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REMINDER

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IN NARRATIVES, DEBATES AND EU REFORMS

The Effects of Immigration on Welfare Across the EU: Do Subjective Evaluations Align with Estimations?

WORKING PAPER

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Deliverable 10.3: The Effects of Immigration On Welfare Across The EU: Do Subjective Evaluations Align With Estimations?

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Abstract

Among Europeans who wish to restrict immigration, one commonly cited rationale is the impact of immigration on national welfare states. This has been portrayed as a case of perceptions being misaligned with reality, but the existing literature does not provide clear data on either the fiscal impact of immigrants—especially when distinguishing intra-EU mobility from non-EU immigration—or the perceptions of the welfare impact of immigration among EU nationals. We explore the relationship between the estimated effects of immigration on European welfare states, and citizens' evaluations of those effects. Our analysis matches survey data with both novel and previously examined statistical estimates that distinguish between the effects of EU and non-EU immigrants. We combine multiple data sources to compare 28 EU and European Free Trade Association (EFTA) countries between 2002 and 2014. So, to what extent do actual, experienced effects of international mobility shape subjective perceptions? Our findings suggest that EU nationals' evaluations of immigrants' contributions to welfare are responsive to demographic measures of fiscal exposure from immigration, while much less responsive to economic measures. In other words, how many immigrants receive state benefits matters more than how much they receive. All else equal, immigrants are more likely to be seen as net contributors in countries with more working age immigrants and more generous governments. However, that relationship is reversed for countries with higher demographic fiscal exposure. Importantly, citizens' perceptions responded similarly to fiscal exposure from immigration whether it was from within or outside the EU.

Introduction

Research on attitudes toward immigration has long been divided by a debate over economics or symbolic politics as the leading drivers of public opinion. On one side, economically-oriented scholars have argued that anti-immigration sentiment stems from "realistic" notions of group competition—in other words, residents of immigrant-receiving countries may want to limit new arrivals in order to preserve their own access to jobs and other valued resources (Blalock 1967; Blumer 1958). On the other side, scholarship rooted in social psychology and theories of symbolic politics has argued that anti-immigration sentiment stems from prejudice or other forms of aversion to cultural difference (Valentino et al. 2017). Although debate remains, scholars have struggled to find evidence for the economic argument—especially its most common variant, the labor market hypothesis. A recent review concludes that "the labor market competition hypothesis has repeatedly failed to find empirical support, making it something of a zombie theory" (Hainmueller and Hopkins 2014, p.241), while new empirical work pinning down the role of exiting the labor market drives more nails into the coffin (Jeannet 2018).

However, the failure of the labor market hypothesis does not mean ruling out all economic factors. Another possible pathway is the "fiscal burden" hypothesis, which posits that opposition to immigration stems from the belief that immigrants will drain state coffers by using more in benefits than they contribute in taxes (Citrin et al. 1997). There is some evidence (Facchini and Mayda 2009; Huber and Oberdabernig 2016), but this hypothesis has been studied far less than the less-successful labor market hypothesis.

In this paper, we test the plausibility of the fiscal burden hypothesis, using newly-available evidence about the fiscal impact of immigration across the European Union. More precisely, we ask whether the actual fiscal impact of immigration—either from within or outside the EU—is related to perceptions of those impacts.[1] We find that fiscal impacts of immigration do play a role in determining perceived fiscal burdens. Our results thus suggest hope for the fiscal burden hypothesis as a partial explanation for immigration attitudes.

[1] Mentions to 'actual' or 'real' effects throughout the article are made to highlight the contrast between evidence based econometric estimates derived from multiple rigorous methodological steps, with on the spot perceptions of these effects among individuals. We acknowledge, however, that calculated impacts remain statistical estimates subject to a series of limitations and errors.

This is a critical step toward establishing, not only the plausibility of the fiscal burden hypothesis, but also an actual causal mechanism through which it might work. We explore to what extent having been born in the country (identity considerations), or having sufficiently contributed towards costs (economic considerations), acts as the primary qualifier of a person's evaluation. We find that perceptions are linked more strongly to "demographic" rather than purely "economic" measures: perceptions are more responsive to the proportion of benefits receiving immigrants in the population, and less responsive to measures of actual expenditures relative to tax contributions. This suggests that identity-based considerations may play an indispensable role in shaping perceptions of immigration even in this political economic realm.

Our analysis builds on existing literature that models immigration preferences as a function of various individual and country level factors. Specifically, we draw on literature that looks into fiscal exposure from immigration and attitudes to immigration, either at the US State level or country level (Hanson, Scheve, and Slaughter 2007; Facchini and Mayda 2009; Huber and Oberdabernig 2016).

We contribute to existing evidence by utilizing a perception question which is tailored specifically as an evaluation of fiscal and welfare impacts, rather than any kind of attitude to immigration, as the evidence available so far. Previous research either focused on the welfare system or on benefits uptake rates. A unique aspect of our analysis is the fact we include more countries and over time variation than all previous research, in addition to testing opposing and complimentary relationships related to welfare effects, welfare systems, and immigration simultaneously.

We distinguish between the fiscal exposure and welfare impacts associated with EU mobility versus non-EU immigration in addition to testing both demographic (how many) and economic indicators (how much) of welfare effects. Finally, the statistical indicators of benefits use/expenditure are calculated with the latest and most reliable data sources "by combining government statistics with detailed micro data. These estimates differ from most other studies that have relied either on the assumption that every benefit recipient receives the same amount, or that the benefits in available micro-level data equal the government's total cost for social transfers (the bottom-up approach)." (Nyman and Ahlskog 2018)

Existing Evidence

What do Europeans believe about the impact of immigration on the welfare state? In contrast to beliefs about labor market impacts, a majority of Europeans believe that immigrants place a burden on their nation's welfare systems. In recent Eurobarometer survey data, 56% of respondents agree that immigrants "are a burden on our welfare system," while only 38% disagreed. In contrast, only 39% agreed that immigrants take jobs away from workers in their country (Special Eurobarometer 469). Qualitative evidence also suggests that citizens and media outlets often make negative associations between immigrants and use or even abuse of benefits systems (Wiggen 2012; Anderson 2013; Loyal 2018). In this light, it is surprising that so little research has focused on the fiscal burden hypothesis as an explanation for anti-immigration attitudes, while so much research has examined the labor market competition explanation, with relatively little success (Hainmueller and Hopkins 2014).

Our interest, however, is in explaining the origins of these perceptions of fiscal burdens, rather than in using these perceptions to explain policy preferences. We argue that this is an important precondition for evaluating the fiscal burden hypothesis. In particular, the relationship between perceptions of fiscal burdens and anti-immigration policy preferences is only politically and intellectually significant if it represents some link to the real fiscal impacts of immigration. This is a critical preliminary question for the fiscal burden account. If perceptions of fiscal impacts are strongly related to actual fiscal impacts, then the fiscal burden hypothesis offers a possible independent explanation for why immigration attitudes vary across countries, states, and even individuals, depending on the nature and salience of these perceptions.

On the other hand, it may be that the causal arrows are reversed, and that people who are already predisposed to think negatively about immigrants make negative assumptions about their fiscal impact, and likewise for more pro-immigration citizens. In this alternate scenario, correlations between perceived fiscal impact and immigration policy preferences do not actually support the fiscal burden hypothesis.

If perceptions are divorced from reality, and arise from some combination of prior attitudes, media coverage, and biased recall of personal experience, this would mean that psychological and sociological explanations underlie any observed correlations between

perceptions of fiscal impacts and immigration policy preferences. What is at stake, then, is whether or not economic reality actually shapes perceptions. If this link exists, then it may be true that anti-immigration attitudes stem from actual impacts of immigration. If not, then we should view negative beliefs about economic impacts as simply one more symptom of a broader set of negative attitudes, rooted in perceptions rather than in economic realities.

So what determines perceptions of the fiscal impact of immigration? This is a crucial variable for the fiscal burden hypothesis, and yet to our knowledge no existing research addresses this precise question. Thus, to proceed toward developing hypotheses about the drivers of these perceptions, we turn to several distinct though related strands of literature in the following section.

We build from two major strands of prior research. These are literatures on 1) contextual conditions as drivers of individual immigration preferences, and 2) public misperceptions on immigration.

Reality As A Source of Perceptions

The role of "reality" relative to perception has been an important theme, whether explicit or implicit, in research on attitudes toward immigration for many years (Cornelius and Rosenblum 2005). An obvious starting point is Realistic Group Conflict theory, which argues that negative attitudes are a result of resource competition and a person's evaluation will be based on a rational calculation of the costs and benefits of immigration (Quillian 1995). Under this framework attitudes are studied as a function of "real" conditions and a person's perception of the impacts of immigration will reflect the reality of those impacts. For instance, Markaki and Longhi (2013) show that Europeans' evaluations of the impacts of immigration on the economy and quality of life are influenced by the demographic and labour market make-up of the person's region of residence. Native-born citizens are more likely to perceive the impacts of immigration as negative in regions where more immigrants are unskilled and where the share of non-EU born immigrants is larger relative to EU-born immigrants.

It is easy to assume that individuals will experience group conflict through competition for jobs in the labor market. However, as noted above, attempts to explain immigration

attitudes with simple models of labour market competition have not proven compelling. Labour market competition suggests that "native" workers will prefer restrictions on immigrants who are likely to be their competitors in the labor market (due to similarities in education and skill levels), but will support immigration of workers who are likely to be their complements in the labour market. Thus, crudely, low-skilled native workers should support high-skilled immigration and oppose low-skilled immigration, while high-skilled native workers should have the reverse pattern. In fact, however, "natives" prefer high-skilled to low-skilled immigrants regardless of their own skill level, so in this sense the high-skilled natives fail to act as predicted (Blinder and Markaki 2018). Moreover, less educated individuals are more likely to want to restrict arrivals of immigrants of any given level of skill, a pattern that is not readily interpretable as a result of labour market competition. Hence, as noted above, the labour market competition has been deemed something of a zombie theory, garnering significant ongoing attention in the literature despite ample disconfirming evidence (Hainmueller and Hopkins 2014).

More promising economic explanations for immigration attitudes, then, must take a different perspective, focusing more broadly on the impact of immigration on national economies. Some studies aim to explain attitudes to immigration by employing the framework developed in economics for estimating the objective impacts of immigration (Hanson, Scheve, and Slaughter 2007; Facchini and Mayda 2009; Huber and Oberdabernig 2016). They posit that attitudes mirror the individual and macro-economic effects that immigration exerts on welfare and the labour market of the host country. Depending on the generosity and capacity of a nation's welfare system and the skill match in the labour market between existing and immigrant workers, policies will work to balance out the impacts of immigration, by adjusting tax rates and/or welfare expenditure (Facchini and Mayda 2009; Ortega 2004).

Since economic models predict immigration impacts to vary for different levels of skill and income, the specific effects of these mechanisms on attitudes will also vary for different groups of the population. In the end, a person's attitude depends on the ways that the changes caused by immigration inflows will likely affect their own income, labour market outcomes, and accessibility to public assistance. Broadly speaking, however, negative perceptions of impacts are expected to be more acute for citizens in generous welfare states, if citizens view new immigrants as compromising the nation's financial balance sheet,

or perhaps leading to an inability to maintain the same level of generosity in provision of public benefits and services.

Hanson, Scheve, and Slaughter (2007) focus on the US and find that fiscal pressures from immigration are associated with opposition to immigration among natives. Their measures of immigrant fiscal exposure classify states as above or below the median in a) public assistance per native (cash benefits and medical), b) the immigrant-native ratio of working-age population, and c) the ratio of immigrant households receiving cash benefits relative to the total number of native households. Their units of analysis are households, identified as immigrant or native based solely on the country of birth of the household head. They also exclude non-cash benefits.

Facchini and Mayda (2009) provide an extensive framework and formulate a variety of differential hypotheses on the ways the nature of immigration flows and the country's welfare system can influence attitudes towards immigration from an economics perspective. They posit that the types of inflows determine how the welfare system will adapt to balance out the impacts of immigration on the income distribution, by adjusting either tax rates or welfare expenditure. This approach assumes that people's views are formed in a rational manner in response to the real effects as predicted by dual-skill labour market theory.

Facchini and Mayda (2009) introduce a series of country-level indicators that measure relative skill composition (ratio of skilled to unskilled labour) as well as the size and progressivity of the welfare system (OECD and World Development Indicators). Their direct measure of relative skill composition corresponds to the number of people with ISCED education levels 2 and 3, divided by the number with education level 1, and is higher when immigrants are more unskilled compared to natives. They also introduce GDP per capita as an indirect measure, since it is more widely available and correlates strongly with relative skill composition. For the size of the welfare system they rely on indicators of labour tax rates (based on fiscal revenue statistics) and per capita social transfers (all cash benefits). To compare countries by how redistributive their system is, they develop a measure that captures the difference in tax rate between two working individuals without children (i.e. most likely ineligible for tax credits). One makes 167% of a production worker's annual wage and the other makes 67%.

Another recent study by Huber and Oberdabernig (2016) compares European countries using ESS data and shows that natives are more likely to oppose inflows of immigrants from a different race/ethnic group, if they live in countries with higher benefit take-up rates among immigrants relative to natives.

Identity As A Source of Perceptions

On the opposite theoretical spectrum from realistic conflict, studies drawing on contact theory argue that negative attitudes to immigration are a result of group distance, brought about by a lack of intergroup familiarity and rigidly demarcated identities (Allport 1954; Pettigrew and Tropp 2013). Somewhere in the middle, some versions of group conflict theory stress symbolic rather than realistic threats (Stephan and Stephan 2000), in which opposition to immigration stems from perceived threats to identity and culture rather than economic competition.

Identity-based theories do not often incorporate consideration of welfare systems. An exception comes from Crepaz and Damron (2009), who link welfare extensiveness and structure of social programs to "welfare chauvinism", the view that welfare access belongs exclusively to natives. This approach places identity at the center of perception formation. Under this rationale, having been born in the country is the key modulator of evaluations rather than degree of contribution towards public finances. This is essentially an extension to the argument that different welfare systems inculcate different sets of beliefs and values among citizens which in turn lead to different normative attitudes about the relationship between immigrants and welfare (Ruhs and Palme 2018). More universal and generous welfare systems are expected to promote inclusion and therefore positively predispose citizens to immigrants. Whereas the stigmatization associated with means-tested benefits or targeted systems of welfare provision, ought to solidify divisions between social groups and encourage the formation of higher welfare chauvinism (Titmuss and Seldon 1968; Crepaz and Damron 2009). Their multilevel analyses suggest that more comprehensive welfare states are associated with more tolerant natives.

With the exception of Huber and Oberdabernig (2016), existing studies that compare European countries are primarily interested in the nature of the welfare system in relation to immigration flows, rather than the impacts of immigration on welfare. The nature of the welfare system in this case can refer to a range of measures that identify and rank countries

in welfare system capacity, openness, or level of redistribution. Surely, the impacts that immigrants may have on a country's welfare will also depend on the existing welfare system and other institutions of each country; but the two remain distinct. Our analysis, on the other hand, is concerned with measures that identify and rank countries based on level of fiscal pressures from different groups of the population (i.e. EU, non-EU).

Another notable distinction is that prior examinations have not attempted to directly compare estimations with perceptions, but on explaining opposition to further immigration (Facchini and Mayda 2009; Huber and Oberdabernig 2016). Our dependent variable asks about immigrants' burden or contribution to welfare and taxes, thereby more likely to prompt economic and financial considerations. Ours are notably different from questions that tap into attitudes towards immigrants' entitlements and rights (perhaps more relevant in terms of welfare regimes). Thus, the relationship between welfare impacts and evaluations of those impacts remains an unsettled question in the existing evidence.

(Mis)Perceptions on Immigration

A growing school of thought, critical to approaches that see evaluations as a mere function of macroeconomic factors, suggests it is existing perceptions rather than the reality that will shape citizens' responses to immigration inflows (Strabac 2011). Acknowledging that perceptions themselves may be shaped by prior attitudes or emotional responses to immigration, (Cornelius and Rosenblum 2005) note that, "… "real or perceived" is an important distinction, as public attitudes about immigration reflect substantial misconceptions" (Cornelius and Rosenblum 2005, p. 102).

While there is no prior research that deals specifically with public opinion on the impacts of immigration from the perspective of misperceptions, there is extensive evidence on population size innumeracy, the divergence between the share of immigrants in the country and people's perceptions of that share (Semyonov et al. 2004; Sides and Citrin 2007; Citrin and Sides 2008; Herda 2010).

Early assessments of population size innumeracy in the US, primarily focused on perceptions of ethno-racial minority populations and found that individuals with the most exaggerated estimates also held the most negative views (Nadeau, Niemi, and Levine 1993; Sigelman and Niemi 2001; Wong 2007; Alba, Rumbaut, and Marotz 2005). In the European context, population size innumeracy studies tend to focus on foreign-born populations. In a

US-Europe comparison, Citrin and Sides (2008) find evidence that immigrant size overestimation is prevalent across countries and does not really reflect country-level differences in GDP, percentage of immigrants, or unemployment.

Herda (2010) discusses immigration related innumeracy under two theoretical frameworks. As a cognitive mistake, size overestimation is expected to depend on exposure to information (news), predispositions (ideological orientation), and prior experience (for example contact with immigrants). As an emotional response, it is seen as driven by pre-existing negative views of the group in question.

The misperception framework has been extended beyond claims of innumeracy. Public perceptions also show distorted images of the composition of immigrant populations (Blinder 2015; Herda 2015; Alesina, Miano, and Stantcheva 2018). A recent study also finds evidence of substantial misperceptions about the quantity, origin, and characteristics of immigrants in six countries (France, Germany, Italy, Sweden, the UK, and the US), and further shows that these misperceptions correlated with opposition to redistribution among native respondents (Alesina, Miano, and Stantcheva 2018).

From the perspective of the literature on misperceptions, evaluations of immigrants' fiscal impact can be thought of as a form of numeracy or factual knowledge. More knowledgeable or informed individuals, in this view, will have more accurate perceptions, and less knowledgeable or engaged individuals will be more likely to hold misperceptions. Notably, this approach predicts individual variation within countries, while the previous two approaches focus on the aggregate effects of national-level fiscal variables.

Theoretical Framework

Our theoretical framework derives from combining the above insights from literatures on realistic group conflict, identity and the welfare state, and misperceptions of immigration. First, we suggest that perceptions may have a basis in economic realities. If this is true, then we would expect that individuals' perceptions of immigrants' net contributions to the welfare state would be directly linked to their actual net contributions. Of course, it would be too difficult a test to demand a strict and exclusive relationship, but we would predict at

minimum a substantively significant positive association, all else equal, between immigrants' actual net contributions to the fiscal balance sheet in their country of residence and the perceptions of those contributions by residents of the host country.

A second hypothesis qualifies this relationship, taking into account the role of welfare chauvinism or related identity-based considerations. If host-country residents are concerned not merely with fiscal balances, but with the identities of contributors and especially beneficiaries, then we might modify our predicted determinant of perceived welfare impacts. In particular, the identity-based prediction suggests that perceptions will be shaped by *how many immigrants* benefit from receiving-country welfare state payments, rather than a more purely economic focus on *how much* immigrants receive (and contribute).

To test these hypotheses, we compare perceptions of welfare and fiscal impacts with economic estimates of those impacts. Perceptions are identified using survey questions that ask individual respondents to what extent they think immigrants, on balance, contribute more to the welfare state with taxes, or take out more in benefits and social transfers. They are effectively asking for a *subjective estimate of the net fiscal impact of immigration*.

Unlike existing literature on overestimation/innumeracy that compares demographic estimates with perceived shares/percentages, the calculation involved in arriving to the total net fiscal impact of immigration is very intricate and contested within the academic community. These estimates take far more into account than solely immigrants' contributions in income taxes versus their uptake in social transfers. In empirical terms the calculation of the net fiscal impact of immigration endeavors to sum up a long list of interrelated components into one final condensed outcome (Razin and Sadka 2004; Dustmann and Frattini 2014; Martinsen and Pons Rotger 2017; Nyman and Ahlskog 2018). Whether that net balance is estimated as negative or positive often depends on the data available, the exact years involved, and small alterations in the assumptions and methodological decisions made across the various stages of estimation. It also tends to be very small in amount (for example in Euro) and close to zero (relative to GDP) (Nyman and Ahlskog 2018). All these characteristics suggest that the total net fiscal impact of immigration as currently estimated would be an unsuitable match with the survey questions we utilize as subjective evaluations of impacts.

This complicates the conception of inaccurate beliefs about fiscal and welfare impacts as "misperceptions." Considering the complexity and volatility of fiscal impacts estimates, we cannot assume that the distance between a given figure and the person's evaluation is the result of misperception. Moreover, existing data on perceptions do not ask for individual estimates, but rather for evaluations of impacts on a scale that does not have any precise correspondence to monetary estimates of impacts. However, we can explore to what extent people's subjective evaluations of impacts are informed or shaped by econometric estimates of those impacts relative to other determining factors. We opt for measures of fiscal exposure from immigration, which supply rich variation, rely on fewer assumptions, and allow us to compare countries and years in key indicators of immigrants' contributions and social transfers.

How much do immigrants claim in benefits relative to their tax contributions? To pair econometric estimates with the survey questions available on immigrants' contributions relative to costs on public finances, we estimate a novel indicator that approximates economic fiscal exposure from immigration. We rely on recent data by Nyman and Ahlskog (2018) and compute a factor that reflects to what extent immigrants "put in" taxes and social insurance contributions versus how much they "take out" in benefits and welfare support. This measure is effectively the closest to the subjective evaluation question on welfare impacts from immigration (i.e. dependent variable) we can calculate with reasonable confidence. The indicator is expressed as a percentage and it is comparable across countries with otherwise large disparities in the absolute amount of Euros received and paid. We label this indicator *economic fiscal exposure* because it better reflects how much immigrants give relative to how much they take out, regardless of the local population and their contributions.

How many immigrants claim benefits relative to the population? The second set of indicators of fiscal impacts is more consistent with previous research on this topic and measures the ratio of immigrant households receiving any form of social support relative to all native households (also Nyman and Ahlskog 2018 data). We label it *demographic fiscal exposure* because it reflects, not how much immigrants give or take, but how many receive financial support and what they represent with respect to the population of native households (Hanson, Scheve, and Slaughter 2007).

A country can have low economic fiscal exposure for a given year, if immigrants pay in taxes many times what they receive on average in social transfers. However, demographic fiscal exposure can still be evaluated as comparatively high for that country, if more immigrants receive benefits relative to the population. We are the first study to distinguish and test both measures of fiscal effects.

We are also the first study to test the relevance of differences in fiscal exposure from EU and non-EU immigration for the formation of subjective evaluations. We ask, do people's perception of immigrants as fiscal burdens respond more closely to fiscal exposure associated with EU mobility or non-EU immigration? And, why would that differentiation in origin matter?

In light of no existing predictions with respect to the origin of immigrants and their perceived fiscal effects, we derive hypotheses based on the two theories under consideration. Under a framework where the source of evaluating immigration as a fiscal burden is purely economic competition (realistic conflict), then the origin of immigrants is not expected to play a role unless it underlies something meaningful in economic terms.

On the other hand, identity driven explanations help us arrive to two alternative predictions. If welfare chauvinism excludes all foreign-born regardless of origin, then we can expect evaluations to be more negative in response to any group with more access to social support (i.e. free movement, EU mobility). However, if cultural affinity to fellow EU nationals due to historical and geographical ties leads to closer perceived identity-evaluations of immigrants as fiscal burdens will more closely respond to fiscal exposure from non-EU immigration, and EU mobility will not be relevant (Markaki and Longhi 2013).

In addition to fiscal exposure measures we also test other complementary and opposing factors put forward by existing theories; the relative size of the working age immigrant population, and the size of the general government.

Does the country have a large working age immigrant population? We take account of the relative size of the working age foreign-born over the population. It serves as a differentiator between countries with larger and smaller shares of immigrants, especially foreign-born likely to be economically active (working age). In the context of the countries included, it also reflects disparities between countries with high and low immigration flows. By including this factor we argue that the role of residing in a country with many immigrants

in general will differ from the potential role of many immigrants claiming benefits (above indicator).

Does the country have a generous welfare system? As discussed in more detail in the previous section, fiscal exposure from immigration will depend on the balance between the welfare system of the receiving country and the types of incoming immigrants in terms of skill and labour market status (Facchini and Mayda 2009). Countries with more immigrants claiming larger levels of benefits might simply be the countries with the most generous welfare systems. This would confound our measures of fiscal exposure from immigration with the general extent of welfare spending in a country. To take this into account while avoiding collinearity issues between country level indicators[2], we include a measure of the general government's contribution towards total national expenditure.

"In practice this item is measured as the cost to the government of the services it provides, including most significantly the wage bill. Some of its main subcategories are public administration, public order, national defense, health, and education" (Rodrik 1998, p.1001). While the exact drivers of high or low government consumption remain contested, there is general consensus that comparatively richer economies also have larger governments (Shelton 2007). We argue that, government consumption expenditure can act as a sufficient proxy for differentiating between countries that spend more or less on healthcare and social transfers, because it reflects overall government size excluding public investments in capital formation.

The measure of government generosity we utilize is based on financial amount, rather than on the premise of access as in the Crepaz and Damron (2009) study. However we extend their predictions; if more generous states produce more generous citizens (identity, welfare system chauvinism), then respondents will be more likely to see immigrants as net contributors rather than burdens, in countries where governments spend more. If more generous governments produce less generous citizens who are concerned about sharing resources (economic concerns, realistic conflict), then citizens will hold more negative evaluations where governments spend more (Facchini and Mayda 2009).

[2] In this case collinearity between indicators refers to the option of including benefits take up rates among native households alongside the demographic fiscal exposure measure estimated using benefits take up among foreign born with the total number of native households in the denominator.

Table 1 provides a summary of the main contextual factors and their hypothesized effect based on each respective explanatory theory.

Table 1

Expected perception that immigration is a net fiscal burden

Contextual factors	Source of perception that immigration is a net fiscal burden	
	Economic	**Identity**
Higher economic fiscal exposure: How much immigrants receive	**+**	**0**
Higher demographic fiscal exposure: How many immigrants receive	**0**	**+**
Larger relative size of working age immigrant population	**-**	**+**
More generous government	**+**	**-**

Notes: (+) denotes factor is expected to increase the chance of perceiving immigrants as fiscal burdens according to respective theoretical approach; (-) denotes factor is expected to reduce the chance of perceiving immigrants as fiscal burdens; (0) denotes theoretical approach does not provide predictions for that factor, or factor is not deemed relevant

Data

The statistical analysis combines a series of individual level and country level data. The microdata is drawn from comparative surveys of European countries; specifically, three rounds of the European Social Survey (2002/2004/2014) and the third wave of the European Quality of Life Survey (2012). These sources of survey data are chosen for their availability of questions phrased specifically to capture subjective evaluations of immigrants' impacts on welfare.

Each survey respondent is matched with demographic and economic indicators/statistics that correspond to their country of residence and year of completing the survey. Every effort has been made to include all 28 countries that are members of the EU as of 2018, in addition to EFTA countries that participate in free movement as well. However, due to the unavailability of country-level data for Luxembourg and Romania, these two countries have been excluded from the analysis. All other 26 EU countries in addition to Norway and Switzerland are included at least once across the samples/years.

Table 2

Number of respondents by survey sample and country

Country	ESS1 2002	ESS4 2008	EQLS 2012	ESS7 2014	Total
Austria	1,926	-	970	1,567	4,463
Belgium	1,550	1,595	930	1,592	5,667
Bulgaria	-	1,291	683	-	1,974
Switzerland	-	1,334	-	1,177	2,511
Cyprus	-	1,022	922	-	1,944
Czech R	1,026	1,675	956	1,959	5,616
Germany	2,631	2,388	2,756	2,729	10,504
Denmark	1,318	1,399	955	1,392	5,064
Estonia	-	1,098	747	1,502	3,347
Spain	1,470	2,128	1,340	1,703	6,641
Finland	1,905	2,089	982	1,977	6,953
France	1,411	1,915	2,092	1,735	7,153
UK	1,922	2,134	2,039	1,965	8,060
Greece	2,287	1,920	900	-	5,107
Croatia	-	-	919	-	919
Hungary	1,232	1,179	955	1,483	4,849
Ireland	1,832	1,521	923	2,079	6,355
Italy	-	-	2,165	-	2,165
Lithuania	-	-	938	1,896	2,834
Latvia	-	1,408	849	-	2,257
Malta	-	-	964	-	964
Netherlands	2,209	1,634	945	1,755	6,543
Norway	1,693	1,460	-	1,303	4,456
Poland	1,849	1,323	1,897	1,453	6,522
Portugal	1,274	1,738	896	1,115	5,023
Sweden	1,824	1,615	909	1,627	5,975
Slovenia	1,231	1,048	895	920	4,094
Slovakia	-	1,440	933	-	2,373
Total	30,590	36,354	30,460	32,929	130,333

Unweighted final estimation sample (model 5); citizens of country of residence; LU & RO excluded due to unavailable aggregate data

Dependent variable

The variable used as dependent in the statistical models is the survey respondents' evaluation of how immigrants impact welfare. While not identical, the wording of the questions posed and the response options provided are similar across survey samples (see Table 3 for complete wording). All questions ask respondents to rate the impacts that

immigrants have on welfare on a scale from most negative to most positive. All surveys also phrase the question as an issue of putting in/contributing versus taking out.

Table 3

Survey questions on perceived welfare and fiscal impacts

ESS1 & ESS7	[Using this card] Most people who come to live here work and pay taxes. They also use health and welfare services. On balance, do you think people who come here take out more than they put in or put in more than they take out? [0 - they receive much more … 10 - they contribute much more]
ESS4	A lot of people who come to live in [country] from other countries pay taxes and make use of social benefits and services. On balance, do you think people who come to live in [country] receive more than they contribute or contribute more than they receive? Please use this card where 0 means they receive much more and 10 means they contribute much more.
EQLS 2012	Please look at the following statements about immigrants (i.e, people from abroad living in [country]) and indicate where you would place your views on this scale [1 - Immigrants are a strain on our welfare system … 10 - Immigrants contribute to our welfare system]

There are two especially notable differences between the survey sources. Firstly, the three ESS surveys included a response scale from 0 to 10, whereas the EQLS scale ranges from 1 to 10. This has a series of implications for comparing responses across the samples, but also in terms of what the middle values of each scale represent. On the 0 to 10 scale, the 5 represents the middle value and splits the scale in two equal parts, one on the negative side (0/4) and one on the positive side (6/10). Although not explicit anywhere, it could be interpreted by respondents as denoting that 5 means immigrants contribute as much as they receive. However, on the 1 to 10 scale, there is no value that can divide the scale equally in the middle. The concentration of responses in both scales, as shown in Table 3, suggests that respondents effectively assigned the value 5 as the middle ground between "immigrants take out more" and "immigrants put in more".

The other important difference between the questions is related to the phrasing of welfare impacts. The questions in the first and seventh rounds of the ESS refer to the balance between taxes paid and "health and welfare services" used. The fourth round of the ESS asks about the balance between taxes paid and "social benefits and services" used. The

EQLS on the other hand, asks to what extent immigrants are a strain or contribute to the welfare system as a whole, with no mention of taxes or health/social services.

Table 4
Perceived fiscal and welfare impacts, percent of respondents

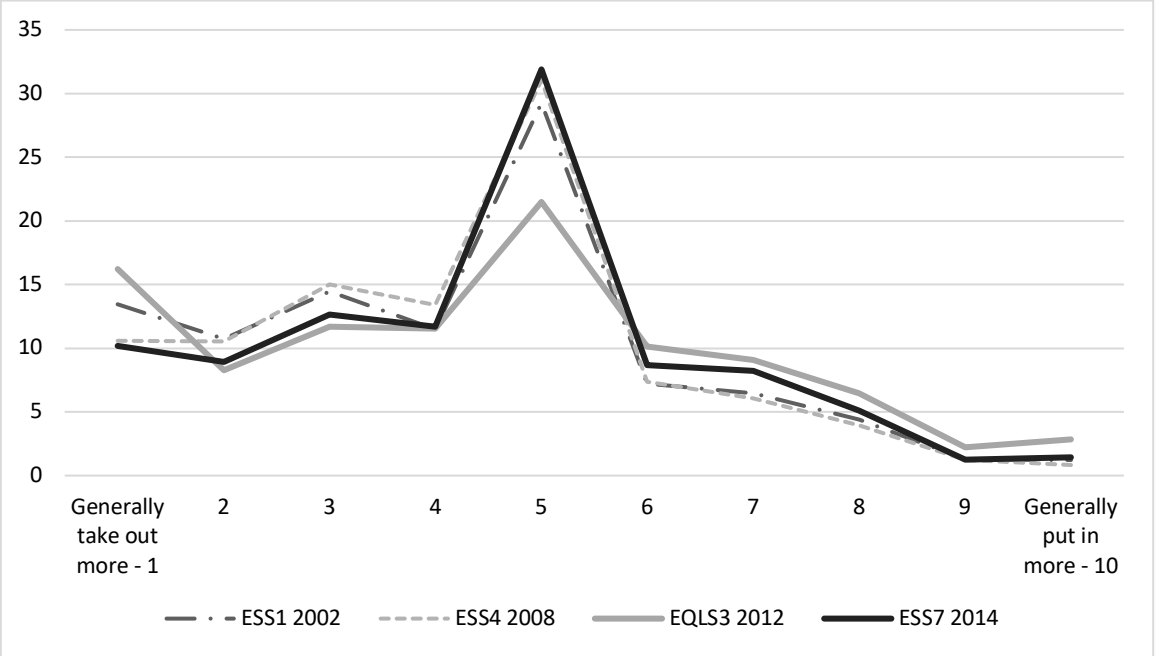
	ESS1	ESS4	ESS7	EQLS3
0 - Generally take out more	7%	5%	6%	-
1	6%	5%	4%	16%
2	11%	10%	9%	8%
3	14%	14%	13%	11%
4	11%	13%	12%	11%
5	30%	32%	32%	22%
6	7%	8%	9%	10%
7	6%	6%	8%	9%
8	4%	4%	5%	7%
9	1%	1%	1%	2%
10 - Generally put in more	1%	2%	1%	3%
	100%	100%	100%	100%
Total number	35,774	44,956	33,656	32,488

Unweighted sample before harmonization; Citizens of country of residence

For comparability purposes we proceed to harmonize the dependent variable by recoding all zeros in the ESS samples to 1, in effect matching the EQLS range (1 and 10).[3] As shown in Table 4 (original scales) and Figure 1 (harmonized scales), the distribution of responses is broadly comparable.

[3] All analyses have also been conducted using the non-harmonized original scale (0-10) to ensure that results do not differ substantially. Differences were deemed minor.

Figure 1
Comparison of harmonized scales by survey sample, % of respondents



Unweighted estimation sample (post harmonization); Citizens of country of residence

Demographic controls

For this research we focus primarily on the role of country level determinants and prioritize comparability across data sources. However, it is important to control for basic demographic factors that might both vary cross-nationally and influence perceptions or misperceptions of immigration impacts. Hence the list of individual factors entered in the regressions is not exhaustive, but reflects commonly employed demographic controls, including gender, age, education, current economic activity; and current/last occupation. Age is grouped in three categories; up to 35, 36 to 60, and over 60 years old. Education level completed is available using the International Standard Classification of Education (ISCED) in all survey sources and grouped in the following categories; low education for those who have completed up to lower secondary (ISCED 0-II), medium education for respondents with upper second, post-secondary, or short tertiary education (ISCED III-IV), and high education for those with Bachelors or higher (ISCED V-VI). Current economic activity is grouped into, paid work, education, looking for work, and economically inactive. For current or last occupation, we use the derived variable provided which is based on the International

Standard Classification of Occupations (ISCO-08) and grouped as follows; low skill occupations (ISCO 7/9), medium skill occupations (ISCO 4/6), high skill occupations (ISCO 1/3), and armed forces (0). Respondents who do not have a current or past occupation are classified as "not applicable". See Table 5 for summary statistics.

Table 5

Summary of demographic controls

Variable		Mean	Std. Dev	Min	Max
Gender	Female	0.5	0.5	0	1
	Up to 35				
	36 to 60	0.44	0.50	0	1
Age groups	Over 60	0.29	0.45	0	1
	Up to lower secondary (0-II)				
ISCED level	Upper second, post-secondary,				
education	short tertiary (III-IV)	0.44	0.50	0	1
completed	Bachelors or higher (V-VI)	0.24	0.43	0	1
	Inactive (grouped)				
Economic	In education	0.08	0.27	0	1
activity	Looking for work	0.04	0.19	0	1
currently	In paid work	0.50	0.50	0	1
	Low skilled (7/9)				
	Medium skilled (4/6)	0.29	0.46	0	1
ISCO-08	Highly skilled (1/3)	0.34	0.47	0	1
Occupation	Armed forces (0)	0.00	0.06	0	1
current or last	Not applicable	0.08	0.28	0	1

Unweighted estimation sample; Citizens of country of residence

Country-level indicators

Respondents are matched with country level data based on the year they participated in the survey. The indicators of fiscal exposure associated with immigration across EU countries are drawn from recent comparative estimates on the fiscal impacts of intra-EEA migration, kindly provided by Nyman and Ahlskog (2018). The measures we employ are derived from established sources of data used to calculate comparative statistics across European countries, including the EULFS and EUSILC. We also draw additional relevant statistics from Eurostat as described in more detail below.

For all indicators drawn from Nyman and Ahlskog 2018, and since aggregation is based on survey data in most countries, we take the average (Euro or number) between two years before calculating any statistics for the regressions. Respondents in ESS7-2014 are matched with data relating to 2013-14, those in EQLS3-2012 with 2011-12, and ESS4-2008 with data for 2007-08. In the case of ESS1-2002, we have matched respondents with data for 2004-05, due to unavailable earlier estimates. Part of sensitivity tests involved replicating all models after excluding all observations from 2002, and results remain robust to these changes. All country level regressors vary by country and year, and are expressed in percentages.

Table 6

Summary of aggregate regressors

Country level variable	Mean	Std. Dev.	Min	Max
Relative size of working age immigrant population				
% Foreign born 16-64yo over total population	10.75	6.90	0.25	31.63
Government generosity				
Government consumption expenditure as % of total national expenditure	26.65	4.66	17.36	36.33
Economic measures of fiscal exposure				
EU benefits received as % of EU tax contributions	19.73	10.32	2.65	64.81
Non-EU benefits received as % of non-EU tax contributions	27.51	15.97	2.23	71.37
Demographic measures of fiscal exposure				
% EU receiving benefits relative to native population	2.72	2.89	0.02	13.36
% non-EU receiving benefits relative to native population	4.76	2.82	0.07	10.23

Notes: Indicators are expressed as percentages and vary by country and year to match with the countries and years shown in Table 2

Economic fiscal exposure: We estimate an indicator that measures how much the average EU and average non-EU household receives relative to the sum paid in income taxes and social security contributions in Euro per year (Nyman and Ahlskog 2018). EU and non-EU immigrant households are defined based on country of birth, with household members assigned to origin groups proportionally (for details on definitions and calculations see Nyman and Ahlskog 2018). For summary statistics of all country level factors see Table 6.

Demographic fiscal exposure: We estimate the percentage of households that receive benefits over the total number of native-born households, again separately for EU and non-EU. The values of this indicator are higher when there are more immigrants who receive welfare support for every native. We should note however that claimant households in this case are defined broadly to include any benefits received, such as child allowance and other benefits, that are possibly provided regardless of financial status in some countries.

Relative size of the working age immigrant population: Another factor that we take into consideration is the percentage of the total population who are working age immigrants (foreign born and 16-64yo), calculated based on Eurostat population estimates (2002/2008/2012/1014).

Government generosity: We calculate this indicator by using Eurostat data on final consumption and general government final consumption, in purchasing power standards per capita (current prices). It "includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation."[4]

To evaluate the potential associations between country level predictors, we review correlations between the indicators (see Table 7). Correlations are reasonably low for most predictors, with the exceptions of the percentage of working age immigrant population and the ratio of immigrant households receiving benefits, which show correlations of $r > 0.7$ for both EU and non-EU immigrants. While this is to be expected due to the definition of the measures, we develop our model specifications by estimating our regressions both with and

[4] More on consumption expenditure: "Gross domestic product (GDP) from the expenditure side is made up of household final consumption expenditure, general government final consumption expenditure, gross capital formation (private and public investment in fixed assets, changes in inventories, and net acquisitions of valuables), and net exports (exports minus imports) of goods and services." https://data.worldbank.org/indicator/NE.CON.GOVT.ZS

without the collinear indicators, and, as described in the analysis section below, the results support our choice to include both in the final specification.

Table 7

Correlations between aggregate regressors

	% Working age foreign born a	Government expenditure as % of total b	EU benefits received as % of EU tax c	Non-EU benefits as % of non-EU tax d	% EU receiving benefits e	% non-EU receiving benefits f
a	1					
b	-0.0116	1				
c	0.0938	0.2051	1			
d	0.2584	0.4810	0.6074	1		
e	0.7056	0.0384	0.5089	0.4434	1	
f	0.7661	0.2269	0.0160	0.3080	0.4058	1

Modelling Strategy

Our statistical analysis is comprised of five regressions, where all four years/samples are combined and respondents (level 1) are nested within 28 countries (level 2). We estimate linear mixed-effects regression models (or hierarchical linear models), where a respondent's position on the subjective evaluation of impacts scale (ranging 1 to 10), is modelled as a function of individual level characteristics, country level factors, and country level differences.

$$\text{Perceived fiscal impacts}_{ic} = \beta_0 + \beta 1_{ic} + \beta 2_{ic} + u_c + \varepsilon_{ic}$$

i = individual respondent, c = country sample, β1 = fixed effect coefficients of individual level factors, β2 = fixed effect coefficients of country level factors, u = random country intercepts, ε = error term

This estimation approach takes account of the multilevel structure of the data and provides flexibility in combining both country level regressors in the fixed portion of the

model, and random country intercepts (u) that account for other observable and unobservable differences between countries. The five multilevel models refer to five distinct specifications with regards to the country level predictors.

The first specification tests the role of the relative size of the immigrant working age population and the government's share of total consumption, without any other aggregate predictors. The second specification tests the measures of economic fiscal exposure. The third proceeds to test the two measures of demographic fiscal exposure. The fourth combines the fiscal exposure measures in isolation from the measures of size of immigrant population and government spending. The fifth model combines all country level regressors.

Due to the cross-sectional nature of the survey data and the relatively few year-based variation available (i.e. four points in time), our analysis cannot assess longitudinal effects. However, it is still useful to control for any systematic differences between the samples. Therefore we also include a sample/year fixed effect (ESS1-2002/ESS4-2008/EQLS3-2012/ESS7-2014). All the estimations further include an identical set of harmonized individual level controls for education, age, gender, activity, and occupation.

In addition to the primary regressions we estimate a series of replication models to ensure our results remain reasonably robust to small alterations (see appendix for results). As with all multilevel estimations of this type, which model individual attitudes or outcomes as a function of country level effects, our study is subject to certain restrictions. The limited variation of the aggregate factors, coupled with large individual level samples, can impact the reliability and variability of the estimates and in turn bias our inferences. Nonetheless, we follow formal recommendations in including more than 25 countries and exercise caution in the interpretation of the results, especially effect sizes (Bryan and Jenkins 2016).

Analysis

Our results show that EU citizens' evaluations of the impacts of immigration on welfare are partly responsive to estimates of fiscal exposure from immigration in their country. However, how many immigrants receive support is more relevant to respondents' evaluations, than to what extent immigrants have contributed towards the costs of this

support. In this regard, our findings signal identity rather than economic competition as the underlying source of these perceptions/evaluations.

In model 1 (see Table 8, column 1), we control for the percentage of working age foreign born population and government expenditure as a percentage of total national expenditure. In other words, we take account of countries with larger or smaller immigrant populations that could be in the labour market, and countries with more or less generous governments. Here results point towards more negative evaluations for countries with more immigrants, which could be interpreted as evidence in support of labour market competition hypotheses. Estimations also show more positive evaluations for countries with higher government spending, implying support for welfare system chauvinism hypotheses that citizens of generous welfare states are more inclined to extend this generosity to immigrants (Crepaz and Damron 2009). In models 2 to 5 (see Table 8, columns 2-5), the introduction of indicators that directly measure fiscal exposure from immigration point towards a more complex dynamic.

In model 2 we add a novel economic indicator of fiscal exposure that differentiates between EU mobility and non-EU immigration and calculates how much immigrants receive in benefits as a percentage of taxes paid on average. As expected, the more immigrants receive compared to what they contribute, the more negative we find respondents' subjective evaluations. Results are similar for both EU and non-EU households in this model. The estimated mean effects, are not only very close to zero, but also show volatility depending on what other country-level factors are taken into account. These suggest a weak association between citizens' subjective evaluations of immigrants' contributions and contextual circumstances of those contributions.

Models 3 to 5 include an alternative fiscal exposure measure: how many EU and non-EU households receive any form of social benefit, as a percentage of all native households. As discussed above, there is a high degree of correlation between the percentage of the population who are working age immigrants and the percentage of immigrant households receiving benefits over the total number of native households. This is to be expected, since the absolute number of households receiving benefits will be higher in countries with more immigrants, and the total number of native households is directly related to the total population. In spite of this, the two measures are operationalizing two distinct conditions. One ranks countries on the basis of a larger or smaller relative size of the

foreign-born population (persons), whereas the other accounts for how many receive social support in some form of financial compensation (households).

A comparison of columns 3 and 4 (as well as 3 and 5), shows that the estimated effect of the demographic fiscal exposure indicator remains mostly unaffected by the inclusion or omission of the share of immigrants in the specification. This suggests a more consistent association and indicates that the high degree of inter-correlation is not distorting our findings concerning demographic fiscal exposure. When demographic fiscal exposure associated with immigrants as well as the relative size of the immigrant population are distinguished and controlled simultaneously (column 5), the two indicators exert a statistically significant and opposite effect on personal evaluations. While subjective perceptions of immigrants' contributions are more negative in countries with higher demographic fiscal exposure from immigration, countries with more immigrants generally express more positive evaluations.

In model specification 5 we take all the different measures of fiscal effects as well as demographic and economic factors into consideration. Across all specifications the relative size of EU immigrants receiving benefits shows the largest (and negative) effect on individual evaluations, followed by non-EU receiving benefits. In figures 2 to 5 we discuss results from the final specification in more detail by visualizing how the predicted position of a respondent on the subjective evaluation scale varies across different values of key country level factors.

Table 8

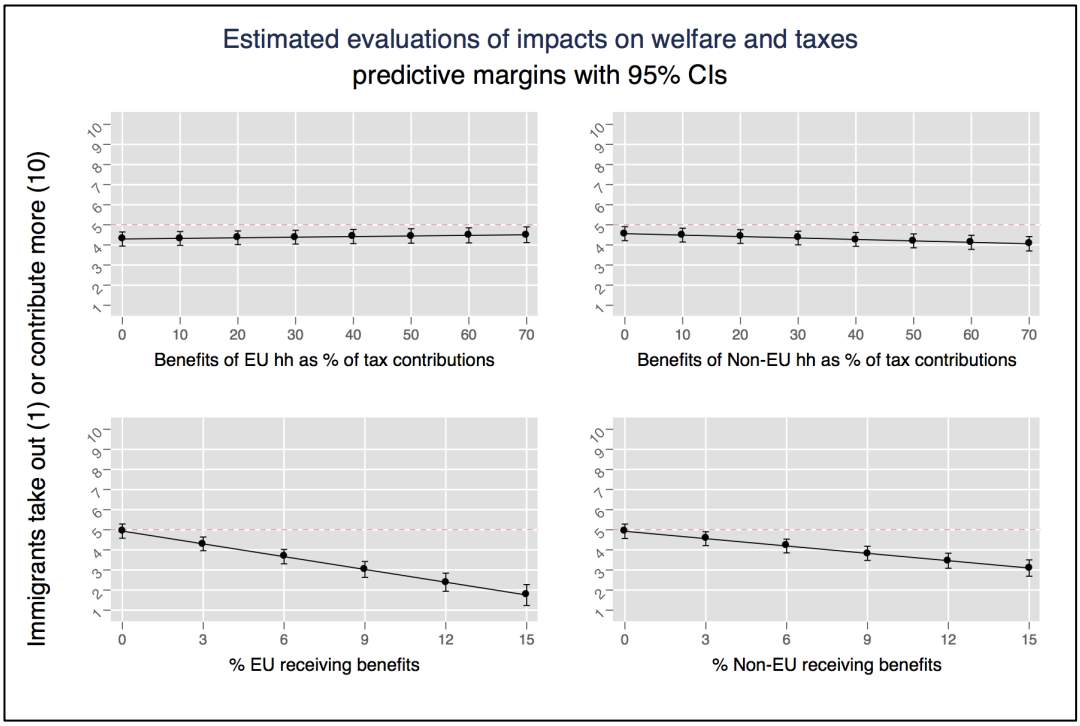
Results of mixed effects regressions

Taxes and services: Immigrants take out more (1) or less (10) than they contribute	(1)	(2)	(3)	(4)	(5)
% 16-64yo Foreign born pop	-0.035**	-0.023**	0.013**		0.014**
Government consumption expenditure as % of total consumption expenditure	0.017*	0.026**	0.055**		0.052**
EU benefits received as % of EU tax contributions		-0.007**		0.005*	0.003
Non-EU benefits as % of non-EU tax contributions		-0.009**		-0.009**	-0.007**
% EU receiving benefits relative to native population			-0.214**	-0.192**	-0.212**
% non-EU receiving benefits relative to native population			-0.142**	-0.083**	-0.122**
Observations	130,333	130,333	130,333	131,399	130,333
Wald Chi2(21)	3565.032	3709.201	3957.180	3890.539	3990.610
Prob > chi2	0.000	0.000	0.000	0.000	0.000
LR test vs. linear regression	4196.403	4101.366	3929.084	3999.705	3840.384
Prob >= chibar2	0.000	0.000	0.000	0.000	0.000

* p<0.05 ** p<0.01; Multilevel mixed effects maximum likelihood regression, respondents nested within 28 EEA countries (26 EU plus Norway & Switzerland); fixed effect included for sample ESS1/ESS4/ESS7/EQLS3 and full set of harmonized demographic controls; citizens of residence country

Figure 2 shows the predicted subjective evaluation of respondents across the values of each fiscal exposure indicator (four subgraphs). As can be inferred from the results table as well, the economic fiscal exposure indicators exert a miniscule effect on a person's position on the evaluation scale (top left and top right subgraphs). On the other hand, demographic fiscal exposure associated with EU-born households indicates a more notable statistical relationship. Among citizens of countries where less than three percent of EU households receive social support, evaluations are estimated around the middle of the scale. For those living in countries with higher demographic fiscal exposure from intra-EU mobility, perceptions are predicted far lower in the evaluation scale (1-3, "immigrants take out more than they contribute"). The association is similar but less pronounced when it comes to non-EU related demographic fiscal exposure.

Figure 2



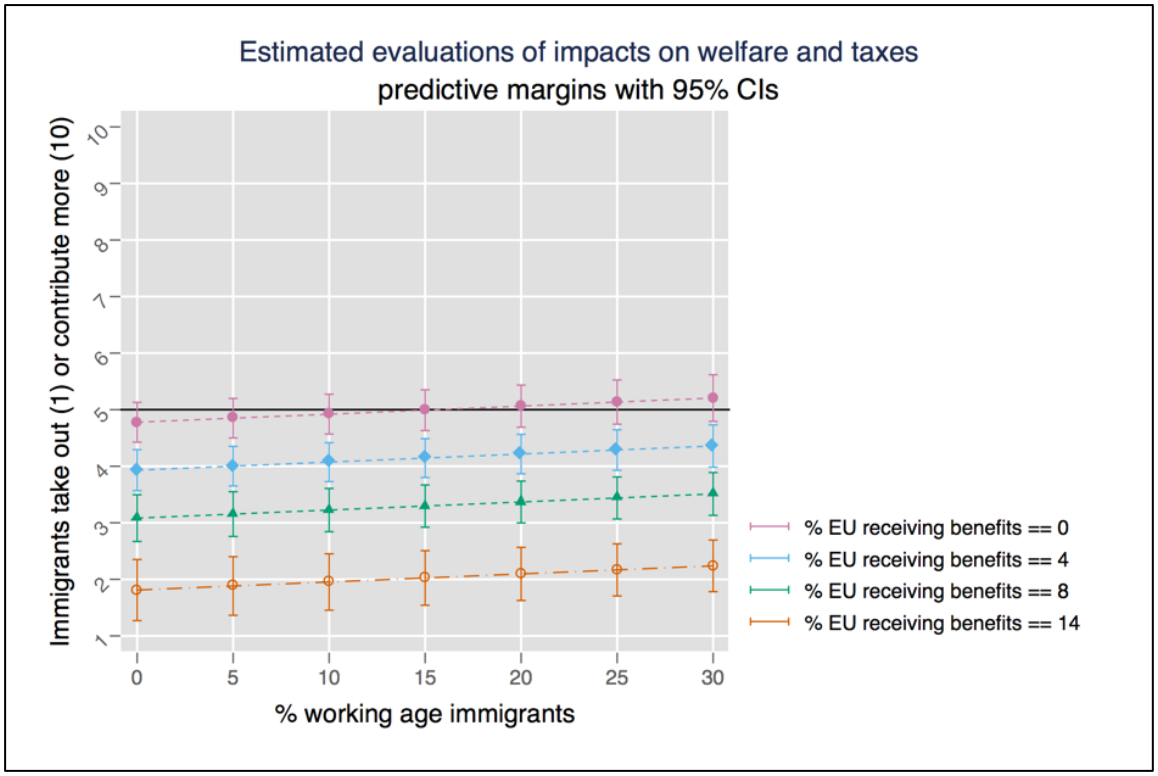
Notes: post-estimation margins following model specification (5). Results based on fixed portion of the mixed effects model [5]

[5] Graphs 2 to 5 draw on software developed by (Bischof 2017; Winter 2017)

As can be seen in Figure 3, estimated subjective evaluations of immigrants' contributions also vary with the size of working age immigrant population. In countries with a fairly large immigrant population but where fewer than two percent of EU households receive social support (low end of demographic fiscal exposure), evaluations are predicted at just above the middle of the scale – which could be interpreted as the point where immigrants' costs in benefits received are seen as on balance matching their contributions (violet line, Figure 3). However, in countries with similarly large levels of immigrant population but where EU households receiving social support make up more than about nine percent of all native households (high end of demographic fiscal exposure compared to other countries in analysis), evaluations of immigrants' contributions are noticeably lower and very close to the bottom of the scale (orange line, Figure 3).

This prediction reflects the approximated average effects. In addition to these, there are also other crucial individual factors and country level differences that can determine the eventual position of a respondent on the scale. Here we focus specifically on the fixed effect of the respective country level factors because it represents the estimated impact associated with that factor on individuals' evaluations, in isolation from other influences and differences, both observable and unobservable. However, it is worth noting that the random portion of the model points to large residual differences across countries that cannot be attributed to the fiscal exposure, or other factors we explore in our analysis.

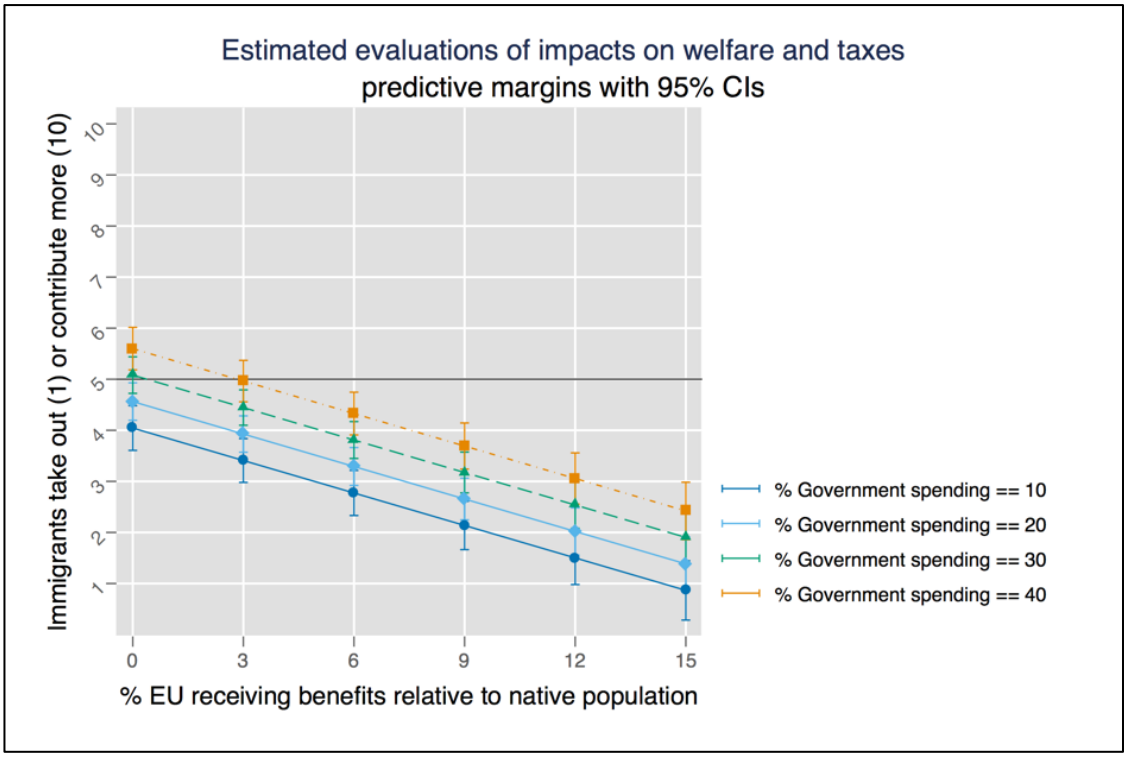
Figure 3



Notes: post-estimation margins following model specification (5). Results based on fixed portion of the mixed effects model

On average, citizens of countries with governments that spend more tend to hold more positive views of immigrants' contributions to welfare. However, the positivity of these views also depends on the country's demographic fiscal exposure from immigration. For respondents in countries where the government's spending represents more than 40 percent of total national spending, predicted views can range from about (6) (i.e. immigrants contribute somewhat more than they take out) in countries with very low demographic fiscal exposure, to (1) (immigrants take out much more than they contribute) in countries where more than 12 percent of households are EU and receiving benefits. The effect of government spending is small and contingent on other socioeconomic factors, but nonetheless, findings provide some support for the welfare system chauvinism approach.

Figure 4



Notes: post-estimation margins following model specification (5). Results based on fixed portion of the mixed effects model

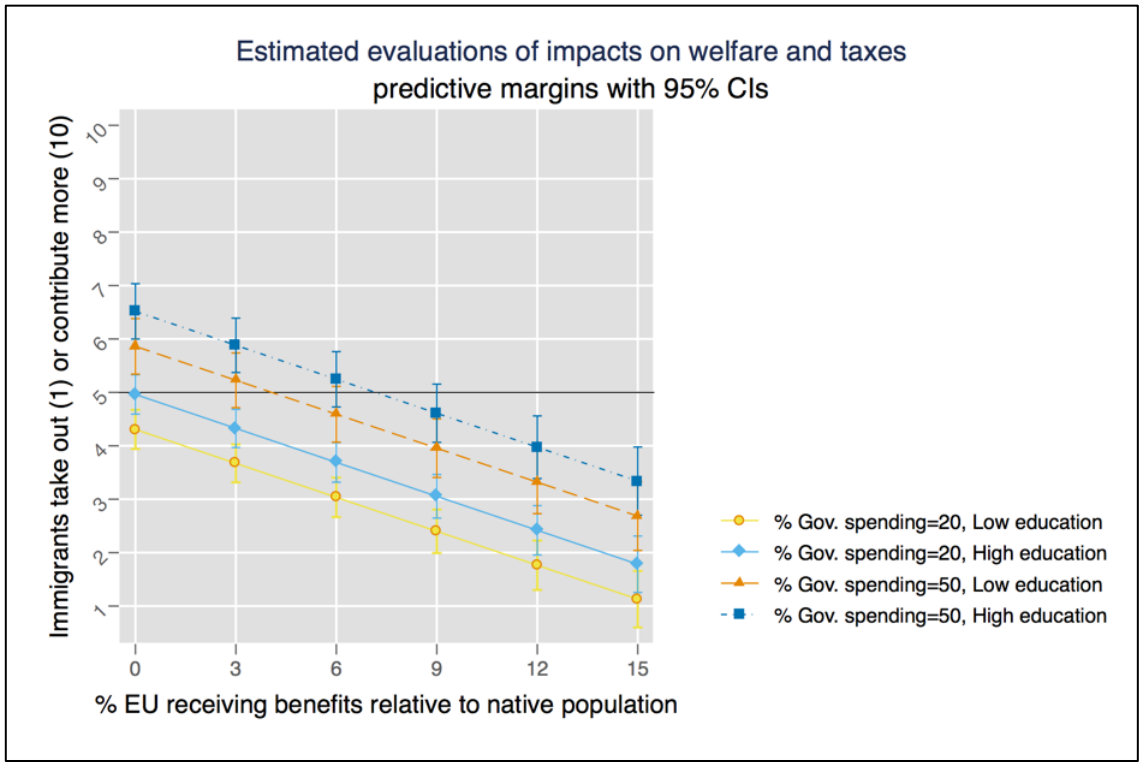
In reference to the misperception literature, which prioritizes individual factors as the principal determinants of evaluations, Figure 5 contrasts country level effects between people with low and people with high education. The estimated effect of education on a person's evaluation, is not only larger compared to other demographic factors and statistically significant, but can also serve as a proxy for a variety of characteristics associated with attitudes and misconceptions, such as cognitive engagement, political participation, and practices of information acquisition (Bobo and Licari 1989; Johansen and Joslyn 2008; Campbell and Horowitz 2016).

In countries with relatively low levels of demographic fiscal exposure (0-3% EU receiving benefits), government spending can make the difference between those who evaluate welfare effects as negative and those who evaluate them as positive. For those in countries on the low end of government spending (20% of total national expenditure) as well as low fiscal exposure, people across both education levels are expected to express evaluations at about the middle of the scale and below. The most positive evaluations of

immigrants' contributions are estimated for both low and highly educated people (5 and above) in countries with high government spending as well as low fiscal exposure associated with EU mobility. Effectively, education cannot tell us as much about a person's evaluation as the conditions of where they live.

However, results confirm broader conclusions of studies on innumeracy and misperceptions to the degree that evaluations are more likely to reflect exaggerated views that do not - in any way - match with contextual circumstances, and show substantial unexplained variation, both at the individual and country levels.

Figure 5



Notes: post-estimation margins following model specification (5). Results based on fixed portion of the mixed effects model

Conclusions

This article has examined the relationship between the estimated fiscal effects of immigration across European states, and citizens' evaluations of those effects. We explored economic/realistic conflict and welfare chauvinism approaches and tested two alternative measurements of fiscal exposure, one reflecting *how much* immigrants receive relative to what they contribute (economic fiscal exposure), and *how many* receive relative to the native population (demographic fiscal exposure).

Our analysis is the first of this kind to extend the comparison to nearly all countries in the EEA over several years, as well as consider a series of complementary and opposing relationships. We match survey data with both novel and previously examined statistical estimates of fiscal exposure associated with immigration that distinguish between the impacts of EU and non-EU immigrants. We also account for the relative size of the working age immigrant population and for levels of government spending.

What do our results suggest for the ways citizens of the EU form their views on the welfare impacts of immigration? All else equal, people who live in countries where more immigrants receive benefits relative to all natives hold more negative evaluations of welfare impacts compared to people in countries with lower fiscal exposure. In this sense, we find some support for the argument that citizens' attitudes are linked to concerns over the overall impacts of immigration on public finances.

Nonetheless, our findings suggest that identity considerations underlie people's perceptions of impacts more than economic considerations. In this sense, the fiscal burden hypothesis finds very limited support, and is conditional on the identity of migrants; evaluations depend less on the extent of immigrants' contributions towards the costs of what they receive, and more on the identity of who is receiving. Furthermore, citizens' evaluations do not appear to make exceptions for intra-EU immigrants. To the contrary, statistical results support the welfare chauvinism hypothesis that the fiscal exposure from any group of foreign-born residents with potentially more access to welfare support in terms of status (EU immigrants) will likely trigger more negative evaluations of fiscal impacts.

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APPENDIX

Table A1
Main Mixed Effects Regressions Results (Specifications 1-5)

	(1)		(2)		(3)		(4)		(5)	
	coef.	*se*	*coef.*	*se*	*coef.*	*se*	*coef.*	*se*	*coef.*	*se*
Male										
Female	-0.065	(0.012)	-0.066	(0.012)	-0.066	(0.012)	-0.064	(0.012)	-0.066	(0.012)
Up to 35										
36 to 60	-0.077	(0.015)	-0.076	(0.015)	-0.074	(0.015)	-0.074	(0.015)	-0.074	(0.015)
Over 60	-0.101	(0.021)	-0.103	(0.021)	-0.104	(0.021)	-0.101	(0.021)	-0.104	(0.021)
Up to lower secondary										
Upper second, post-secondary	0.166	(0.015)	0.168	(0.015)	0.164	(0.015)	0.163	(0.015)	0.165	(0.015)
Bachelors or higher	0.559	(0.019)	0.561	(0.019)	0.555	(0.019)	0.557	(0.019)	0.557	(0.019)
Inactive										
In education	0.266	(0.027)	0.269	(0.027)	0.273	(0.027)	0.272	(0.027)	0.274	(0.027)
Looking for work	0.109	(0.034)	0.116	(0.034)	0.111	(0.034)	0.121	(0.033)	0.114	(0.034)
In paid work	0.052	(0.017)	0.050	(0.017)	0.049	(0.017)	0.050	(0.017)	0.049	(0.017)
Low skilled										
Medium skilled	0.142	(0.016)	0.142	(0.016)	0.143	(0.016)	0.140	(0.016)	0.142	(0.016)
Highly skilled	0.323	(0.017)	0.322	(0.017)	0.324	(0.017)	0.321	(0.017)	0.323	(0.017)
Armed forces	0.035	(0.091)	0.028	(0.091)	0.039	(0.091)	0.028	(0.091)	0.035	(0.091)
Occupation not applicable	0.268	(0.025)	0.265	(0.025)	0.264	(0.025)	0.264	(0.025)	0.264	(0.025)
ESS1 2002										
ESS4 2008	0.104	(0.019)	0.003	(0.021)	-0.011	(0.020)	0.021	(0.018)	-0.040	(0.021)
EQLS3 2012	0.432	(0.022)	0.347	(0.023)	0.403	(0.022)	0.432	(0.020)	0.383	(0.023)
ESS7 2014	0.365	(0.023)	0.255	(0.025)	0.360	(0.023)	0.409	(0.022)	0.332	(0.025)
% Foreign born 16-64yo	-0.035	(0.003)	-0.023	(0.004)	0.013	(0.004)			0.014	(0.004)
Government consumption	0.017	(0.007)	0.026	(0.007)	0.055	(0.008)			0.052	(0.008)
EU benefits as % of EU taxes			-0.007	(0.002)			0.005	(0.002)	0.003	(0.002)

	(1)		(2)		(3)		(4)		(5)	
	coef.	*se*	*coef.*	*se*	*coef.*	*se*	*coef.*	*se*	*coef.*	*se*
Non-EU benefits as % of non-EU taxes			-0.009	(0.001)			-0.009	(0.001)	-0.007	(0.001)
% EU receiving benefits					-0.214	(0.015)	-0.192	(0.014)	-0.212	(0.016)
% non-EU receiving benefits					-0.142	(0.011)	-0.083	(0.011)	-0.122	(0.011)
Fixed portion intercept (persons)	3.673	(0.212)	3.766	(0.213)	3.451	(0.264)	4.827	(0.177)	3.588	(0.263)
Random Intercept (countries)	0.274	0.075	0.283	0.078	0.879	0.244	0.789	0.220	0.847	0.237
Random variance (residual)	4.255	0.017	4.250	0.017	4.242	0.017	4.245	0.017	4.241	0.017
Number of groups	28		28		28		28		28	
Min. obs per group	919		919		919		919		919	
Max. obs per group	10,504		10,504		10,504		10,504		10,504	
Observations	130333		130333		130333		131399		130333	
Wald Chi2(21)	3565.032		3709.201		3957.180		3890.539		3990.610	
Prob > chi2	0.000		0.000		0.000		0.000		0.000	
LR test vs. linear regression	4196.403		4101.366		3929.084		3999.705		3840.384	
Prob >= chibar2	0.000		0.000		0.000		0.000		0.000	

Notes: Results of multilevel mixed effects maximum likelihood regressions as defined in the Modelling Strategy section. Respondents nested within 28 EEA countries (26 EU plus Norway & Switzerland); citizens of residence country

Table A2
Alternative Estimation Results

	Exclude ESS1 2002		Exclude EQLS3 2012		Exclude EQLS3 2012 & Scale 0-10		Linear reg with clustered se and country-year fixed effects	
	coef.	*se*	*coef.*	*se*	*coef.*	*se*	*coef.*	*se*
Male								
Female	-0.068	(0.014)	-0.086	(0.013)	-0.087	(0.014)	-0.066	(0.020)
Up to 35								
36 to 60	-0.095	(0.018)	0.002	(0.017)	0.001	(0.017)	-0.074	(0.025)
Over 60	-0.113	(0.024)	-0.055	(0.023)	-0.051	(0.024)	-0.104	(0.039)
Up to lower secondary								
Upper second, post-secondary	0.157	(0.017)	0.127	(0.017)	0.146	(0.017)	0.165	(0.030)
Bachelors or higher	0.549	(0.022)	0.495	(0.021)	0.532	(0.022)	0.557	(0.045)
Inactive								
In education	0.175	(0.031)	0.471	(0.031)	0.513	(0.033)	0.274	(0.050)
Looking for work	0.160	(0.038)	-0.104	(0.038)	-0.126	(0.040)	0.114	(0.063)
In paid work	0.040	(0.020)	0.019	(0.018)	0.028	(0.019)	0.048	(0.020)
Low skilled								
Medium skilled	0.152	(0.018)	0.114	(0.018)	0.133	(0.019)	0.141	(0.018)
Highly skilled	0.329	(0.020)	0.317	(0.019)	0.346	(0.020)	0.323	(0.026)
Armed forces	0.018	(0.107)	0.160	(0.103)	0.158	(0.109)	0.035	(0.111)
Occupation not applicable	0.301	(0.029)	0.146	(0.028)	0.162	(0.030)	0.263	(0.032)
ESS1 2002								
ESS4 2008			-0.201	(0.021)	-0.195	(0.022)	-0.040	(0.132)
EQLS3 2012	0.398	(0.020)					0.390	(0.140)
ESS7 2014	0.366	(0.022)	0.141	(0.028)	0.140	(0.030)	0.342	(0.172)
% Foreign born 16-64yo	0.034	(0.009)	0.010	(0.005)	0.008	(0.005)	0.014	(0.026)
Government consumption	0.080	(0.013)	0.080	(0.009)	0.090	(0.010)	0.055	(0.045)
EU benefits as % of EU taxes	-0.001	(0.002)	0.002	(0.003)	0.003	(0.003)	0.004	(0.008)
Non-EU benefits as % of non-EU taxes	0.008	(0.002)	-0.014	(0.001)	-0.015	(0.001)	-0.007	(0.005)
% EU receiving benefits	-0.290	(0.019)	-0.020	(0.019)	-0.022	(0.020)	-0.224	(0.139)
% non-EU receiving benefits	-0.147	(0.017)	-0.150	(0.012)	-0.154	(0.013)	-0.129	(0.057)
AT								
BE							-0.204	(0.326)
CH							2.645	(1.011)
CZ							-1.974	(0.553)
DE							-0.519	(0.307)

DK							-0.431	(0.447)
EE							-0.061	(0.395)
ES							-0.640	(0.509)
FI							-0.741	(0.551)
FR							-0.376	(0.285)
GB							-0.766	(0.425)
HU							-1.818	(0.512)
IE							0.983	(0.938)
LT							-0.797	(0.700)
NL							-0.520	(0.406)
NO							0.136	(0.448)
PL							-1.055	(0.625)
PT							0.066	(0.473)
SE							0.772	(0.511)
SI							0.183	(0.294)
BG							-0.687	(0.656)
CY							0.712	(1.052)
GR							-1.667	(0.511)
HR							-0.838	(0.399)
IT							-0.261	(0.276)
LV							0.016	(0.368)
MT							-1.657	(0.311)
SK							-1.768	(0.562)
Fixed portion intercept (persons)	2.635	(0.376)	2.979	(0.283)	2.680	(0.300)	3.959	(1.175)
Random Intercept (countries)	0.979	(0.287)	0.694	(0.207)	0.785	(0.234)		
Random variance (residual)	4.289	(0.019)	3.877	(0.017)	4.309	(0.019)		
Number of groups	28		25		25			
Min. obs per group	919		1,022		1,022			
Max. obs per group	7,873		7,748		7,748			
Observations	99,743		99,873		99,873		130,333	
Wald Chi2(21)	2938.027		3147.687		3191.686			
Prob > chi2	0.000		0.000		0.000			
LR test vs. linear regression	2769.997		3202.077		3230.049			
Prob >= chibar2	0.000		0.000		0.000			
R squared							0.064	
Number of clusters (country-year)							87	

Notes: Results of multilevel mixed effects maximum likelihood regressions as defined in the Modelling Strategy section with the exception of the last estimation; citizens of residence country

Table A3
Figure 3 Estimated Margins Values

Combination of factor values	Margin	SE
Foreign-born 0 | EU receiving benefits 0	4.78	0.18
Foreign-born 0 | EU receiving benefits 4	3.93	0.18
Foreign-born 0 | EU receiving benefits 8	3.08	0.21
Foreign-born 0 | EU receiving benefits 14	1.81	0.28
Foreign-born 5 | EU receiving benefits 0	4.85	0.18
Foreign-born 5 | EU receiving benefits 4	4.00	0.18
Foreign-born 5 | EU receiving benefits 8	3.15	0.20
Foreign-born 5 | EU receiving benefits 14	1.88	0.26
Foreign-born 10 | EU receiving benefits 0	4.92	0.18
Foreign-born 10 | EU receiving benefits 4	4.07	0.18
Foreign-born 10 | EU receiving benefits 8	3.23	0.19
Foreign-born 10 | EU receiving benefits 14	1.95	0.25
Foreign-born 15 | EU receiving benefits 0	4.99	0.18
Foreign-born 15 | EU receiving benefits 4	4.14	0.18
Foreign-born 15 | EU receiving benefits 8	3.30	0.19
Foreign-born 15 | EU receiving benefits 14	2.02	0.25
Foreign-born 20 | EU receiving benefits 0	5.06	0.19
Foreign-born 20 | EU receiving benefits 4	4.22	0.18
Foreign-born 20 | EU receiving benefits 8	3.37	0.19
Foreign-born 20 | EU receiving benefits 14	2.10	0.24
Foreign-born 25 | EU receiving benefits 0	5.13	0.20
Foreign-born 25 | EU receiving benefits 4	4.29	0.18
Foreign-born 25 | EU receiving benefits 8	3.44	0.19
Foreign-born 25 | EU receiving benefits 14	2.17	0.24
Foreign-born 30 | EU receiving benefits 0	5.21	0.21
Foreign-born 30 | EU receiving benefits 4	4.36	0.19
Foreign-born 30 | EU receiving benefits 8	3.51	0.19
Foreign-born 30 | EU receiving benefits 14	2.24	0.23

Notes: Estimated margins following model estimation specification (5) as defined in the Modelling Strategy

Table A4
Figure 4 Estimated Margins Values

Combination of Factor Values	Margin	SE
Gov. consumption 10 | % EU claiming benefits 0	4.04	0.22
Gov. consumption 10 | % EU claiming benefits 3	3.41	0.22
Gov. consumption 10 | % EU claiming benefits 6	2.77	0.23
Gov. consumption 10 | % EU claiming benefits 9	2.14	0.24
Gov. consumption 10 | % EU claiming benefits 12	1.50	0.27
Gov. consumption 10 | % EU claiming benefits 15	0.87	0.30
Gov. consumption 20 | % EU claiming benefits 0	4.56	0.19
Gov. consumption 20 | % EU claiming benefits 3	3.93	0.18
Gov. consumption 20 | % EU claiming benefits 6	3.29	0.19
Gov. consumption 20 | % EU claiming benefits 9	2.66	0.21
Gov. consumption 20 | % EU claiming benefits 12	2.02	0.24
Gov. consumption 20 | % EU claiming benefits 15	1.38	0.27
Gov. consumption 30 | % EU claiming benefits 0	5.08	0.18
Gov. consumption 30 | % EU claiming benefits 3	4.45	0.18
Gov. consumption 30 | % EU claiming benefits 6	3.81	0.18
Gov. consumption 30 | % EU claiming benefits 9	3.17	0.20
Gov. consumption 30 | % EU claiming benefits 12	2.54	0.23
Gov. consumption 30 | % EU claiming benefits 15	1.90	0.27
Gov. consumption 40 | % EU claiming benefits 0	5.60	0.21
Gov. consumption 40 | % EU claiming benefits 3	4.96	0.21
Gov. consumption 40 | % EU claiming benefits 6	4.33	0.21
Gov. consumption 40 | % EU claiming benefits 9	3.69	0.23
Gov. consumption 40 | % EU claiming benefits 12	3.06	0.26
Gov. consumption 40 | % EU claiming benefits 15	2.42	0.29

Notes: Estimated margins following model estimation specification (5) as defined in the Modelling Strategy

Table A5
Figure 5 Estimated Margins Values

Combined Factor Values			Margin	SE
Low education	Gov. consumption 20	% EU receiving benefits 0	4.31	0.19
Medium education	Gov. consumption 20	% EU receiving benefits 0	4.53	0.19
High education	Gov. consumption 20	% EU receiving benefits 0	4.96	0.19
Low education	Gov. consumption 20	% EU receiving benefits 3	3.67	0.18
Medium education	Gov. consumption 20	% EU receiving benefits 3	3.90	0.18
High education	Gov. consumption 20	% EU receiving benefits 3	4.33	0.18
Low education	Gov. consumption 20	% EU receiving benefits 6	3.04	0.19
Medium education	Gov. consumption 20	% EU receiving benefits 6	3.26	0.19
High education	Gov. consumption 20	% EU receiving benefits 6	3.69	0.19
Low education	Gov. consumption 20	% EU receiving benefits 9	2.40	0.21
Medium education	Gov. consumption 20	% EU receiving benefits 9	2.62	0.21
High education	Gov. consumption 20	% EU receiving benefits 9	3.05	0.21
Low education	Gov. consumption 20	% EU receiving benefits 12	1.76	0.24
Medium education	Gov. consumption 20	% EU receiving benefits 12	1.99	0.24
High education	Gov. consumption 20	% EU receiving benefits 12	2.42	0.24
Low education	Gov. consumption 20	% EU receiving benefits 15	1.13	0.27
Medium education	Gov. consumption 20	% EU receiving benefits 15	1.35	0.27
High education	Gov. consumption 20	% EU receiving benefits 15	1.78	0.27
Low education	Gov. consumption 50	% EU receiving benefits 0	5.86	0.27
Medium education	Gov. consumption 50	% EU receiving benefits 0	6.09	0.26
High education	Gov. consumption 50	% EU receiving benefits 0	6.52	0.26
Low education	Gov. consumption 50	% EU receiving benefits 3	5.23	0.26
Medium education	Gov. consumption 50	% EU receiving benefits 3	5.45	0.26
High education	Gov. consumption 50	% EU receiving benefits 3	5.88	0.26
Low education	Gov. consumption 50	% EU receiving benefits 6	4.59	0.27
Medium education	Gov. consumption 50	% EU receiving benefits 6	4.82	0.27
High education	Gov. consumption 50	% EU receiving benefits 6	5.25	0.26
Low education	Gov. consumption 50	% EU receiving benefits 9	3.95	0.28
Medium education	Gov. consumption 50	% EU receiving benefits 9	4.18	0.28
High education	Gov. consumption 50	% EU receiving benefits 9	4.61	0.28
Low education	Gov. consumption 50	% EU receiving benefits 12	3.32	0.30
Medium education	Gov. consumption 50	% EU receiving benefits 12	3.54	0.30
High education	Gov. consumption 50	% EU receiving benefits 12	3.97	0.30
Low education	Gov. consumption 50	% EU receiving benefits 15	2.68	0.33
Medium education	Gov. consumption 50	% EU receiving benefits 15	2.91	0.33
High education	Gov. consumption 50	% EU receiving benefits 15	3.34	0.33

Notes: Estimated margins following model estimation specification (5) as defined in the Modelling Strategy

REMINDER

ROLE OF EUROPEAN MOBILITY AND ITS IMPACTS IN NARRATIVES, DEBATES AND EU REFORMS

The REMINDER project is exploring the economic, social, institutional and policy factors that have shaped the impacts of free movement in the EU and public debates about it.

The project is coordinated from COMPAS and includes participation from 14 consortium partners in 9 countries across Europe

UNIVERSITY OF OXFORD

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