrants in this age group are most likely to be working.

contributory (children, housing, social exclusion) benefits. We combine these data with information from the OECD on rates, thresholds, maximum contributions, and allowances for personal income taxes and social security contributions at the national and the local levels[5]. In doing so we estimate the NFP of natives and migrants at the individual level. We adopt a static, direct, and bottom-up approach that consists of subtracting welfare benefits received from taxes and social security contributions paid at the individual level and then calculating country- and year-specific averages.

The findings show that intra-EU migrants present the highest share of receipt and mean benefit values conditional on receipt for contributory benefits. In addition, they appear to be net fiscal contributors at the beginning and at the end of the period and net fiscal recipients in between. Extra-EU migrants present instead the lowest receipt and the lowest mean value for contributory benefits, while being net fiscal recipients for the whole period given their higher reliance on non-contributory benefits. However, the NFP of extra-EU migrants becomes relatively more positive and similar to the one of intra-EU migrants over the twelve years considered. Finally, due to their higher reliance on contributory benefits and lower fiscal contributions, native-born individuals appear as the subgroup with the relatively most negative NFP throughout the whole period for most countries.

From a comparative welfare state analysis, it emerges that Continental countries (Austria, Belgium, France, Germany, Luxembourg) do not present similar trends over time in the NFPs of the three population subgroups. Instead, Southern European countries (Greece, Italy, Portugal, Spain) show very comparable trends. In most Southern European countries, migrants are net fiscal contributors for most of the period considered and present an average yearly NFP that is €1,500-2,000 higher compared to native-born individuals.

The rest of the paper is structured as follows. Section 2 discusses methodological approaches to estimate the NFP. Section 3 provides a review of the literature on the NFP and the wider fiscal integration of migrants in Europe. Section 4 presents the data and the methodology employed in this study. Section 5 presents the results. Section 6 concludes.

2. Methodological Approaches

Previous studies on the NFP of migrants in Europe have adopted various methodological approaches. They can be classified in different ways. First, they can be classified as static or dynamic. The former compares the contributions of migrants to public finances with the services and benefits received at a specific point in time (generally, one or more years). The advantage of this approach is that it does not require assumptions about future lifetime-contributions. The disadvantage is that it provides only a snapshot at a particular point in time, while the fiscal effects of individuals often depend on where they are in their life cycle (e.g., young workers tend to contribute more than old retirees). The consequence is that the estimated fiscal impact of a given group in a given year will depend on factors such as age,

[5] The OECD groups every sub-national tax at the regional and municipal level under the 'local' label.

age at arrival in the host country, and duration of stay and will not reflect neither their total nor their average lifetime fiscal contribution. The alternative is the dynamic approach, which, by making strong assumptions about stay rates, labour market participation, productivity changes, tax rates, and government spending, among others, computes the present value of contributions and costs over the entire lifetime of a given group. The limitation of this approach is that it requires assumptions that are difficult to test, vary across countries and years, and can largely affect the final results.

An additional distinction can be made between direct and indirect measurements of the NFP. The direct way to measure an individual's NFP involves calculating the taxes and subtracting the welfare benefits and public services received. This approach requires gathering specific data on the individual's welfare transactions over a certain period of time. The indirect way looks instead at the broader implications that one own's fiscal behaviour has on the national economy. For example, indirect fiscal effects may be generated by the labour market activity of migrants, their contribution to the national GDP level, and innovation, among others. Despite being further reaching, this second approach requires assumptions about the actual economic behaviours of different population groups, for example, about their participation rates, or productivity levels, or consumption patterns.

A final distinction can be made between bottom-up and top-down approaches. The former makes use of microdata to calculate individual NFP that can then be aggregated for a particular country/region and time. The advantage of this method is that it relies on individual-level variation. However, the disadvantage of this method is that, ideally, it would require complete individual data on direct taxes (personal income taxes at national and local levels, wealth taxes, social security contributions, among others) and indirect taxes (VAT), benefits received, and use of public services (like education and healthcare, wherever they are administered by the government). The top-down approach aims to solve this problem by relying on all the revenue and expenditure items recorded in the host country's public budget and apportioning them to the migrant and native-born populations accordingly. However, a key limitation of this second approach is that it requires strong assumptions on how much to apportion to the different population groups. Most studies use the share of the population represented by migrants and, at best, they assume that migrants account for the same share of the total of public benefits and services as natives with similar demographic characteristics (often based on age, health, gender). Yet migrants have often unobserved characteristics that differentiate them from native-born individuals and as such use public benefits and services differently.

To make our estimation as rigorous as possible and adopt the least strong assumptions for the years and the countries considered, in this study we opt for a static, direct, bottom-up approach to calculate the NFP of migrants and natives. In other words, we fully rely on individual microdata and then derive country- and year-specific averages for contributions, benefits, and NFP of the different population groups. In doing that, we voluntarily ignore dynamic and indirect aspects in the NPF calculation, so that our estimates have maximum reliability for the direct net fiscal contribution of migrants and natives, for the years and the countries considered.

3. Previous Evidence from Europe

Among the existing studies on the NFP of migrants in Europe, the vast majority is country-specific. Recent evidence shows small but positive fiscal contributions of migrants, with different findings for intra-EU and extra-EU migrants. Generally, extra-EU migrants appear to fiscally contribute relatively less than intra-EU migrants (Bogdanov et al., 2014). This is the case for instance in Belgium, where a report from the National Bank of Belgium (2020) shows that the lower fiscal contribution of extra-EU immigrants is due to their lower employment rates. For Sweden, Ruist (2014) finds that intra-EU migrants are the only group of net fiscally contributing migrants, which did not change after the eastern enlargement of the EU in 2004. They appear to generate less public revenue than the population on average, but they also appear to cost less. For Denmark, Hansen et al. (2017) show that intra-EU migrants are net fiscal contributors and extra-EU migrants are net fiscal recipients over the years 2002-2013. For France, in the years from 1979 to 2011, Chojnicki et al. (2018) show that the net fiscal contribution of intra-EU migrants decreases over the period, due to the ageing of this group. Furthermore, the study shows that the fiscal contribution of all migrants further decreased after the global financial crisis of 2008. Using data from 1995 to 2011, Dustmann and Frattini (2014) show that migrants who arrived in the United Kingdom from 2000 onwards generate a positive net fiscal contribution over ten years, irrespective of their country of origin. More recent evidence from Vargas-Silva et al. (2022) shows that migrants European Economic Area (EEA) contribute more than the natives due to higher taxes and social security contributions.

Overall, the findings of these studies appear to be highly dependent on the welfare system of the host country. Generally, the more generous welfare systems of Scandinavian countries are found to be relatively fiscally worse off due to the presence of migrants, while the less generous welfare states of Southern Europe seem to benefit more. This suggests that migrants can probably play a more important role in alleviating the burden of a particularly aged population in Southern Europe (Furlanetto and Robstad, 2019; Izquierdo et al., 2010). However, comparisons are difficult to make in the current literature given that each study focuses on a different country using a different methodology and data[6].

In contrast, an important advantage of multi-country studies is that they enable cross-country comparisons as they apply the same empirical approach to all countries. Yet, the available evidence from multi-country studies is substantially scarcer[7]. Boeri (2010) is the first comparative work on the fiscal impact of migrants in Europe. Using EU-SILC cross-sectional data from 2004 to 2007, he finds that migrants are over-represented among recipients of non-contributory transfers. He also shows

[6] Hennessey and Hagen-Zanker (2020) conduct a state-of-the-art literature review of the available empirical evidence on the NFP of migrants based on the data, methods, and findings of each study.

[7] A large part of the literature has focused exclusively on migrants' welfare recipiency, rather than on the complete NFP. This is mostly due to data limitations. For country-specific evidence on welfare recipiency, see Pellizzari (2013) for Italy, Suari-Andreu and van Vliet (2023) and Zorlu (2013) for the Netherlands, and Roman (2019) for the United Kingdom, among others. For multi-country evidence, see Barrett and Maître (2011), Conte and Mazza (2019), Huber and Oberdabernig (2016), Jakubiak (2020), and Könings (2018).

evidence of residual dependency of migrants, meaning that they receive more transfers than natives after accounting for their educational attainments and family characteristics, notably in the countries with the most generous welfare states.

More recently, Nyman and Alshkog (2018) combine EU-SILC data with information from national accounts from 2004 to 2015 to study intra-EU migration and find that intra-EU migrant households generate net fiscal contributions of around €5,000 per year in most European countries. On average, they appear as higher net fiscal contributors than native households. Using the same data, Österman et al. (2023) expand on the previous findings by looking at the various impacts of intra-EU migrants on different welfare state regimes, showing that they fiscally contribute more than natives in all welfare regimes in Europe, with a particularly strong effect in Southern European countries. Employing the tax-benefit simulation model Euromod with EU-SILC data from 2015 only, Christl et al. (2022) find that natives, intra-EU migrants, and extra-EU migrants are all net fiscal recipients, with migrants currently enjoying a less negative fiscal position. Furthermore, by adopting a dynamic approach, they estimate that the average NFP of natives will worsen in the near future, due to the ageing European population. Finally, Fiorio et al. (2023) study the net fiscal contribution of migrants in the 14 EU member countries prior to the 2004 eastern enlargement (with the exclusion of the United Kingdom) for the period 2014-2018, finding that, on average, migrants make larger net fiscal contributions than natives, even when they are compared to natives in the same position of the national income distribution.

Compared to the recent works by Österman et al. (2023), Christl et al. (2022), and Fiorio et al. (2023), the present study is the first one that aims to provide comparative trends in the NFP of natives, intra-EU migrants, and extra-EU migrants for as long as twelve years and as many as 15 countries, with a static, direct, and bottom-up approach entirely built on individual microdata. This allows us to draw inferences on the evolution of the NFP for the different population groups in very different economic times (for example, before and after the global financial crisis). Moreover, the time trends allow us to see whether natives, intra-EU, and intra-EU migrants present converging trends in their fiscal positions across the main European welfare regimes or not.

3. Data and Methodology

For the empirical analysis, we employ data from two different sources. All the individual data on benefits and gross personal income come from the European Union Statistics on Income and Living Conditions (EU-SILC). The EU-SILC collects repeated cross-sectional and longitudinal data for all EU member countries from 2003 onwards. We select the data for the period from 2007 (when most countries became part of the dataset) to 2018. Ideally, the longitudinal data would be particularly useful to investigate how the NFP of migrants evolves over time and the years since arrival in the host country. Unfortunately, the longitudinal data report insufficient information about the migration background of the respondents. For this reason, we use the repeated cross-sections. Regarding the pool of countries, all the countries

reporting full information on gross personal income and welfare benefits for the years selected are included. These are 15 EU countries: Austria, Belgium, Czechia, Estonia, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Portugal, Slovenia, Spain, and Sweden. 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[8]. For a map of the countries included in the sample, see Figure 1 below.

Figure 1: Countries included in the sample.

For the information on income tax thresholds, tax rates, maximum contributions, surtaxes, and deductibles at the national and local levels, we follow Boeri (2010) and use the OECD database from the yearly publication *Taxing Wages*[9]. We combine the information from OECD with the income data from the EU-SILC to calculate taxes and social security contributions paid for each individual and year in our sample. Different rates are applied to employees and self-employed. We only make an exception for wealth taxes, which are directly reported by the EU-SILC and thus do not require complementary information from the OECD.

[8] Unfortunately, the data do not provide information on the reason for migration. Therefore, it is not possible to distinguish asylum seekers, for example, from family reunification migrants. Since country residents are the population of reference of this survey, seasonal and short-stay migrants are likely to be excluded from the sample.
[9] Some countries apply different personal income tax rates and thresholds depending on demographic characteristic (e.g., age, civil status) and labour market parameters (e.g., hours of work). We distinguish between self-employed and employees. We are unable to make further distinctions.

Regarding welfare benefits, the EU-SILC divides cash transfers in two categories: contributory or non-contributory. Contributory benefits are cash transfers the individual receives in an amount corresponding in part or totally to payments previously made to the government. For example, old-age benefits and unemployment benefits depend in part on the amount of social security contributions the individual paid in their career. Non-contributory benefits instead do not depend on previous contributions but may still depend on other variables. For example, in multiple countries, child benefits depend on the number of children in the household (the higher the number of children, the higher the amount received).

In the EU-SILC, contributory benefits are measured at the individual level and include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, and education benefits. Non-contributory benefits are instead measured at the household level and include child benefits, housing benefits, and social assistance benefits. Given that our analysis is at the individual level, as previously done by Christl et al. (2022) who also use the EU-SILC to estimate the NFP of migrants in Europe but for fewer countries and years, individual non-contributory benefits are calculated by dividing the amount received at the household level by the number of adults in the household. Finally, we employ Eurostat databases on price levels and price increases 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 or gross disposable income (-7,822), our final sample consists of 3,158,262 observations corresponding to adult individuals in 15 EU countries, from 2007 to 2018. Migrants, who we define as foreign-born residents[10], make up 10.7% (3.6% intra-EU and 7.1% extra-EU) of the observations (337,534).

5. Results

5.1. Contributions

Table 1 shows on the left side the average yearly direct fiscal contribution (in euros) to the public balance for native-born individuals, intra-EU migrants, and extra-EU migrants, conditional on having contributions above zero, across countries.[11]

[10] The alternative would be to define migrants as all foreign nationals resident in a country. However, citizenship rules differ greatly among the countries considered.

[11] To avoid that years with more observations weigh more than others in the calculation of the average yearly values, we them by first determining the average value per year and then calculating the mean of those values. The same approach is applied to derive country averages.

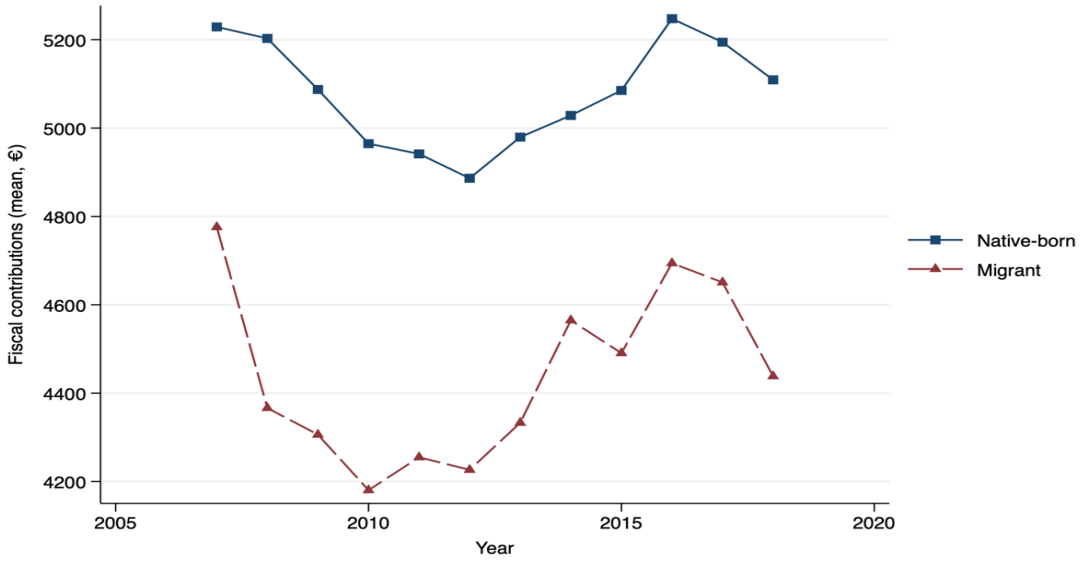
Table 1: Individual fiscal contributions, mean values (€) and shares of contributors (2007-2018).

	Mean values			Shares of contributors		
	Natives	Intra-EU	Extra-EU	Natives	Intra-EU	Extra-EU
Austria	8,908	9,496	5,428	0.45	0.38	0.46
Belgium	16,758	20,515	12,655	0.48	0.47	0.42
Czechia	560	546	577	0.87	0.76	0.75
Estonia*	1,273	-	938	0.84	-	0.71
France	5,002	5,444	4,548	0.57	0.51	0.51
Germany*	5,913	-	5,375	0.53	-	0.36
Greece	1,475	1,832	1,693	0.81	0.75	0.68
Ireland	6,541	5,166	6,918	0.38	0.52	0.48
Italy	3,662	3,164	2,974	0.80	0.81	0.77
Latvia*	1,382	-	973	0.90	-	0.84
Luxembourg	9,833	7,930	5,375	0.49	0.65	0.61
Portugal	2,309	3,283	3,512	0.78	0.84	0.81
Slovenia*	3,048	-	2,585	0.95	-	0.92
Spain	4,505	3,393	2,304	0.40	0.48	0.47
Sweden	4,350	4,128	3,816	0.86	0.75	0.65
Average	5,809	5,900	4,527	0.63	0.63	0.60

Notes: Individual fiscal contributions include personal income taxes at the national and local level, social security contributions, and wealth taxes. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. The last row in the table reports the average values across countries. * The country does not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row.

On the right side, it shows the share of contributors in each of the three population groups. In line with similar findings in the literature (Nyman and Alshkog, 2018; Österman et al., 2023; Ruist, 2014), intra-EU migrants are the population group with the highest average yearly contribution to the public balance (€5,900, with a 63% share of contributors), native-born individuals are the second (€5,809, also with a 63% share of contributors), and extra-EU migrants are the last (€4,527, with a share 60% of non-zero contributors), also in line with the literature (Bogdanov, 2014; Hansen, 2017). To complement Table 1, Figure 2 depicts the average fiscal contributions of migrants and native-born individuals over time.

Figure 2: Mean fiscal contributions over time by general migration background.



Notes: Individual fiscal contributions include personal income taxes at the national and local level, social security contributions, and wealth taxes. Mean values exclude zero values and are adjusted for inflation and purchasing power parity.

The average values for both groups considerably decrease during the Great Recession reaching low points in the sample in 2010 and 2012, probably due to high unemployment rates, before increasing again and hitting the highest point in the sample in 2016. After 2016, the values slightly decrease again, probably due to the higher influx of refugees who arrived in 2015, reaching in 2018 values similar to the ones in 2008.[12] Figure 3 shows, for the subsample of countries that make a distinction between intra- and extra-EU migrants, that the fluctuations in the mean fiscal contributions of migrants are largely driven by intra-EU migrants, while extra-EU migrants show more stable and considerably lower fiscal contributions throughout the whole period. However, as displayed in Figure 4, the share of non-zero taxpayers follows similar trends for all three population groups, with more marked up-and-downs for intra-EU migrants. These are consistent with the automatic stabilizer mechanism built within the more progressive European fiscal systems. In other terms, given that on average, across years and countries, intra-EU migrants are the population group with the highest average yearly direct fiscal contribution, it follows that their taxes significantly decrease in times of economic downturn and increase in times of economic prosperity. This dynamic reflects the responsiveness of fiscal systems to economic conditions, ensuring a degree of stability by adjusting the tax burden based on individuals' ability to pay.

Even though all mean values in Table 1 have been adjusted for purchasing power parity and inflation, absolute values are not easily comparable across countries because of different economic and demographic characteristics (e.g., GDP level, welfare state typology, age structure, etc.). Therefore,

[12] Unfortunately, the EU-SILC does not provide information on the reasons for migration. So, it is not possible to distinguish between refugees and other types of migrants.

similarly to other studies such as Huber and Oberdabernig (2016), Jakubiak (2020), and OECD (2021), we present the numbers also as within-country ratios in Table 2[13]. This table reports the migrants-to-native ratios of the direct average fiscal contributions in four periods, 2007-2009, 2010-2012, 2013-2015, and 2016-2018[14]. A coefficient below one indicates that migrants contribute less than native-born individuals. Across countries, intra-EU migrants show an average fiscal contribution amounting to 0.95 the one of natives in 2007-2009, which increases to 1.04 in 2016-2018. In other words, in more recent years, intra-EU migrants pay more direct taxes and social security contributions than natives. This could be attributed to personal characteristics of intra-EU migrants, such as a higher share of them being in their prime working age (25-54) compared to natives (Eurostat, 2022a), and to successful integration policies. The average fiscal contribution of extra-EU migrants instead amounts to 0.81 the one of natives in 2007-2009, increasing to 0.91 in 2016-2018. In addition, the standard deviation and the coefficient of variation indicate that the dispersion of the fiscal contributions across countries has increased over time.

When considering the general migrant category, migrants present an average fiscal contribution higher than native-born individuals at the beginning of the study period in only two out of the 15 countries included in the sample (France, Portugal), and in four at the end of the period (Belgium, Czechia, Greece, Portugal). In seven countries the direct fiscal contribution of migrants with respect to natives increases from 2007 to 2018 (Austria, Belgium, Czechia, Estonia, Greece, Ireland, Portugal), in one it remains constant (Sweden), and in seven it decreases (France, Germany, Italy, Latvia, Luxembourg, Slovenia, Spain).

5.2 Benefits

Table 3 shows the average mean values, conditional on receipt, and the share of receipt for contributory benefits, across countries.

Table 3: Contributory benefits, mean values (€) and shares of receipt (2007-2018).

	Mean values			Shares of receipt		
	Natives	Intra-EU	Extra-EU	Natives	Intra-EU	Extra-EU
Austria	11,564	10,959	6,005	0.44	0.42	0.38
Belgium	9,843	9,933	7,088	0.42	0.39	0.33
Czechia	5,397	5,656	5,027	0.48	0.61	0.32
Estonia*	2,596	-	3,190	0.50	-	0.70
France	12,137	11,729	10,794	0.44	0.50	0.44

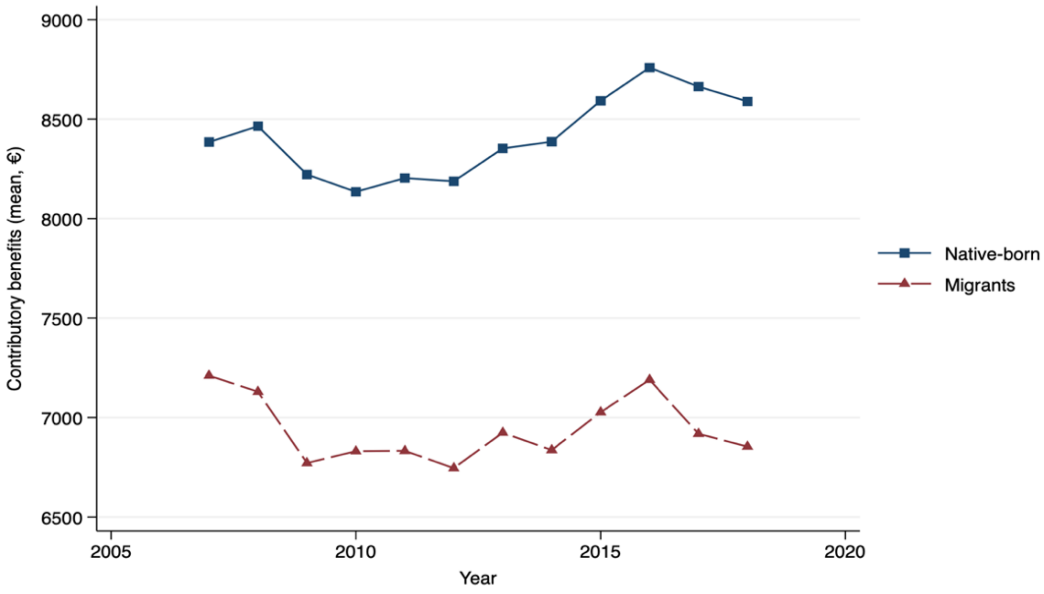
[13] Zero values are excluded from the calculation of the ratios. This is because ratios do not work when zero values are included. Also, given that the ratios are derived from the absolute values discussed in Table 1 (and in the corresponding figures), where zero values are excluded from the means, it is logical to follow the same rule.
[14] We use three-year averages in order to get more meaningful comparisons.

Germany*	11,360	-	12,698	0.43	-	0.60
Greece	7,869	7,790	5,074	0.39	0.18	0.17
Ireland	9,442	7,221	7,170	0.51	0.42	0.28
Italy	9,782	5,479	4,338	0.46	0.33	0.29
Latvia*	2,137	-	2,553	0.51	-	0.72
Luxembourg	17,415	12,716	8,971	0.37	0.25	0.18
Portugal	7,220	7,595	7,533	0.42	0.18	0.24
Slovenia*	4,966	-	5,215	0.51	-	0.54
Spain	8,140	5,461	3,815	0.43	0.32	0.28
Sweden	6,156	7,252	3,895	0.61	0.61	0.55
Average	9,542	8,345	6,337	0.45	0.38	0.31

Notes: Contributory benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, and education benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. The last row in the table reports the average values across countries. * The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row.

Regarding contributory benefits, natives present the higher average amount (€9,542) and share of receipt (45%), intra-EU migrants are the second population group by average amount and receipt (€8,345 and 38%), and extra-EU migrants the last (€6,337 and 31%). Furthermore, Figure 5 illustrates that the average amount of contributory benefits received by native-born individuals slightly increases during the sample period, while the one for migrants decreases (Figure 6 shows that this happens also for the subsample of countries that allow to separate between intra- and extra-EU migrants).

Figure 5: Contributory benefits over time by general migration background.



Notes: Contributory benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, and education benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity.

The primacy of native-born individuals is explained by their higher average take-up (33%) and higher average amount of old-age benefits (€11,702) compared to migrants, as previously also found by Conte and Mazza (2019), Huber and Oberdabernig (2016), and Jakubiak (2020). Native-born individuals are also the only one of the three population groups whose average amount of old-age benefits received is higher at the end of the period than at the beginning, probably due to the increasing average age of the native European population (Eurostat, 2022a).[15] Regarding non-contributory benefits (Table 4), the rankings of native-born individuals and extra-EU migrants are inverted.

Table 4: Non-contributory benefits, mean values (€) and shares of receipt (2007-2018).

	Mean values			Shares of receipt		
	Natives	Intra-EU	Extra-EU	Natives	Intra-EU	Extra-EU
Austria	1,831	2,122	2,425	0.40	0.35	0.62
Belgium	1,242	1,371	1,547	0.40	0.40	0.60
Czechia	1,194	1,520	1,417	0.18	0.17	0.17
Estonia*	622	-	490	0.47	-	0.27
France	1,706	1,619	2,472	0.44	0.37	0.59
Germany*	1,773	-	2,133	0.38	-	0.32
Greece	556	532	567	0.23	0.26	0.37
Ireland	1,647	2,080	2,909	0.70	0.71	0.77
Italy	414	580	669	0.29	0.33	0.41
Latvia*	377	-	274	0.44	-	0.29
Luxembourg	2,149	2,667	2,907	0.43	0.58	0.71
Portugal	426	434	455	0.26	0.34	0.32
Slovenia*	745	-	845	0.48	-	0.50
Spain	1,304	1,221	1,335	0.06	0.08	0.13
Sweden	1,458	1,444	2,350	0.37	0.33	0.64
Average	1,266	1,417	1,732	0.34	0.36	0.48

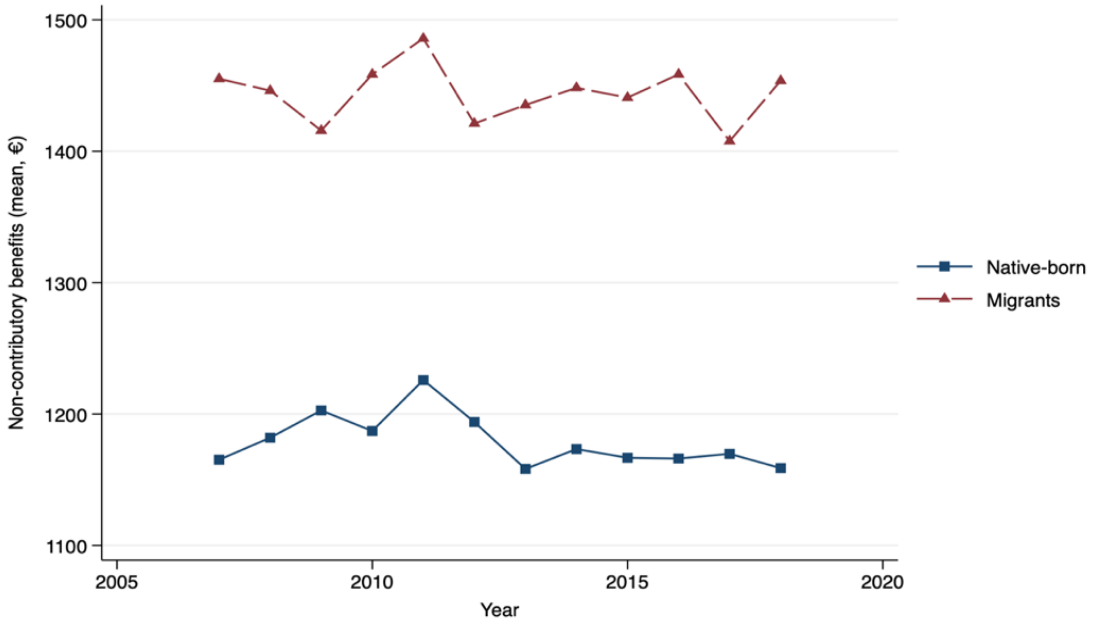
Notes: Non-contributory benefits include child benefits, housing benefits, and social exclusion benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity. The last row in the table reports the average values across countries. * The data for this country do not distinguish between intra-EU and

[15] Figures and tables for singular welfare benefits (e.g., old-age, sickness, unemployment, etc.) are not reported for reasons of conciseness but are available upon request.

extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row.

Native-born individuals present the lowest mean value (€1,266) and share of receipt (34%), intra-EU migrants are the second population group by average amount (€1,417) and receipt (36%), while extra-EU migrants show the highest levels of both (€1,732 and 48%). Figure 7 shows that the average amount received in non-contributory benefits remains fairly constant both for natives and migrants from 2007 to 2018, with a spike in 2011 which is likely linked to the sovereign debt crisis that hit Southern European countries in that year.

Figure 7: Mean non-contributory benefits over time by general migration background.



Notes: Non-contributory benefits include child benefits, housing benefits, and social exclusion benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity.

In Figure 8, when considering only the eleven countries that allow the distinction between intra- and extra-EU migrants, the three population groups show more marked decreases from 2007 to 2018. It is worth noticing that the average contributory transfer is often five or six times bigger than the average non-contributory one, across all countries and population groups. We can expect this to have a large impact on the NFP calculation. In other words, assuming similar levels of direct fiscal contributions, an individual relying more often and for higher amounts on contributory benefits will have a more negative NFP than an individual relying for the most part on non-contributory benefits. Examining the countries in the sample more in detail, the gap between the average amounts of the two types of benefits is particularly wide in Greece, Italy, Portugal, and Slovenia. This indicates that the welfare systems in these countries are relatively more oriented towards contributory transfers.

As done for the contributions, Table 5 and Table 6 report the migrant-to-native ratios for average contributory and non-contributory benefits received in 2007-2009, 2010-2012, 2013-2015, and 2016-2018. A ratio under one means that migrants receive fewer benefits than native-born individuals. For contributory benefits, the two migrant groups present similar trends. Across countries, in 2007-2009 intra-EU migrants received on average 0.92 times the amount of contributory benefits of natives, while in 2016-2018 the amount reduces to 0.88. For extra-EU migrants, the amount of contributory benefits decreases from 0.72 the one of natives to 0.65. Regarding non-contributory benefits, the two migrant groups present opposite trends. For intra-EU migrants, the ratio in the amount of transfers received compared to natives decreases from 1.21 in 2007-2009 to 1.11 in 2016-2018, on average when pooling all countries together. For extra-EU migrants, the ratio in the amount of benefits received compared to natives increases from 1.30 in 2007-2009 to 1.35 in 2016-2018.

In sum, from 2007 to 2018, intra-EU migrants relatively decrease their amount of both contributory and non-contributory benefits received compared to natives. Similarly, extra-EU migrants relatively decrease their amount of (more costly, but partially self-financed) contributory benefits received compared to natives, but instead relatively increase their amount of (less costly, but partially not self-financed) non-contributory benefits received. These different trends can be explained by several factors. First, they hint at internal changes in the composition of the pool of migrants (in particular of those extra-EU), and their skill level, over the period considered. For instance, from 2007 to 2018, the share of asylum seekers among non-EU migrants has increased (Eurostat, 2022b). Second, as Figure 9 shows, while the share of receipt for contributory benefits remains relatively constant over time for both migrant groups (around 38% and 31% for intra-EU and extra-EU migrants respectively), it increases from around 42% to 46% for native-born individuals. This is consistent with the rapid ageing of native-born Europeans in most EU countries.

As an overall picture, Table 7 presents the migrant-to-native ratios for average total benefits received. Both groups of migrants witness decreasing ratios in the amounts of total benefits received compared to natives from 2007 to 2018, intra-EU migrants from 0.87 to 0.79 and extra-EU migrants from 0.67 to 0.60. In other words, migrants in recent years rely on welfare benefits for lower amounts than what they did in 2007, compared to natives. These downward-sloping trends in the migrant-to-native total benefits ratios are confirmed in Figure 11 and are explained by the growing reliance of natives on contributory benefits, which make up most of the total benefits because of their large monetary values. To give the exact numbers, the data show that the average amount received in total welfare benefits by migrants decreases from around €3,865 in 2007 to €3,398 in 2018, while it increases from € 3,845 to €4,211 for native-born individuals over the same period, across countries. Furthermore, the standard deviation and the coefficient of variation show that migrant-to-native ratios for average total benefits received have somewhat converged across European countries over time.

5.3 Net Fiscal Positions: Trends across Countries and Years

After studying trends in contributions and benefits separately, now we proceed to the results of the NFP calculation. Table 8 aggregates individual country averages across all years.

Table 8: NFP, mean values (€, 2007-2018).

Country	Native-born	Intra-EU migrants	Extra-EU migrants
Austria	-1,811	-1,723	-1,298
Belgium	3,424	5,282	2,029
Czechia	-2,337	-3,325	-1,404
Estonia*	-520	-	-1,716
France	-3,283	-3,680	-3,893
Germany*	-2,433	-	-6,376
Greece	-2,028	-159	88
Ireland	-3,434	-1,851	-902
Italy	-1,672	580	767
Latvia*	-6	-	-1,091
Luxembourg	-2,658	475	-428
Portugal	-1,349	1,243	907
Slovenia*	-2	-	-835
Spain	-1,756	-242	-161
Sweden	-528	-1,767	-1,127
Average	-1,585	-469	-493

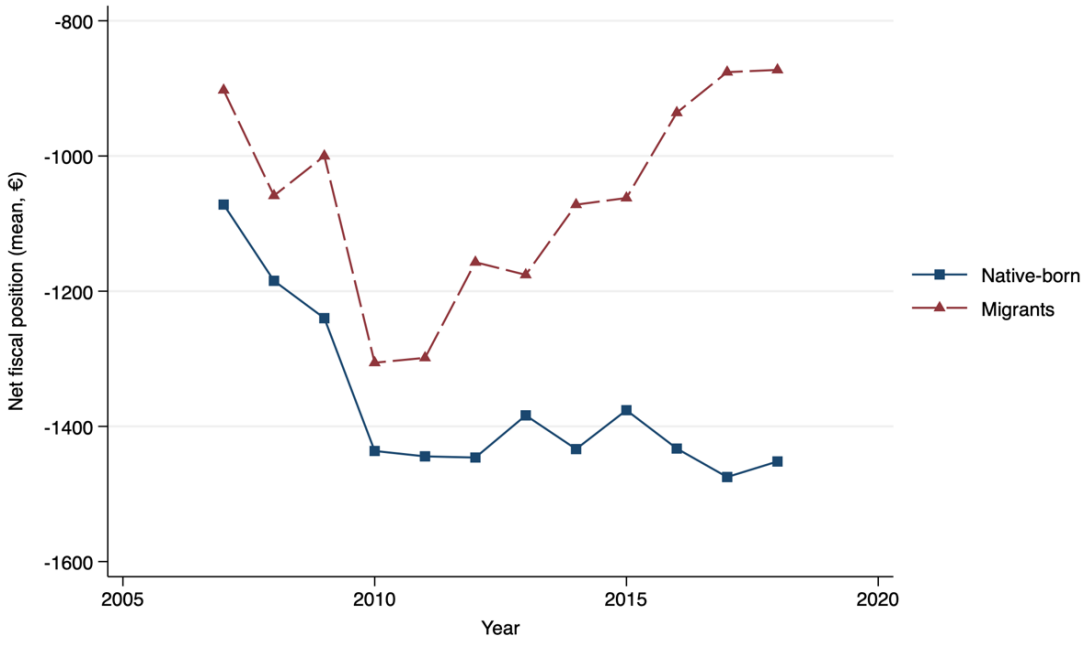
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. All the values are adjusted for inflation and purchasing power parity. The last row in the table reports the average values across countries. * The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row.

On average, all three population groups appear as net fiscal recipients, to different degrees. Native-born individuals exhibit the most negative NFP (-€1,545), while intra-EU migrants and extra-EU migrants show relatively similar values (-€469 and -€493, respectively). In other terms, migrants display a relatively less negative NFP compared to natives by an average of around €1,000 per year, across countries. This result is in line with recent findings remarking the relatively more positive average NFP of migrants compared to natives in Europe and debunks the ungrounded argument that migrants are a more expensive direct fiscal drain than natives (Christl et al., 2022; Fiorio et al., 2023).[16] As a

[16] It should be reminded once more that, while the individual fiscal balance of migrants in the years prior to migration is often ignored in the literature and in the general debate on the fiscal impact of immigration, host countries do not pay for the human and social capital accumulated by migrants in their origin country, for example

contribution to this, our analysis shows that the gap in the NFP between migrants and natives has widened in recent years. As depicted in Figure 12, the NFP of both native-born individuals and migrants reach low points in 2010, reflecting the aftermath of the Great Recession. However, similarly to what Table 9 presents, there is as a key difference between the trends of the two groups. The NFP of migrants starts recovering from 2011, reaching a new peak in 2017. Instead, the NFP of natives does not recover and reaches its lowest point in 2017.

Figure 12: NFP over time by general migration background.



Notes: The individual NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. All the values are adjusted for inflation and purchasing power parity.

The resurgence of migrants' NFP could be linked to several economic dynamics, including improved employment opportunities resulting from the broader economic restart, country-specific factors and policies, and compositional changes within the pool of migrants themselves. Conversely, the NFP of native-born individuals failed to rebound after 2010, hitting its lowest point in 2017. This stagnation could be influenced by challenges in adapting to evolving labour markets, demographic shifts, as the native population is ageing fast, and potentially less responsive social welfare policies. To further explore these trends, Figure 13 differentiates between intra-EU and extra-EU migrants, focusing on the eleven countries that allow such a distinction. Interestingly, both groups start with similar NFP in 2007 and follow parallel trajectories until 2018. In 2018, extra-EU migrants demonstrate a slightly

through education, while they have to partly do so for their native resident population. Including this would make the fiscal balance of natives even more negative.

less negative NFP than intra-EU migrants. As discussed in Sections 5.1 and 5.2, these parallel trends are not the result of similar fiscal behaviours. Intra-EU migrants appear to pay higher taxes and social security contributions while receiving more contributory benefits. Conversely, extra-EU migrants contribute less in taxes and social security contributions, relying much less on contributory benefits and more on non-contributory transfers.

Table 9 introduces the NFP as contributions-to-benefits ratios, illustrating their evolution over time. These ratios, presented in Panel A, Panel B, and Panel C, offer a more comparable metric across countries by controlling for country-specific effects affecting both contributions and benefits simultaneously. A coefficient under one means that the average individual receives more benefits than what this person contributes, and vice-versa. The three population groups present different trends over time. For native-born individuals, at the start of the period, contributions cover 0.74 of the benefits and 0.68 at the end. For both groups of migrants, contributions cover instead the entirety of benefits by the end of the period. For intra-EU migrants, the ratio between benefits and contributions grows from 0.99 in 2007-2009 to 1.03 in 2016-2018, while for extra-EU migrants it grows from 0.95 to 1.00.[17]

It is noteworthy that in the three-year period between 2016 and 2018, the contributions-to-benefits ratios for migrants resurge and surpass pre-Great Recession levels, while this never happens for native-born individuals. The more negative NFP of native-born individuals relative to migrants and its deterioration over the years can be attributed to their growing reliance on contributory benefits (especially pensions), coupled with a decrease in total benefits for migrants. In addition, this is also influenced by the raising tax and social security contributions paid by migrants over the whole period, as discussed in Sections 5.1 and 5.2. In only five countries (Greece, Ireland, Luxembourg, Portugal, Sweden) natives pay more contributions than what they receive in benefits in 2018 compared to 2007; for intra-EU migrants, this happens in seven countries (Austria, Belgium, Ireland, Italy, Portugal, Spain, Sweden), and for extra-EU migrants in six (Czechia, Greece, Ireland, Italy, Luxembourg, Sweden). For the last three years of the period, from 2016 to 2018, in only two countries native-born individuals directly contribute to the fiscal balance more than what they receive in benefits (Belgium, Latvia); for intra-EU migrants, the number is four (Belgium, Italy, Luxembourg, Portugal) and for extra-EU migrants, it is six (Belgium, Greece, Ireland, Italy, Luxembourg, Portugal).

5.4 Net Fiscal Positions: Trends across Welfare State Types

Previous studies have extensively documented that an individual's NFP is influenced by the welfare state type of their residing country (Chojnicki et al., 2018; Furlanetto and Robstad, 2019; Hansen et al., 2017; Österman et al., 2023; Ruist, 2014). To some extent, welfare states of European countries can be

[17] Note that the pooled country averages in the last row of Table 9 exclude the countries where it is not possible to distinguish between intra-EU and extra-EU migrants. If included, the value for the contributions-to-benefits ratio for the overall migrant category would hover around 0.80, reflecting the more negative NFP of migrants in these countries.

clustered into welfare state types; groups of countries whose welfare states have – at a certain level of abstraction – a number of characteristics in common (Arts and Gelissen, 2002; Esping-Andersen, 1990; Lauzadyte-Tutliene et al., 2018). Sapir et al. (2004) propose four main models: the Nordic model (Denmark, Finland, the Netherlands, Sweden), which features a high level of social protection and tax progressivity (high degree of income redistribution); the Continental model (Austria, Belgium, France, Germany, Luxembourg), which relies on strong social protection mostly of contributory nature; the Anglo-Saxon model (Ireland, the UK), which is focused on low non-contributory social protection; the Southern European model (Greece, Italy, Portugal, Spain), which is characterized by lower social expenditure (greatly devoted to pensions)[18]. Out of the 15 countries in our sample, all countries from the Continental and Southern European models are included, whereas only one each from the Anglo-Saxon and Nordic models are represented.[19] For this reason, we restrict our analysis of welfare state typologies to the differences within and between the Continental and Southern European models.

Regarding fiscal contributions in Continental countries, Table 1 shows that, across years, intra-EU migrants appear as the average top contributors in Austria, Belgium, and France, while natives do so in Germany (for which it is not possible to distinguish between the two groups of migrants) and Luxembourg. Extra-EU migrants appear to have the lowest average contributions in all Continental countries. In Southern European countries, natives are the top average contributors in Italy and Spain, while in Greece intra-EU migrants are at the top and in Portugal it is extra-EU migrants.

For contributory benefits, Table 3 shows that natives and intra-EU migrants are the two population groups with the highest average amount of contributory transfers in all countries in both welfare models, often with very little gap between them. Extra-EU migrants lag behind in all countries, except for Portugal, where they have a mean value almost comparable to the one of intra-EU migrants. For non-contributory benefits, we see the opposite picture. Table 4 shows that extra-EU migrants receive the highest average non-contributory transfers in all countries in both welfare state models.

We find even more interesting results when comparing the NFP of the three population groups across the two welfare state regimes. Figures 14, 15, 18, 19, and 24 in the Appendix show that in Continental countries the NFP of native-born individuals, intra-EU migrants, and extra-EU migrants have no common trends over time. All three population groups experience various ups and downs in their NFP in all Continental countries from 2007 to 2018. Instead, in Southern European countries, as shown in Figures 20, 22, 25, and 27 in the Appendix, migrants (both intra-EU and extra-EU) appear as net fiscal contributors for most of the period (except for Spain from 2010 onwards). In Italy and Portugal, migrants are net fiscal contributors for the whole period considered. In Italy, a migrant directly

[18] Although more recent classifications include also Central European, Eastern European, and Baltic countries in two or three additional welfare models (Draxler and van Vliet, 2010; Ellwardt et al., 2014; Fenger, 2007; Lauzadyte-Tutliene et. al., 2018), the one made by Sapir et al. (2004) remains the main point of reference for comparative welfare scholars and EU policymakers. See a critical review by Lafuente-Lechuga et al. (2018).
[19] As discussed in Section 3, the selection of the countries is based on data availability for contributions and benefits.

contributes around net €700 on average per year to the public balance. In Portugal, this contribution is around €1,000. In Greece and Spain, the values of their average NFP are closer to zero. Conversely, native-born individuals appear as net fiscal recipients in all Southern European countries. This is due to their higher reliance on contributory benefits, like pensions, which constitute the largest part of Southern European welfare spending[20]. Also, as captured by Table 7, migrants, no matter whether intra-or extra-EU, receive a lower amount of total benefits compared to natives in all Southern European countries.

In summary, in all Southern European countries, the average migrant has a yearly NFP that is between €1,500 and €2,000 higher than the average native-born individual. This is the case for all years between 2007 and 2018. This finding points to the Southern European welfare model as a welfare type where migrants, no matter the origin, tend to alleviate the burden of the local ageing population, while not receiving generous direct fiscal benefits in return. This is in line with previous findings by Furlanetto and Robstad (2019), Hansen et al. (2017), and Izquierdo et al. (2010). In Continental countries, partially due to different demographic (for example, France's population is older than Germany's (Eurostat, 2022c)) and labour market (for example, employment in Luxembourg is very different from employment in France) characteristics, we do not observe results similar to the ones of Southern European countries.

6. Conclusion

This study contributes to the literature on the fiscal integration of migrants in Europe by looking at trends in the NFP of native-born individuals, intra-EU migrants, and extra-EU migrants for 15 EU countries from 2007 to 2018. We use repeated cross-sectional individual data on income and benefits from the EU-SILC and combine it with information on personal income taxes and social security contributions from the OECD to have reliable estimates of the direct fiscal impact of the three population groups. Our methodology is built upon a static, direct, and bottom-up approach that voluntarily ignores indirect taxes, usage of public services (like education and healthcare), and indirect and dynamic fiscal effects to strictly focus on direct fiscal effects for the countries and years considered. While acknowledging the fact that these missing elements may influence the NFP of the different population groups differently, the empirical evidence from this study refutes the common misconception that migrants are a direct net drain on public finances across most countries and years.

As found by Christl et al. (2022), and Fiorio et al. (2023) in recent studies on the NFP of migrants in Europe for shorter periods of time or fewer countries, when migrants result as net fiscal recipients, they most often do it to a lesser degree than native-born individuals. More specifically, the findings show that migrants present a relatively less negative average NFP than native-born individuals in 10

[20] Despite native-born individuals pay a higher average amount of fiscal contributions relatives to migrants across most countries and years, they also receive a disproportionally higher amount of contributory benefits, which in turn makes their NFP more negative. This is because of the pay-as-you-go nature of contributory benefits, where younger generations finance the benefits of older ones through their contributions. In this sense, intergenerational transfers are key aspect of pay-as-you-go systems.

countries out of 15, across years. In five countries, migrants are average net fiscal contributors over the whole period (Belgium, Greece, Italy, Luxembourg, Portugal). Native-born individuals are the population group that relies the most on and receives the highest amounts in contributory benefits. In addition, the net fiscal contribution made by migrants presents a constant increase over the twelve-year period considered, while the contribution from natives remains rather constant. This results in a growing gap between the NFP of natives and migrants.

The plausible mechanisms behind these trends are multiple. First, the composition of the migrant pool has deeply changed from 2007 to 2018, both within the intra- and extra-EU groups and at the overall level. For example, (lower skilled) migrants from Central and Eastern Europe who joined the EU after the 2004 enlargement had often to wait years before being allowed to draw benefits from the host country's welfare state, as Western European governments often implemented policies to prevent welfare tourism (Jakubiak, 2020; Österman et al., 2023). Second, our results show that the average NFP of native-born individuals deteriorates following the global financial crisis of 2008-2009 and the sovereign debt crisis of 2010-2011 without ever recovering, while the average NFP of migrants reaches its pre-crisis level in 2017. Third, the structures and the typologies of welfare states matter as well. For example, the findings of this study confirm previous evidence that Southern European countries, where the access to the welfare state is more restricted and the welfare spending is oriented mostly towards pensions, are the ones where migrants have the relatively most positive average NFP, while native-born individuals have the relatively most negative one (Furlanetto and Robstad, 2019; Hansen et al., 2017; Izquierdo et al., 2010; Österman et al., 2023).

Our findings offer insights for the migration policies implemented both at the national and the EU levels. First, although it appears that migrants are making direct fiscal contributions to several EU countries, the implications for their integration in host country are complex. In fact, their NFP originates from a lower reliance on (generous) contributory benefits and a higher reliance on (scarcer) non-contributory benefits. A lower reliance on contributory benefits combined with a higher reliance on non-contributory benefits, points to little social-economic inclusion, especially in Southern European countries. Migrants may receive fewer unemployment benefits, lower retirement benefits, and lower sickness benefits because they are less often entitled to them. This also explains a higher recipiency of non-contributory benefits aimed at mitigating social exclusion. The causes for this trend may be related to the aforementioned compositional shifts in the pool of migrants from 2007 to 2018. These could include more low-skilled migration from Central and Eastern Europe after the 2004 enlargement, as well as a greater share of refugees after 2015 (Dustmann and Frattini, 2014; Ruist, 2020; Suari-Andreu and van Vliet, 2023).

Second, the differences in the NFP of migrants in various welfare typologies are in line with the well-known variation in social expenditure across European countries (De Giorgi and Pellizzari, 2009). Despite the available evidence on the welfare magnet hypothesis is mixed, our results may suggest that

different migrants are being attracted to different EU countries, which in turn can make it difficult to achieve uniform retention and integration practices across Europe (Razin and Wahba, 2015).

A promising avenue for future research is to analyse in a comparative way across various European countries and welfare states how the NFP of migrants evolves as their economic integration improves. If longitudinal data with complete information on the migration background of the respondents were to become available for longer periods of time, it would be particularly interesting to see the evolution of the NFP of the same pool of migrants since their arrival in the host country. This could provide European policymakers with further evidence on the effectiveness of integration practices. Finally, despite investigating the compositional aspects of the NFP of various population groups is out of the scope of the present study, it important to acknowledge that personal characteristics like age, education, and health may play a crucial role in shaping the NFP of migrants. For this reason, we would like to end this discussion with a reference to the work by Boffi et al. (2024), where the contributions of several background characteristics to the gap between the NFP of migrants and natives are critically examined.

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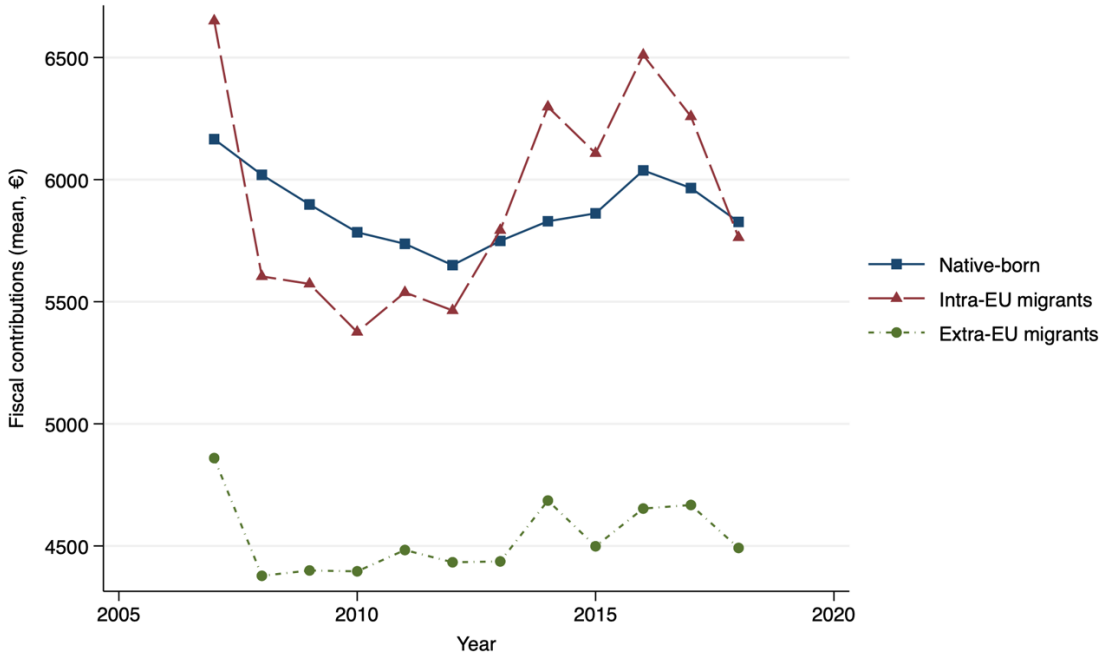
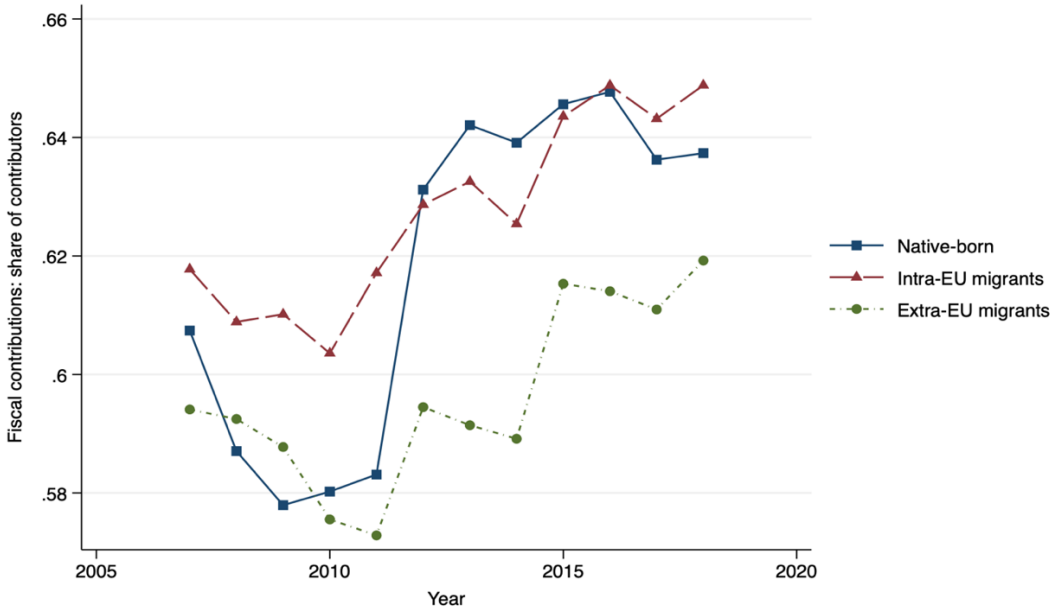
Figures and tables

Figure 3: Mean fiscal contributions over time by specific migration background.



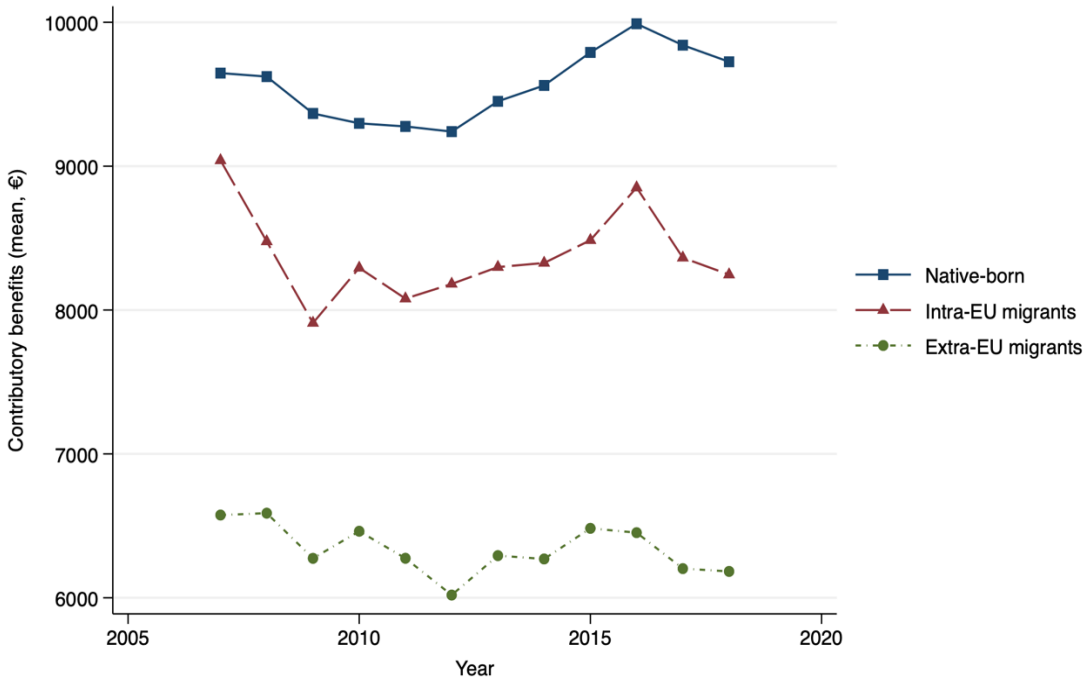
Notes: Individual fiscal contributions include personal income taxes at the national and local level, social security contributions, and wealth taxes. Mean values exclude zero values and are adjusted for inflation and purchasing power parity.

Figure 4: Share of contributors over time by specific migration background.



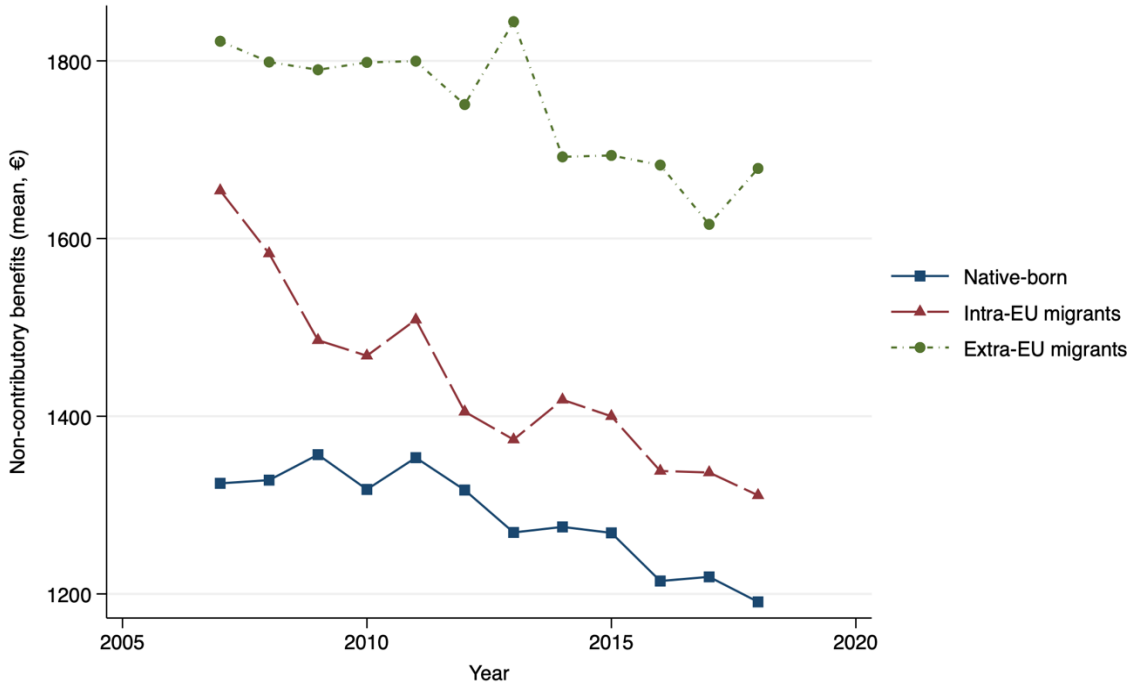
Notes: Individual fiscal contributions include personal income taxes at the national and local level, social security contributions, and wealth taxes.

Figure 6: Mean contributory benefits over time by specific migration background.



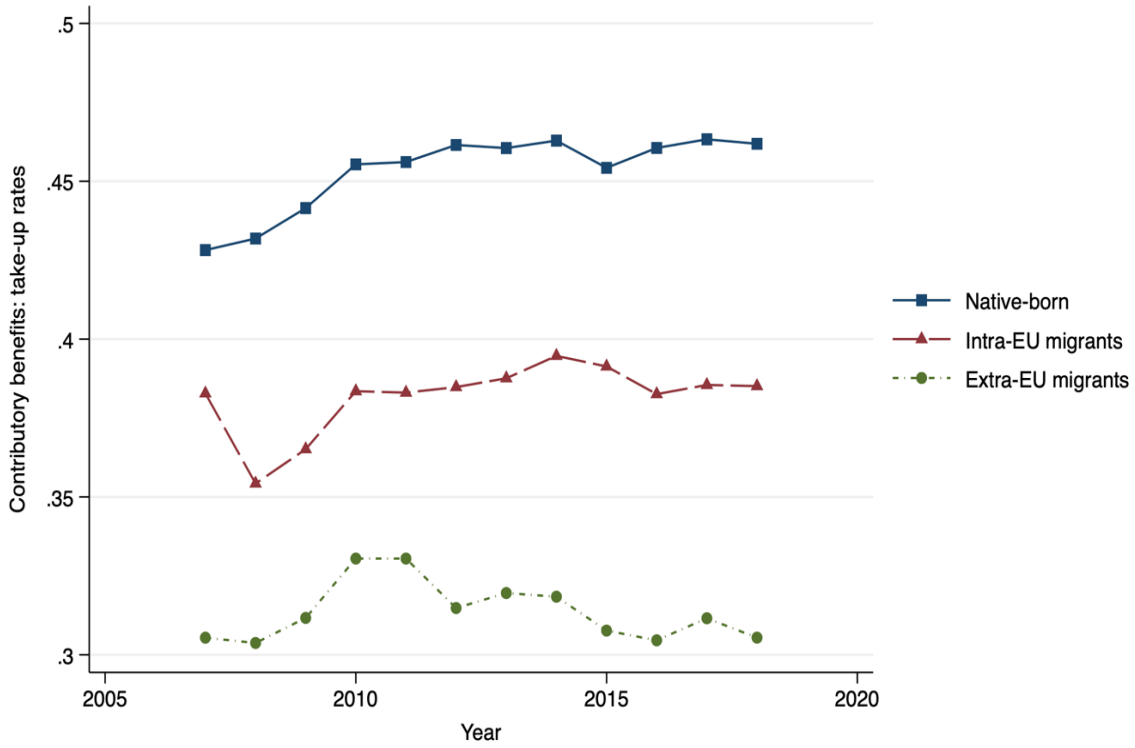
Notes: Contributory benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, and education benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity.

Figure 8: Mean non-contributory benefits over time by specific migration background.



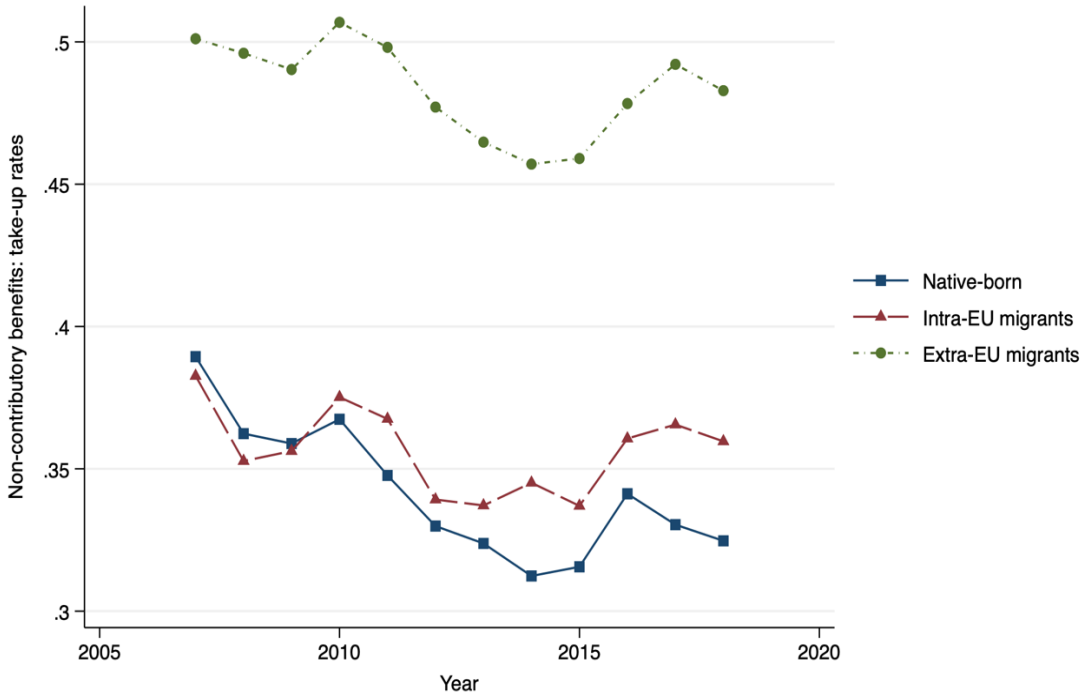
Notes: Non-contributory benefits include child benefits, housing benefits, and social exclusion benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity.

Figure 9: Receipt of contributory benefits over time by specific migration background.



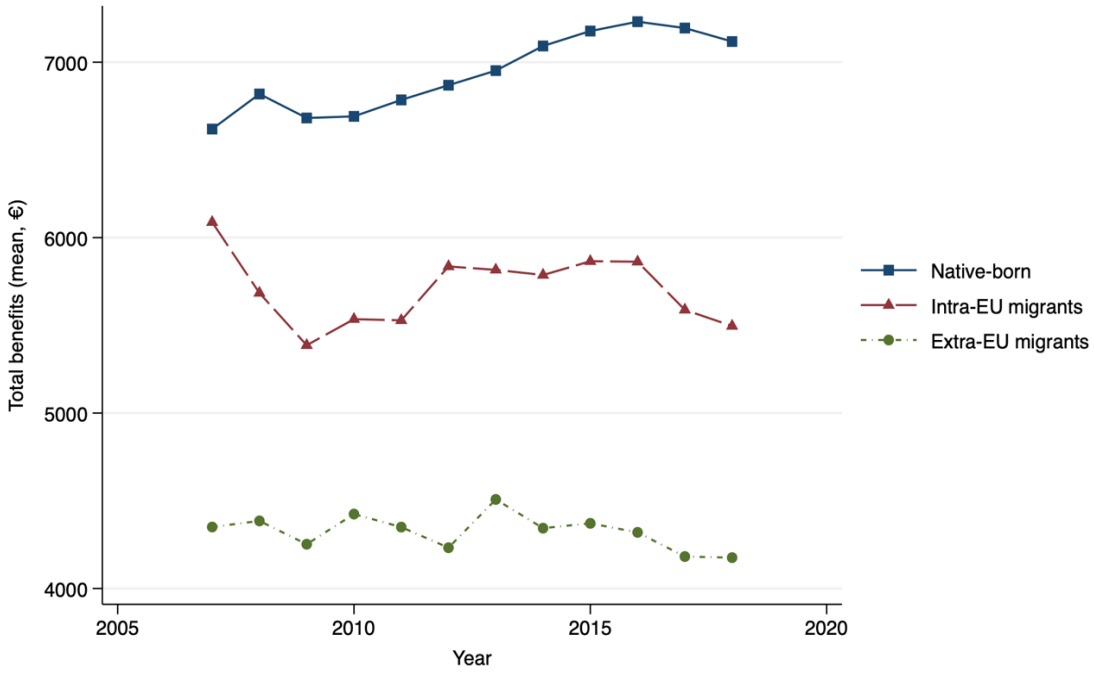
Notes: Contributory benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, and education benefits.

Figure 10: Receipt of non-contributory benefits over time by specific migration background.



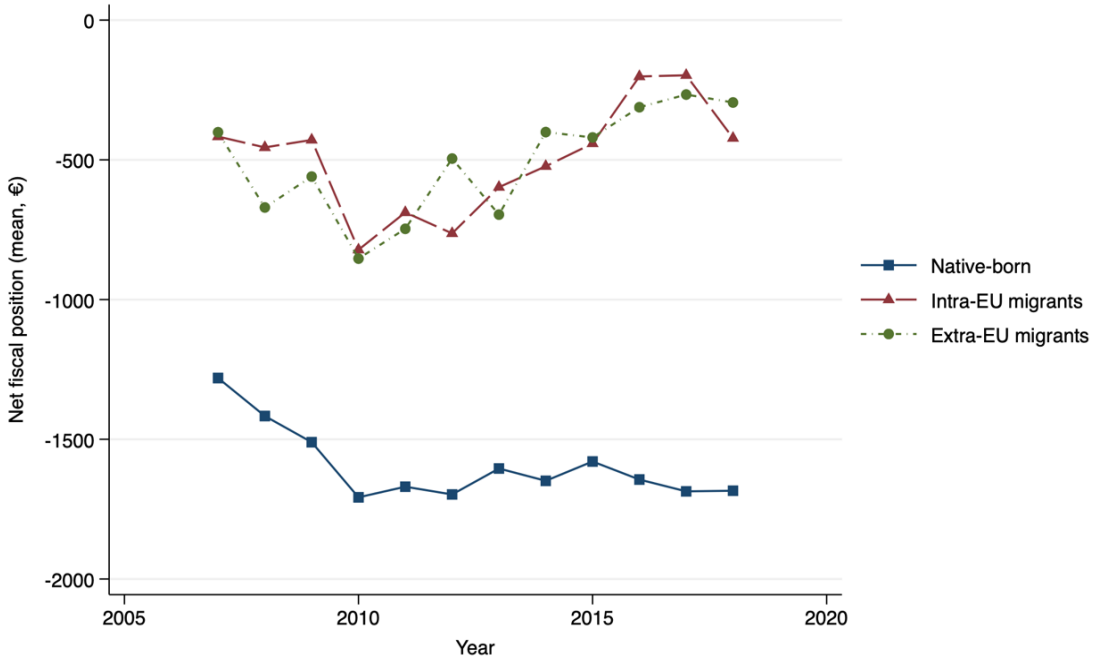
Notes: Non-contributory benefits include child benefits, housing benefits, and social exclusion benefits.

Figure 11: Mean total benefits over time by specific migration background.



Notes: Total benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, education benefits, child benefits, housing benefits, and social exclusion benefits. Mean values exclude zero values and are adjusted for inflation and purchasing power parity.

Figure 13: Net fiscal position over time by specific migration background.



Notes: The individual NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. All the values are adjusted for inflation and purchasing power parity.

Table 2: Migrant-to-native ratios of individual fiscal contributions, over time.

	Intra-EU migrants					Extra-EU migrants				
Country	2007-2009	2010-2012	2013-2015	2016-2018	Change 2007-2018	2007-2009	2010-2012	2013-2015	2016-2018	Change 2007-2018
Austria	1.01	0.99	1.16	1.10	0.09	0.58	0.68	0.61	0.56	-0.02
Belgium	1.16	1.09	1.29	1.33	0.17	0.75	0.78	0.76	0.72	-0.03
Czechia	0.85	0.94	1.12	1.17	0.32	0.84	1.12	1.59	1.23	0.39
Estonia*	-	-	-	-	-	0.71	0.69	0.79	0.83	0.12
France	1.22	1.07	1.09	0.99	-0.23	0.98	0.89	0.90	0.87	-0.11
Germany*	-	-	-	-	-	0.93	0.87	0.91	0.91	-0.02
Greece	0.67	1.11	1.36	1.30	0.63	0.51	0.81	1.26	1.30	0.79
Ireland	0.81	0.75	0.80	0.81	0.00	0.94	1.01	1.09	1.14	0.20
Italy	0.9	0.87	0.86	0.77	-0.13	0.88	0.78	0.80	0.74	-0.14
Latvia*						0.76	0.75	0.66	0.67	-0.09
Luxembourg	0.86	0.77	0.74	0.82	-0.04	0.59	0.50	0.50	0.60	0.01
Portugal	1.23	1.29	1.44	1.50	0.27	1.41	1.73	1.57	1.46	0.05
Slovenia*	-	-	-	-	-	0.88	0.86	0.82	0.82	-0.06
Spain	0.79	0.77	0.75	0.71	-0.08	0.53	0.49	0.53	0.50	-0.03
Sweden	0.90	1.00	0.95	0.92	0.02	0.85	0.89	0.90	0.85	0.00
Average	0.95	0.97	1.05	1.04	0.09	0.81	0.88	0.96	0.91	0.10
St. dev.	0.19	0.17	0.25	0.26	0.08	0.26	0.34	0.38	0.33	0.06

Notes: Individual fiscal contributions include personal income taxes, social security contributions, and wealth taxes. Zero values are excluded from the calculation of the ratios. The last row in the table reports the average values across countries. * The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row.

Table 5: Migrant-to-native ratios of mean contributory benefits received, over time.

	Intra-EU migrants					Extra-EU migrants				
Country	2007-2009	2010-2012	2013-2015	2016-2018	Change 2007-2018	2007-2009	2010-2012	2013-2015	2016-2018	Change 2007-2018
Austria	1.04	0.99	0.95	0.84	-0.20	0.52	0.52	0.55	0.49	-0.03
Belgium	0.99	0.98	1.03	1.02	0.03	0.72	0.74	0.71	0.70	-0.02
Czechia	1.12	1.04	1.05	1.01	-0.11	1.09	0.93	0.85	0.81	-0.28
Estonia*	-	-	-	-	-	1.22	1.25	1.23	1.24	0.02
France	1.00	1.01	0.93	0.94	-0.06	0.89	0.91	0.89	0.87	-0.02
Germany*	-	-	-	-	-	1.14	1.16	1.13	1.05	-0.09
Greece	0.76	0.92	1.04	1.06	0.30	0.68	0.67	0.64	0.62	-0.06
Ireland	0.84	0.74	0.77	0.75	-0.09	0.78	0.79	0.81	0.66	-0.12
Italy	0.64	0.55	0.57	0.51	-0.13	0.48	0.44	0.43	0.42	-0.06
Latvia*	-	-	-	-	-	1.16	1.19	1.25	1.18	0.02
Luxembourg	0.66	0.71	0.71	0.85	0.19	0.47	0.53	0.53	0.54	0.07
Portugal	0.96	1.24	1.05	1.02	0.06	1.04	1.00	1.00	1.06	0.02
Slovenia*	-	-	-	-	-	1.07	1.07	1.03	1.02	-0.05
Spain	0.83	0.68	0.67	0.59	-0.24	0.53	0.49	0.47	0.43	-0.10
Sweden	1.29	1.22	1.11	1.08	-0.21	0.74	0.66	0.56	0.57	-0.17
Average	0.92	0.92	0.90	0.88	-0.04	0.72	0.70	0.68	0.65	-0.07
St. dev.	0.20	0.22	0.19	0.19	0.01	0.22	0.19	0.19	0.20	-0.02

Notes: Contributory benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, and education benefits. Zero values are excluded from the calculation of the ratios. The last row in the table reports the average values across countries. * The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row.

Table 6: Migrant-to-native ratios of mean non-contributory benefits received, over time.

	Intra-EU migrants					Extra-EU migrants				
Country	2007-2009	2010-2012	2013-2015	2016-2018	Change 2007-2018	2007-2009	2010-2012	2013-2015	2016-2018	Change 2007-2018
Austria	1.17	1.26	1.17	1.06	-0.11	1.34	1.35	1.31	1.31	-0.03
Belgium	1.06	1.16	1.13	1.09	0.03	1.24	1.18	1.28	1.30	0.06
Czechia	1.27	1.15	1.35	1.11	-0.16	1.14	1.10	0.97	1.16	0.02
Estonia*	-	-	-	-	-	0.75	0.74	0.86	0.88	0.13
France	0.93	0.88	1.00	1.00	0.07	1.37	1.34	1.46	1.61	0.24
Germany*	-	-	-	-	-	1.19	1.21	1.17	1.20	0.01
Greece	0.95	0.80	0.77	1.04	0.09	0.80	0.87	0.97	1.15	0.35
Ireland	1.32	1.25	1.22	1.29	-0.03	1.96	1.77	1.70	1.62	-0.34
Italy	1.72	1.29	1.34	1.48	-0.24	1.59	1.55	1.74	1.70	0.11
Latvia*	-	-	-	-	-	0.73	0.76	0.70	0.73	0.00
Luxembourg	1.23	1.29	1.16	1.18	-0.05	1.35	1.39	1.45	1.28	-0.07
Portugal	1.20	1.07	1.01	0.92	-0.28	1.28	1.12	1.26	0.87	-0.41
Slovenia*	-	-	-	-	-	0.98	1.09	1.21	1.23	0.25
Spain	1.45	0.80	0.78	0.93	-0.52	0.75	1.12	1.07	1.04	0.29
Sweden	0.96	0.91	1.00	1.14	0.18	1.50	1.49	1.68	1.82	0.32
Average	1.21	1.08	1.08	1.11	-0.10	1.30	1.30	1.35	1.35	0.05
St. dev.	0.24	0.20	0.20	0.16	-0.08	0.34	0.25	0.28	0.30	-0.04

Notes: Non-contributory benefits include child benefits, housing benefits, and social exclusion benefits. Zero values are excluded from the calculation of the ratios. The last row in the table reports the average values across countries. * The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row.

Table 7: Migrant-to-native ratios of mean total benefits received, over time.

	Intra-EU migrants					Extra-EU migrants				
Country	2007-2009	2010-2012	2013-2015	2016-2018	Change 2007-2018	2007-2009	2010-2012	2013-2015	2016-2018	Change 2007-2018
Austria	1.15	1.05	1.02	0.87	-0.28	0.62	0.62	0.64	0.59	-0.03
Belgium	0.99	1.02	1.06	0.98	-0.01	0.71	0.70	0.70	0.67	-0.04
Czechia	1.28	1.09	1.07	1.02	-0.26	1.12	0.87	0.71	0.75	-0.37
Estonia*	-	-	-	-	-	1.48	1.46	1.46	1.36	-0.12
France	1.11	1.11	1.04	1.06	-0.05	0.94	0.95	0.93	0.92	-0.02
Germany*	-	-	-	-	-	1.44	1.39	1.24	1.10	-0.34
Greece	0.51	0.70	0.75	0.67	0.16	0.43	0.50	0.44	0.32	-0.11
Ireland	0.81	0.75	0.78	0.75	-0.06	0.75	0.76	0.77	0.61	-0.14
Italy	0.57	0.45	0.49	0.45	-0.12	0.40	0.35	0.35	0.34	-0.06
Latvia*	-	-	-	-	-	1.39	1.40	1.49	1.36	-0.03
Luxembourg	0.56	0.65	0.65	0.67	0.11	0.44	0.49	0.48	0.43	-0.01
Portugal	0.55	0.70	0.59	0.64	0.09	0.65	0.69	0.77	0.79	0.14
Slovenia*	-	-	-	-	-	1.12	1.10	1.02	1.00	-0.12
Spain	0.79	0.65	0.62	0.57	-0.22	0.46	0.48	0.44	0.40	-0.06
Sweden	1.24	1.16	1.09	1.06	-0.18	0.88	0.79	0.72	0.74	-0.14
Average	0.87	0.85	0.83	0.79	-0.08	0.67	0.65	0.63	0.60	-0.07
St. dev.	0.30	0.24	0.23	0.21	-0.09	0.24	0.18	0.18	0.20	-0.04

Notes: Total benefits include unemployment benefits, disability benefits, old-age benefits, sickness benefits, survivor benefits, education benefits, child benefits, housing benefits, and social exclusion benefits. Zero values are excluded from the calculation of the ratios. The last row in the table reports the average values across countries. * The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row.

Table 9: NFP as a ratio (contributions/benefits), over time.

Panel A: native-born individuals					
Country	2007-2009	2010-2012	2013-2015	2016-2018	Change 2007-2018
Austria	0.72	0.70	0.70	0.64	-0.08
Belgium	1.83	1.78	1.70	1.65	-0.18
Czechia	0.28	0.19	0.10	0.11	-0.17
Estonia	0.81	0.64	0.69	0.60	-0.21
France	0.50	0.48	0.45	0.43	-0.07
Germany	0.56	0.58	0.56	0.55	-0.01
Greece	0.31	0.25	0.39	0.41	0.10
Ireland	0.41	0.38	0.44	0.47	0.06
Italy	0.64	0.62	0.67	0.63	-0.01
Latvia	1.18	0.81	0.97	1.09	-0.09
Luxembourg	0.62	0.58	0.69	0.72	0.10
Portugal	0.54	0.49	0.55	0.63	0.09
Slovenia	1.09	1.01	0.91	0.98	-0.11
Spain	0.65	0.53	0.44	0.44	-0.21
Sweden	0.89	0.85	0.85	0.91	0.02
Average	0.74	0.66	0.67	0.68	-0.06
St. dev.	0.42	0.43	0.41	0.39	-0.03
CV	0.57	0.65	0.61	0.58	0.01

Panel B: intra-EU migrants					
Country	2007-2009	2010-2012	2013-2015	2016-2018	Change 2007-2018
Austria	0.55	0.62	0.73	0.81	0.26
Belgium	2.23	1.94	2.19	2.45	0.22
Czechia	0.13	0.12	0.08	0.09	-0.04
Estonia	-	-	-	-	-
France	0.52	0.44	0.42	0.35	-0.17
Germany	-	-	-	-	-
Greece	0.93	0.89	1.06	0.83	-0.10
Ireland	0.59	0.53	0.59	0.66	0.07
Italy	1.17	1.35	1.31	1.28	0.11
Latvia	-	-	-	-	-

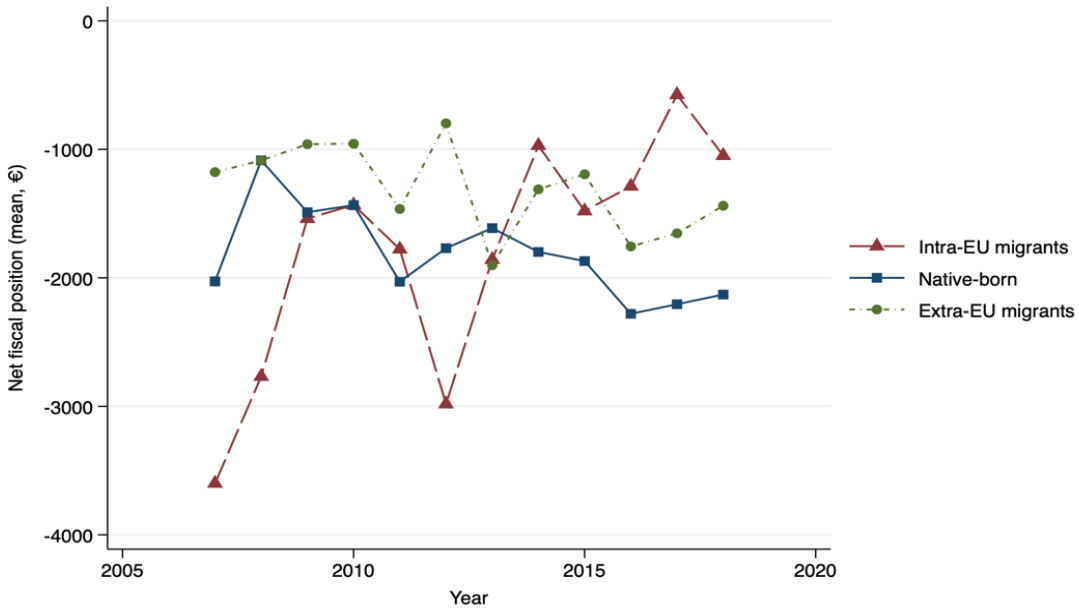
Luxembourg	1.44	0.93	0.94	1.13	-0.31
Portugal	1.83	1.31	1.72	2.07	0.24
Slovenia	-	-	-	-	-
Spain	0.9	0.87	0.76	0.91	0.01
Sweden	0.58	0.64	0.63	0.72	0.14
Average	0.99	0.88	0.95	1.03	0.04
St. dev.	0.63	0.51	0.60	0.70	0.07
CV	0.64	0.57	0.63	0.68	0.04

	Panel C: extra-EU migrants				
Country	2007-2009	2010-2012	2013-2015	2016-2018	Change 2007-2018
Austria	0.70	0.72	0.63	0.58	-0.12
Belgium	1.64	1.66	1.63	1.55	-0.09
Czechia	0.18	0.25	0.29	0.28	0.10
Estonia*	0.35	0.27	0.26	0.25	-0.10
France	0.41	0.38	0.37	0.34	-0.07
Germany*	0.17	0.19	0.25	0.32	0.15
Greece	0.74	0.59	1.33	1.32	0.58
Ireland	0.69	0.61	0.73	1.16	0.47
Italy	1.5	1.39	1.44	1.62	0.12
Latvia*	0.54	0.38	0.37	0.47	-0.07
Luxembourg	1.01	0.66	0.81	1.18	0.17
Portugal	1.53	1.59	1.42	1.46	-0.07
Slovenia*	0.81	0.76	0.68	0.70	-0.11
Spain	1.47	0.75	0.71	0.78	-0.69
Sweden	0.59	0.68	0.77	0.74	0.15
Average	0.95	0.84	0.92	1.00	0.05
St. dev.	0.51	0.48	0.46	0.48	-0.03
CV	0.53	0.57	0.50	0.48	-0.05

Notes: The NFP is calculated by dividing the total amount of fiscal contributions paid by an individual by the total amount of welfare benefits received. The last row in the table reports the average values across countries. * The data for this country do not distinguish between intra-EU and extra-EU migrants. In this case, the value for extra-EU migrants refers to the whole group of migrants and is excluded from the calculation of the averages in the last row.

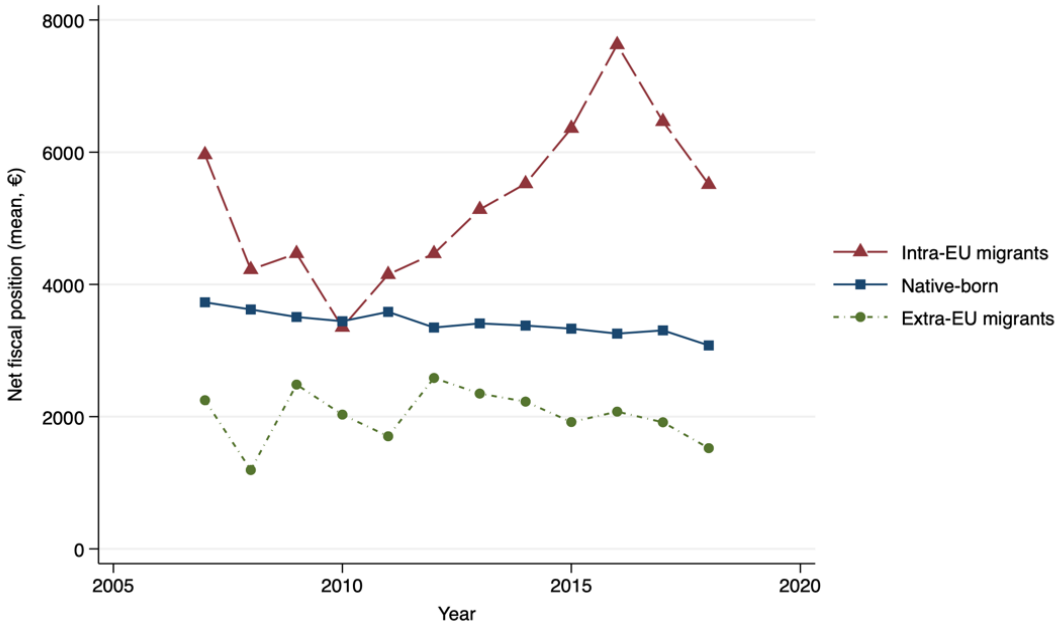
Appendix

Figure 14: Country-specific NFP: Austria.



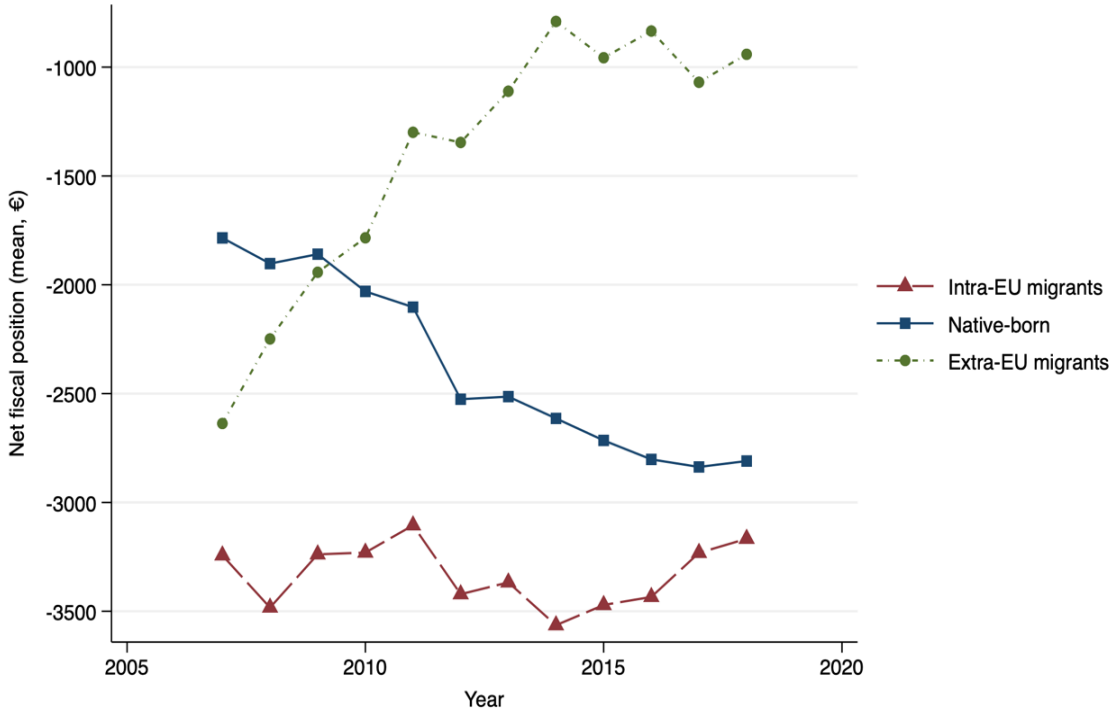
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 15: Country-specific NFP: Belgium.



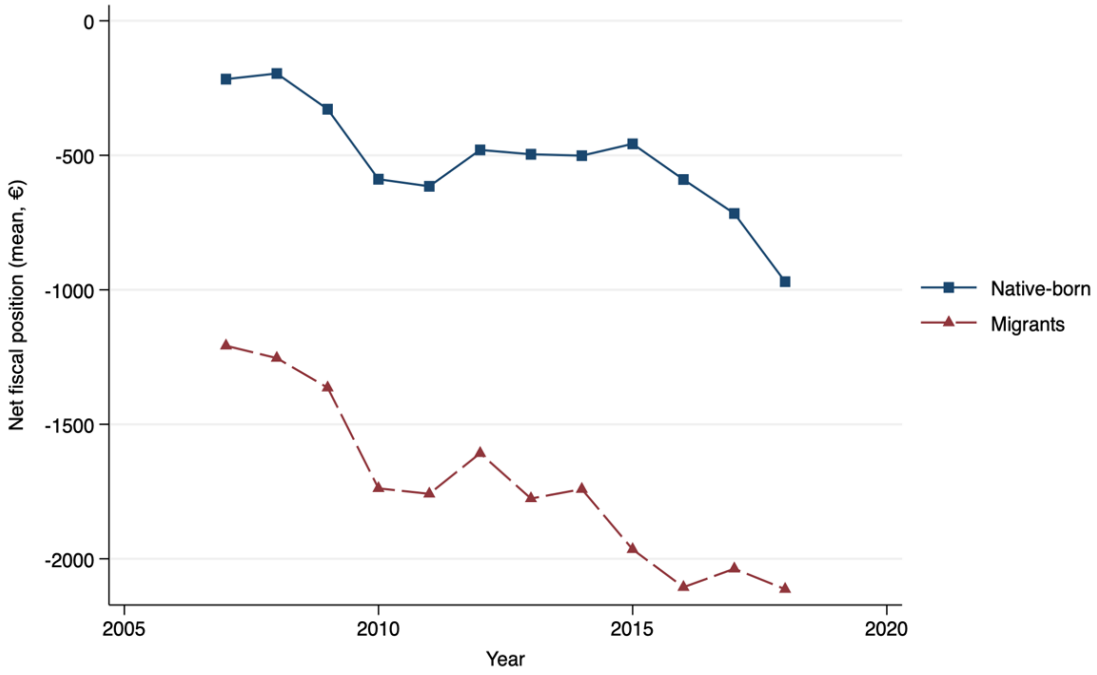
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 16: Country-specific NFP: Czechia.



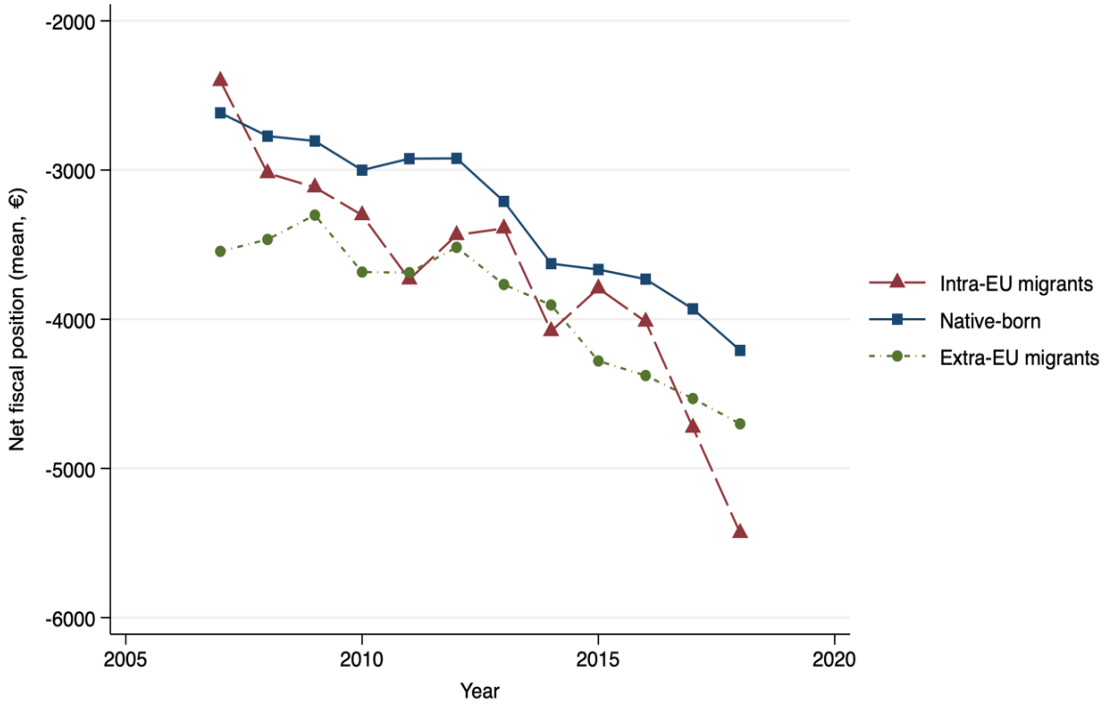
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 17: Country-specific NFP: Estonia.



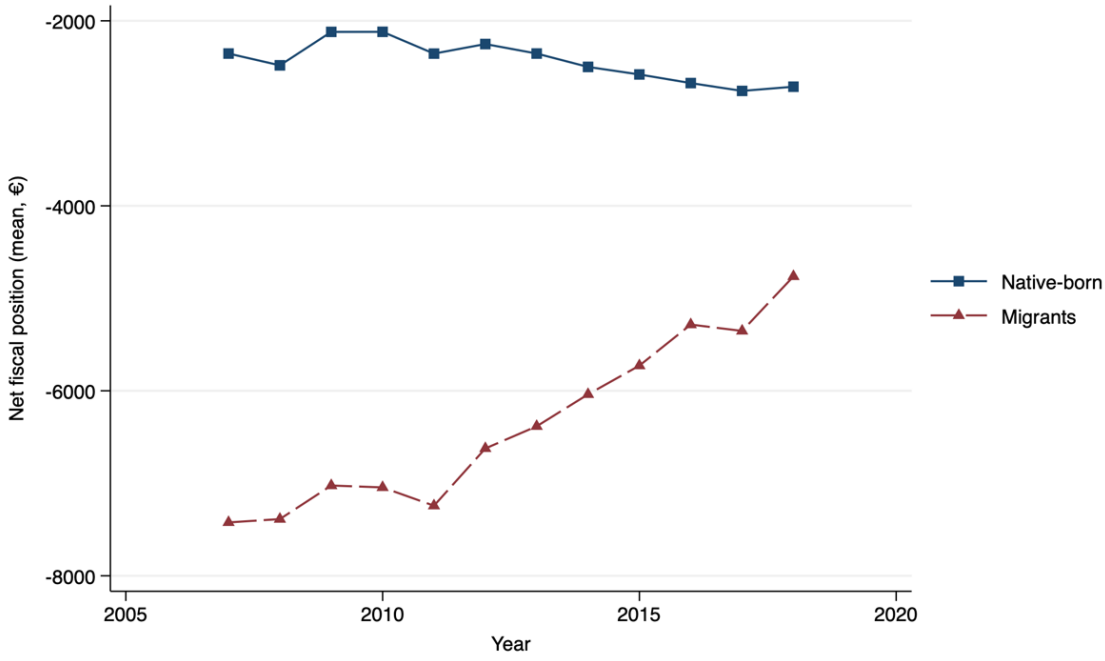
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 18: Country-specific NFP: France.



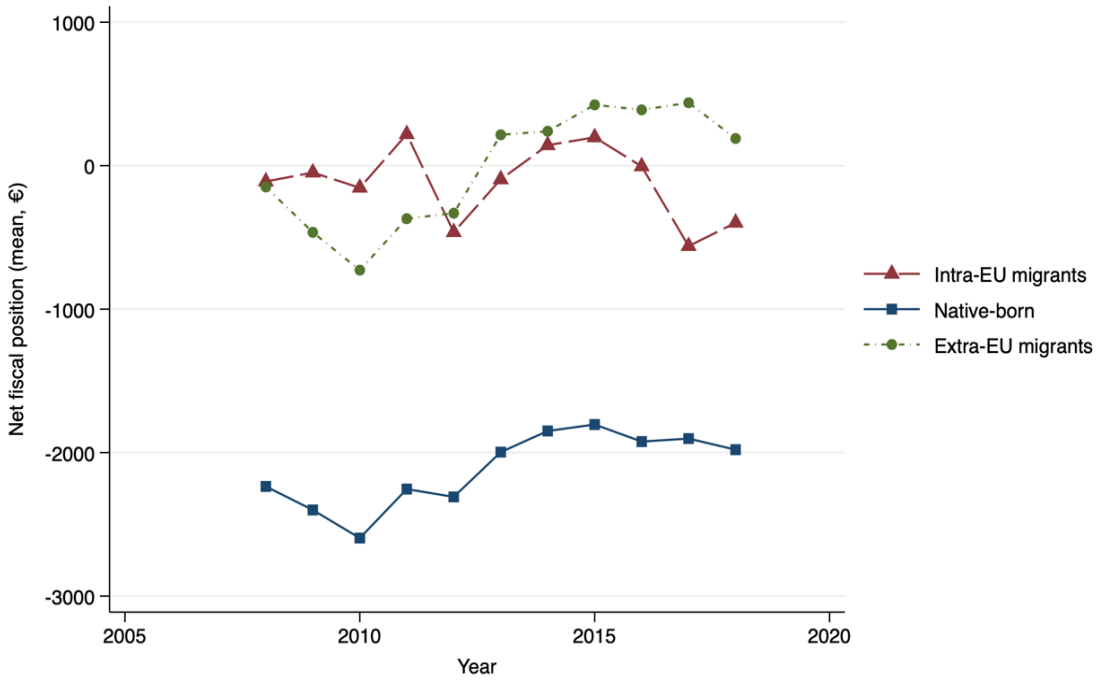
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 19: Country-specific NFP: Germany.



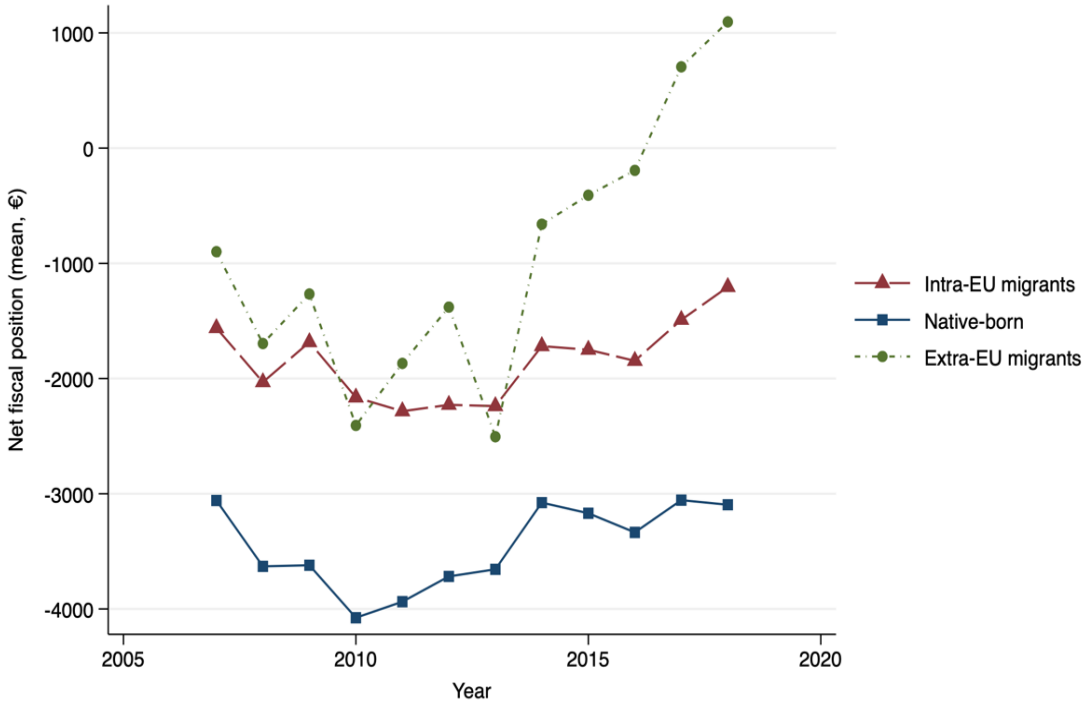
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 20: Country-specific NFP: Greece.



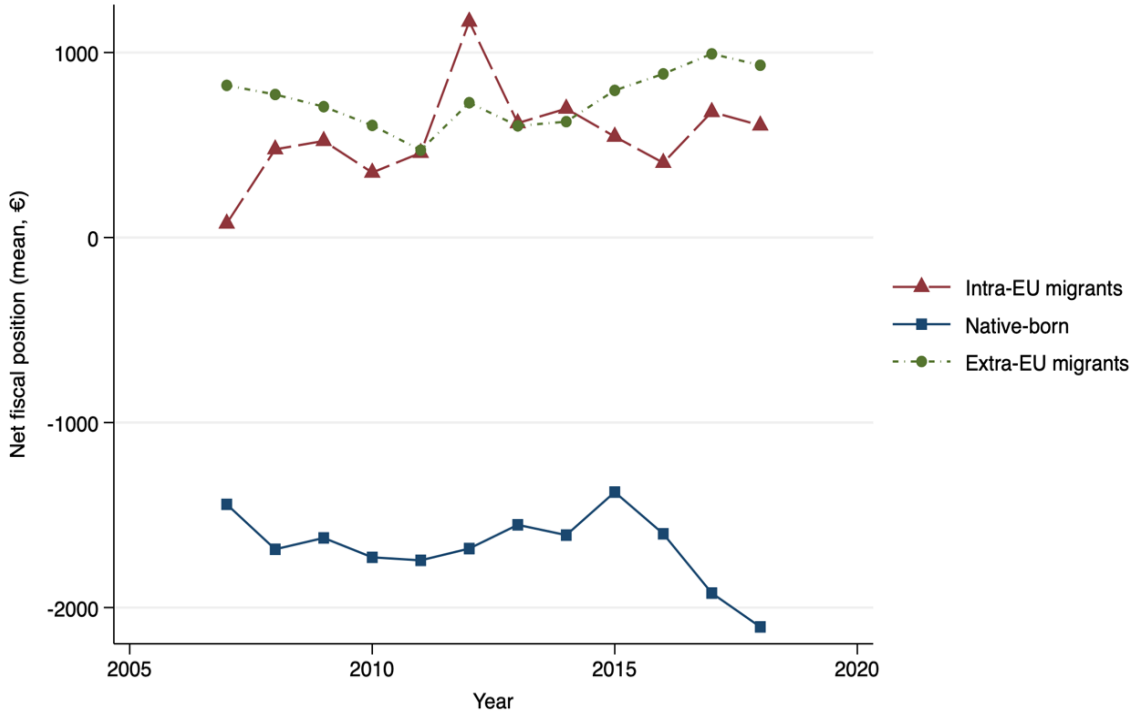
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 21: Country-specific NFP: Ireland.



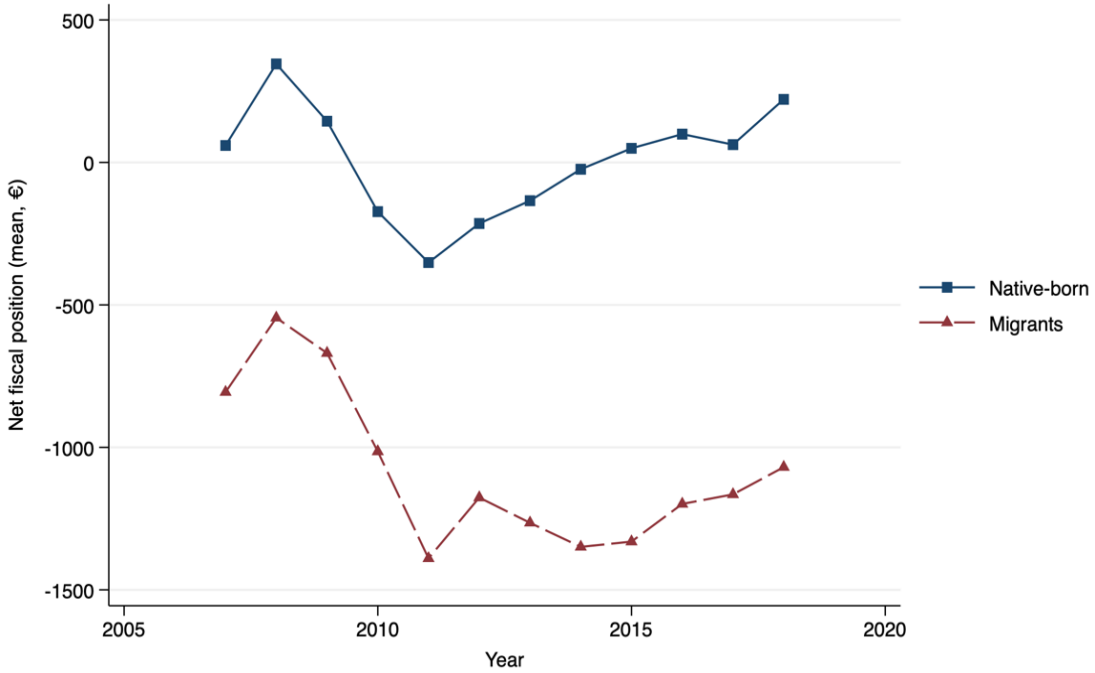
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 22: Country-specific NFP: Italy.



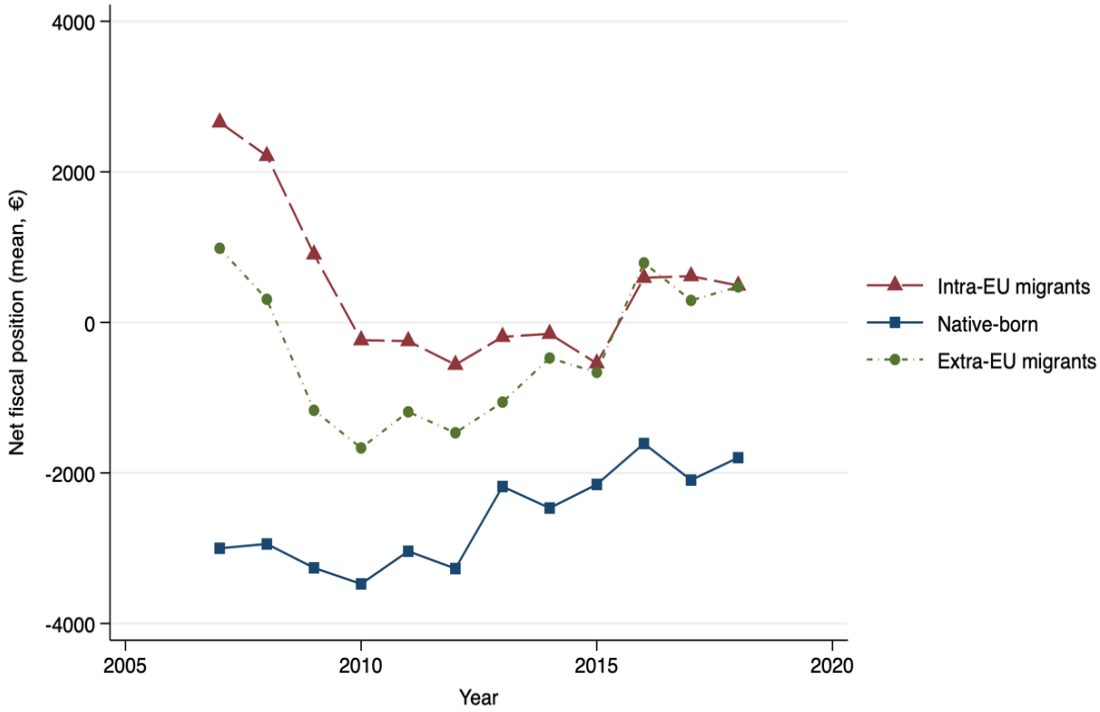
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 23: Country-specific NFP: Latvia.



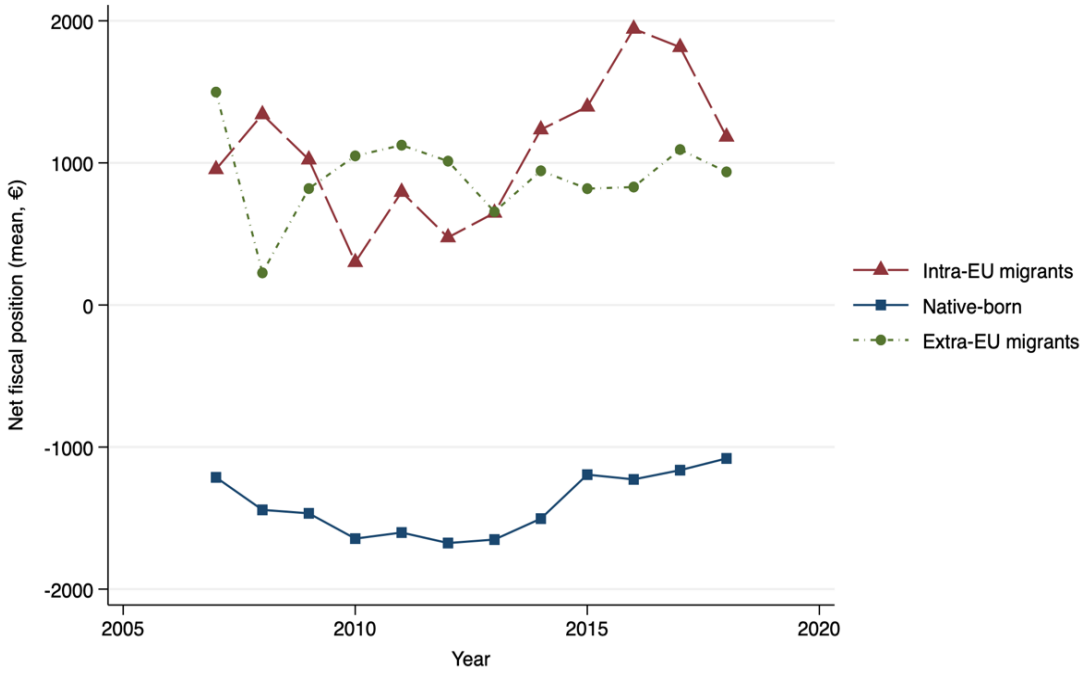
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 24: Country-specific NFP: Luxembourg.



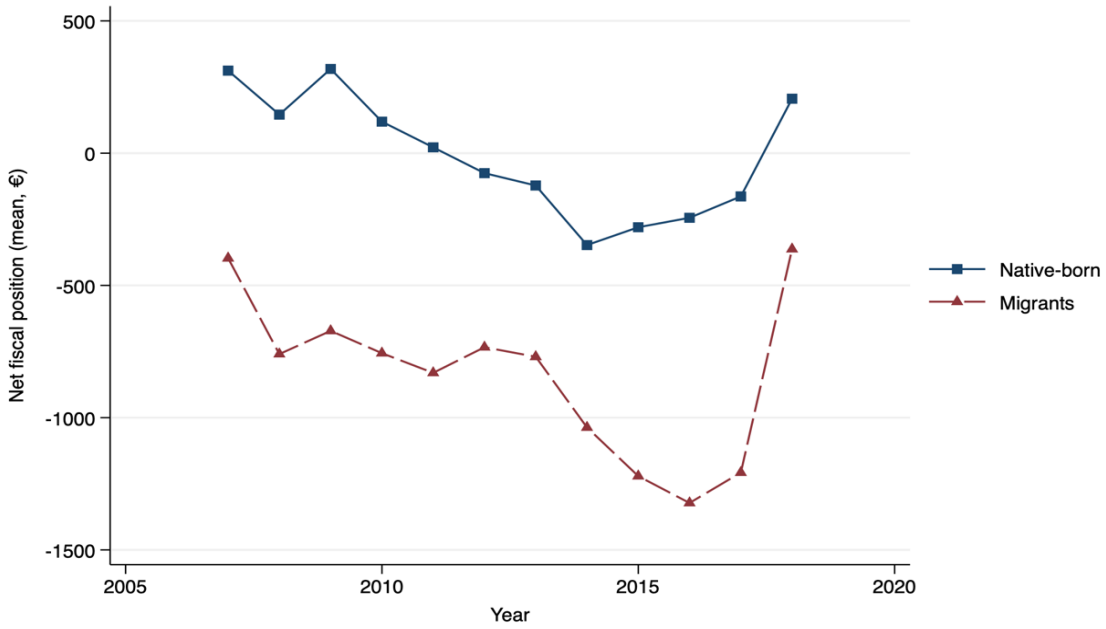
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 25: Country-specific NFP: Portugal.



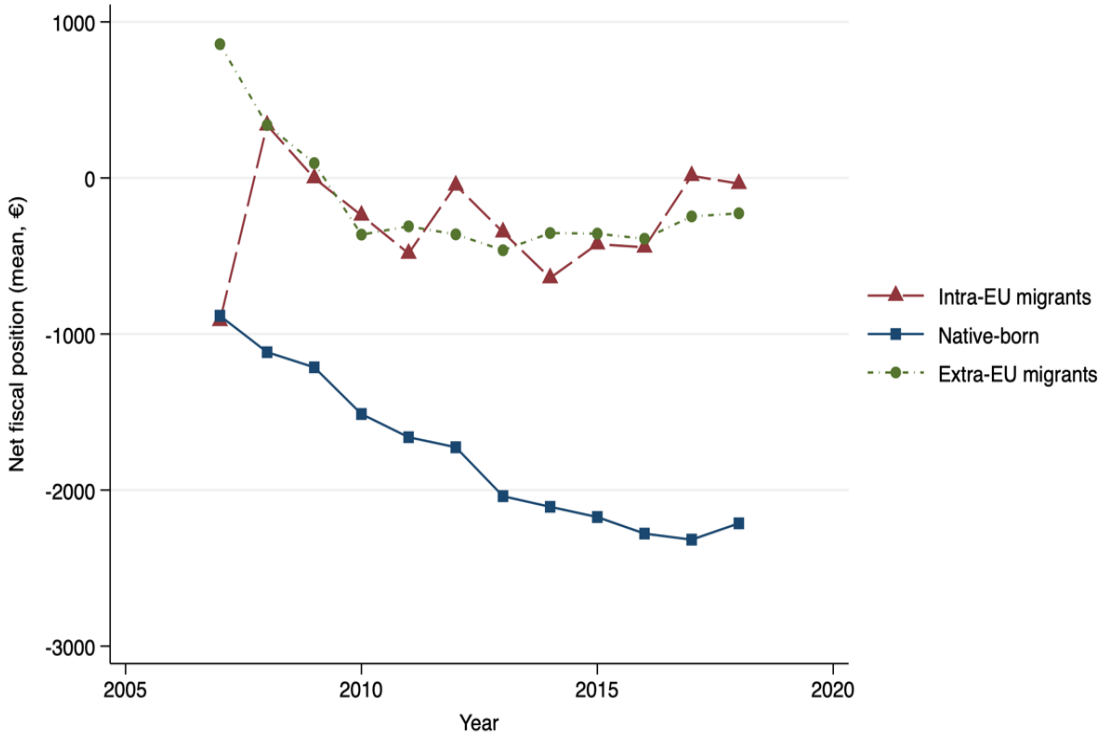
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 26: Country-specific NFP: Slovenia.



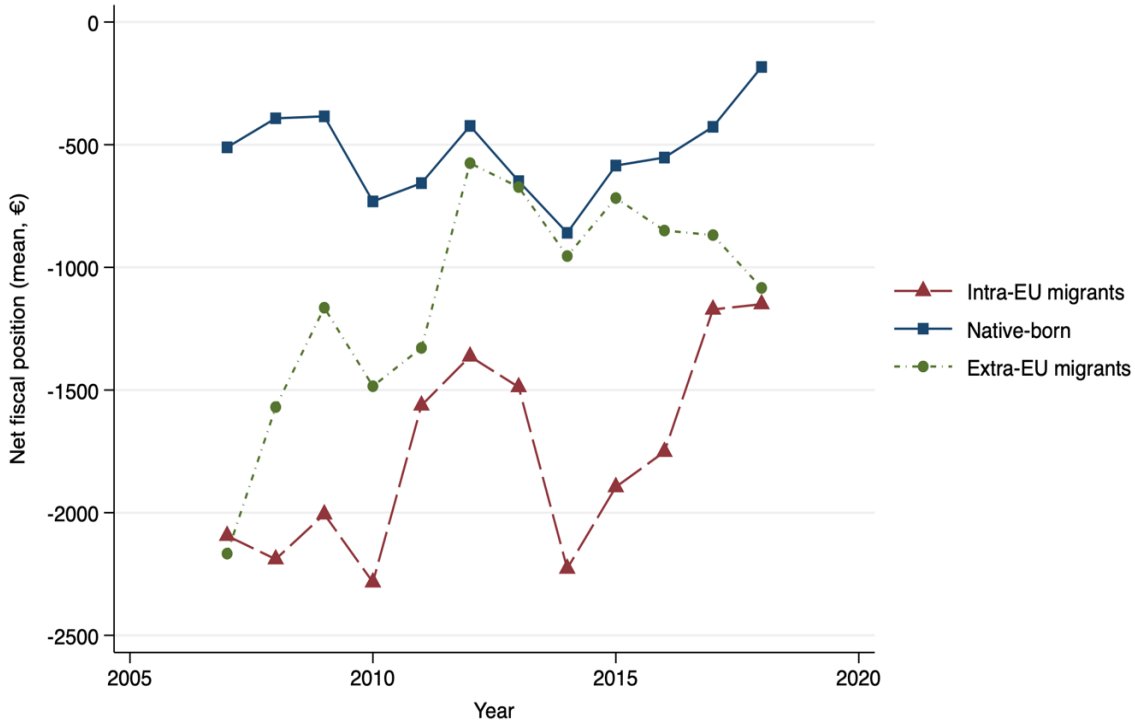
Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 27: Country-specific NFP: Spain.



Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.

Figure 28: Country-specific NFP: Sweden.



Notes: The NFP is calculated by subtracting the total amount of welfare benefits received by an individual to the total amount of fiscal contributions paid. Mean values are adjusted for inflation and purchasing power parity.