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Fiscal Position of Immigrants in Europe: A Quantile Regression Approach*

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Abstract

This paper compares the net fiscal position (NFP) of immigrants versus natives using data from the European Survey on Living Conditions (EU-SILC) for the period 2007-2015. By employing a quantile regression approach, we find that European and non-European migrants have a different fiscal position from natives only on the extreme tails of the NFP distribution. Non-EU migrants contribute more than natives in the top quantile of the NFP, whereas they are more fiscally depend in the bottom quantile. We also examine the relationship between our calculated migrants' fiscal position and the fiscal perception of European citizens versus migrants as measured in European Social Survey (ESS) data. The negative perception in some European countries may be entirely driven by the fiscal position of migrants in the lowest quantile. Our results highlight the critical need to better understand the fiscal contribution of migrants in the destination countries for a fair and constructive migration policy.

Keywords: fiscal position, immigration, quantile regression, European countries

JEL codes: H53, I30, F22

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1 Introduction

An increasing body of literature in economics studies immigration and its effects on the economy of the destination country. This interest is of course justified by the increasing incidence of foreign-born population on natives. A total of 3.9 million people migrated to one of the EU-27 Member States during 2018, whereas 2.6 million emigrants were reported to have left an EU-27 Member State:¹ The dynamics of immigration has however been quite heterogeneous among the various countries. For instance, in 2018 Germany reported the most significant increase in the total number of immigrants (893.9 thousand), followed by Spain (643.7 thousand), France (386.9 thousand) and Italy (332.3 thousand).² These trends may suggest that the impact of the foreign-born in the economies could be quite different across the European countries.

The economic literature on migration has widely investigated the impact of immigration on the labor market including its effects on wages or employment, or on national savings (Card (2009), Ottaviano and Peri (2012), Arcangelis and Joxhe (2015)). The effects of immigration on government public finance have however attracted less attention.³ This is probably due to the complexity of the analysis, to lack of data, and to the difficulty of implementing an adequate methodology. Besides, usually previous studies were able to explore the fiscal effects in one destination country (Dustmann and Frattini (2014) for the UK, Martinsen and Rotger (2017) for Denmark, Clarke and Skuterud (2013) for Canada).

Prior cross country studies are very few: notable exceptions are Boeri (2010) and OECD (2013b). Boeri (2010) uses data from the European Survey on Living Conditions (EU-SILC) for the period 2004-2007 and finds that migrants are over-represented among beneficiaries of non-contributory transfers, and that they tend to receive more transfers than natives after accounting for their educational attainments and family characteristics. The OECD report finds that cross country comparisons also yield no significant differences between migrants and natives in fiscal terms. Both Boeri (2010) and the OECD (2013b) use *average* comparisons of the fiscal positions of natives versus migrants. The general takeaway in this literature is that the *average* fiscal position of migrants is not very different from that of natives OECD (2013a).

The purpose of our research is to shed some new light on the net fiscal position (NFP) of immigrants in Europe, extending prior literature along several dimensions. Firstly, to the best of our knowledge, differently from any previous paper we use a quantile approach to detect differences in the fiscal position of migrants and natives. The quantile approach is particularly appropriate in this setting because, as is widely recognized, immigrants tend to be located on the tails of the skill or income distribution, at least during the first few periods following their arrival. Secondly, our investigation includes a large number of destination countries in Europe, allowing not only a pooled analysis at the European level but also comparisons across different EU countries and the UK. Finally, this paper establishes a link between the fiscal

¹See Eurostat 2018: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Migration_and_migrant_population_statistics.

²Germany also reported the highest number of emigrants in 2018 (540.4 thousand), followed by Spain (309.5 thousand), France (341.4 thousand), Romania (231.7 thousand) and Poland (189.8 thousand). A total of 22 of the EU-27 Member States reported more immigration than emigration in 2018: see Eurostat, Migration and Population 2020.

³This is despite the fiscal impact of immigration having been at the forefront of current political and public finance debates. Most, if not all, interventions by supporters of Brexit have cited the fiscal impact of migrants on British public finances as one of the key reasons for the UK to leave the EU and for imposing more restrictive immigration policies for both EU and non-EU foreign nationals.

position of immigrants and the fiscal perception of immigrants by native citizens.

We use the EU-SILC database for the years 2007-2015 to estimate the net fiscal position of migrants. We define an immigrant as a non-citizen in any given destination country. We are able to break down the origin of migrants only between EU and non-EU migrants. The net fiscal position is defined as the difference between annual fiscal contributions and fiscal or other social transfers. Social transfers include social assistance, housing benefits, sickness benefits, unemployment benefits, and education subsidies for groups at high risk of social exclusion. Taxes include the amount paid in income and wealth taxes, paid local fees, and finally pension contributions payments. We proceed firstly by showing the relative net fiscal position of migrants relative to natives, controlling for a series of individual characteristics including gender, age, marital status, employment status, months spend in unemployment, education, and health status. We also account for household observed characteristics like size, the degree of urbanization in the area of residence of the household, and a household poverty indicator. The OLS results confirm the results already obtained in the literature. The fiscal position of both EU and non-EU migrants, as compared to the fiscal position of natives, is positive but statistically insignificant. On average, migrants are not different from natives. When we disentangle the fiscal position into its two components, social transfers and total taxes, we find that migrants are not different than natives along either of these two components. On average, migrants do not pay more or less taxes, and they do not receive more or less services.

We proceed with our empirical endeavor by investigating the fiscal position of migrants by using quantile regressions. As Borjas (1987) has shown, given that the incentives and the costs to migrate may vary across age, gender and education levels, immigrants are self-selected from the population and this selection is not random.⁴ Usually, high-skill or low-skill migrants will populate hosting countries and thus they will be more concentrated on the tails of the distribution with respect to income or fiscal position. It is therefore important to examine their fiscal positions using a quantile approach taking into account also a set of exogenous individual and household characteristics. We run quantile regressions for the 5th, 25th, 50th, 75th, and 95th quantiles. The estimations show that EU-migrants in the $Q_{0.05}$ quantiles are not fiscally dependent in any of the 27 European countries. By contrast, non-EU immigrants in the lowest quantiles $Q_{0.05}$ are budgetary dependent in Europe, getting €1300 more than native Europeans. Importantly, and contrary to the populist rhetoric, non-EU migrants in the top $Q_{0.95}$ quantiles pay €1613 more than natives in the same quantile. These results are robust to a large number of heterogeneity controls.

Finally, we contrast the relationship between the calculated fiscal position of migrants with the fiscal perception by native citizens⁵. It is reasonable to suspect that the fiscal perception by natives may be mostly driven by the most deprived groups of migrants who may benefit more from social services, with the possible consequence of congesting these benefits for native citizens. To investigate this issue we analyze

⁴In general, the migration selection model affirms that, given sufficiently high difference of skills between the home and foreign country and time-equivalent migration costs, labor migrants are negatively (positively) selected on unobservable characteristics, such as abilities, when the home country has more (less) dispersion in its earnings distribution. Otherwise, the migrants are negatively (positively) selected on observable skills, such as education, if the returns from educational attainment in the home country is relatively higher (lower) than the foreign country.

⁵Concerns about the economic impact of migrants is strictly related to the the feelings by native citizens about migrants: see for a survey Preston (2014).

the gap between fiscal position of migrants along different income quantiles and fiscal perception. The latter is measured using data from the most recently available wave of the European Social Survey 2014. A representative sample of the EU native population answered the question of whether migrants contribute or take away their services from the destination country. Surprisingly, our calculated fiscal position and the fiscal perception of the native citizens in European countries appear not to be correlated. In countries such as Denmark, Germany, Sweden, and Norway where natives show positive fiscal perceptions, both EU and non-EU migrants of the $Q_{0.05}$ or $Q_{0.95}$ are not significantly different than natives. In other countries like Belgium and Netherlands where the perception is negative, non-EU migrants belonging to $Q_{0.95}$ actually pay much more taxes than native citizens.

To conclude, we contend that an accurate understanding of the fiscal effects of immigration allows for a more accurate and fair comparison of migrants with native citizens in terms of their fiscal contribution. Our novel and important results are essential to inform the policy decision-making of the European Union as a whole and EU member states, ultimately allowing a proper design of immigration strategy and policy.

The paper is organized as follows. We continue in Section 1.1 with a review of the relevant prior literature. In Section 2 we provide the analysis of the fiscal position of migrants. Quantile regressions are introduced in Section 3. Section 4 is dedicated to the comparison of fiscal perceptions and net fiscal position. Finally, section 5 concludes.

1.1 Related literature

The literature on the fiscal effects of migrants is relatively sparse. Most prior studies analyze specific countries such as the US and the UK, with a smaller number concentrating on other countries such as Germany, Denmark, Canada, Australia, and New Zealand.

For the US, research has shown that welfare dependency in cash transfers is less likely for immigrants household than for natives when essential personal characteristics are taken into account (Blau (1984)). Borjas and Trejo (1991) have documented that the probability of being a welfare user in the US increases with migration duration and with the more recent immigration inflows. Dustmann, Frattini, and Halls (2010) and Dustmann and Frattini (2014) show that EU migrants in the UK have made substantial financial contributions even during deficit years. Other migrants have been net fiscal beneficiaries – a contrast that is even stronger for migrants from the A8 countries that joined the union in 2004. A similar evaluation in Denmark also found robust and positive net contributions from EU migrants (Martinsen and Rotger (2017)).

Further, a static analysis of migration to Sweden from Bulgaria and Romania by Ruist (2014) found a net positive contribution of about €3,000 per person. Other studies show a more considerable welfare dependency among immigrants than natives, for example in Sweden and Finland, but this dependency decreases with their length of stay, Hansen and Lofstrom (2003), Sarvimaki (2011). Bratsberg, Raaum, and Roed (2010) and Bratsberg, Raaum, and Roed (2014) for Norway find that the social insurance dependency of immigrants declines over time. Cohen and Razin (2008) and Razin, Sadka, and Suwankiri (2011) claim

that greater welfare generosity in a country may increase less-skilled immigrant flows when there are no policy controls, and argue that the latter can be a solution to welfare-driven immigration flows. Razin and Wahba (2015) revisit and test the hypothesis of social magnet in international migration by using the mobility restriction in Europe in shaping the effect of the welfare state on migration. This study investigates the effects of the generosity of the welfare state in attracting international migrants, by analyzing the skill composition of migration patterns and highlighting the difference between skilled and unskilled migration rates. They find that under the free-migration regime there is strong support for the magnet hypothesis. De Giorgi and Pellizzari (2009), using data from the European Community Household Panel (ECHP) for the years 1994-2001, show that the welfare generosity is less important than the unemployment rate or wage levels. By contrast Boeri (2010), using data from EU-SILC for 2004-2007, finds that immigrants in Nordic countries are less likely to be net fiscal contributors whereas in countries like Austria or Germany the opposite is true. On the other hand, Pedersen, Pytlikova, and Smith (2008) and Giulietti (2013) analyzing inter-country migration flows in panels of EU and OECD countries, suggest no firm evidence of welfare benefits for migrants.

There is furthermore growing public concern regarding the (ab)use of the welfare system by foreigners, which has to lead to cut-off welfare policies for non-natives in some European countries (Boeri (2010)). In this context, those who are concerned about immigration tend to highlight its negative implications, like welfare dependency among certain categories of immigrants, mainly those from poorer countries.

2 Net fiscal position of migrants in Europe

In this section, we detail how we measure the fiscal position of immigrants in European countries. We start by describing the data source and then we move to a more precise definition of our main dependent variable i.e. the net fiscal position in Section 2.2.

2.1 EU-SILC Database

The EU database on Statistics on Income and Living Conditions (EU-SILC), launched in 2003, is the first micro-level data set to provide comprehensive information on incomes and a large number of other social and economic domains, across all 27 member states of the enlarged EU. The information concerning the native population has a longitudinal dimension, which is however lacking for the non-EU migrants. EU-SILC is the main data source for assessing the fiscal position of immigrants in Europe. It is a standardized annual survey that contains information on a wide range of topics including individual and family background, house conditions, income, *etc.* It also provides detailed information about the taxes paid and the social benefits received by all individual and their households, as well as all their different sources of income.

EU-SILC provides both a cross-section and a longitudinal dimension of data. Its longitudinal version would allow a dynamic micro-approach of the net fiscal position, but the non-identification of a non-EU

citizens along the longitudinal dimension obliges us to use the cross-sectional version of the survey for the years 2007-2015.

Furthermore, the data files provided by EUROSTAT do not allow identifying the country of citizenship. We are able to recognize only if the individual is a native, a citizen of another EU country or a non-EU citizen. As a consequence, we can trace the origin of migrants only to whether they are EU citizens or not. In this perspective, we will explore the net fiscal position of migrants relative to natives citizens, who are always the reference category. We provide a more detailed description of the database in Appendix A.1.

The sample is composed of 4,493 EU migrants and 6,821 Non-EU migrants. The sample of native citizens which constitutes the reference group in all our estimations includes 128,114 individuals.

2.2 Summary Statistics

Table 1 presents summary statistics for our main variables. We classify the data based on three categories of interest: natives citizens, EU migrants and non-EU migrants.

Table 1: Summary Statistics: EU-SILC 2007-2015

	Natives		EU-Migrants		Non-EU-Migrants	
	Mean	SD	Mean	SD	Mean	SD
Individual						
Age	41.29	22.57	40.39	22.64	40.89	22.49
Male%	0.48	0.50	0.49	0.50	0.48	0.50
Marital Status	0.61	0.49	0.64	0.48	0.66	0.47
Unemployed %	0.09	0.28	0.11	0.31	0.14	0.35
No Qualification	0.01	0.90	0.01	0.09	0.02	0.12
Primary %	0.13	0.38	0.20	0.40	0.10	0.30
Lower Secondary%	0.17	0.41	0.14	0.34	0.20	0.40
Upper Secondary%	0.43	0.49	0.33	0.47	0.37	0.48
Post-Secondary%	0.04	0.17	0.03	0.17	0.04	0.18
Tertiary%	0.21	0.41	0.30	0.46	0.26	0.44
Health (Very Good) %	0.19	0.39	0.28	0.45	0.20	0.40
Health (Good) %	0.45	0.50	0.44	0.50	0.40	0.49
Health (Fair) %	0.25	0.43	0.18	0.38	0.27	0.44
Health (Bad) %	0.09	0.29	0.09	0.28	0.10	0.30
Health (Very Bad) %	0.02	0.15	0.02	0.13	0.03	0.16
Household						
Household Size	2.67	1.46	2.60	1.40	2.67	1.49
Household Degree of Urbanisation	1.98	0.89	1.98	0.87	1.96	0.88
Household Poverty Indicator	0.19	0.39	0.17	0.38	0.21	0.41
N	128114		4493		6821	

On average immigrants are younger than natives, whilst the gender composition is quite similar across the three groups. Natives show the lowest percentage of married individuals whereas non-EU migrants exhibit the highest number of married couples. Non-EU migrants spend more months in unemployment than EU migrants and natives. As far as education is concerned, a large share of EU-migrants (20%) have

only primary education, whereas 13% of natives and 10% of Non-EU migrants do so. A large percentage of natives posses upper secondary education (43%). Finally, more migrants exhibit tertiary schooling than natives. Regarding self-employment and health status, the distribution of migrants at the European level does not differ from that of the native citizens. Most of the household characteristics are quite homogeneous across the three groups, except for the poverty indicator that appears to be slightly larger for Non-EU migrants.

2.3 Net Fiscal Position

We calculate the Net Fiscal Position (NFP) of all the the individuals the EU-SILC database for the period 2007-2015⁶. This variable is defined as the difference between the total amount of taxes paid every year and the social transfers received that year. More specifically, we include in net taxes paid the amount of income and wealth taxes as well as net tax transfers or repayments. Following EU-SILC methods, the net amount of taxes paid also includes social security contributions. The second component of NFP is the total social transfers that encompass social assistance, housing benefits, sickness benefits, unemployment benefits, and education subsidies for groups at high risk of social exclusion.

We proceed with a basic accounting calculation for each household in the panel by subtracting from the total amount of taxes paid the benefits received each year. Table 2 presents summary statistics of NFP of natives, EU immigrants and non-EU migrants, for the European countries pooled together. The average fiscal position for all the three categories is positively signed. Nonetheless, native citizens contribute €1,189.53 to EU tax revenues, which is less than the contribution of migrants (€1237.96 for EU and €1,217.69 for non-EU migrants).

Table 2 reports the NFP of migrants and natives without taking into account the personal characteristics of individuals nor the distribution features of each group. These raw numbers show very similar means and standard deviations.

Table 2: Raw average Net Fiscal Position by region of birth

	Mean	SD	Min	Max	No of Obs
NFP Natives	1189.53	9381.16	-194580.34	881184.25	128114
NFP EU Migrants	1237.96	9505.25	-63443.42	436711.88	4493
NFP Non-EU Migrants	1217.69	8410.03	-75055.88	139251.95	6821

A more precise size and sign of the fiscal position can be obtained by including controls for a series of exogenous individual and household characteristics, as well as country and region fixed effects. This is done in the calculations shown in Table 3, where we include individual characteristics such as gender,

⁶See Appendix A.1 for more details.

age, marital and employment status, months spend in unemployment, education and health status dummies. We further use some household characteristics like the size, the degree of urbanization and a general poverty indicator for the family. The full list of controls is provided in Table 1. Finally, we include year, country and region fixed effect to account for any year, country or region specific time invariant characteristics. When including these controls, the net fiscal position of both types of migrants compared to that of natives is positive but statistically insignificant. *On average, migrants are not different from natives.*⁷

Table 3: Average Net Fiscal Position

VARIABLES	(OLS) NFP	(OLS) NFP	(OLS) NFP	(OLS) NFP
EU Migrant	48.43 (144.2)	75.54 (145.2)	30.42 (145.7)	-37.58 (152.2)
Non-EU Migrant	28.16 (105.1)	83.50 (104.1)	88.97 (104.0)	74.73 (107.9)
Constant	1,190*** (26.21)	2,030*** (326.2)	1,943*** (372.9)	2,121
Individual and Household Controls	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Region FE	No	No	No	Yes
Observations	139,428	139,428	139,428	127,020
R-squared	0.000	0.017	0.019	0.024

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Undoubtedly, the NFP variable aggregates over several dimensions of heterogeneity which are not reflected in the results of Table 3. First, it aggregates two main ingredients that are total taxes paid and total social transfers, both composite of several components. It is therefore unclear whether migrants and natives are different or similar with respect to taxes paid or social transfers, or to both dimensions. We thus also perform estimations disentangling the two components as well as the different items composing the social transfer and the tax payment variable.

More precisely, we run separated estimations for the household allowances, cash transfers, child allowances, and finally the unemployment benefits. Results are shown in Table 4. The results of this table are informative and relate to the literature on the hypothesis of welfare magnets Razin and Wahba (2015). This literature suggests that countries with a generous welfare system have relatively more unskilled immigrants and that welfare state generosity of a country may acts as a magnet for migrants, particularly the unskilled ones. Interestingly when pooling the data at European level, neither EU migrants nor EU migrants benefit more than natives in social transfers (first column in Table 4). In addition, the EU migrants receive larger household and cash transfers, whereas non-EU migrants are not different from natives. Furthermore, it appears that only EU migrants receive significantly more unemployment benefits than native

⁷In these estimations, we do not control for the stock of migrants because this variable is multicollinear with the dummies that identify both groups of migrants.

citizens despite the fact that both groups experience longer unemployment spells than natives (Table 1). Workers are entitled to unemployment benefits only after they have spent a certain period of time working. If we assume that for EU migrants it is easier to find a job in the EU market, then it is also easier for them to become eligible to receiving unemployment benefits, even if non-EU migrants have spent more time in unemployment. Neither EU nor non-EU migrants receive significantly more child allowances than natives. EU migrants appear though to receive slightly more cash transfers than natives.

Table 4: Social Transfers Allowances

VARIABLES	(OLS) Net Total Transfers	(OLS) Household	(OLS) Cash	(OLS) Child	(OLS) Unemployment
EU Migrant	-19.12 (65.60)	-2.469 (6.032)	80.06*** (17.70)	42.66 (27.74)	239.8*** (47.47)
Non-EU Migrant	48.81 (57.02)	7.712 (5.878)	6.980 (9.835)	-25.12 (20.24)	-36.51 (26.22)
Constant	414.9 (590,872)	61.41*** (17.83)	141.9 (12,850)	-297.1	131.2 (97.00)
Individual and HH Controls	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes
Observations	127,020	127,010	126,916	127,020	94,995
R-squared	0.038	0.010	0.007	0.089	0.065

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

We do the same exercise considering the total tax payment per year and its components: Wealth taxes, income taxes including pension contributions, and finally the possible net tax repayments. Results are shown in Table 5. As for the social transfers, when considered as a single voice, migrants and natives are not different in tax payments. When disaggregating the total tax payments a few differences emerge but they remain limited. EU migrants pay slightly less wealth taxes than natives, whereas non-EU migrants are no different than natives neither for wealth taxes nor for income taxes. Finally, non-EU migrants receive back in tax repayment €42 more than natives, whereas EU migrants receive back as repayments €52 less than natives.

Continuing our investigation, we now explore several heterogeneity sources that would better nail down any possible difference on the NFP of natives and migrants. We focus on migrants and natives living in (i) large households with more than four members ($n > 4$) as compared to smaller households ($n \leq 4$); (ii) migrants and natives holding a college degree, as well as those with no college degree; (iii) young versus old migrants and natives; and finally (iv) individuals in good health as compared to those in bad health. All these dimensions of heterogeneity determine either a need for more or less social transfers and/or different tax payments, ultimately affecting the net fiscal position. Interestingly, the only heterogeneity dimension that matters for NFP is bad health, as shown in Table 6 below. EU migrants in bad health are more fiscally dependent than natives in lousy health by about 1,050 €/per year.

Table 5: Tax payments

VARIABLES	(OLS) Total Net Taxes	(OLS) Wealth Taxes	(OLS) Income Taxes	(OLS) Net Tax Repayments
EU Migrant	-62.01 (142.3)	-11.82* (6.073)	-68.18 (140.6)	-52.13** (21.34)
Non-EU Migrant	125.4 (93.65)	-0.276 (6.182)	121.8 (91.25)	42.28*** (14.00)
Constant	2,142 (2.282e+06)	85.24 (133,872)	2,438 (120,90)	164.4** (63.85)
Individual and HH Controls	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes
Observations	127,020	127,020	127,020	112,625
R-squared	0.041	0.009	0.045	0.013

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The size of the family does not explain any difference between migrants' and natives' average net fiscal impact. More specifically, migrants living in households with less than four members do not show a different NFP than natives living in small households. Similarly for native and migrants belonging to large households (Table 14 and 15 in Appendix A.2). Young natives and young migrants also show no statistically different average NFP (Table 16 in Appendix A.2); old native and old migrants display no differences either (Table 17 in Appendix A.2); the same holds for migrants and natives in good health (Table 18 in Appendix A.2). Interestingly, holding a college degree does not lead to differences, on average, between the NFP of migrants and natives (Tables 19 and 20 in Appendix A.2).

Table 6: Average Net Fiscal Position (NFP) of Individuals with Bad Health

VARIABLES	(OLS) NFP	(OLS) NFP	(OLS) NFP	(OLS) NFP
EU Migrant	-844.0*** (291.9)	-842.8*** (286.1)	-898.4*** (286.9)	-1,050*** (326.1)
Non-EU Migrant	379.5 (343.7)	433.8 (341.2)	399.9 (339.3)	471.0 (364.8)
Constant	1,099*** (80.24)	1,378** (622.2)	1,023 (730.4)	2,655* (1,518)
Individual and Household Controls	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Region FE	No	No	No	Yes
Observations	15,331	15,331	15,331	13,918
R-squared	0.000	0.015	0.018	0.038

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

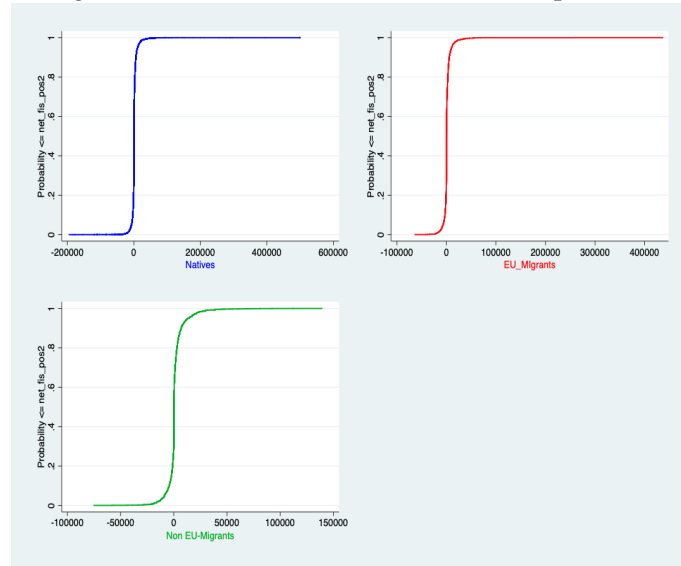
To summarize, on average migrants and natives have a similar net fiscal position. This confirms what has already been found in prior literature (OECD (2013a)). Social transfers, as well as taxes paid, are however strictly related to income levels. We therefore expect that individuals on different income quantiles would show a very different fiscal position. If this is the case, then exploring the whole fiscal distribution will give a much clearer picture of whether and when migrants' position differs from that of natives.

3 A quantile approach to fiscal position

A crucial aspect of the net fiscal contribution of migrants is that this is closely linked to the income of the migrant household and to other economic, social and demographic factors. It is therefore important to examine whether their net contribution varies with these factors, and in particular whether there are significant non-linearities in this relationship. Vulnerable groups are mostly located at the extremes of the statistical distribution of these variables, rather than in the middle of the distribution.

Quantile regression is a powerful statistical tool to explore non-linearities in the relationship between a set of regressors and the dependent variable (see among others Fattouh, Scaramozzino, and Harris (2005)). Its main advantage over linear regression methods is that quantile regression can trace the entire distribution of the dependent variable conditional on a set of explanatory variables. This is especially relevant for the vulnerable groups in the tails of the distribution, which can exhibit a different sensitivity to the relevant factors than household in the middle of the distribution.

Figure 1: Distribution of the NFP over the quantiles



Our sample contains large outliers and the distribution of the dependent variable is non-normal, as we can see from Figure 1 that represents the distribution of the NFP over the quantiles for the three groups

(natives, Non-EU migrants and EU migrants). It is therefore important to analyse possible non-linearities in the determinants of the fiscal position of migrants relative to the native population.

Figure 1 shows the net fiscal position of both natives and migrants. It is apparent that the tails of the distribution display a markedly different behavior from the central quantiles. This warrants the use of a statistical methodology that allows for heterogeneity in the response by households at the extremes of the distribution.

3.1 Main quantile specifications

Quantile regression is applied to our panel dataset for the years 2007-2015. We estimate the following equation:

$$Quant_{\theta}(Y_{it} | x_{it}) = \alpha_{\theta} + x'_{it}\beta_{\theta} + \gamma_t + \delta_i + u_{\theta it} \quad (1)$$

where

$$Quant_{\theta}(u_{\theta it} | x_{it}) = 0 \quad (2)$$

Equation 1 is jointly estimated for the 5th, 25th, 50th, 75th and 95th percentiles of the NFP distribution, both for migrants from within the EU and for migrants from outside the EU. The same vector of explanatory variables is included as conditioning variables for each of these quantiles. We also estimate equation 1 by OLS, in order to assess the average NFP for the different sub-groups. When we estimate the equation by OLS, we apply winsorisation⁸ at 1% and 99% in order to reduce the influence of potential outliers.

The estimations are run on the entire population of migrants and natives in Europe. The estimation results are presented in Tables 7 and 8. We first report the raw NFP of both migrants (EU and Non-EU) in Table 7. These raw results display clear differences along all the NFP quantiles, for both groups of migrants. EU migrants are more fiscally dependent than natives for $Q_{0.50}$, $Q_{0.75}$ and $Q_{0.95}$ quantiles. Non-EU migrants are fiscally dependent in the lower quantiles ($Q_{0.05}$ and $Q_{0.25}$), but fiscal contributors along $Q_{0.75}$ and $Q_{0.95}$ quantile.

We then enrich the econometric specification by including individual and household characteristics, as well as country fixed effects, in Table 8. The first columns displays the results for the OLS regression where, as already shown in Table 3, migrants and natives are no different. The quantile regressions, by contrast, offer a much more detailed breakdown of the results. The average NFP for each quantile is measured by the constant coefficient, which is increasing over the distribution because quantile regression sorts on average NFP. The average NFP for the 5th quantile $Q_{0.05}$ is €-3,100, whereas the average NFP for the 95th quantile is positive and equal to about €13,000.

⁸For a reference see Yale and Forsythe (1976)

Table 7: Raw Net Fiscal Position along the quantiles

VARIABLES	QR(05) NFP	QR(0.25) NFP	QR(0.5) NFP	QR(0.75) NFP	QR(0.95) NFP
EU-Migrant	455.3	-23.1	-121.1***	-901.130***	-3000.9***
Non-EU Migrant	-1000.2***	-374.9***	-49.8*	275.4***	777.4*
Observations	139,428	139,428	139,428	139,428	139,428

All the mean values are from pooled EU-SILC 2007-2015

Table 8: Net Fiscal Position along the quantiles

VARIABLES	Winsor OLS NFP	QR(05) NFP	QR(0.25) NFP	QR(0.5) NFP	QR(0.75) NFP	QR(0.95) NFP
EU-Migrant	-36.90 (90.26)	893.500* (423.134)	2.564 (45.51)	-18.639 (44.38)	-31.578 (83.371)	-178.103 (503.738)
Non-EU Migrant	73.68 (83.66)	-1303*** (103.999)	-7.416 (346.227)	-23.318 (37.238)	9.428 (68.217)	1613.658*** (412.181)
Ind. and H. Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1301*** (190.7)	-3100*** (98.781)	128.354 (105.63)	245.99* (102.822)	1786.428*** (193.505)	13000*** (1168.189)
Observations	139,428	139,428	139,428	139,428	139,428	139,428

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

An interesting result is that EU migrants contribute more than natives in the lowest tail of the NFP distribution: the net additional contribution of EU migrants in the 5th quantile ($Q_{0.05}$) is about €900. There appears to be no significant difference between EU migrants and natives along the other quantiles of the distribution. By contrast, Non-EU migrants are more fiscal dependent than natives in the lowest quantile ($Q_{0.05}$), demanding €1300 more than natives. Nonetheless, they generate a positive contribution in the upper tail of the NFP distribution: in the highest one ($Q_{0.95}$), Non-EU migrants contribute significantly more than native citizens by about €1,600.

These are novel and important results. When one looks at the whole distribution of NFP across the population, EU migrants place a lower burden than the natives at low levels of NFP, whilst Non-EU migrants contribute substantially more than natives at high levels of NFP.

Finally, we investigate the role of the estimated coefficients on individual regressors together with their confidence intervals in Appendix A3. We show that the net fiscal position of households is strongly non-linear with respect to its key determinants. Furthermore, some non-linearities are different for migrants and for natives. There are however some common aspects: notably, the effect of household size turns from negative to positive as we move up the quantiles of the distribution. Recalling that household size is not relevant at the mean, this shows the importance of using a quantile approach.

3.2 Allowing for heterogeneity in quantile regressions

This paper is about differences between migrant-to-native populations in the destination country. This implies that our concerns about selection effects are mitigated by the fact that selection drives also shape the migrant-to-native differences we are interested in. Nonetheless, one may argue that the migrants are selected and that is why they are contributing more than natives both in $Q_{0.95}$. Does this selection exacerbate or attenuate fiscal differences with natives? Or is selection irrelevant? To argue along these lines we perform several heterogeneity exercises. More specifically, we further explore the NFP of migrants in the $Q_{0.05}$ and in the $Q_{0.95}$ quantiles by splitting the original sample according to the size of the household: more than 4 members (large households) or not (small household); level of education: holding a college degree or not; young versus not young individuals: above or below the average mean; individuals with bad and good health. We then run quantile regressions for the $Q_{0.05}$ and $Q_{0.95}$. The next Table 9 shows the results for the upper tail of the NFP distribution.

Table 9: Allowing for heterogeneity in the NFP of $Q_{0.95}$

	Large HH	Small HH	Bad Health	Good Health	No College	College	Old	Young
EU-Migrant	2,331 (2072)	-213.1 (488.1)	-501.4 (1555)	-128.7 (549.4)	-164.7 (583)	-174.1 (970.2)	170.4 (-353.2)	-353.2 (715.2)
Non-EU Migrant	4,076** (1612)	1083*** (401.6)	5364*** (1159)	937.4** (455.0)	491.1 (474.5)	3500*** (805.2)	1754*** (580.9)	1358*** (1578.5)
Ind. and H. Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	22,287*** (4582)	10,300*** (98.781)	10299.72*** (1155)	13,932*** (1154.761)	12,748*** (1126)	19,549*** (1444)	13,064*** (3969)	13,050*** (1665)
Observations	143,95	125,033	125,033	139,428	124,097	101,852	37,576	68,051

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Reassuringly, all these estimations reach the same result. Migrants in the upper tail of the income distribution contribute more than natives belonging to the same income quantile. There is only one case in which migrants are no different than natives, and this is when migrants and natives do not hold a college degree. Importantly, migrants in bad health, those living in large ($n > 4$) or small families ($n \leq 4$), young or old, or those holding a college degree, when compared to natives in the same condition, are greater fiscal contributors than natives.

In a similar fashion, we check the results in these heterogeneity exercises but now in the lowest tail of the distribution, $Q_{0.05}$. Results are shown in Table 10. In the large majority of cases, as in the benchmark quantile regression, EU migrants are not a burden for the fiscal system of the destination country, quite the contrary. Except for individuals in bad health, EU migrants belonging to lowest income quantile contribute more fiscally than natives, whereas the Non-EU migrants of this low income quantile are greater fiscal contributor than natives. This is especially true for Non-EU migrants living in small sized households ($n \leq 4$) in good health and having no college diploma, regardless of their age class.

Table 10: Allowing for heterogeneity in the NFP of $Q_{0.05}$

	Large HH	Small HH	Bad Health	Good Health	No College	College	Old	Young
EU-Migrant	-1,903 (2,268)	986.5** (426.5)	-2,087* (1,227)	982.94** (450.65)	1,075** (545.6)	281.2 (758.6)	1,014* (580.6)	717.6 (593.5)
Non-EU Migrant	1919 (1,764)	-1745*** (351.1)	-836.7 (914.4)	-1188*** (373.25)	-1503*** (444.1)	-963 (629.3)	-1081** (480.5)	-1535*** (480.1)
Ind. and H. Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	4,201 (5,015)	-2,873*** (1,010)	-1711.639 (2232.259)	-1767** (923)	-3,136** (1,351)	-5,574* (3,102)	-5,195*** (1,377)	1,428 (1,445)
Observations	143,95	125,033	125,033	139,428	124,097	101,852	37,576	68,051

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

4 Perception of Fiscal Position of migrants in Europe

Public opinion on immigration is a crucial aspect of the current debate on migration. How natives perceive migrants may affect immigration policies as well as the integration of immigrants in the host country (Preston, 2014). It is hard to believe that native citizens have accurate knowledge about the fiscal impact of immigrants. It is thus important to investigate the extent to which public perception aligns with the actual statistics on the fiscal position of immigrants, and how such a (mis)alignment varies across countries. Different opinions and often hostility against migrants are influenced by political rhetoric, which in turn, in a circular argument, may affect the voting decision and thus politics (Benhabib (1996) and Dolmas and Huffman (2004)). In many European countries, parties at the edges of the political spectrum (particularly on the right) have been securing an increasing number of seats. This is the case both in national parliaments and—especially—in the European Parliament, where there has been a low voter turnout that has particularly benefited more extreme party platforms. Far-right and nationalist political parties, in particular, have successfully capitalized on concerns about immigration. In France, the far-right National Front, led by Marine Le Pen, unexpectedly took 25% of the vote in the 2014 European Parliament elections with a campaign that mainly fought against migrants. In the UK's Brexit referendum campaign, UK politicians argued about an alleged negative impact of migrants on the national welfare system. In the presidential elections in Austria in 2016, a representative of the far-right, the Freedom Party of Austria, almost won the vote against the independent ecologist candidate, with similar anti-immigrants arguments. The European elections in 2019, marked the Lega movement in Italy as the political winner of the polls. On January 31st, 2020, the UK left the European Union mostly with a view of being more "protected" from migrants from EU countries.

To explore the fiscal perception of immigrants in European countries, we refer to data from the most recent available wave of the European Social Survey 2014.⁹ The new module of this survey includes a

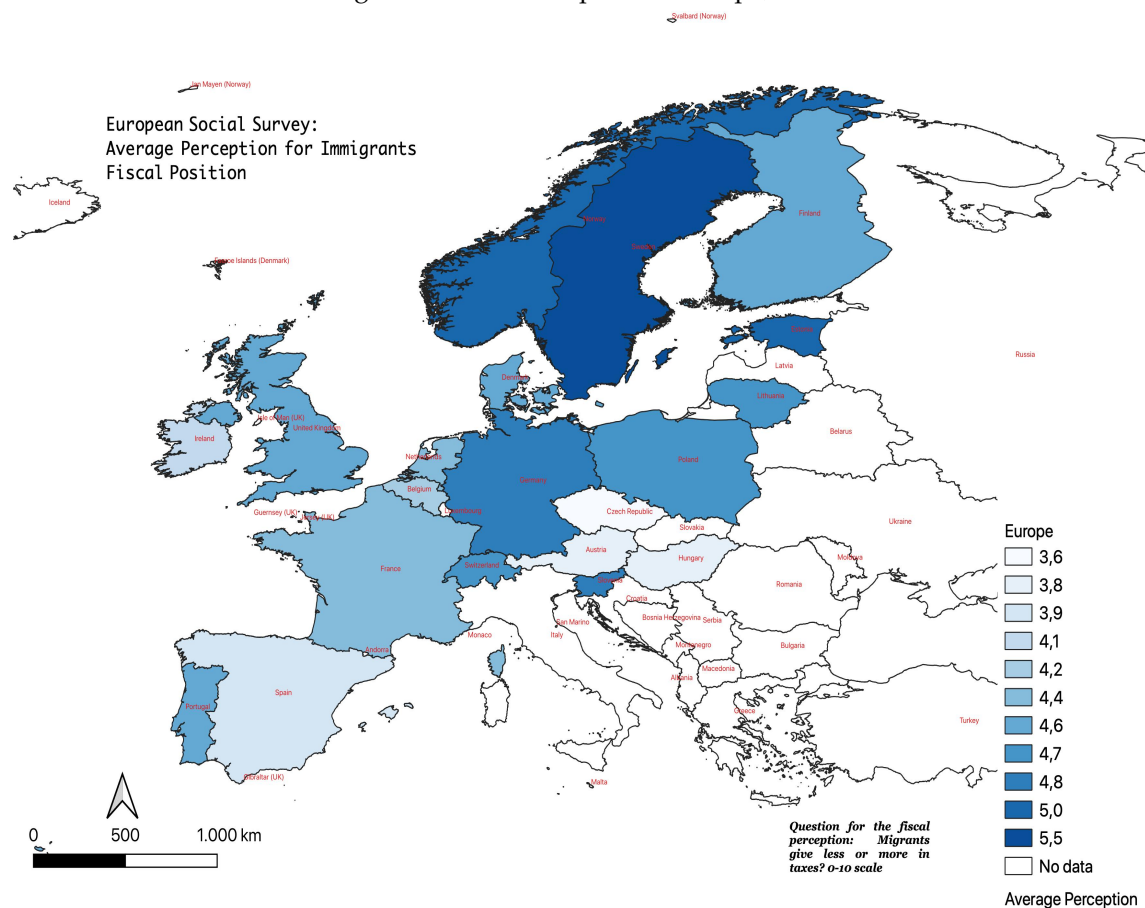
⁹More information on the database can be found at <https://www.europeansocialsurvey.org>

series of questions aimed at measuring the perception of native European citizens about the impact of immigration on their country. Interestingly for our study, a more specific question is made concerning the perception of the *fiscal impact* of migrants in EU countries. We call this *fiscal perception*. The question of the survey is as follows:

"Do you believe immigrants are taking more in services than what they are contributing to taxes?"

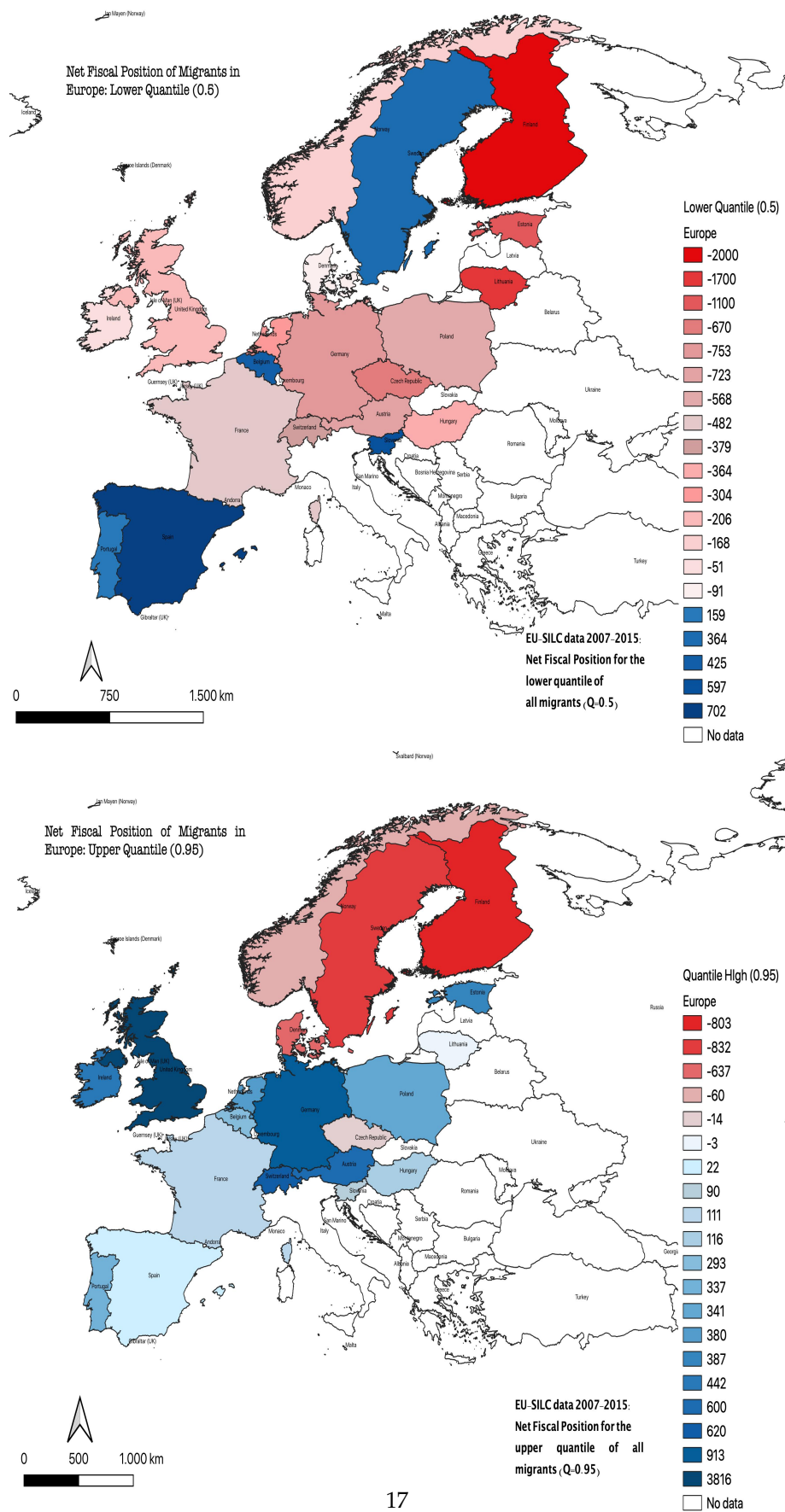
The answer is built as an ordinal variable where the answer zero means immigrants are perceived to take more in services than pay in taxes, and ten means immigrants are believed to pay more taxes than they receive in services. For the year 2014, the average responses are clustered around the average of 5, showing that Europeans migrants are preceived to be neither fiscal contributors nor fiscally dependent.

Figure 2: Fiscal Perception in Europe, 2014



Looking more closely at the distribution of responses, however, we find that around 39% of answers claim that immigrants are fiscally dependent, whereas only 30% of the answers state that immigrants are fiscal contributors. Moreover, public fiscal perception towards immigration varies considerably across countries, as evidenced in Figure 2 where different colors capture fiscal perception. Austria, France, Hungary,

Figure 3: Average Fiscal Position of Migrants across European countries



Ireland, Spain, Czech Republic and the UK are countries with a negative fiscal perception (*i.e.*, natives in these countries believe that immigrants receive more services than they pay taxes). By contrast, in Denmark, Island, Germany, Norway, Poland, Portugal and Sweden, the perception of migrant's fiscal position results to be positive, implying that natives believe that immigrants pay more taxes than they receive benefits.

To facilitate the comparison between perceptions and calculated NFP, we represent the NFP in Figure 3 for the extreme quantiles $Q_{0.05}$ and for $Q_{0.95}$. One can argue that perception may be created by the poorest groups of migrants who may possibly benefit more from social services, which may result in a reduction of the benefits which accrue to native citizens. By a mere comparison of the map of NFP (Figure 2) and the map of perceptions (Figure 3), an interesting yet worrying pattern between perceptions and fiscal positions appears. In some countries where the NFP is positive, natives hold a negative fiscal perception (for instance, Austria, France, Belgium, the Netherlands, etc), whereas in countries where NFP is negative, natives tend to have a positive fiscal perception (Sweden, Denmark, Portugal, etc). In order to address this question, we run quantile regressions for $Q_{0.05}$ and for $Q_{0.95}$ pooling countries showing positive fiscal perceptions of migrants and separately pooling countries showing a negative perceptions. Results are reported in Tables 11 and 12.

Table 11: NFP in Quantiles in countries with positive fiscal perception

VARIABLES	$Q_{0.05}$ NFP	$Q_{0.95}$ NFP
EU Migrant	1,016 (747.0)	-277.1 (865.0)
Non-EU Migrant	-894.9 (611.5)	203.6 (708.1)
Constant	-1,542 (1,581)	15,627*** (1,831)
Individual and Household Control	Yes	Yes
Country FE	Yes	Yes
Observations	44,237	44,237

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Natives in Denmark, Germany, Poland, Lithuania, Estonia, Portugal, Sweden, Norway and Island in the ESS 2014 wave tend to have a positive fiscal perception of migrants. This means that they believe migrants pay more taxes than receive in social transfers. When comparing these beliefs with the results of Table 11, we show that neither the poorest group of migrants nor the richest one is different from natives in terms of NFP in these countries. The positive fiscal perception of natives may instead reflect an attitude of optimism or a feeling of welcoming with respect to migrants.

By contrast, Table 12 includes countries such as Hungary, Austria, Belgium, Netherlands, Ireland, France, the UK and Spain where natives show a negative fiscal perception in the 2014 wave of the ESS.

Table 12: NFP in Quantiles in countries with negative fiscal perception

VARIABLES	Q _{0.05} NFP	Q _{0.95} NFP
EU Migrant	975.4 (759.3)	-55.16 (886.0)
Non-EU Migrant	-1,261** (623.1)	2,110*** (727.0)
Constant	-4,144** (1,672)	12,144*** (1,951)
Individual and Household Control	Yes	Yes
Country FE	Yes	Yes
Observations	51,239	51,239

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In these countries we find similar results as those of Table 6: migrants of the lowest quantile are fiscally dependent, whereas those of the wealthiest quantile are fiscal contributors. Such a result shows that there is a spread misperception about the fiscal contribution of migrants. Only the poorest of Non-EU migrants are fiscally dependent. Non-EU migrants belonging to the Q_{0.95} are more contributors than natives. And EU migrants of either extreme quantile are no different than natives. The perceptions of natives in these countries are exclusively aligned with the fiscal position of the lowest income quantile and ignore the fiscal contribution of migrants belonging to the 95th quantile.

One last remark is in order. Tables 11 and 12 show that not just migrants' fiscal position, but also the average fiscal position in the lowest and highest quantiles are very different in countries with positive versus negative fiscal perceptions about migrants. In countries with negative fiscal perception, there is more fiscal dependence at the lower tail (€-4000, with an additional €-1200 for Non-EU migrants). Furthermore, there is less contribution in the upper tail by natives as well as by migrants. In countries with positive fiscal perception, there is no fiscal dependence in the lowest quantile but there is a high fiscal contribution in the highest of quantiles (€15.000).

It seems that in Hungary, Austria, Belgium, Netherlands, Ireland, France, UK and Spain, the most vulnerable part of the society is on average fiscally dependent, irrespective of whether they are natives or migrants. This result suggests that fiscal dependency in these countries is not merely a migrants' problem. It is instead an issue for the country which also affects migrants. Quite the opposite holds in countries (like Denmark, Germany, Poland, Lithuania, Estonia, Portugal, Sweden, Norway and Island) where natives have a positive fiscal perception about migrants. In these countries, not only vulnerable groups are better protected, but also migrants are better fiscally integrated, allowing for better social cohesion.

5 Conclusions

Knowledge of the fiscal effects of migration is essential not only for researchers but also for policymakers. The net fiscal position of migrants reveals, among other indicators, whether migration and ultimately immigration policies produce economic benefits or costs for the destination countries. Our paper sheds light on the fiscal position of migrants in EU countries and offers some evidence on the possible economic impact of migration that can inform policymaking.

We find that rarely in any income quantile in EU countries under investigation, migrants are more fiscally dependent than natives. Objections to immigrants' perceived burden on public finances that motivate widespread opposition to immigration appear to be unsupported by data. Quite the contrary in Europe, in Belgium, the Netherlands and other countries with negative fiscal perceptions, immigrants belonging to the 95th quantile have a net positive fiscal position which shows they contribute more to the public finance of destination countries than the native citizens. Our analysis also highlights some differences between EU and Non-EU migrants. The EU migrants benefit more than native citizens as far as cash and unemployment benefits are concerned, whereas on average Non-EU migrants do not benefit from social transfers more than native populations.

To conclude, our analysis suggests that the countries where natives have negative fiscal perceptions about migrants are those where the most vulnerable part of the society (natives and migrants) are fiscally dependent. In contrast, these same sectors of society in countries with positive fiscal perception are less fiscally dependent. Besides, native and migrants in the highest quantile contribute less in these countries than the citizens on the corresponding quantile of income in countries with positive fiscal perception. Why is this? Some of the countries with a positive fiscal perception are the Nordic ones. It is quite well known that Nordic countries have welfare states that emphasise participation and egalitarian and extensive benefit levels. These countries share a broad commitment to social cohesion and the universal nature of welfare provisions that safeguard individual rights by protecting vulnerable individuals and groups. In these countries, neither migrants nor natives of the lowest quantile are fiscal dependents. At least from the fiscal point of view, these results hint to successful fiscal integration of migrants. By contrast, in countries where social cohesion is already partly compromised among natives, this is a fortiori valid for migrants: the negative perceptions about migrants are most at variance from their real fiscal contribution.

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A Appendices

A.1 EU-SILC Database and Variables definition

EU-SILC (Community Statistics on Income and Living Conditions) is a survey of comparable cross sectional and longitudinal multidimensional micro data on income poverty and social exclusion in Europe. This instrument is anchored in the European Statistical System (ESS). EU-SILC was launched in 2004 in 13 MS (all except NL, DE, UK and the 10 new MS except EE) + NO and IS. The instrument aims to provide two types of data: (i) Cross-sectional data pertaining to a given time or a certain time period with variables on income, poverty, social exclusion and other living conditions, and (ii) Longitudinal data pertaining to individual-level changes over time, observed periodically over, typically, a four years period.

According to the Commission Regulation on sampling and tracing rules (Nr. 82/2003 of 21 October 2003), the sample selection has to fulfill the following requirements:

(i) For all components of EU-SILC (whether survey or register based), the cross-sectional and longitudinal (initial sample) data shall be based on a nationally representative probability sample of the population residing in private households within the country, irrespective of language, nationality or legal residence status. All private households and all persons aged 16 and over within the household are eligible for the operation.

(ii) Representative probability samples shall be achieved both for households, which form the basic units of sampling, data collection and data analysis, and for individual persons in the target population.

(iii) The sampling frame and methods of sample selection shall ensure that every individual and household in the target population is assigned a known and non-zero probability of selection.

The cross-sectional sample sizes were calculated in order to achieve an effective size of 121.000 households at the European level (127.000 including Iceland and Norway). Then, the allocation among the countries aims to ensure a minimum precision for each of them. The longitudinal sample sizes refer, for any pair of consecutive years, to the number of households successfully interviewed in the first year in which all or at least a majority of the household members aged 16 or over are successfully interviewed in both the years. For more details see: Eurostat EU-SILC <https://ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions>

Table 13: Variable Description: EU-SILC 2007-2015

Variables	Categories	Description
Net Fiscal Position	Continues	Variable constructed based on: Difference between Taxes and Social benefits within the house for one year
Taxes		Tax on Income; Local Taxes; Pension Contribution
Social Transfers		Social assistance; Housing benefits; Sickneess benefits Unemployment Benefits; Education Allowances; Public Health Service Disability Allowances; Family related Allowances; Subsidies for marginal groups
Countries Included	Binary	Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Germany, Denmark, Estonia, Spain, Finland, France, Hungary, Ireland, Iceland, Italy, Lithuania, Luxembourg, Latvia, Netherland, Norway, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia, United Kingdom
Individual Level Controls		
Age	Continuous	Age for the whole Sample : 18- Years
Male	Binary	Dummy variable: 1=Male; 0=Female
Married	Binary	Dummy variable:1=Married or living in couple; 0=otherwise
Education Level	Binary	Dummy variables for: No Qualification, Primary, Lower Secondary, Upper Secondary, Post-Secondary, Tertiary
Unemployed	Binary	Dummy Variable: 1=Unemployed, 0=Otherwise
Health Status	Binary	Dummy variables for: Very Good, Good, Fair, Bad and Very Bad
Household Level Controls		
Household Size	Discrete	Number of People in the Household [1-10]
Degree of Urbanization	Continues	
Poverty Indicator	Binary	

A.2 Allowing heterogeneity in OLS estimations

Table 14: Average Net Fiscal Position in Small Households

VARIABLES	(OLS) NFP	(OLS) NFP	(OLS) NFP	(OLS) NFP
EU Migrant	-344.5 (528.4)	4.378 (515.5)	-50.73 (516.6)	-33.46 (526.7)
Non-EU Migrants	825.6** (406.3)	754.1* (392.0)	790.9** (393.7)	161.7 (428.8)
Constant	970.7*** (106.1)	4,775*** (882.7)	4,618*** (1,112)	-17.09 (1,201)
Individual and Household Controls	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Region FE	No	No	No	Yes
Observations	14,395	14,395	14,395	13,051
R-squared	0.000	0.037	0.041	0.085

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 15: Average Net Fiscal Position in Small Households

VARIABLES	(OLS) NFP	(OLS) NFP	(OLS) NFP	(OLS) NFP
EU Migrant	84.69 (149.5)	93.34 (151.1)	50.22 (151.7)	-30.25 (158.8)
Non-EU Migrant	-62.81 (107.6)	0.688 (106.7)	5.716 (106.6)	12.62 (112.2)
Constant	1,215*** (26.54)	1,119*** (236.5)	1,232*** (276.5)	956.9
Individual and Household Controls	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Region FE	No	No	No	Yes
Observations	125,033	125,033	125,033	113,969
R-squared	0.000	0.016	0.018	0.024

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 16: Average Net Fiscal Position when Not Young

VARIABLES	(OLS) NFP	(OLS) NFP	(OLS) NFP	(OLS) NFP
EU Migrant	88.66 (151.7)	95.67 (150.2)	61.96 (150.4)	-43.46 (153.5)
Non-EU Migrant	15.39 (147.2)	47.90 (145.2)	62.66 (145.3)	32.08 (152.4)
Constant	1,204*** (39.36)	1,783*** (407.7)	1,746*** (448.1)	1,216 (820.1)
Individual and Household Controls	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Region FE	No	No	No	Yes
Observations	68,051	68,051	68,051	61,988
R-squared	0.000	0.017	0.019	0.025

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 17: Average Net Fiscal Position when Not Young

VARIABLES	(OLS) NFP	(OLS) NFP	(OLS) NFP	(OLS) NFP
EU Migrant	88.66 (151.7)	95.67 (150.2)	61.96 (150.4)	-43.46 (153.5)
Non-EU Migrant	15.39 (147.2)	47.90 (145.2)	62.66 (145.3)	32.08 (152.4)
Constant	1,204*** (39.36)	1,783*** (407.7)	1,746*** (448.1)	1,216 (820.1)
Individual and Household Controls	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Region FE	No	No	No	Yes
Observations	68,051	68,051	68,051	61,988
R-squared	0.000	0.017	0.019	0.025

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 18: Average Net Fiscal Position with Good Health

VARIABLES	(OLS) NFP	(OLS) NFP	(OLS) NFP	(OLS) NFP
EU Migrant	150.8 (157.2)	184.7 (158.3)	141.1 (158.9)	75.82 (166.2)
Non-EU Migrant	-20.86 (109.6)	34.14 (108.5)	46.78 (108.5)	12.99 (111.8)
Constant	1,201*** (27.73)	1,661*** (244.9)	1,738*** (287.7)	-2,380** (1,058)
Individual and Household Controls	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Region FE	No	No	No	Yes
Observations	124,097	124,097	124,097	113,102
R-squared	0.000	0.017	0.020	0.025

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 19: Average Net Fiscal Position when holding a College degree

VARIABLES	(OLS) NFP	(OLS) NFP	(OLS) NFP	(OLS) NFP
EU Migrant	203.4 (361.9)	213.5 (364.9)	185.8 (369.1)	166.2 (385.6)
Non-EU Migrant	324.3 (198.2)	489.9** (198.2)	480.1** (197.7)	290.3 (200.5)
Constant	1,376*** (52.44)	1,188** (500.0)	1,431** (574.8)	-2,577 (2,231)
Individual and Household Controls	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Region FE	No	No	No	Yes
Observations	37,576	37,576	37,576	34,096
R-squared	0.000	0.017	0.020	0.032

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 20: Average Net Fiscal Position when not holding a College degree

VARIABLES	(OLS) NFP	(OLS) NFP	(OLS) NFP	(OLS) NFP
EU Migrant	-50.66 (122.3)	13.95 (120.8)	-31.29 (121.0)	-122.7 (127.2)
Non-EU Migrant	-133.4 (123.3)	-79.82 (122.0)	-68.10 (122.0)	0.747 (129.2)
Constant	1,122*** (30.23)	1,656*** (363.6)	1,728*** (398.3)	1,894
Individual and Household Controls	No	Yes	Yes	Yes
Country FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Region FE	No	No	No	Yes
Observations	101,852	101,852	101,852	92,924
R-squared	0.000	0.017	0.019	0.024

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

A.3 Quantile distribution of significant covariates

Figure 4 shows the results for the quantile distribution of the significant covariates for natives. Household size has a negative and significant coefficient for households on the left tail of the NFP distribution and a positive and significant coefficients for household on the right tail of the distribution; by contrast, OLS finds, on average, a small positive and significant effect from household size on NFP across the whole distribution. Marital status has a positive and significant effect both for households with low and with high NFP. Primary education has a negative and significant effect only for families with low NFP, whereas OLS finds a negative and significant coefficient throughout the distribution. The benchmark level education is no education at all. Lower secondary education would be negative and significant for low NFP households, in contrast to OLS estimates which find no significant effect.

The employment status is only significant at the extremes of the distribution, again in contrast to OLS which finds a negative effect on average for all households. The coefficients on poverty indicator are negative and significant, as in the OLS estimations, but display significant non-linearity and a well-defined inverted-U shape pattern. Figures 5 and 6 show the estimated coefficients and standard errors for EU migrants and non-EU migrants respectively, both for the quantile regressions and for OLS. We can see a number of notable differences in the effects of some variables relative to the population of natives.

Primary education has a negative effect on net fiscal position at low levels of the distribution for natives, but not for migrants from either EU or non-EU countries. Marital status is only marginally significant for natives at the extremes of the distribution, but is highly positive and significant for non-EU migrants. The employment status has a strong negative effect at the negative and (especially) at the positive tail of the distribution for natives, but it has a negative effect for EU migrants at low quantiles of the distribution only, and is not significant for non-EU migrants.

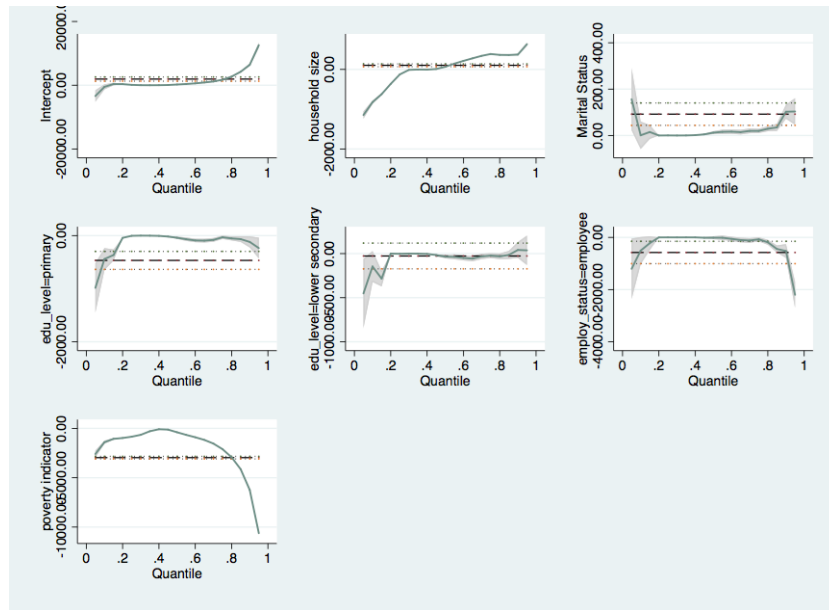


Figure 4: Quantile distribution of significant variables for Natives

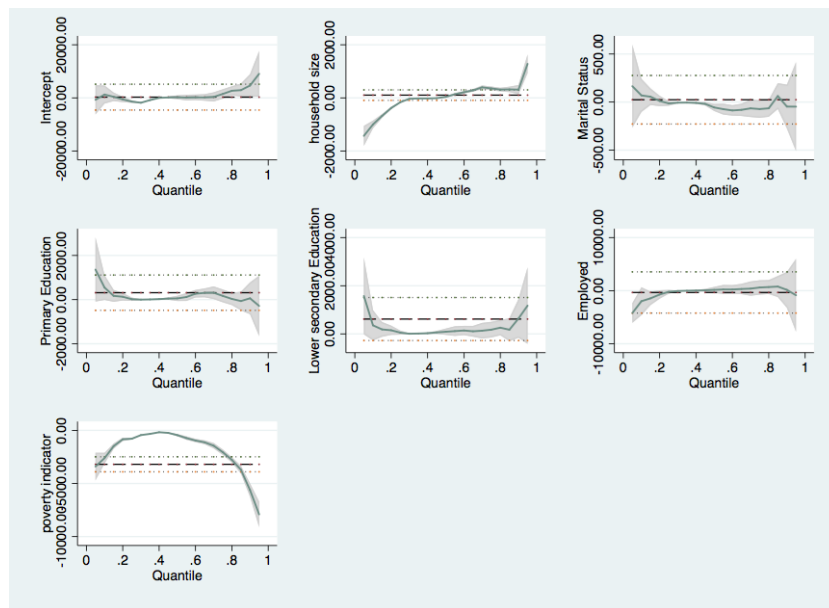


Figure 5: Quantile distribution of significant variables for EU migrants

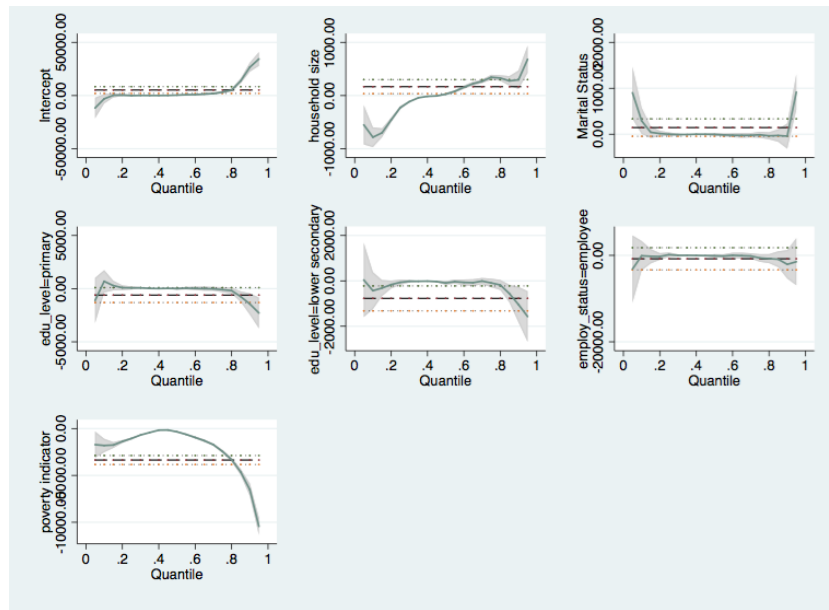


Figure 6: Quantile distribution of significant variables for Non-EU migrants