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Newcomers and Gatekeepers: Migrants' Attitudes toward Immigration

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Abstract

Do migrants become more anti-immigration over time? How do incumbents react to new arrivals? We link large-scale survey data to local immigration flows across 138 European regions from 2002 to 2024, identifying effects via a leave-out shift-share instrument within a triple-difference design. Immigrants arrive strongly pro-immigration, but support erodes over time, halving the native–immigrant gap within two decades. Exposure to new inflows contributes to this convergence: a rising local immigrant share reduces pro-immigration attitudes for both groups, with substantially larger effects for first-generation immigrants. Low-skilled incumbents respond more to inflow size, high-skilled to newcomers' skill composition.

Keywords: Immigration, attitudes, newcomers
JEL classification: D74, J15, D83, Z10, D72

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1 Introduction

Immigration has become a major political issue in many Western democracies. At the same time, these societies have grown more diverse, with first- and second-generation immigrants making up an increasing share of the electorate (Pew Research Center, 2020). Traditionally, immigrants have expressed more positive attitudes toward immigration than natives, potentially reflecting both selection into migration and a sense of solidarity with newcomers (Just & Anderson, 2015). Yet recent surveys and electoral data suggest that migrant voters are becoming more skeptical, and in some countries increasingly support parties advocating tighter immigration policies.[1]

This raises a central question: do migrants' preferences over immigration converge to those of natives, and if so, is this convergence driven by exposure to new arrivals? We examine this question by combining eleven rounds of the European Social Survey (ESS) between 2002 and 2024 with regional migration data for 138 sub-national regions across 15 European countries. In a triple-difference estimation, we compare natives, first-generation, and second-generation immigrants observed within the same sub-national region-year cells across regions with different levels of immigration, and leverage a leave-out shift-share instrument for identification.

A priori the effect can go in both directions. Kinship, feelings of solidarity and perceived common political interest may influence first- and second-generation immigrants to increasingly support immigration in response to greater flows or at least dampen the potentially negative effect relative to natives. On the other hand, settled immigrants may oppose further immigration for several reasons. First, they may fear greater competition on the labor market. Similarly, new immigrants may threaten the relative social position of the extant immigrants in the local society.

We begin by documenting how immigrants' attitudes toward immigration evolve with time spent in the host country and how they compare to those of natives. We construct a standardized pro-migration index as the first principal component of three items capturing whether respondents view immigration as good or bad for the economy, as enriching or undermining cultural life, and as making the country a better or worse place to live. First-generation immigrants express strongly pro-immigration views upon arrival, but this support declines steadily with years since migration. After two decades in the destination country, immigrants are around 70% more pessimistic toward immigration relative to those that arrived less than five years ago.

Turning to the native-immigrant attitudinal gap, both unconditional differences and differences conditional on region-by-year fixed effects and a rich set of individual controls reveal a convergence in attitudes. Recent arrivals hold much more pro-immigration views than natives, but this gap narrows with time spent in the host country. Among natives and immigrants living in the same region and surveyed in the same year with comparable socio-economic characteristics, roughly half of the initial gap in pro-migration attitudes closes within twenty years.[2] This pattern indicates that convergence is not driven by observable

[1] See, for instance, Brookings, Blue Rose Research, and Reuters for the US, or Van Oosten (2025) for Germany, Britain and France.

[2] Specifically, we control for region-by-year fixed effects, gender, age, age squared, years of education, dummies for 9 occupations, dummy for urban type of domicil, and dummies for the country of birth of the respondent, of the mother, and of

compositional differences across immigrant cohorts, but may reflect a genuine assimilation of immigration preferences over time.

Convergence in preferences between natives and immigrants can arise through at least two distinct channels. One possibility is the diffusion of norms and values from natives to immigrants through everyday contact, political socialization, and exposure to host-country media. Another is that natives and immigrants are jointly exposed to the same location-specific shocks, such as repeated migration inflows, which progressively align their material interests and perceived stakes.

A large empirical literature shows that sizable immigration shocks often make natives more skeptical of further immigration, for example by increasing support for anti-immigration parties or restrictive policies (e.g. Halla et al., 2017; Dustmann et al., 2019; Dinas et al., 2019), although other work documents neutral or even more positive responses under specific conditions of contact and policy framing (e.g. Hangartner et al., 2019; Steinmayr, 2021). Given that immigrants start from more favorable views toward immigration, a natural question is whether their repeated exposure to new inflows pulls them toward natives' more restrictive preferences, or whether shared group identity and perceived common interests with newcomers instead preserve or widen the attitudinal gap.

To address this question, we combine survey data for approximately 230,000 respondents between 2002 and 2024 with granular measures of the size and composition of local migrant stocks across 138 subnational regions in 15 European countries between 2000 and 2022.[3] Regions are defined at the NUTS level and broadly correspond to larger labor market areas. We estimate a triple-difference specification that interacts respondents' migrant status (native, first generation, second generation) with predicted local migrant exposure, instrumented using a leave-out shift-share design based on origin-specific settlement patterns in 1990 and aggregate origin-specific inflows to all other destination countries in the sample. The specification includes region-by-year, group-by-year, and group-by-region fixed effects, baseline regional characteristics interacted with group-by-year fixed effects, and a rich set of individual controls.

We find that a one-standard-deviation increase in the local migrant share reduces pro-immigration attitudes among first-generation immigrants by 0.40 standard deviations relative to natives. This differential response reflects a general negative reaction to immigration among both natives and immigrants, with the decline being substantially larger for first-generation immigrants. While second-generation migrants start out with slightly more positive views toward immigration than natives, their response to newcomers is not different from that of natives, suggesting full assimilation in the political response to immigration shocks among the second generation. We also show that differential sorting cannot account for our findings.

There are multiple explanations for why first-generation immigrants may react more negatively to newcomers than natives, which may overlap or differ from those emphasized for natives (Alesina & Tabellini, 2024). First, local immigration can affect incumbent immigrants through economic competition and fiscal exposure more than natives, as new arrivals

the father of the respondent.

[3] We always restrict the sample to immigrant respondents that have arrived at least 5 years ago. This ensures that our estimates capture how year to year changes in the local immigrant share affect the attitudes of incumbent immigrants.

may depress wages, tighten housing markets, and alter expected redistribution within immigrant communities, especially when inflows are skill-similar (Dustmann & Preston, 2007). Second, higher inflows raise the salience of immigration as a social category, potentially triggering identity-based responses among earlier cohorts, such as cultural distancing to signal assimilation or broader convergence in political preferences (Fouka, 2019; Sardoschau et al., 2025). Incumbent migrants are also more likely to encounter or interact with newcomers. While contact-theory suggests that this should mediate political backlash to immigration (Allport, 1954; Steinmayr, 2021) it can also intensify the aforementioned mechanisms by heightening perceived cultural, economic, or fiscal competition.

To shed light on the mechanisms behind this differential backlash, we first decompose the pro-immigration index into its economic, cultural, and general quality of life components. We then study attitudes towards redistribution and European unification (one of the largest drivers of immigration in our observation period), which capture fiscal-externality and openness/integration margins that immigration can plausibly shift. Finally, we consider left-right self-placement to gauge whether any attitudinal changes translate into broader ideological views. Across all items, first-generation immigrants respond more negatively than natives and responses are not concentrated in one domain. These patterns suggest that the relative shift among first-generation immigrants is not confined to a single concern but represents a broader shift toward more right-wing attitudes.

We next examine how the *size* and *composition* of new inflows affect attitudes and how this differs with immigrant respondents' characteristics. We distinguish between changes in the overall migrant share and shifts in the skill composition of the immigrant stock, instrumented using a skill-specific shift-share design following Card (2009). Increases in the *level* of immigration generate more negative responses among low-skill or low-educated immigrants. In contrast, changes in the *skill composition* of inflows do not differentially affect low-skill incumbents. Instead, high-skill immigrants become significantly more negative as the share of low-educated immigrants rises. This pattern points to separate mechanisms across these exposure margins: responses to the *size* of inflows are consistent with labor-market competition or congestion among low-skill workers, whereas responses to *composition* among high-skill immigrants align with social categorization and strategic positioning concerns, such as stigma or the perceived quality of the immigrant category.

This paper engages with the extensive literature developed in recent decades on the direct impact of immigration on electoral outcomes and political attitudes among natives (see Alesina & Tabellini (2024) for an extensive review), and contributes by shifting the focus to the less researched responses of previously arrived immigrants themselves. To the best of our knowledge, we are the first to examine how new inflows affect pro-migration attitudes of incumbent immigrants. For natives, the existing evidence is not conclusive. Most studies document a negative effect of immigration exposure, reflected in increased support for right-wing parties and anti-immigration legislation (Edo et al., 2019; Tabellini, 2020). However, other contributions show that these effects are heterogeneous and can even run in opposing directions when mediated by factors such as urban-rural divides (Dustmann et al., 2019), the skill composition of incoming immigrants (Mayda et al., 2022), or the duration and intensity of intergroup contact between natives and immigrants (Steinmayr, 2021).

One line of argument emphasizes labor market competition, whereby immigration may negatively affect natives' wages and employment prospects. While the empirical evidence on labor market effects of migration remains mixed (Borjas, 2003; Dustmann et al., 2017; Card, 1999; Foged & Peri, 2016), Mayda (2006) shows that natives are less likely to vote Republican if immigrants are more high-skilled. Another strand of the literature argues that attitudes toward immigration are primarily driven by sociotropic concerns (Hainmueller & Hopkins, 2014; Tabellini, 2020). These explanations emphasize perceived cultural distance and ethnic diversity as threats to local values and social cohesion, often drawing on insights from social identity theory (Tajfel, 1978; Shayo, 2009; Bonomi et al., 2021; Gidron & Hall, 2017; Fouka & Tabellini, 2022; Fouka et al., 2022).

This paper also contributes to the broader literature on the political attitudes of immigrants and individuals with a migration background. While most studies find that individuals with an immigration background tend to lean more to the left politically (Camatarri et al., 2022; Moriconi et al., 2025), research on preferences for redistribution yields more mixed conclusions. Conditional on socioeconomic status, immigrants have been shown to hold either more conservative views than natives (Dancygier & Saunders, 2006), or views that are not statistically different from those of natives (Reeskens & Van Oorschot, 2015).

In contrast, immigrants' views on immigration policy itself remain relatively underexplored in economics. The studies most closely related to this paper are primarily located in political science and sociology. Just & Anderson (2015) show that immigrants are generally more supportive of immigration than natives, but that this support declines among naturalized immigrants, particularly among those dissatisfied with the host country's economic conditions. Similarly, Van der Zwan et al. (2017) find that immigrants who have lived longer in the host country and those with lower socioeconomic status are more likely to oppose immigration. This paper differs from these contributions by focusing on how immigrants' attitudes *change* in response to regional immigration inflows, rather than on *level differences* between groups, and by seeking to establish a causal relationship between local immigration exposure and immigrants' political attitudes.

2 Data and Motivating Evidence

2.1 Main Data Sources

The analysis draws on three sources of information: individual-level attitudinal and background data from the European Social Survey (ESS), regional migration data from Eurostat's Labour Force Survey (EU-LFS) and national statistical offices, and a set of historical and institutional regional characteristics compiled from multiple administrative and archival datasets. Appendix Section A and Table A.1 provide the historical background, summarize all data sources and detail spatial harmonization and merging procedures.

Regional migration data. Regional foreign-born population shares are derived from Eurostat's EU Labour Force Survey (EU-LFS), providing counts of native and foreign-born populations at the sub-national region level for the working-age population from 1999 onward. We complement regional migration data with annual country-level flows by nationality between 1995 and 2022 from the OECD International Migration Database. Initial migrant shares in 1991 are taken from Alesina et al. (2021), who collect population counts from national censuses, population registers, and the EU-LFS.

Figure A.1 documents both the initial geography of immigration and subsequent inflows across the 138 NUTS regions in the sample, which we will leverage later for identification. Panel (a) maps the share of foreign-born residents in 1991, prior to the large post-2000 expansion in migration. Immigration in 1991 is concentrated in a set of traditional destination regions in Western and Northern Europe. Panel (b) plots the cumulative increase in the number of foreign-born residents between 2001 and 2022, measured in thousands of individuals. Several patterns emerge. First, immigration growth has been substantial and spatially uneven. Large metropolitan regions in Germany, France, Spain, Italy, and the UK attract the largest absolute inflows. Second, many regions with low baseline immigrant presence in 1991 experience sizable subsequent growth.

European Social Survey (ESS). The ESS is a biannual, cross-national survey fielded since 2002 that provides information on social and political attitudes, socio-demographic characteristics, and detailed immigration backgrounds of respondents. It includes batteries of questions on migration, identity, and social cohesion, as well as information on gender, age, education, occupation, household circumstances, and migration histories. Respondents report their own country of birth and the country of birth of both parents, allowing for classification of immigration status and the construction of respondent, maternal, and paternal country-of-origin indicators.

Our analysis uses information from 11 survey rounds between 2002 and 2024 for fifteen European countries for which complete regional identifiers are consistently available.[4] All regional migration variables are matched to ESS respondents through the NUTS2 region identifiers corresponding to the survey year. These regions broadly correspond to larger labor market regions. The final sample consists of a repeated cross-section of 201,136 native respondents, 19,560 first-generation immigrants (who arrived more than five years ago), and 15,373 second-generation immigrants (with at least one foreign-born parent).[5]

The main outcome throughout the empirical analysis is an index of attitudes toward immigration. It is constructed as the first principal component of the answers to three questions: (i) the extent to which immigrants are good or bad for the country's economy; (ii) whether immigrants enrich or undermine the country's cultural life; and (iii) whether immigrants make the country a better or worse place to live in. These are the only migration-related items fielded in all survey waves and countries. We recode all components such that higher values indicate more positive attitudes toward immigration, then standardize them. Table A.2 details the exact wordings and scales of the index components.

2.2 Motivating Evidence

Figure 1 panel (a) plots average pro-migration attitudes of first-generation immigrants by arrival cohorts, pooling all countries and ESS rounds and weighting observations by their survey weights. Recent arrivals express strongly pro-immigration views, and this support

[4] Austria, Belgium, Switzerland, Germany, Denmark, Spain, Finland, France, Ireland, Italy, Netherlands, Norway, Portugal, Sweden, and the United Kingdom. Respondents are linked to sub-national areas via the NUTS classification system. Supplementary Table A.3 documents the number of respondents and regions for each survey round.

[5] Supplementary Table A.3 provides country- and wave-specific counts by group. Table A.4 reports descriptive statistics.

declines steadily with time in the destination. First-generation immigrants are 70% more pessimistic towards migration relative to recent arrivals.

Panel (b) turns to the native-immigrant attitudinal gap along the same arrival-cohort groups. The blue bars show unconditional means differences in the pro-migration index between natives and first-generation immigrants for each years-since-arrival category. The red bars report conditional differences from regressions that absorb region-by-year fixed effects and include a detailed set of individual controls. These conditional estimates compare natives and immigrants living in the same region and surveyed in the same year, net of compositional differences across cohorts in age, education, occupation, urban residence, and parental origins for migrants. In both cases, the native-immigrant gap is large for recent arrivals and declines with time since migration, indicating gradual convergence in pro-migration attitudes. The gap in pro-migration attitudes between natives and immigrants in the same region and year and of similar socio-economic profile closes by 50% within 20 years.

3 Research Design and Results

3.1 Triple Difference Estimation

To study how attitudes respond to immigration and how this response differs by migration background, we exploit variation in immigrant shares across 138 European, sub-national regions between 2002 and 2024 to estimate the following specification:

$$Y_{igrt} = \delta_{rt} + \delta_{tg} + \delta_{rg} + \sum_{g=1}^{2} \beta_g \left(Mig_{rt} \times \mathbb{1}\{\text{Immig}_i = g\} \right) + W_r' \theta_{tg} + \mathbf{X'}_{irt} \kappa + u_{igrt} \tag{1}$$

where Y_{igrt} denotes the outcome (the standardized pro-migration index) of individual i in immigrant-status group $g \in \{0, 1, 2\}$ (first- and second-generation immigrants, and natives as the omitted category) living in region r and surveyed in year t. Mig_{rt} measures the z-standardized immigrant share in region r and year t. We restrict first-generation immigrants to those who arrived at least five years before the survey, so the estimates reflect the attitudes of settled immigrants rather than recent arrivals. The coefficients of interest β_1 and β_2 capture how the attitude gap between each immigrant group and natives varies with the local immigrant share.

The term δ_{rt} captures region-by-year fixed effects that absorb all shocks common to individuals in the same region and survey year. These include local business-cycle conditions, region-specific policy changes, contemporaneous political events, and local media environments that affect natives and immigrants similarly. By construction, δ_{rt} also absorbs the level effect of the regional immigrant share. The term δ_{tg} captures group-specific time effects common across regions, such as secular trends in pro-migration attitudes. In addition, δ_{rg} captures time-invariant region-by-group differences, including persistent regional sorting of immigrants and natives by socioeconomic or political characteristics, long-standing ethnic enclaves, and other stable regional features that differentially shape group-specific attitudes.

The vector $W_r' \theta_{tg}$ includes regional baseline controls (log population and log GDP, each measured in 1990) interacted with group-by-year fixed effects, allowing immigrant-status groups to follow different trajectories depending on baseline regional conditions. The vector $\mathbf{X}_{irt}$ contains individual-level controls (gender, age, age squared, years of education, dummies for 9 occupations, urban dummy, years since arrival bins, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent). Standard errors are clustered at the regional level to allow for arbitrary serial correlation within regions over time but we show that our results are robust to alternative clustering approaches.

Because δ_{rt} absorbs all region-year variation common to all groups, identification comes from comparing how within-region-year attitude gaps between immigrants and natives covary with Mig_{rt} across region-year cells, akin to a triple-difference design.

3.2 Instrumental Variable Approach

A threat to a causal interpretation of β_g is that immigration flows may correlate with region-year shocks that differentially shift immigrant-native attitude gaps. For instance, regions that expand integration programs, public services, or labor demand may both attract newcomers and improve attitudes among settled immigrants relative to natives. Conversely, regions with rising unemployment, housing pressure, or support for anti-immigration parties may experience lower inflows and simultaneously harden natives' attitudes relative to immigrants. In such cases, Mig_{rt} reflects endogenous responses to local economic and political conditions rather than exogenous variation in exposure to newcomers.

To address this concern, we instrument regional immigrant shares using a leave-out shift-share design. The reduced-form relationship is:

$$Y_{igrt} = \delta_{rt} + \delta_{tg} + \delta_{rg} + \sum_{g=1}^{2} \mu_g \left(Z_{rt} \times \mathbb{1}\{\text{Immig}_i = g\} \right) + W_r' \theta_{tg} + \mathbf{X}'_{irt} \kappa + \varepsilon_{igrt}. \quad (2)$$

where Z_{rt} is constructed from predetermined settlement patterns and origin-specific migration shocks:

$$Z_{rt} = \frac{1}{Pop_{r,1990}} \sum_{o} \frac{Mig_{or,1990}}{Mig_{o,1990}} \, \Delta Mig_{ot}^{-c}. \quad (3)$$

Intuitively, Z_{rt} is the predicted change in immigrant exposure that region r would experience in year t if migrants from each origin were allocated across regions in proportion to their baseline settlement patterns, given aggregate origin-specific shocks. Here, the share $Mig_{or,1990}/Mig_{o,1990}$ denotes the baseline distribution of immigrants from origin o across regions in 1990. The term ΔMig_{ot}^{-c} captures the change in the stock of immigrants from origin o between 1990 and year t in all destination countries in the sample other than c, the country in which region r is located. Scaling by $Pop_{r,1990}$ fixes the population base prior to the sample period.[6] Figure A.1 illustrates the spatial variation in baseline migrant shares and origin-specific shocks. Appendix D provides implementation details on the construction of Z_{rt}.

Under the assumption that origin-specific migration shocks are driven by sending-country and global conditions and are orthogonal to region-year shocks that differentially shift attitudinal gaps between natives and immigrants, Z_{rt} provides exogenous variation in exposure to

[6] The leave-out construction purges the shock of destination-c inflows, removing mechanical reflection and the most direct channel through which local demand in c could drive the shock.

newcomers across regions and years. Given the political environment of the 2000s in Europe (described in more detail in Appendix A.1), our use of Z_{rt} follows the "exogenous shifts" perspective on shift-share instruments formalized by Borusyak et al. (2022, 2025), which we discuss in more detail below. We cluster standard errors at the region level to account for within region serial correlation in attitudinal differences between groups. We also show that our results are unaffected using exposure-robust standard errors following Adao et al. (2019) and other clustering methods (Borusyak et al., 2025).

Figure 2 provides a visual summary of the first-stage relationship between the shift-share instrument and actual immigrant shares. The figure plots the residualized values of both (standardized) variables after partialling out region and country-year fixed effects. Each point corresponds to a region-year cell. Regions that receive larger predicted inflows based on historical settlement patterns and aggregate origin-specific emigration flows also tend to experience higher realized immigrant shares. The fitted line indicates a strong positive relationship, with a slope of approximately 0.17 and a standard error of 0.02. The pattern is consistent with a meaningful first stage: exogenous variation in origin-specific flows predicts contemporaneous changes in regional immigrant shares. Table B.1 reports the corresponding first-stage estimates separately for natives, first-generation immigrants, and second-generation immigrants. In addition, Table B.2 reports the first stage results for the pooled sample with all interactions. Across all specifications and sets of fixed effects, the instrument strongly predicts the respondent-weighted regional immigrant share.

3.3 Main Results

Table 1 reports estimates of the relationship between local immigration exposure and individual pro-migration attitudes. We present OLS, reduced-form, and 2SLS estimates, progressively expanding the set of fixed effects and controls.[7] Column 1 includes region and year fixed effects and the full set of individual controls. Consistent with prior work (Halla et al., 2017; Dustmann et al., 2019; Dinas et al., 2019), higher immigrant shares are associated with significantly lower pro-migration sentiment among natives. The interaction terms, however, reveal heterogeneity in responses to local immigrant exposure. First-generation immigrants react more negatively to immigrant inflows than natives, whereas the second-generation interaction is small and statistically indistinguishable from the native response.

We subsequently include a more stringent set of fixed effects and controls. Column 2 adds region-by-year fixed effects, columns 3 adds year-by-group fixed effects, and column 4 further controls for regional baseline population and GDP interacted with group-by-year fixed effects, allowing group-specific time trends to vary with local characteristics (Goldsmith-Pinkham et al., 2020; Autor et al., 2021). Across all specifications, first-generation immigrants consistently exhibit a significantly more negative response to newcomers than natives. Finally, column 5 presents our preferred specification, adding region-by-group fixed effects. Identification of the interaction terms therefore comes from within-region changes over time in attitudinal gaps between natives and immigrants, relative to each group's region-specific mean and net of group-specific common time trends.

[7] Sanderson-Windmeijer F-Stats for the migrant share and its interactions are reported at the bottom of the table. This is the appropriate weak instruments test in regressions with multiple endogenous variables (Sanderson & Windmeijer, 2016; Moriconi et al., 2022; Tabellini & Magistretti, 2025).

This restrictive specification leaves the corresponding OLS and reduced form estimates similar in size, while the 2SLS coefficient increases in magnitude.[8] The previously documented pattern remains: first-generation immigrants respond more negatively to exposure to newcomers than natives. The coefficient in Panel C suggests that a one standard deviation increase in immigrant exposure leads to a 0.40 standard deviation decrease in pro-immigration attitudes relative to natives. Table B.1 presents 2SLS estimates for immigration exposure separately for each group. We replicate the most stringent specification in column 4, showing that increased immigration exposure deteriorates pro-immigration views among all groups, but that this effect is most pronounced for first generation immigrants, with a magnitude that is approximately 62% larger than for natives.

3.4 Instrument Validity and Robustness

Under the "exogenous-shifts" perspective, consistency requires that the origin-by-year shocks be approximately uncorrelated and that their influence be dispersed across many origins (Borusyak et al., 2025). As a summary of this dispersion, we compute the effective number of origins entering the instrument as the inverse Herfindahl index of the average exposure shares across all origins with positive baseline presence; it is approximately 31, with no single origin accounting for more than 9% of the average exposure share, confirming that the identifying variation is spread across many origins rather than driven by a few. We also compute the Rotemberg weights, which identify the origins contributing most to the point estimate (Goldsmith-Pinkham et al., 2020). Table C.1 shows that the weights concentrate in the 2004 and 2007 EU accession countries, with the top origins being accession states and major refugee-source countries. This composition is consistent with a policy-driven interpretation: the shocks reflect EU enlargement and geopolitical displacement rather than destination-country demand conditions. Our estimates are robust to exposure-robust standard errors following Adao et al. (2019) (Table C.2).

Although consistency under the exogenous-shifts perspective does not require the exposure shares to be exogenous, a residual concern is that the shifts are as-good-as-random only conditional on regional characteristics that happen to correlate with the most heavily weighted shares. We therefore verify that our estimates are robust to controlling for these characteristics directly. Table C.1 correlates the top-weighted origin shares with baseline regional characteristics: log population, log GDP (whose interactions with group-by-year fixed effects are already among our baseline controls), 1990 sectoral employment shares, and anti-immigration vote shares. To rule out that these characteristics drive our results, Table C.3 interacts group-by-year fixed effects with baseline employment shares in industry and construction and with anti-immigration vote shares. Our estimates remain similar in magnitude and precision

Our results are also unchanged when we (i) extend the individual controls with household income decile, marital status, a dummy for children under 18 at home, and citizenship (Table C.4); (ii) construct the instrument from baseline shares at 2001 rather than 1990 (Table C.5); and (iii) use alternative clustering, including heteroskedasticity-robust, different

[8] The larger 2SLS coefficient is driven by the smaller first stage coefficient (column 5 of Table B.2). The OLS remains similar in magnitude but becomes imprecisely estimated.

geographic and time dimensions, spatially correlated standard errors at 50, 100, and 150 km (Conley, 1999), as well as clustering by deciles of baseline shares from the top Rotemberg-weighted origins following Moriconi et al. (2022) (Tables C.6 and C.7).

Finally, we test whether the relative decline in migrants' pro-migration attitudes reflects compositional change rather than preference updating. Table C.8 examines whether exposure to newcomers predicts differential mobility and local tenure for migrants relative to natives, and whether these patterns vary with respondents' baseline stance, using recent-move and residence-length information from one ESS wave. We find that differential preference-based sorting is unlikely to explain our findings.

4 Mechanisms and Discussion

When local immigration increases, incumbent immigrants may update their political attitudes through channels amplified or distinct from those affecting natives (Alesina & Tabellini, 2024). A first mechanism operates through economic competition and fiscal exposure. New arrivals can affect wages, employment, housing, and the expected incidence of redistribution among immigrants themselves, particularly when inflows concentrate in similar skill segments (Alesina & La Ferrara, 2005; Dustmann & Preston, 2007). These forces likely shape economic evaluations of immigration and may spill over into broader economic ideology, including redistribution attitudes. A second mechanism emphasizes social identity under heightened salience of immigration. Larger inflows raise the visibility of immigration as a social category, potentially inducing earlier cohorts to distance themselves culturally to signal assimilation (Rudman & Fairchild, 2004; Sardoschau et al., 2025; Fouka, 2019). While we cannot fully disentangle these mechanisms, we probe their plausibility through several exercises.

4.1 Additional Outcomes.

Figure 3 decomposes the main pro-immigration index into its three constituent items and adds related political attitudes.[9] Each dot reports the 2SLS coefficient on the interaction between first-generation status and the local migrant share from our preferred specification; outcomes are standardized and 95 percent confidence intervals are shown. The differentials for whether immigrants make the country a better place to live, whether immigrants are good for the economy, and whether immigrants enrich cultural life are all negative and statistically indistinguishable. The relative backlash among first-generation immigrants is not confined to a single domain but broad-based.

We then consider outcomes commonly used to capture the political correlates of immigration exposure. First, we examine attitudes toward European unification, a margin on which immigration was salient in many contexts through mobility within the EU and accession-related inflows. The differential effect is strongly negative, indicating that first-generation immigrants become more skeptical of supranational integration relative to natives as local exposure rises. Second, we examine redistribution, motivated by evidence that immigration can reduce natives' support for the welfare state, potentially through perceived fiscal

[9] Table B.3 reports the corresponding estimates.

externalities (Alesina et al., 2021). The interaction estimate is again negative, though less precisely estimated. Finally, self-placement on the left-right scale shifts modestly toward the right, suggesting that respondents are more sympathetic to political views associated with the right overall. Taken together, these results are consistent with a mechanism in which exposure to newcomers reshapes a bundle of political preferences, most strongly those tied to migration, without privileging cultural over economic concerns.

4.2 Heterogeneity by Respondent and Migrant Inflows.

Table 2 examines heterogeneity along four respondent characteristics: *i*) the skill content of the respondent's current occupation, *ii*) educational attainment, *iii*) whether the respondent was born in a OECD country, and *iv*) years since arrival in the destination country. We distinguish between two margins of exposure. Panel A studies heterogeneity in the response to the *level* of immigration, measured by the regional migrant share. Panel B studies the response to the *skill composition* of local immigration, measured by the share of primary-educated immigrants in the immigrant stock. We instrument the regional share of primary-educated immigrants over all migrants using a shift-share design following Card (2009). The instrument combines predetermined regional settlement patterns by origin group with leave-one-out changes in the education mix of immigrants across other destination countries. Details are provided in Appendix D.

We present 2SLS estimates for the sample of first-generation immigrants, including the full set of fixed effects and individual controls, except for the heterogeneity dimension used to split the sample. Column 1 reports the corresponding results for the full sample.[10] Columns 2 and 3 turn to heterogeneity by the skill requirement of the respondent's current occupation. In Panel A, the coefficient on the migrant share is negative and larger for respondents in low-skill occupations than for those in high-skill occupations, although the difference is only marginally insignificant.[11] In Panel B, the pattern reverses. The coefficient on the skill ratio is close to zero for low-skill respondents in column 2, but negative and statistically significant for high-skill respondents in column 3. This difference is large and significant. Thus, the *size* of immigration matters more for low-skill incumbents, while the *skill composition* of immigration matters more for high-skill incumbents. Overall, highly skilled incumbents react more negatively to a decline in the high-skilled share in the immigrant pool, suggesting that social identity concerns may play a role.

Columns 4 and 5 repeat the same exercise using educational attainment instead of occupational skill. We define low education as primary or lower secondary education and high education as upper secondary or above. The results broadly mirror the occupational split, but are less precise. In Panel A, low-educated respondents react more negatively to the migrant share than high-educated respondents. In Panel B, the point estimates again go

[10] Because the composition measures require immigrant stocks disaggregated jointly by education and origin, the analysis is estimated on a more restricted sample. Specifically, the sample excludes the first ESS round (2002), and all regions in Ireland, Finland, Norway, Germany before 2018, Denmark before 2008, the UK from 2020 onward, and Italy before 2006. The underlying data come from the EU-LFS, which is also the source for our baseline region-year migrant share. Full details are in Appendix A.

[11] In addition, occupational skill may be endogenous to the size and composition of the inflow. At the same time, these are very broad occupational categories (based on the ISCO classification, where low-skill occupations correspond to ISCO skill levels 1–2 and high-skill occupations correspond to levels 3–4) and are unlikely to adjust immediately after the immigration shock over the preceding two years.

in the opposite direction: the coefficient on the primary-educated ratio is positive for the low-educated, and negative for the high-educated.[12]

The remaining columns show little meaningful heterogeneity on either margin. Columns 6 and 7 split respondents by whether they were born in a non-OECD or OECD country.[13] In Panel A, both groups respond negatively to increases in the migrant share, regardless of whether they come from more economically or culturally similar origins. In Panel B, the corresponding estimates on the primary-educated ratio is slightly larger, but again do not differ significantly. Columns 8 and 9 split respondents by years since arrival, comparing those who arrived 6–20 years ago to those who arrived more than 20 years ago.[14] In Panel A, both groups show a negative response to the migrant share, with no evidence of differential effects by duration of stay. In Panel B, the coefficients are again small and statistically indistinguishable.

4.3 Discussion.

Overall, our results show that immigrants are not a stable pro-immigration constituency, but evolve into political gatekeepers as they spend time in the host country and are exposed to new inflows. Suggestive evidence points to different mechanisms regarding the size and composition of immigration. Larger immigrant inflows are more likely to generate a negative attitudinal response among first-generation immigrants in low-skilled occupations. However, increases in the low-skilled share of immigrants do not trigger a stronger response among low-skill incumbents. Instead, high-skill first-generation immigrants appear more sensitive to a deterioration in the skill composition of the immigrant population. These findings have broader implications for the political economy of immigration. As immigrant-origin voters become an increasingly important part of the electorate, their convergence toward more restrictive views can amplify political backlash to immigration, even in societies that are becoming more diverse.

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[12] Compared to occupation, education is likely a noisier proxy for effective labor-market substitutability in this cross-country setting, since credentials are not directly comparable across origin groups and may imperfectly map into actual labor-market position.

[13] Table B.4 considers an alternative composition measure based on the share of non-EU immigrants in the local immigrant population. That exercise is limited by substantially weaker first stages.

[14] Appendix Table B.5 shows that the same conclusion holds under alternative cutoffs for years since arrival.

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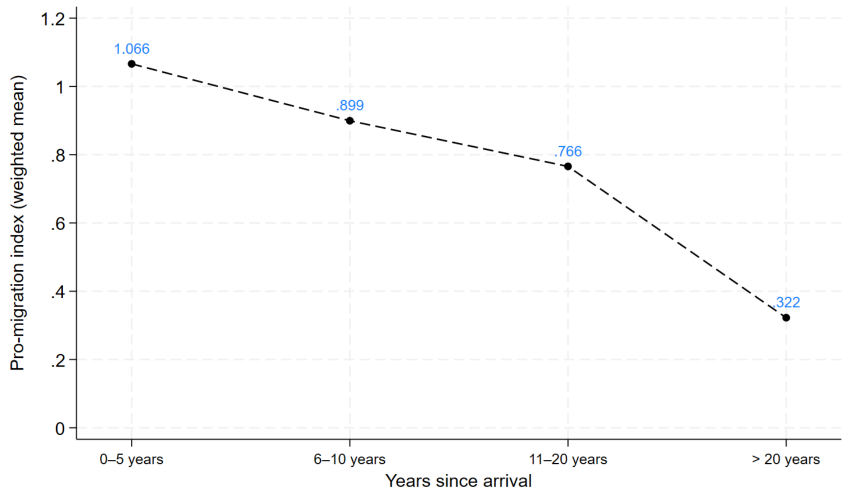
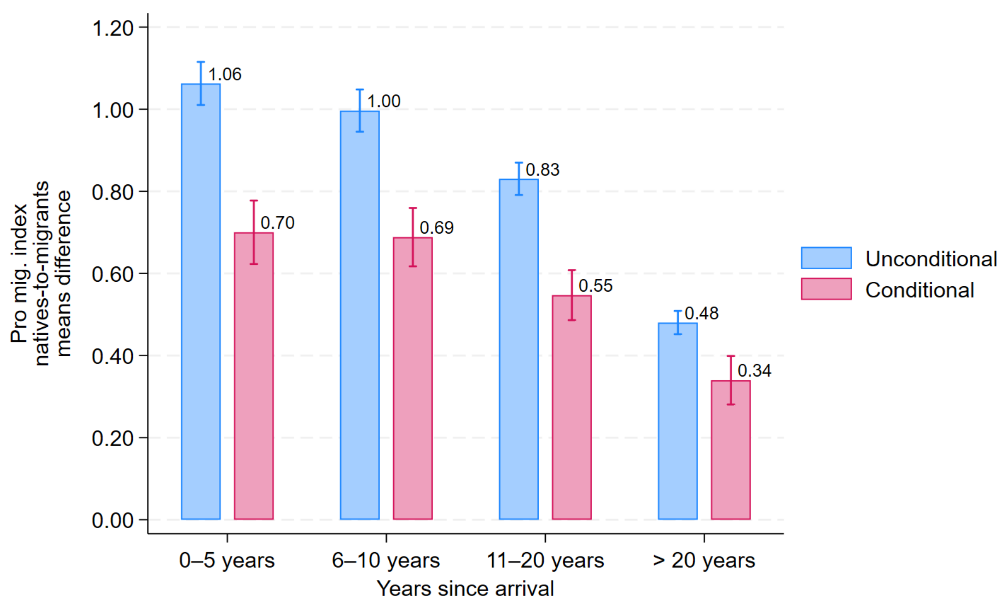
5 Main Tables and Figures

Figure 1. First-generation migrants' attitudes by arrival cohort



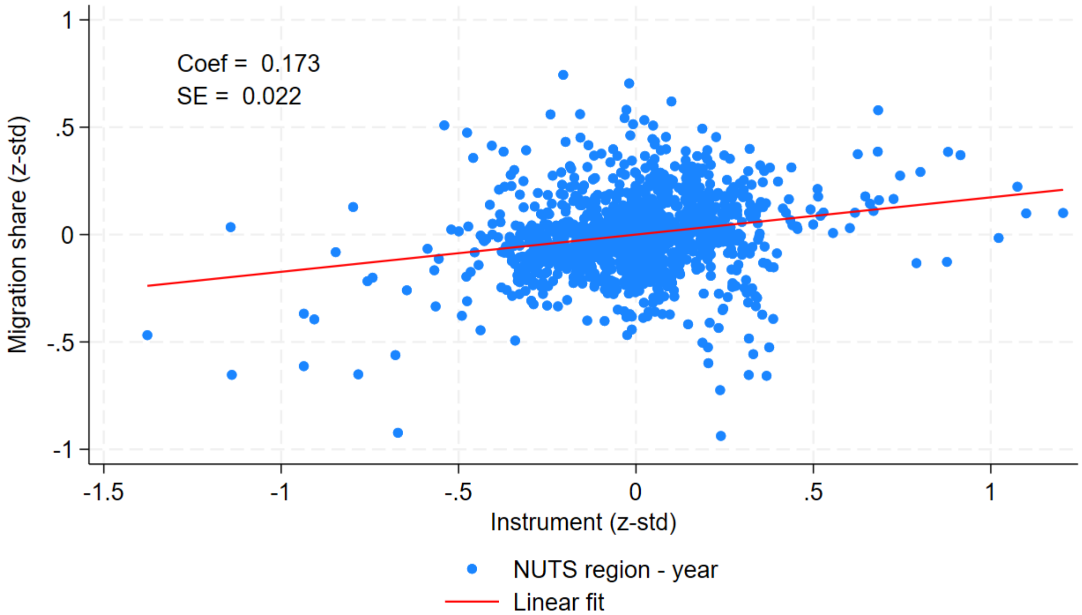
(a) Pro migration index by arrival cohort



(b) Natives-to-immigrants attitudes gap by arrival cohort

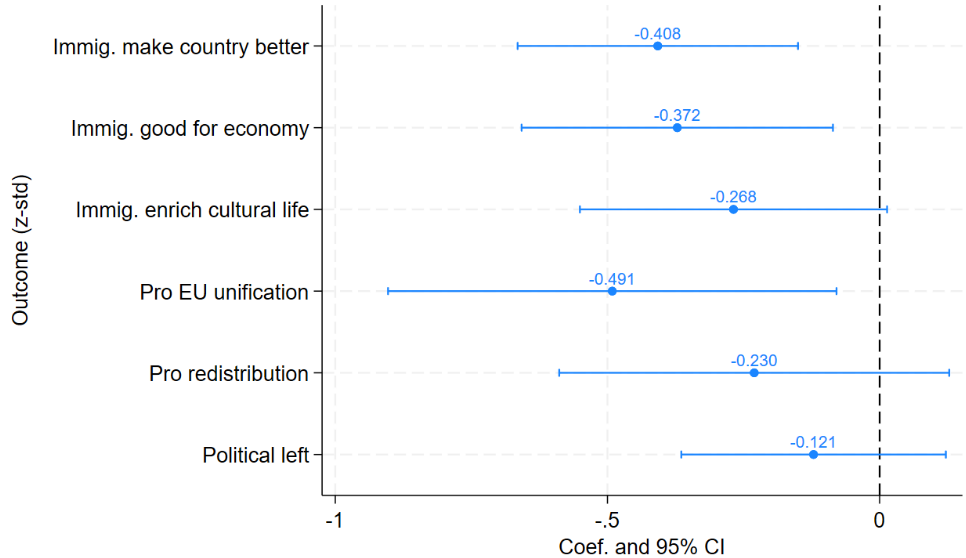
Notes: Figure (a) plots the mean pro-migration index of first-generation immigrants within each cohort of years since arrival. The values are weighted by analysis weights of the ESS, which corrects for differences in population size between countries, and post-startification adjustment to account for potential sampling errors and non-response bias across age groups, gender, education levels, and regions. For more information about the ESS weighting procedure see survey weights in the ESS. Figure (b) reports the coefficients obtained from regressing the interaction of years since arrival with an immigrant dummy on the pro-immigration index. The 95% confidence intervals are included at the top of each bar. Unconditional values are the simple means difference between natives and first-generation immigrants within each cohort. Conditional values are the means difference after controlling for region-by-year fixed effects and the following individual controls: gender, age, age squared, years of education, dummies for 9 occupations, dummy for urban type of domicil, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent.

Figure 2. Relationship of Shift-share Instrument with Actual Migrant shares



Notes: Actual immigrant shares out of total population over the value of the shift-share instrument in each NUTS region in the same year, both in standardized z-scores. The variables are presented after partialling out region and year fixed effects, and controlling for regional controls at 1990 interacted with year dummies: ln of total population and ln of GDP per capita in PPP. The red line is the linear fit of an OLS regression of the residualized shift-share instrument on the residualized actual immigrants share. The coefficient and std. error of the linear fit are reported in the plot.

Figure 3. Differential attitudes adjustment of 1st gen. migrants relative to natives



Notes: Coefficient estimates and their 95% confidence intervals obtained from 2SLS regression for the effect of first-generation immigrants interaction term with regional migrant shares over different attitudes outcomes. The full wording of the question items of the outcomes detailed in Supplementary Table A.2. All outcomes standardized to have mean zero and standard deviation of 1 over the full sample. All regressions are specified as in column 5 of Table 1 which includes region-year, year-group and region-group fixed effects; the following baseline regional controls interacted with group dummies: ln of total population and the ln of GDP per capita in PPP in 1990; and individual controls: arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent.

Table 1. Exposure to Immigration and Pro-Migration Attitudes across Groups

Dep. var = Pro migration index	(1)	(2)	(3)	(4)	(5)
Panel A: OLS					
Mig.share	-0.175***				
	(0.033)				
1st gen. × Mig.share	-0.035***	-0.048***	-0.044***	-0.049***	-0.050
	(0.010)	(0.008)	(0.008)	(0.010)	(0.053)
2nd gen. × Mig.share	-0.006	-0.017*	-0.014	-0.016	-0.040
	(0.008)	(0.010)	(0.010)	(0.011)	(0.049)
1st gen. migrant	0.216***	0.219***			
	(0.022)	(0.022)			
2nd gen. migrant	0.100***	0.090***			
	(0.015)	(0.016)			
Panel B: Reduced form					
Share × Flow	-0.089**				
	(0.036)				
1st gen. × Share × Flow	-0.050***	-0.072***	-0.069***	-0.075***	-0.087***
	(0.012)	(0.010)	(0.010)	(0.011)	(0.028)
2nd gen. × Share × Flow	-0.005	-0.017*	-0.011	-0.011	-0.053
	(0.010)	(0.010)	(0.011)	(0.011)	(0.034)
1st gen. migrant	0.222***	0.218***			
	(0.021)	(0.021)			
2nd gen. migrant	0.099***	0.086***			
	(0.015)	(0.015)			
Panel C: 2SLS					
Mig.share	-0.362***				
	(0.133)				
1st gen. × Mig.share	-0.052***	-0.080***	-0.073***	-0.087***	-0.398***
	(0.015)	(0.013)	(0.013)	(0.013)	(0.135)
2nd gen. × Mig.share	0.001	-0.019*	-0.012	-0.012	-0.247
	(0.013)	(0.011)	(0.012)	(0.013)	(0.163)
1st gen. migrant	0.216***	0.228***			
	(0.024)	(0.023)			
2nd gen. migrant	0.096***	0.088***			
	(0.016)	(0.016)			
F-stat (Mig.share)	37.324				
F-stat (1st gen. × Mig.)	235.052	197.406	177.021	190.323	19.448
F-stat (2nd gen. × Mig.)	413.915	250.335	205.173	338.754	15.923
Observations	236069	236069	236069	236069	236069
Individual controls	X	X	X	X	X
Year FE	X				
Region FE	X				
Region-year FE		X	X	X	X
Year-group FE			X	X	X
Baseline controls×year×group				X	X
Region-group FE					X

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. Panel A reports the results from OLS regressions with pro immigration index as dependent variable over the full interaction of regional share of immigrants by individual immigrant group (natives are the reference category). Panel B shows the same for the reduced-form regressions, replacing regional immigration shares with the shift-share instrument. Panel C shows the 2SLS results. The reported F-stats are the Sanderson-Windmeijer F statistic suggested by (Sanderson & Windmeijer, 2016) for multiple endogenous variables, obtained from the separate first stages of each instrument conditional on the other instruments and the rest of the controls and fixed effects in the corresponding model. Natives are respondents who were born in the country and both parents born in the country of residence; first-generation are respondents who were born in another country; second-generation are respondents who were born in the country of residence, with at least one parent born in another country. All columns include individual controls: gender, age, age squared, years of education, dummies for 9 occupations, dummy for urban type of domicil, years since arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. Region fixed effects refer to NUTS regional level. Year fixed effects refer to ESS survey years. Group fixed effects refer the respondent immigrant status as either native, first-generation, or second-generation immigrant. Regional controls include the ln of total population and the ln of GDP per capita in PPP in 1990 which are interacted with time-by-group dummies.

Table 2. Heterogeneity by Respondent Characteristic and Inflow Composition: 2SLS results for first-gen. subsample

Dep. var = Pro migration index	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Low	High	Low	High				
Panel A: Migrant Share	All	skill	skill	educ	educ	Non-OECD	OECD	$6 < \text{YSA} \leq 20$	$\text{YSA} > 20$
Mig.share	-0.742***	-0.938***	-0.296	-1.003**	-0.599**	-0.795**	-0.648**	-0.538**	-0.832**
	(0.260)	(0.277)	(0.284)	(0.468)	(0.256)	(0.351)	(0.293)	(0.265)	(0.332)
p diff.		0.109		0.450		0.749		0.490	
KP F-stat	13.373	15.326	10.991	13.714	12.344	11.773	9.968	13.006	12.625
Weak IV Robust 95% CI	[-1.660,-.324]	[-1.934,-.502]	[-1.184, .162]	[... ,-.372]	[-1.384,-.153]	[... , -.174]	[-1.418,-.108]	[-1.192,-.068]	[-2.054,-.357]
Panel B: Composition of Inflow									
Low-skill Migrant Share	-0.108	0.088	-0.457**	0.152	-0.163	-0.028	-0.304	-0.166	-0.098
	(0.127)	(0.131)	(0.206)	(0.217)	(0.144)	(0.101)	(0.225)	(0.137)	(0.160)
p diff.		0.028		0.230		0.266		0.747	
KP F-stat	14.220	13.664	14.750	13.939	14.854	8.503	24.675	15.669	13.041
Weak IV Robust 95% CI	[-.421, .155]	[-.157, .423]	[-.940,-.039]	[-.279, .643]	[-.511, .136]	[-.279, .318]	[-.825, .146]	[-.604, .008]	[-.465, .249]
Observations	14344	8378	5882	3864	10391	8170	6218	5875	8398
Individual controls	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X
Baseline controls × year	X	X	X	X	X	X	X	X	X
Region FE	X	X	X	X	X	X	X	X	X

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. Results from 2SLS regression of pro migration index over the sample of first-generation migrant respondents. All columns include year (ESS rounds) fixed effects, NUTS regional fixed effects, year dummies interacted with regional controls at baseline period of 1990: ln of total population and the ln of GDP per capita in PPP in 1990. Column 1 includes all first-generation respondents and includes all individual controls: gender, age, age squared, years of education, dummies for 9 occupations, dummy for urban type of domicil, years since arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. Columns 2 and 3 restrict to only respondents working in low-skilled occupations (skill levels 1-2) to high-skilled occupations (skill levels 3-4), as defined by the International Standard Classification of Occupations (ISCO-08), and excludes the occupation dummies from the individual controls. Columns 4 and 5 restricts to respondents with primary educational attainment (ISCED0-2, equivalent to non high-school graduates) or above primary (ISCED3-8), respectively, and exclude years of education from the individual controls. Columns 6 and 7 restricts to only respondents who were born in an OECD country (defined as members as of 2000), or in a non-OECD country, respectively, and exclude the dummies for the country of birth of the respondent and her parents from the individual controls. Columns 8 and 9 restricts the sample to respondents who arrived to the country 6 to 20 years ago, or those who arrived more than 20 years ago, respectively, and exclude the years since arrival from the individual controls. Panel A shows the effect of the main instrumented migration shares variable. Panel B uses the instrumented ratio of low-skilled (similarly defined as ISCED0-2) migrants out of total migrants. Full description of the instruments is reported in Appendix D. Weak IV robust 95% confidence intervals are Anderson–Rubin confidence sets, as recommended by Andrews et al. (2019), calculated using Finlay et al. (2013)'s *weakiv* STATA package. The reported F-stats are the Kleibergen-Paap rk Wald F statistic.

Appendix A: Data Appendix

A.1 Institutional Background: Migration to Europe

Migration to Europe between 2000 and 2022 has been characterized by sustained net inflows, diversification of origins, and growing political salience. At the aggregate level, net inward migration has been the main driver of population growth in the European Union since the 1990s. In the 1990s and 2000s net migration contributed roughly three times as much to EU population growth as the balance of births over deaths, with average annual additions of about 800,000 people from net migration compared to roughly 250,000 from natural change (Eurostat, 2025; European Commission, Directorate-General for Regional and Urban Policy, 2024). Over the same period, the stock of international migrants in Europe has risen steadily. By 2020 almost 87 million international migrants resided in Europe, an increase of about 16 percent since 2015 (McAuliffe & Oucho, 2024). Close to 10 percent of EU residents were born outside the Union, reflecting a long-run trend of rising foreign-born shares (Eurostat, 2024).

The 2000s saw a first major phase of immigration driven by EU integration and enlargement. Free movement within the single market, combined with the 2004 and 2007 enlargements, generated substantial East-West migration flows from Central and Eastern Europe to higher-income member states. Labor-motivated moves from the "new" member states became a central component of European migration after enlargement, particularly toward the UK, Ireland, Germany, and Southern Europe (OECD, 2006, 2024). Drawing on the European Labour Force Survey, Dustmann & Frattini (2011) show that by the late 2000s foreign-born population shares exceeded 10 percent in many Western European countries. Ireland, Spain, and several Nordic countries experienced especially rapid increases from initially low levels, while long-standing destination countries such as Germany, France, and the UK absorbed large absolute inflows and hosted more diverse origin mixes. Overall, the early 2000s consolidated Europe's transition from a region of emigration to a major global destination.

A second phase emerged in the early to mid-2010s with the sharp rise in humanitarian inflows, often referred to as the European refugee crisis. Conflicts in Syria, Iraq, Afghanistan and elsewhere led to an unprecedented increase in asylum applications. More than one million refugees and migrants reached Europe by sea alone in 2015, predominantly through the Eastern Mediterranean route to Greece (UNHCR, 2015; International Organization for Migration, 2015). About 1.3 million people applied for asylum in EU countries, Norway and Switzerland in 2015, nearly twice the previous peak recorded in the early 1990s (Connor, 2016). These inflows were highly concentrated in a subset of destination countries, notably Germany and Sweden, but also redistributed within countries through national allocation systems, generating substantial cross-regional variation in exposure to new arrivals.

The combination of long-run immigration growth and the 2015 refugee arrivals elevated migration to the top of the political agenda in many European democracies. A large comparative literature documents the rise of parties mobilizing against immigration and multiculturalism across Western Europe, and links this trend to both structural changes in migration patterns and perceived pressures on welfare states, labor markets, and cultural identities (Edo et al., 2019; Dennison & Geddes, 2019). At the same time, case studies of specific crises show that refugee inflows can shift electoral outcomes and strengthen support for anti-immigration parties when local communities are exposed to new arrivals at scale (Dustmann et al., 2019). Against this backdrop, the 2000 to 2020 period provides a setting in which sizable and heterogeneous migration shocks interacted with evolving migrant stocks and a highly salient public debate about immigration.

Importantly, the political consequences of immigration in Europe unfold in a setting where electoral participation is largely tied to citizenship. In addition, EU law grants mobile EU citizens the right to vote and stand as candidates in municipal elections and European Parliament elections in their member state of residence, national elections are reserved for citizens, and voting rights for third-country nationals at the local (and more rarely regional) level vary across countries and typically require several years of legal residence (Council of the European Union, 1994, 1993; Yilmaz & Wolffhardt, 2024). Thus, immigrants can affect electoral politics substantively, particularly among the naturalized.

A.2 Additional data sources.

Historical and socio-economic regional characteristics are compiled from several databases. Regional GDP per capita in 1990, expressed in purchasing power parity-adjusted international dollars, is drawn from the Rosés & Wolf (2020) historical database. Sectoral employment structures for six broad industries in 1990 are obtained from the Annual Regional Database of the European Commission (ARDECO). To characterize pre-existing political conditions, regional vote shares for parties classified as opposing immigration are constructed from national parliamentary elections held between 1990 and 1994 using the European NUTS-Level Election Database (EU-NED, Schraff et al. (2023)). Party positions on immigration are coded using the V-Dem Party Dataset (Lindberg et al., 2022), which aggregates expert evaluations into interval-scale estimates of immigration stances. Parties with strictly negative positions are classified as anti-immigration. Regional vote shares for these parties are calculated as their total share of valid votes in each region. Supplementary Table A.5 lists the parties classified as opposing immigration and the election years used for each country.

A.3 Regional scope and level of aggregation

As described earlier, we follow Alesina et al. (2021) and collect the survey for 15 European core countries: Austria, Belgium, Switzerland, Germany, Denmark, Spain, Finland, France, Ireland, Italy, Netherlands, Norway, Portugal, Sweden, and the UK. The individual-level data from the ESS contains region of residence of the respondents which is then used to match all subsequent regional-level data. In most countries, the regional aggregation is at the NUTS2 level, which are basic regions generally used for regional policies with population typically ranges from 800,000 to 3 million. In Belgium, France, Germany and the UK, the regional level is at the NUTS1 subdivision, which corresponds to larger regions with population ranging from 3 to 7 million (e.g., federal states in Germany); and in Ireland at the NUTS3 level, which are small regions with population ranging from 150,000 to 800,000 (European Union, nd).

A.4 Treatment of missing values

ESS individual-level data. ESS round 1 does not have data for country of birth of parents but only the continent of birth. Therefore, in order to not drop a full round, second-generation immigrants in this round include fixed effects of the continent of birth of the parents instead.

Regional immigration data. The main source of regional immigration data is the EU-LFS which provides annual estimates on the number of working-age (age 15+) foreign-born and native population in NUTS2 regions for 1999-2024. When values were missing in ESS round years, they were replaced with non-missing values from the previous (non-ESS) year. Data remained missing in Ireland, Denmark in 2002-2006, and Finland in 2002-2004. In Norway, NUTS2 regions were significantly redrawn in 2016, such that regional data are not comparable before and after this year. Therefore, in those cases, the values were obtained from the national statistical office of each country.

Ireland data obtained from Ireland's Central Statistics Office on foreign-born population by counties (which were subsequently mapped to NUTS3) in 2002, 2006, 2011, 2016, and 2022, with missing years completed with latest available values.[15] Data on foreign-born population in Norway were obtained from Statistics Norway for all years (2002-2023), at the NUTS3 regional level, which was then mapped to the pre-2016 NUTS2 regional division to be consistent with the ESS data.[16] Denmark's data obtained from Denmarks Statistik for 2002-2006, mapping the pre-2007 municipalities (LAU1 regional level) to the 2007 municipalities division, which were then mapped to their respective NUTS2 regions.[17] At last, data for Finland in 2002-2004 were obtained from Statistics Finland, where foreign-born population is detailed at the NUTS3 level and was then mapped to the NUTS2 level to fit the rest of the data.

Regional GDP. GDP data for Ireland existed only at the national level, and hence the regional GDP per capita in Ireland was proxied as the national value. In Belgium, there were inconsistencies in the region boundaries for which the GDP data existed. Hence, GDP for region BE1 (Brussels) is proxied as the GDP per capita of region BE1 (Brussels) together with regions BE24 (Flemish Brabant) and BE31 (Walloon Brabant). As a result, the GDP per capita for BE2 refers to BE2 without BE24; and for BE3 without BE31.

Regional employment shares by sector. In 6 German regions data was missing at 1990, so we used the 1991 values for all German regions. Employment shares data was missing for the UK and Switzerland, and was completed using the Rosés-Wolf-database, version 6 (2020). The latter includes employment shares at 1990 by three sectors: agriculture, industry and services. Thus, the employment shares for the UK and Switzerland refer to the 3-sector disaggregation which was mapped to the 6 NACE sectors. For the exact mapping and the detailed description of NACE sectors, see Supplementary Table A.6.

Regional anti-immigration vote shares. Ireland data is detailed only at the NUTS2 level, and not NUTS3 as the rest of the data. Therefore, regional vote shares in Ireland represent the share in the respective NUTS2 region. Moreover, for parties with missing expert ratings on immigration position, we consulted their Wikipedia pages for explicit references to anti-immigration positions in the respective elections.[18]

OECD immigrant flows. The OECD International Migration Database includes data only until 2021. Therefore, the annual flow data which was matched with the respective bi-annual ESS data of 2023 (ESS round 11), refers to 2021.

[15] In all years except 2002, county Tipperary is split between two NUTS regions IE023 and IE024. Hence, the immigration stocks and population for these regions were imputed as the value weighted by the 2002 shares of the respective value in each old county division (Tipperary NR and Tipperary SR).

[16] Due to border changes that could not be accurately mapped, regions NO01 (Oslo og Akershus) and NO03 (Sør-Østlandet) were merged just for the sake of migration share computation and were assigned the same value of migration share.

[17] In cases were pre-2007 municipalities were split between several 2007 municipalities or NUTS2 regions, the immigration stocks were imputed as the value weighted by population share of the respective region, using the parishes (LAU2 regional level) re-division of regional units.

[18] The parties that we classified in this way as anti-immigration are: "National Front" in Belgium; "Federal Democratic Union of Switzerland", "National Action / Swiss Democrats" and "Ticino League" in Switzerland; "National Democratic Party" and "The Republicans" in Germany; "Finns Party" in Finland; and "Lombard League" in Italy.

Table A.1. Data sources of immigration data

Variable	Immigrants definition	Time	Frequency	Region	Countries	Source
Immigrants stock by country of origin	Birthplace and citizenship (vary by country)	1991, 2001	Census	NUTS1-3 (vary by country)	AT, BE, CH, DE, DK, ES, FI, FR, IE, IT, NL, NO, PT, SE, UK	Alesina et al. (2021)
Immigrants stock by educational attainment	Birthplace and citizenship (vary by country)	1991, 2001	Census	NUTS1-3 (vary by country)	AT, BE, CH, DE, DK, ES, FI, FR, IE, IT, NL, NO, PT, SE, UK	Alesina et al. (2021)
Immigrants stock by country of origin	Citizenship	2002–2022	Annual	Country	AT, BE, CH, DE, DK, ES, FI, FR (until 2020), IE, IT, NL, NO, PT, SE, UK (until 2020)	OECD International Migration Database
Immigrants stock from EU27 and non-EU27 countries	Birthplace (age 15+)	2002–2023	Annual	NUTS2	AT, BE, CH, DE (from 2018), DK (from 2008), ES, FR, IT (from 2006), NL, PT, SE, UK (until 2020)	EU-LFS
Immigrants stock by educational attainment	Birthplace (age 15+)	2004–2023	Annual	NUTS2	AT, BE, CH, DE, DK (from 2008), ES, FI, FR, IT (from 2006), NL, NO, PT, SE, UK (until 2018)	EU-LFS
Total immigrants stock	Birthplace	2002–2006	Annual	Municipality (LAU1)	Denmark	Statistics Denmark
Total immigrants stock	Birthplace	2002, 2006, 2011, 2016, 2022	Census	County (NUTS3)	Ireland	Ireland's Central Statistics Office
Total immigrants stock	Birthplace	2002–2023	Annual	County (NUTS3)	Norway	Statistics Norway
Total immigrants stock	Birthplace	2002–2004	Annual	Region (NUTS3)	Finland	Statistics Finland

Notes: Birthplace means that the data source defines immigrants as population who were born in another country, while citizenship refers to data sources that define immigrants as population with a citizenship or nationality which is not the same as the country of residence. The immigrants definition and regional level of immigration data from Alesina et al. (2021) depends on the country for which the data was retrieved; for a full description of the sources, regional levels and immigrants definition see Supplementary Table A.7. To compute immigration shares out of total population in Denmark, we used additional data of total population by parishes (LAU2) from Statistics Denmark, as explained in Section 2. Countries' abbreviations are as follows: AT = Austria; BE = Belgium; CH = Switzerland; DE = Germany; DK = Denmark; ES = Spain; FI = Finland; FR = France; GR = Greece; IE = Ireland; IT = Italy; NL = Netherlands; NO = Norway; PT = Portugal; SE = Sweden; UK = United Kingdom.

Table A.2. Outcomes description

Variable	ESS rounds	Wording	Values
Panel A. Components of main outcome: pro mig. index			
Immigration bad or good for country's economy	All	Would you say it is generally bad or good for [country]'s economy that people come to live here from other countries?	0 [= Bad for the economy] to 10 [= Good for the economy]
Country's cultural life undermined or enriched by immigrants	All	Would you say that [country]'s cultural life is generally undermined or enriched by people coming to live here from other countries?	0 [= Cultural life undermined] to 10 [= Cultural life enriched]
Immigrants make country worse or better place to live	All	Is [country] made a worse or a better place to live by people coming to live here from other countries?	0 [= Worse place to live] to 10 [= Better place to live]
Panel B. Other outcomes			
Attitude to redistribution	All	The government should take measures to reduce differences in income levels	1 [= Disagree strongly] to 5 [= Agree strongly]
Attitude to EU unification	All	Thinking about the European Union, some say European unification should go further. Others say it has already gone too far. What number on the scale best describes your position?	0 [= Unification already gone too far] to 10 [= Unification go further]
Placement on left right scale	All	In politics people sometimes talk of 'left' and 'right'. Where would you place yourself on this scale?	1 [= Right] to 10 [= Left]
Number of years in area	2002	How long have you lived in this area?	Number of years

Notes: All questions exist in all countries of the sample. Except for 'Number of years in area' and 'Moved in 2000+', all values were rescaled such that higher values mean more pro immigration or to attitudes traditionally considered left-leaning; and standardized to have mean 0 and standard deviation of 1.

Table A.3. ESS respondents in sample by country and immigration group

country	**ESS rounds**	**# nuts regions**	**all**	**natives**	**1st gen.**	**2nd gen.**
Austria	1-5, 7-11	9	17,294	14,520	1,398	1,376
Belgium	1-11	3	15,740	12,780	1,561	1,399
Switzerland	1-11	7	15,447	10,324	3,065	2,058
Germany	1-11	16	30,277	25,391	2,381	2,505
Denmark	1-7, 9	5	10,897	9,881	509	507
Spain	1-11	17	15,066	13,592	1,200	274
Finland	1-10	4	17,841	17,245	376	220
France	1-11	8	18,015	14,454	1,561	2,000
Ireland	1-2, 5-11	8	15,949	13,666	1,667	616
Italy	6, 8	18	2,386	2,228	128	30
Netherlands	1-11	12	17,805	15,310	1,325	1,170
Norway	1-9	7	12,703	11,659	599	445
Portugal	1-11	5	13,924	12,799	831	294
Sweden	1-11	8	17,057	13,945	1,739	1,373
UK	1-10	10	15,668	13,342	1,220	1,106
Total	1-11	138	236,069	201,136	19,560	15,373

Notes: Ireland in round 3 and 4, and Italy in round 9 dropped due to inconsistencies in the regions codes. Regions in Belgium, France, Germany, and the UK are at NUTS1 level; in Ireland at NUTS3 level; in the rest at NUTS2 level. Due to inconsistencies in ESS coding across rounds, the following regions were aggregated into one larger unit: the Southern part of Finland with Helsinki (FI1B-FI1C), and the Trentino province with the Bolzano province in Italy (ITH1-ITH2). The regions of Acores and Madeira in Portugal, and Molise in Italy are not well covered by the ESS and hence excluded.

Table A.4. Demographics by immigration group and regional shares of immigrants

	(1)		(2)		(3)		(4)		(5)		(6)	
	Full sample		Natives		1st gen.		2nd gen.		High mig. share		Low mig. share	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Individual characteristics												
Age	49.761	(17.559)	50.355	(17.669)	47.952	(15.513)	44.291	(17.462)	49.850	(17.583)	49.672	(17.534)
Male dummy	0.493	(0.500)	0.495	(0.500)	0.481	(0.500)	0.488	(0.500)	0.491	(0.500)	0.496	(0.500)
Live in big city or in suburbs of big city dummy	0.304	(0.460)	0.289	(0.453)	0.407	(0.491)	0.376	(0.484)	0.355	(0.478)	0.254	(0.435)
Years of education	12.996	(4.245)	12.917	(4.237)	13.355	(4.532)	13.576	(3.879)	13.338	(4.170)	12.655	(4.291)
Household income decile	5.995	(2.679)	6.028	(2.663)	5.604	(2.762)	6.064	(2.732)	5.991	(2.731)	5.999	(2.626)
Citizen dummy	0.964	(0.187)	0.999	(0.035)	0.618	(0.486)	0.947	(0.224)	0.945	(0.228)	0.983	(0.130)
Children at home dummy	0.368	(0.482)	0.359	(0.480)	0.468	(0.499)	0.362	(0.481)	0.373	(0.484)	0.364	(0.481)
Position on right to left scale	0.000	(1.000)	-0.023	(0.997)	0.120	(1.000)	0.158	(1.009)	0.014	(1.001)	-0.014	(0.999)
Occup: Armed forces	0.002	(0.042)	0.002	(0.044)	0.000	(0.016)	0.001	(0.032)	0.001	(0.034)	0.002	(0.048)
Occup: Legislators and managers	0.086	(0.281)	0.086	(0.281)	0.084	(0.277)	0.087	(0.282)	0.092	(0.288)	0.081	(0.273)
Occup: Professionals	0.183	(0.387)	0.181	(0.385)	0.186	(0.389)	0.202	(0.401)	0.210	(0.407)	0.157	(0.363)
Occup: Technicians	0.167	(0.373)	0.168	(0.373)	0.143	(0.350)	0.190	(0.392)	0.171	(0.377)	0.163	(0.369)
Occup: Clerks	0.106	(0.307)	0.107	(0.309)	0.084	(0.277)	0.112	(0.315)	0.109	(0.311)	0.103	(0.303)
Occup: Service workers	0.166	(0.372)	0.164	(0.370)	0.181	(0.385)	0.179	(0.383)	0.168	(0.374)	0.164	(0.371)
Occup: Skilled agricultural workers	0.027	(0.163)	0.030	(0.171)	0.010	(0.100)	0.011	(0.104)	0.021	(0.144)	0.033	(0.179)
Occup: Craft and trades workers	0.107	(0.310)	0.109	(0.311)	0.108	(0.310)	0.089	(0.285)	0.096	(0.294)	0.119	(0.324)
Occup: Machine operators	0.066	(0.248)	0.066	(0.248)	0.074	(0.262)	0.049	(0.216)	0.055	(0.227)	0.077	(0.266)
Occup: Elementary occupations	0.090	(0.286)	0.087	(0.282)	0.130	(0.336)	0.080	(0.271)	0.079	(0.269)	0.101	(0.302)
Years since arrival: Born in country	0.917	(0.276)	1.000	(0.000)	0.000	(0.000)	1.000	(0.000)	0.881	(0.323)	0.953	(0.212)
Years since arrival: Within last year	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)
Years since arrival: 1-5 years ago	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)
Years since arrival: 6-10 years ago	0.013	(0.114)	0.000	(0.000)	0.159	(0.365)	0.000	(0.000)	0.019	(0.138)	0.007	(0.083)
Years since arrival: 11-20 years ago	0.023	(0.149)	0.000	(0.000)	0.276	(0.447)	0.000	(0.000)	0.033	(0.179)	0.013	(0.112)
Years since arrival: More than 20 years ago	0.047	(0.211)	0.000	(0.000)	0.566	(0.496)	0.000	(0.000)	0.066	(0.249)	0.027	(0.163)
Migration status: Native	0.852	(0.355)	1.000	(0.000)	0.000	(0.000)	0.000	(0.000)	0.797	(0.402)	0.907	(0.290)
Migration status: 1st gen. migrant	0.083	(0.276)	0.000	(0.000)	1.000	(0.000)	0.000	(0.000)	0.119	(0.323)	0.047	(0.212)
Migration status: 2nd gen. migrant	0.065	(0.247)	0.000	(0.000)	0.000	(0.000)	1.000	(0.000)	0.084	(0.278)	0.046	(0.209)
Educ: primary	0.272	(0.445)	0.279	(0.449)	0.254	(0.435)	0.196	(0.397)	0.236	(0.425)	0.307	(0.461)
Educ: secondary	0.405	(0.491)	0.404	(0.491)	0.371	(0.483)	0.456	(0.498)	0.413	(0.492)	0.397	(0.489)
Educ: tertiary	0.323	(0.468)	0.317	(0.465)	0.374	(0.484)	0.348	(0.476)	0.351	(0.477)	0.296	(0.456)
Baseline regional controls												
log Population 1990	14.566	(0.994)	14.554	(0.989)	14.565	(1.026)	14.717	(1.012)	14.423	(1.040)	14.708	(0.925)
log GDP PPP per capita 1990	10.258	(0.794)	10.236	(0.789)	10.410	(0.796)	10.351	(0.822)	10.393	(0.802)	10.123	(0.761)
Employment share sector A 1990	0.066	(0.061)	0.068	(0.062)	0.054	(0.059)	0.048	(0.045)	0.054	(0.057)	0.077	(0.063)
Employment share sectors B-E 1990	0.229	(0.072)	0.229	(0.072)	0.227	(0.073)	0.230	(0.074)	0.221	(0.073)	0.236	(0.070)
Employment share sector F 1990	0.106	(0.083)	0.104	(0.080)	0.121	(0.096)	0.119	(0.096)	0.111	(0.090)	0.102	(0.075)
Employment share sectors G-J 1990	0.306	(0.145)	0.299	(0.138)	0.352	(0.177)	0.343	(0.173)	0.335	(0.155)	0.278	(0.127)
Employment share sectors K-N 1990	0.184	(0.193)	0.174	(0.184)	0.245	(0.234)	0.239	(0.226)	0.216	(0.211)	0.153	(0.168)
Employment share sectors O-U 1990	0.323	(0.145)	0.316	(0.139)	0.361	(0.177)	0.358	(0.169)	0.339	(0.159)	0.307	(0.128)
Vote share to anti-immig. parties 1990	0.228	(0.194)	0.222	(0.193)	0.254	(0.203)	0.272	(0.194)	0.225	(0.207)	0.232	(0.181)
Regional migration and instruments												
Share of immigrants	0.109	(0.067)	0.103	(0.062)	0.152	(0.084)	0.138	(0.079)	0.158	(0.061)	0.061	(0.023)
Share of immigrants (Z-score)	0.206	(1.013)	0.110	(0.934)	0.852	(1.271)	0.640	(1.206)	0.944	(0.919)	-0.532	(0.343)
Non-EU ratio	0.664	(0.155)	0.668	(0.151)	0.640	(0.170)	0.640	(0.169)	0.650	(0.175)	0.680	(0.126)
Non-EU ratio (Z-score)	-0.098	(1.013)	-0.067	(0.990)	-0.255	(1.113)	-0.249	(1.102)	-0.190	(1.141)	0.010	(0.824)
Primary-educated ratio	0.352	(0.093)	0.353	(0.094)	0.347	(0.087)	0.345	(0.084)	0.348	(0.086)	0.355	(0.098)
Primary-educated ratio (Z-score)	-0.166	(0.840)	-0.157	(0.850)	-0.211	(0.789)	-0.226	(0.766)	-0.202	(0.777)	-0.134	(0.892)
Shift-share instrument	0.164	(0.129)	0.152	(0.118)	0.240	(0.166)	0.236	(0.153)	0.240	(0.138)	0.089	(0.052)
Shift-share instrument (Z-score)	0.075	(0.978)	-0.022	(0.895)	0.648	(1.259)	0.619	(1.160)	0.651	(1.045)	-0.500	(0.397)
Non-EU ratio instrument	0.661	(0.151)	0.662	(0.152)	0.666	(0.154)	0.647	(0.141)	0.686	(0.167)	0.637	(0.129)
Non-EU ratio instrument (Z-score)	-0.141	(1.035)	-0.137	(1.038)	-0.111	(1.055)	-0.238	(0.964)	0.028	(1.144)	-0.311	(0.882)
Primary-educated ratio instrument	0.396	(0.092)	0.395	(0.093)	0.398	(0.085)	0.407	(0.083)	0.393	(0.087)	0.399	(0.096)
Primary-educated ratio instrument (Z-score)	-0.032	(0.912)	-0.042	(0.924)	-0.014	(0.845)	0.083	(0.827)	-0.064	(0.863)	0.001	(0.958)
Shift-share instrument, 2000 shares	0.156	(0.110)	0.145	(0.100)	0.224	(0.142)	0.213	(0.132)	0.226	(0.111)	0.085	(0.042)
Shift-share instrument, 2000 shares (Z-score)	0.061	(0.980)	-0.038	(0.893)	0.671	(1.269)	0.573	(1.182)	0.689	(0.997)	-0.566	(0.374)
Shift-share instrument, 13 origin regions	0.171	(0.144)	0.157	(0.133)	0.252	(0.181)	0.250	(0.168)	0.254	(0.157)	0.089	(0.058)
Shift-share instrument, 13 origin regions (Z-score)	0.193	(1.079)	0.088	(0.996)	0.798	(1.355)	0.786	(1.261)	0.810	(1.176)	-0.423	(0.431)
Outcome variable and its components												
Pro migration index	-0.000	(1.000)	-0.049	(0.993)	0.375	(0.967)	0.158	(1.012)	0.087	(1.013)	-0.087	(0.979)
V_1: Immigration is good for [country]'s economy	-0.000	(1.000)	-0.043	(0.992)	0.337	(0.999)	0.133	(1.014)	0.107	(1.005)	-0.106	(0.984)
V_2: [Country]'s cultural life is enriched by immigrants	0.000	(1.000)	-0.037	(0.998)	0.274	(0.961)	0.142	(1.014)	0.040	(1.008)	-0.040	(0.991)
V_3: Immigrants make [country] a better place to live in	-0.000	(1.000)	-0.047	(0.989)	0.374	(1.010)	0.142	(1.014)	0.083	(1.015)	-0.083	(0.977)
Pro EU unification	-0.000	(1.000)	-0.021	(0.994)	0.154	(1.036)	0.062	(1.012)	0.033	(1.007)	-0.038	(0.991)
Position on right to left scale	0.000	(1.000)	-0.023	(0.997)	0.120	(1.000)	0.158	(1.009)	0.014	(1.001)	-0.014	(0.999)
Pro redistribution	-0.000	(1.000)	0.003	(0.998)	0.003	(1.004)	-0.040	(1.021)	-0.007	(0.994)	0.007	(1.006)

Notes: High (low) immigrant shares refers to above the sub-sample of regions with above (below) median share of immigrants out of total population, which is equal to 9%. *The categories of the variable 'feeling to household income' go from 1 = "Living comfortably on present income" to 4 = " Very difficult on present income", this is in the opposite direction of 'household income decile', for which the 1st decile refers to the lowest earners. 'Occup' (ISCO-08 occupations) and 'Educ' (ISCED educational attainment level) refer to categorical variables, for which each category is presented here as a separate dummy variable. The outcome variable and its three components are standardized to have mean 0 and standard deviation of 1 in the full sample.

Table A.5. Parties classified as anti-immigration by country and election year

Country	Election year	Party name
AT	1990	Freedom Party of Austria
BE	1991	Christian-Democrat and Flemish / New Flemish Alliance
		Flemish Interest
		National Front*
CH	1991	Automobile Party / Freedom Party of Switzerland
		Catholic Conservative / Christian Democratic Peoples Party
		Swiss People's Party
		Federal Democratic Union of Switzerland*
		National Action / Swiss Democrats*
		Ticino League*
DE	1990	Christian Democratic Union
		Christian Social Union
		National Democratic Party*
		The Republicans*
DK	1990	Conservative People's Party
		Liberal Party
		Progress Party
ES	1993	Convergence and Unity
		People's Alliance-Party / People's Party
FI	1991	Finns Party*
FR	1993	National Front / National Rally
		Union for French Democracy
IE	1992	No party classified as anti-immigration
IT	1992	Italian Social Movement / Italian Social Movement-National Right
		Lombard League*
NL	1994	People's Party for Freedom and Democracy
NO	1993	Progress Party
PT	1991	No party classified as anti-immigration
SE	1991	No party classified as anti-immigration
UK	1992	Conservatives

Notes: * denotes parties that were self classified as anti-immigration by the authors.

Table A.6. Mapping of NACE sectors to Rosés-Wolf database 3 sectors

Sector	Description	6-sector disaggregation	3-sector disaggregation
A	Agriculture, forestry and fishing	A	Agriculture
B	Mining and quarrying	B-E	Industry
C	Manufacturing		
D	Electricity, gas, steam and air conditioning supply		
E	Water supply; sewerage, waste management and remediation activities		
F	Construction	F	
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	G-J	Services
H	Transportation and storage		
I	Accommodation and food service activities		
J	Information and communication		
K	Financial and insurance activities	K-N	
L	Real estate activities		
M	Professional, scientific and technical activities		
N	Administrative and support service activities		
O	Public administration and defence; compulsory social security	O-U	
P	Education		
Q	Human health and social work activities		
R	Arts, entertainment and recreation		
S	Other service activities		
T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use		
U	Activities of extraterritorial organisations and bodies		

Table A.7. Data sources and definitions of past immigration stocks

		year 1991		year 2001		year 2011		
country	**regional level**	**sources**	**definition immigrants**	**sources**	**definition immigrants**	**sources**	**definition immigrants**	**data provider**
Austria	NUTS2 (Bundeslander)	Census 1991	citizenship	Census 2001	birthplace	Census 2011	birthplace	STATISTIK AUSTRIA (STATcube)
Belgium	NUTS3 (Arrondissements)	Census 1991	birthplace	Census 2001	birthplace	Census 2011	birthplace	Statistics Belgium
Switzerland	NUTS 3 (Canton)	Census 1990	birthplace	Census 2000	birthplace	Census 2010	birthplace	Office federal de la statistique
Germany	NUTS1 (Lander)	Register 1991	citizenship	Register 2001	citizenship	Census 2011	birthplace	Statistisches Bundesamt DESTATIS
Denmark	NUTS3 (Landsdele)	Register 1991	birthplace	Register 2001	birthplace	Register 2011	birthplace	Statistics Denmark
Spain	NUTS3 (Provincias)	Census 1991	birthplace	Census 2001	birthplace	Census 2011	birthplace	Instituto Nacional de Estadistica INE
Finland	NUTS3 (Maakunnat)	Register 1991	birthplace	Register 2001	birthplace	Register 2011	birthplace	Statistics Finland
France	NUTS3 (Departements)	Census 1990	birthplace	Census 1999	birthplace	Census 2011	birthplace	Institut national de la statistique (Saphir)
Greece	NUTS3 (Nomoi)	Census 1991	citizenship	Census 2001	birthplace	Census 2011	birthplace	IPUMS international (10% extract)
Ireland	NUTS3	Census 1991	birthplace	Census 2002	birthplace	Census 2011	birthplace	IPUMS international (10% extract)
Italy	NUTS2 (Regioni)	Census 1991	birthplace	Census 2001	birthplace	Census 2011	birthplace	ISTAT (Laboratorio Adele)
Netherlands	NUTS2 (Provincies)	Register 1995	birthplace	Register 2001	birthplace	Register 2011	birthplace	Centraal Bureau voor de Statistiek CBS
Norway	NUTS2 (Regions)	Register 1991	birthplace	Register 2001	birthplace	Register 2011	birthplace	Statistics Norway
Portugal	NUTS2 (Regions)	Census 1991	birthplace	Census 2001	birthplace	Census 2011	birthplace	IPUMS international (5% extract)
Sweden	NUTS2 (National areas)	Register 1991	birthplace	Register 2001	birthplace	Register 2011	birthplace	Statistics Sweden
United Kingdom	NUTS1	Census 1991	birthplace	Census 2001	birthplace	Census 2011	birthplace	Office for National Statistics

Source: *Alesina et al. (2021)*, Supplementary Appendix Table A1

Table A.8. List of NUTS regions

Country		NUTS region	NUTS level	Region's name
AT	Austria	AT11	2	Burgenland
AT	Austria	AT12	2	Niederösterreich
AT	Austria	AT13	2	Wien
AT	Austria	AT21	2	Kärnten
AT	Austria	AT22	2	Steiermark
AT	Austria	AT31	2	Oberösterreich
AT	Austria	AT32	2	Salzburg
AT	Austria	AT33	2	Tirol
AT	Austria	AT34	2	Vorarlberg
BE	Belgium	BE1	1	Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest
BE	Belgium	BE2	1	Vlaams Gewest
BE	Belgium	BE3	1	Région Wallonne
CH	Switzerland	CH01	2	Région Lémanique
CH	Switzerland	CH02	2	Espace Mittelland
CH	Switzerland	CH03	2	Nordwestschweiz
CH	Switzerland	CH04	2	Zürich
CH	Switzerland	CH05	2	Ostschweiz
CH	Switzerland	CH06	2	Zentralschweiz
CH	Switzerland	CH07	2	Ticino
DE	Germany	DE1	1	Baden-Württemberg
DE	Germany	DE2	1	Bayern
DE	Germany	DE3	1	Berlin
DE	Germany	DE4	1	Brandenburg
DE	Germany	DE5	1	Bremen
DE	Germany	DE6	1	Hamburg
DE	Germany	DE7	1	Hessen
DE	Germany	DE8	1	Mecklenburg-Vorpommern
DE	Germany	DE9	1	Niedersachsen
DE	Germany	DEA	1	Nordrhein-Westfalen
DE	Germany	DEB	1	Rheinland-Pfalz
DE	Germany	DEC	1	Saarland
DE	Germany	DED	1	Sachsen
DE	Germany	DEE	1	Sachsen-Anhalt
DE	Germany	DEF	1	Schleswig-Holstein
DE	Germany	DEG	1	Thüringen
DK	Denmark	DK01	2	Hovedstaden
DK	Denmark	DK02	2	Sjælland

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Country		NUTS region	NUTS level	Region's name
DK	Denmark	DK03	2	Syddanmark
DK	Denmark	DK04	2	Midtjylland
DK	Denmark	DK05	2	Nordjylland
ES	Spain	ES11	2	Galicia
ES	Spain	ES12	2	Principado de Asturias
ES	Spain	ES13	2	Cantabria
ES	Spain	ES21	2	País Vasco
ES	Spain	ES22	2	Comunidad Foral de Navarra
ES	Spain	ES23	2	La Rioja
ES	Spain	ES24	2	Aragón
ES	Spain	ES30	2	Comunidad de Madrid
ES	Spain	ES41	2	Castilla y León
ES	Spain	ES42	2	Castilla-La Mancha
ES	Spain	ES43	2	Extremadura
ES	Spain	ES51	2	Cataluña
ES	Spain	ES52	2	Comunidad Valenciana
ES	Spain	ES53	2	Illes Balears
ES	Spain	ES61	2	Andalucía
ES	Spain	ES62	2	Región de Murcia
ES	Spain	ES70	2	Canarias
FI	Finland	FI19	2	Länsi-Suomi
FI	Finland	FI1B-FI1C	2	Helsinki-Uusimaa
FI	Finland	FI1D	2	Pohjois- ja Itä-Suomi
FI	Finland	FI20	2	Åland
FR	France	FR1	1	Île de France
FR	France	FR2	1	Bassin Parisien
FR	France	FR3	1	Nord-Pas-de-Calais
FR	France	FR4	1	Est
FR	France	FR5	1	Ouest
FR	France	FR6	1	Sud-Ouest
FR	France	FR7	1	Centre-Est
FR	France	FR8	1	Méditerranée
IE	Ireland	IE011	3	Border
IE	Ireland	IE012	3	Midland
IE	Ireland	IE013	3	West
IE	Ireland	IE021	3	Dublin
IE	Ireland	IE022	3	Mid-East

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	Country	NUTS region	NUTS level	Region's name
IE	Ireland	IE023	3	Mid-West
IE	Ireland	IE024	3	South-East
IE	Ireland	IE025	3	South-West
IT	Italy	ITC1	2	Piemonte
IT	Italy	ITC2	2	Valle d'Aosta
IT	Italy	ITC3	2	Liguria
IT	Italy	ITC4	2	Lombardia
IT	Italy	ITF1	2	Abruzzo
IT	Italy	ITF3	2	Campania
IT	Italy	ITF4	2	Puglia
IT	Italy	ITF5	2	Basilicata
IT	Italy	ITF6	2	Calabria
IT	Italy	ITG1	2	Sicilia
IT	Italy	ITG2	2	Sardegna
IT	Italy	ITH1-ITH2	2	Provincia Autonoma di Bolzano/Bozen
IT	Italy	ITH3	2	Veneto
IT	Italy	ITH4	2	Friuli-Venezia Giulia
IT	Italy	ITH5	2	Emilia-Romagna
IT	Italy	ITI1	2	Toscana
IT	Italy	ITI2	2	Umbria
IT	Italy	ITI3	2	Marche
IT	Italy	ITI4	2	Lazio
NL	Netherlands	NL11	2	Groningen
NL	Netherlands	NL12	2	Friesland
NL	Netherlands	NL13	2	Drenthe
NL	Netherlands	NL21	2	Overijssel
NL	Netherlands	NL22	2	Gelderland
NL	Netherlands	NL23	2	Flevoland
NL	Netherlands	NL31	2	Utrecht
NL	Netherlands	NL32	2	Noord-Holland
NL	Netherlands	NL33	2	Zuid-Holland
NL	Netherlands	NL34	2	Zeeland
NL	Netherlands	NL41	2	Noord-Brabant
NL	Netherlands	NL42	2	Limburg
NO	Norway	NO01	2	Oslo og Akershus
NO	Norway	NO02	2	Hedmark og Oppland
NO	Norway	NO03	2	Sør-Østlandet
NO	Norway	NO04	2	Agder og Rogaland

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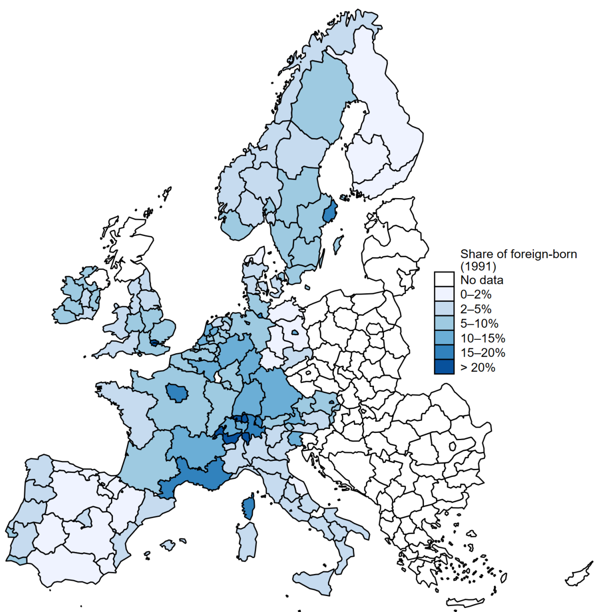
Country		NUTS region	NUTS level	Region's name
NO	Norway	NO05	2	Vestlandet
NO	Norway	NO06	2	Trøndelag
NO	Norway	NO07	2	Nord-Norge
PT	Portugal	PT11	2	Norte
PT	Portugal	PT15	2	Algarve
PT	Portugal	PT16	2	Centro
PT	Portugal	PT17	2	Área Metropolitana de Lisboa
PT	Portugal	PT18	2	Alentejo
SE	Sweden	SE11	2	Stockholm
SE	Sweden	SE12	2	Östra Mellansverige
SE	Sweden	SE21	2	Småland med öarna
SE	Sweden	SE22	2	Sydsverige
SE	Sweden	SE23	2	Västsverige
SE	Sweden	SE31	2	Norra Mellansverige
SE	Sweden	SE32	2	Mellersta Norrland
SE	Sweden	SE33	2	Övre Norrland
UK	United Kingdom	UKC	1	North East
UK	United Kingdom	UKD	1	North West
UK	United Kingdom	UKE	1	Yorkshire and The Humber
UK	United Kingdom	UKF	1	East Midlands
UK	United Kingdom	UKG	1	West Midlands
UK	United Kingdom	UKH	1	East of England
UK	United Kingdom	UKI	1	London
UK	United Kingdom	UKJ	1	South East
UK	United Kingdom	UKK	1	South West
UK	United Kingdom	UKL	1	Wales

Table A.9. Regional controls data sources

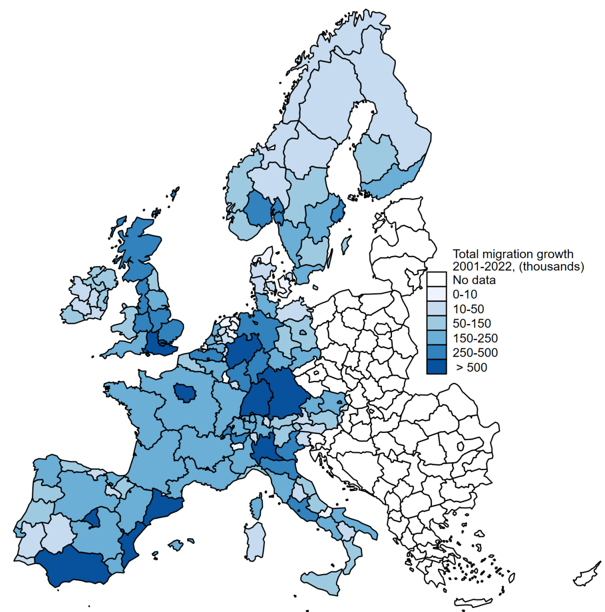
Variable	Year	Source	Countries
GDP per capita (PPP 1990)	1990	Rosés-Wolf-database, version 6 (2020)	All*
Total population	1990	Alesina et al. (2021)	All
Employment shares by 6 NACE sectors	1990	ARDECO	Missing in UK and CH
Employment shares by 3 sectors	1990	Rosés-Wolf-database, version 6 (2020)	UK and CH
Vote shares	1990-1994	European NUTS-Level Election Database, (Schraff et al., 2023)	All
Party positions	1990-1994	V-Dem Party Dataset (Lindberg et al., 2022)	All

Notes: * GDP data for Ireland is not divided by regions but the GDP per capita of the whole of Ireland is used instead; GDP for BE1 (Brussels) is proxied as the GDP per capita of BE10 (Brussels) + BE24 (Flemish Brabant) + BE31 (Walloon Brabant), while the GDP for BE2 and BE3 is proxied as the GDP per capita of BE2 (BE3) without BE24 (BE31). In the rest of the regional controls, "All" countries refer to all countries and NUTS regions in the sample; UK = United Kingdom; CH = Switzerland. Employment shares by industries were missing in 6 regions for Germany, so 1991 data was used.

Figure A.1. Baseline shares and aggregate flows in 138 NUTS regions



(a) Share of foreign-born population, 1991



(b) Aggregate immigrant inflow, 2001-2022

Notes: 1991 data retrieved by Alesina et al. (2021) from countries' census and population registers of 1991, darker blue denotes larger fraction of foreign-born population out of total population in region. 2001-2022 data obtained from EU-LFS and national statistics offices when missing. Darker blue denotes greater aggregate growth of immigrant population, computed as the difference in regional stocks between 2022 and 2001. Due to missing data, Italy's aggregate growth corresponds to the stocks difference between 2022 and 2005; in Ireland 2002-2022; and in the UK 2001-2020.

Appendix B: Additional Results

Table B.1. Main specification, by group subsamples

Dep. var = Pro migration index	(1) Natives	(2) 1st gen.	(3) 2nd gen.
Panel A: OLS			
Mig.share	-0.151***	-0.175**	-0.136***
	(0.037)	(0.080)	(0.051)
Panel B: Reduced Form			
Share × Flow	-0.107***	-0.172***	-0.108***
	(0.040)	(0.057)	(0.040)
Panel C: 2SLS			
Mig.share	-0.493**	-0.800***	-0.514***
	(0.190)	(0.249)	(0.181)
KP F-stat	17.162	18.590	14.868
Dep. var = Mig.share			
Panel D: First stage			
Share × Flow	0.218***	0.215***	0.211***
	(0.053)	(0.050)	(0.055)
Observations	201131	19545	15325
Individual controls	X	X	X
Year FE	X	X	X
Baseline controls × year	X	X	X
Region FE	X	X	X

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. Results from OLS (panel A), reduced form (panel B) and 2SLS (panel C) regressions with pro immigration index as dependent variable over the regional immigrant shares. Panel D report results from first stage regressions of the shift-share instrument over the regional immigrant shares as the dependent variable. Each column restricts the sample to different immigrant-status of the respondents: natives, first-generation, and second-generation immigrants. The reported F-stats are the Kleibergen-Paap rk Wald F statistic. Natives are respondents who were born in the country and both parents born in the country of residence; first-generation are respondents who were born in another country; second-generation are respondents who were born in the country of residence, with at least one parent born in another country. All columns include NUTS region fixed effects; ESS year fixed effects; year dummies interacted with regional controls at baseline: ln of total population and the ln of GDP per capita in PPP in 1990; and all individual controls: gender, age, age squared, years of education, dummies for 9 occupations, dummy for urban type of domicil, years since arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. The total number of observations across the sub-samples does not sum perfectly to the pooled sample count because singleton observations are automatically dropped within the fixed effects groups - groups that had more than only one observation in the pooled sample (5 observations in the native sample, 15 in first-generation, and 48 in second-generation).

Table B.2. First stages of main regression

	(1)	(2)	(3)	(4)	(5)
Panel A: Dep. var = Mig.share					
Share × Flow	0.259***				
	(0.054)				
1st gen. × Share × Flow	0.009				
	(0.007)				
2nd gen. × Share × Flow	0.017*				
	(0.009)				
F-stat (instrument)	23.127				
Panel B: 1st gen. × Mig.share					
1st gen. × Share × Flow	0.902***	0.906***	0.952***	0.867***	0.217***
	(0.077)	(0.077)	(0.085)	(0.071)	(0.051)
Share × Flow	-0.089***				
	(0.016)				
2nd gen. × Share × Flow	0.001	0.007	-0.001	0.004	0.001
	(0.006)	(0.007)	(0.008)	(0.007)	(0.006)
F-stat (1st gen. × instrument)	138.221	138.872	125.806	149.721	18.142
Panel C: 2nd gen. × Mig.share					
2nd gen. × Share × Flow	0.890***	0.883***	0.925***	0.852***	0.215***
	(0.056)	(0.060)	(0.069)	(0.054)	(0.054)
Share × Flow	-0.054***				
	(0.012)				
1st gen. × Share × Flow	-0.010	-0.012	-0.017**	-0.010	0.003
	(0.009)	(0.008)	(0.008)	(0.007)	(0.004)
F-stat (2nd gen. × instrument)	252.131	218.790	182.033	251.741	15.719
Observations	236069	236069	236069	236069	236069
Individual controls	X	X	X	X	X
Year FE	X				
Region FE	X				
Region-year FE		X	X	X	X
Year-group FE			X	X	X
Baseline controls×year×group				X	X
Region-group FE					X

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. First stage results of the 2SLS estimation reported in Table 1. Panel A shows results for the outcome of regional migrant shares; in panels B and C the outcomes are migrant share interacted with first- and second-generation migrants, respectively. The first stage of each instrument is conditioned on all other instruments included in the model. The reported F-stats refer to the Sanderson-Windmeijer F-stats for joint significance. All columns include individual controls: gender, age, age squared, years of education, dummies for 9 occupations, dummy for urban type of domicil, years since arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. Region fixed effects refer to NUTS regional level. Year fixed effects refer to ESS survey years. Group fixed effects refer the respondent immigrant status as either native, first-generation, or second-generation immigrant. Regional controls include the ln of total population and the ln of GDP per capita in PPP in 1990.

Table B.3. Attitudes gap by alternative outcomes

Dep var. =	(1) Mig. make country better	(2) Mig. good for economy	(3) Mig. enrich cultural life	(4) Pro EU unif.	(5) Pro redis.	(6) Political left
Panel A. Full sample: inconsistent across outcomes						
1st gen. × Mig.share	-0.408***	-0.372**	-0.268*	-0.491**	-0.230	-0.121
	(0.130)	(0.145)	(0.143)	(0.208)	(0.181)	(0.123)
2nd gen. × Mig.share	-0.220	-0.343**	-0.090	-0.158	-0.096	-0.144
	(0.163)	(0.168)	(0.148)	(0.214)	(0.152)	(0.180)
Observations	236069	236069	236069	185267	234088	220611
F-stat (1st gen. × Mig.)	19.448	19.448	19.448	14.849	19.343	19.496
F-stat (2nd gen. × Mig.)	15.923	15.923	15.923	13.827	15.812	15.599
Panel B. Restricted sample: consistent across outcomes						
1st gen. × Mig.share	-0.336**	-0.391**	-0.066	-0.537**	-0.168	-0.302*
	(0.162)	(0.185)	(0.170)	(0.222)	(0.221)	(0.165)
2nd gen. × Mig.share	-0.209	-0.411*	-0.018	-0.163	-0.031	-0.101
	(0.185)	(0.215)	(0.180)	(0.223)	(0.188)	(0.192)
Observations	174119	174119	174119	174119	174119	174119
F-stat (1st gen. × Mig.)	14.469	14.469	14.469	14.469	14.469	14.469
F-stat (2nd gen. × Mig.)	13.574	13.574	13.574	13.574	13.574	13.574
Individual controls	X	X	X	X	X	X
Region-year FE	X	X	X	X	X	X
Year-group FE	X	X	X	X	X	X
Baseline controls×year×group	X	X	X	X	X	X
Region-group FE	X	X	X	X	X	X

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. Results from 2SLS regressions with the preferred specification from column 5 of Table 1, each column regress on a different outcome variable. Panel A uses the full available sample for each outcome, while panel B restrict all columns to a consistent sample where all outcomes are available. Columns 1 to 3 looks at separately at the components of the pro-migration index: in column 1 the question asks how much immigrants make country worse or better place to live; in column 2 it asks how much immigration is bad or good for the country's economy; and in column 3 how much does the country's cultural life undermined or enriched by immigrants. Column 4 to 6 look at other questions: column 4 asks about the attitude to EU unification; column 5 asks about attitudes to redistribution; and column 6 is a self-placement question on a right to left political scale. In all outcomes, the values were rescaled such that higher values mean more pro immigration or to attitudes traditionally considered left-leaning; and standardized to have mean 0 and standard deviation of 1. For a the exact wording of the questions see Table A.2. All columns include region-by-year, group-by-year and group-by-region fixed effects, and all individual controls: arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. The reported F-stats are the Sanderson-Windmeijer F statistic suggested by Sanderson & Windmeijer (2016) for multiple endogenous variables, obtained from the separate first stages of each instrument conditional on the other instrument and the rest of the controls and fixed effects in the corresponding model.

Table B.4. 2SLS: Heterogeneity analysis by origin, first-gen. migrants

Dep. var = Pro migration index	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A. Main sample	All	Low-skill	High-skill	Low-educ	High-educ	Non-OECD	OECD	Non-EU	EU	YSA < 20	YSA > 20
Non-EU ratio	-0.495	-0.172	-0.688	-0.237	-0.919	-0.376	-0.790	-0.426	-1.141	-0.634	-0.426
	(0.943)	(1.266)	(0.897)	(1.621)	(0.818)	(0.655)	(2.397)	(0.598)	(2.890)	(0.642)	(1.399)
p diff.		0.740		0.708		0.868		0.809		0.892	
KP F-stat	1.748	1.520	2.010	1.435	1.761	3.636	0.393	4.278	0.234	2.481	1.207
Weak IV Robust 95% CI	entire grid	entire grid	entire grid	entire grid	entire grid	[-2.256, ...]	entire grid	[-1.860, ...]	entire grid	entire grid	entire grid
Observations	14344	8378	5882	3864	10391	8170	6218	8690	5697	5875	8398
Panel B: Non-consistent sample: includes regions with no data on migration by skill											
Non-EU ratio	0.022	0.161	-0.054	-0.013	-0.060	-0.004	0.109	-0.197	0.281	-0.128	0.063
	(0.527)	(0.596)	(0.500)	(0.717)	(0.499)	(0.474)	(0.619)	(0.380)	(0.837)	(0.358)	(0.689)
p diff.		0.783		0.957		0.885		0.605		0.806	
KP F-stat	9.282	9.307	9.644	8.566	9.186	8.441	7.764	8.952	7.353	11.762	7.425
Weak IV Robust 95% CI	[-.928, 1.331]	[-.797, 1.467]	[-1.220, 1.218]	[-1.066, 1.257]	[-1.117, 1.253]	[-.881, ...]	[-1.326, 1.884]	[-.870, 1.224]	[-1.790, 2.878]	[-.823, .623]	[-1.029, 2.118]
Observations	15274	8922	6265	4166	11025	8592	6728	9155	6164	6249	8953
Individual controls	X	X	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X	X	X
Baseline controls × year	X	X	X	X	X	X	X	X	X	X	X
Region FE	X	X	X	X	X	X	X	X	X	X	X

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. Results from 2SLS regression of pro migration index over the sample of first-generation migrant respondents. All columns include year (ESS rounds) fixed effects, NUTS regional fixed effects, year dummies interacted with regional controls at baseline period of 1990: ln of total population and the ln of GDP per capita in PPP in 1990. Column 1 includes all first-generation respondents and includes all individual controls: gender, age, age squared, years of education, dummies for 9 occupations, dummy for urban type of domicil, years since arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. Columns 2 and 3 restrict to only respondents working in low-skilled occupations (skill levels 1-2) to high-skilled occupations (skill levels 3-4), as defined by the International Standard Classification of Occupations (ISCO-08), and excludes the occupation dummies from the individual controls. Columns 4 and 5 restricts to respondents with primary educational attainment (ISCED0-2, equivalent to non high-school graduates) or above primary (ISCED3-8), respectively, and exclude years of education from the individual controls. Columns 6 and 7 restricts to only respondents who were born in an OECD country (defined as members as of 2000), or in a non-OECD country, respectively, and exclude the dummies for the country of birth of the respondent and her parents from the individual controls. Columns 8 and 9 restricts the sample to respondents who arrived to the country 6 to 20 years ago, or those who arrived more than 20 years ago, respectively, and exclude the years since arrival from the individual controls. Panel A shows the results for the instrumented ratio of non-EU migrants out of total migrants (EU refers to the 27 member states of the European Union as of 1 February 2020) over the same sample of Table 2. Panel B replicates these results over an extended sample that includes observations which has no data on local migration by skill and were dropped for the sake of consistency with Table 2. Full description of the instruments is reported in Appendix D. Weak IV robust 95% confidence intervals are Anderson–Rubin confidence sets, as recommended by Andrews et al. (2019), calculated using Finlay et al. (2013)'s *weakiv* STATA package. The reported F-stats are the Kleibergen-Paap rk Wald F statistic.

Table B.5. Different cutoffs of years since arrival, 1st gen. subsample

Dep. var = Pro migration index	(1)	(2)	(3)	(4)	(5)
Panel A.	$0 < YSA < 20$	$YSA > 20$	$6 < YSA < 10$	$0 < YSA < 10$	$YSA > 10$
Mig.share	-0.385*	-0.707***	-0.624	-0.444	-0.713***
	(0.227)	(0.264)	(0.541)	(0.353)	(0.240)
Weak IV Robust 95% CI	[-.962, .080]	[-1.564,-.305]	[-1.640, .444]	[-1.143, .410]	[-1.520,-.336]
p diff.	0.357		0.881	0.530	
KP F-stat	12.808	17.622	11.832	10.520	16.209
Panel B.					
Low-skill to Total ratio	-0.069	0.085	-0.093	-0.066	0.028
	(0.048)	(0.059)	(0.112)	(0.069)	(0.056)
Weak IV Robust 95% CI	[-.193,-.009]	[-.0330, .178]	[-.286, .142]	[-.189, .081]	[-.082, .126]
p diff.	0.045		0.341	0.296	
KP F-stat	101.371	126.873	46.418	64.017	132.634
Panel C.					
Non-EU to Total ratio	-0.050	-0.054	0.155	0.127	-0.151
	(0.372)	(0.636)	(0.791)	(0.627)	(0.495)
Weak IV Robust 95% CI	[-.743, .822]	[-1.108, 1.665]	[-.988, 1.893]	[-.698, 2.004]	[-1.060, 1.015]
p diff.	0.995		0.744	0.728	
KP F-stat	11.592	7.976	9.312	7.872	9.687
Observations	8391	8898	2219	4420	12876
Individual controls	X	X	X	X	X
Year FE	X	X	X	X	X
Baseline controls × year	X	X	X	X	X
Region FE	X	X	X	X	X

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. 2SLS results replicating columns 8 and 9 in Table 2 and columns 10 and 11 of panel A in Table B.4, but splitting the sample by different cutoffs of years since arrival to the country. Columns 1 an 2 restricts the sample to respondents who arrived less or more than 20 years ago, respectively. The p-value in column 1 come from two-sided t-test of equality of the coefficients across columns 1 and 2. Column 3 looks at respondents who arrived 6 to 10 years ago, column 4 restricts to those who arrived less than 10 years ago. The p-value reported in those columns refer to the equality test for the difference between the respective column and column 5 which restricts to respondents who arrived more than 10 years ago. All columns uses the sub-sample of first-generation migrants only, and include year (ESS rounds) fixed effects, NUTS regional fixed effects, year dummies interacted with regional controls at baseline period of 1990: ln of total population and the ln of GDP per capita in PPP in 1990. Panel A shows the effect of the main instrumented migration shares variable; panel B uses the instrumented ratio of low-skilled (similarly defined as ISCED0-2) migrants out of total migrants; and, panel C the results for the instrumented ratio of non-EU migrants out of total migrants (EU refers to the 27 member states of the European Union as of 1 February 2020). Full description of the instruments is reported in Appendix D. Weak IV robust 95% confidence intervals are Anderson-Rubin confidence sets, as recommended by Andrews et al. (2019), calculated using Finlay et al. (2013)'s *weakiv* STATA package. The reported F-stats are the Kleibergen-Paap rk Wald F statistic.

Appendix C: Robustness Checks

Correlates of 1990 origin country shares. Following Goldsmith-Pinkham et al. (2020) we compute the Rotemberg weights associated with the shares of each origin country in the shift-share instrument and test for correlations with pre-existing regional characteristics. Correlations with observable controls will raise concerns for violating the exclusion restriction, as it indicates that the historical settlement patterns (the "shares") might be correlated with other non-observable local conditions that could have set the regions on different trends that are correlated with the error term.

Consistent with our identification strategy that exploits policy-driven variation in migration flows, we find that the main drivers of our shift-share instrument originate in 2004 and 2007 EU accession countries, with 4 out of the top 6 Rotemberg weights being accession countries (Romania, Czechoslovakia, Bulgaria and Hungary) and jointly account for half of the positive weights. [19] This finding strengthens the argument that the shocks driving the variation of our instrument are plausibly exogenous to local economic conditions.

Yet, exogeneity of the shocks is not sufficient alone for identification if the exposure shares are endogenous. Thus, Table C.1 shows the correlations of a set of regional economic and political characteristics at the baseline period of 1990 with the top-15 Rotemberg weights origin countries. We show all origins that account for at least 1 percent of the positive weights, accounting together for 92 percent. The regional baseline observables include: log population, log GDP, employment shares by 6 sectors, and the vote share to parties classified as opposing migration.

The shares of the top-Rotemberg origins are positively correlated with higher shares in the industry sectors and lower shares in the construction sectors, and with higher vote shares to anti-immigration parties. This implies being more cautious regarding the exclusion restriction of the instrument, as it could be correlated with the pre-existing local labor market structure and political conditions, which may determine future outcomes.

We partly deal with that with our fixed effects structure, for which the only source of bias might come from group-specific local shocks. As such, the results would be biased only if the pre-existing local conditions set regions on different trajectories that are also immigrant status group-specific.

Nevertheless, for this reason, we control for baseline regional log GDP and log population interacted with group-by-year fixed effects; and in a further robustness check, we add the sectoral employment shares in the industry and construction sectors and anti-immigration vote shares to rule out differences by observable baseline factors that were found correlated with the origin shares.

Exposure-robust standard errors. Recent literature formalizes the identification assumptions required in shift-share instruments and distinguishes between designs that leverage many exogenous shifts for identification (Adao et al. (2019), Borusyak et al. (2022)) and designs that draw their exogeneity from the baseline shares (Goldsmith-Pinkham et al. (2020)). Exploiting the policy-driven inflow shocks from the EU accessions, our approach belongs to the exogenous shifts case. As such, region-year cells with similar local origin shares at 1990 are exposed to the same exogenous aggregate inflows, and thus they may have correlated errors due to similar exposure to unobserved shocks. Therefore, this section applies Adao et al. (2019)'s alternative variance estimator which yields corrected shift-share 2SLS standard errors that are exposure-robust.

The `R` *ShiftShareSE* package, developed by Adao et al. (2019), imposes two limitations on the implementation of the method in our setting. First, it requires no collinear shares in the share matrix, which do exist in our instrument. We follow their suggested solution and aggregate the

[19] Slovenia which in 1990, when we obtain the shares, was part of former-Yugoslavia also joined the EU in 2004.

origin countries into broader groups of origins, and re-construct a new version of the shift-share instrument in which the origins are defined as the broader groups. For the grouping of the countries we follow Moriconi et al. (2022) and define 13 broad origin regions. [20]

The second limitation is that the package is not accommodated for the multiple endogenous variables case of our main specification, which includes two endogenous interaction terms. As an alternative, we present the exposure-robust standard errors for the main 2SLS regressions by each group sub-sample, and for two regressions that include each interaction term separately. Since our main specification includes region-by-year fixed effects which capture the average effect of the local migrant shares across groups, it allows us to estimate each separate interaction term as a single endogenous variable with a single instrument.

Our design leverages 11 periods and 13 shocks (from each origin region), resulting in 143 year-specific shocks by which the standard errors are clustered in the separate group sub-samples models; or 286 year-group specific shocks in each interaction model, resulting from having only two groups in each interaction model due to the above mentioned limitation.

To align with the exogenous shifts literature (Adao et al. (2019), Borusyak et al. (2022), Borusyak et al. (2025)), we explicitly define our share component as $s_{or} = \frac{Mig_{or,1990}}{Pop_{r,1990}}$ and our shift component as $g_{ot}^{-c} = \frac{Mig_{ot}^{-c} - Mig_{o,1990}^{-c}}{Mig_{o,1990}}$. Defining the components in this manner does not alter the underlying construction of our instrument, which can be seen by simply rearranging the expression of our main instrument as follows:

$$\widehat{Mig.share}_{rt} = \frac{Mig_{r,1990}}{Pop_{r,1990}} + Z_{rt}, \quad \text{with:} \quad Z_{rt} = \frac{1}{Pop_{r,1990}} \sum_o \frac{Mig_{or,1990}}{Mig_{o,1990}} (Mig_{ot}^{-c} - Mig_{o,1990}^{-c})$$

$$Z_{rt} = \sum_o \frac{Mig_{or,1990}}{Pop_{r,1990}} \frac{(Mig_{ot}^{-c} - Mig_{o,1990}^{-c})}{Mig_{o,1990}}$$

This rearrangement makes it evident that our baseline shares do not sum to 1 across origins within each region; instead, they sum up to the local migrant shares at 1990. When the shares do not sum up to 1, the instrument becomes a weighted sum of the shifts instead of a weighted average. Then, observations in regions with a larger sum of shares are mechanically associated with larger instrument values. This may introduce bias if the sum of shares is correlated with the error term. To account for this "incomplete shares" problem, in panel settings with time-varying shifts like ours, Borusyak et al. (2025) recommend controlling for the sum of shares interacted with period fixed effects $S_{rt} = \sum_o s_{or,1990}\delta_t$, which we add in the group sub-samples models. In our preferred interaction specification, the region-by-year fixed effects (δ_{rt}) perfectly absorb the interaction of the sum of shares and period dummies (S_{rt}), thereby satisfying the core requirement of the exogenous shifts framework for incomplete shares.

Table C.2 reports these results. Columns 1 to 3 in panel A show the 2SLS regression results from each group sub-sample separately, with region and year fixed effects, as well as baseline regional controls interacted with year dummies, and the baseline regional sum of shares interacted with year dummies to account for the potential bias from the "incomplete shares". Compared to the main sub-sample regressions in column 4 of Table B.1, the coefficients are more than twice larger. The

[20]The origin regions are: EU15 and EFTA; A8 (countries that joined the EU in 2004); A2 (Romania and Bulgaria who joined the EU in 2007); Other Europe (including Armenia and Georgia); North Africa; Other Africa; Middle East (including Azerbaijan, Turkey, Afghanistan, and Pakistan); Central and East Asia; South and South East Asia; North America; Central America and the Caribbean; South America, Australia and Oceania and other. Moriconi et al. (2022) group EU15 and EFTA separately, however, for coherence with our sample of analysis, we choose to group them together because Norway and Switzerland are part of our sample of destination countries, similar to most of the EU15 countries.

difference between the first- and the second-generation immigrants is approximately 64% which is similar to the main sub-samples regressions and the effect remains significant among the immigrant groups, even after controlling for the sum of shares. This holds when adjusting either to the regional clusters (in parentheses) and to the exposure-robust standard errors. The Adao et al. (2019) method does not allow to compute exposure-robust F-statistics, so instead we report the first stages which are significant in both groups with the exposure-robust standard errors, but not for clustering at the regional level among the first-generation. In contrast with the migrant respondents, among the natives, the inclusion of the sum of shares controls yields a weak first stage with both types of standard errors, and the gap to the first-generation effect shrinks and is not precisely estimated.

In columns 4 and 5, we do not control for the sum of shares interacted with year dummies, because we add the region-by-year fixed effects. The coefficients remain very similar in size to the main results of the preferred specification, even when estimated in separate regressions because of the package's limitations. Reassuringly, the exposure-robust standard errors of the first-generation differential are slightly larger but remains statistically significant. Similarly, for the second-generation differential, the standard errors are similar in both standard errors options, and the effect remains not significant as in the main results.

At last, column 6 presents the main specification results with both interaction terms estimated in the same regression, but using the adjusted shift-share instrument which is constructed from the 13 origin regions. The results are very similar in size and statistical significance to the results obtained with the baseline instrument, indicating that the differences in results in this table are not driven by the alternative instrument construction.

Additional baseline regional controls. Our main estimation controls for baseline regional log GDP per capita and log population interacted with group-by-year fixed effects to account for initial regional conditions that differentially affect groups over time, for example if urbanization and economic growth may affect immigrants more than natives.

Table C.3 extends the set of baseline regional controls and includes all observables which were found to be significantly correlated with the top-Rotemberg weights origin shares in the diagnostics Table C.1. On top of local GDP and population we control for baseline regional employment shares in the industry and construction sectors, and regional vote shares to parties classified as opposing immigration, capturing any group-specific evolutions that might be correlated with the pre-existing employment structure and political conditions.

The table re-estimates the OLS, reduced form and 2SLS regressions using the main specification which includes all region-by-year, group-by-year and group-by-region fixed effects, together with all individual controls. In columns 1-3 we add the employment shares in the industry and construction sectors separately interacted with group-by-year dummies. This increases the magnitude of of the differential effect among the first-generation immigrants, which stems from a similar increased effect in the reduced form. Columns 4-6 adds the vote shares to anti-immigration parties, and the results remain very similar. Reassuringly, adding all baseline observables does not change qualitatively the results for either the first- or second-generation immigrants.

Additional individual level controls. The main specification in Table 1 includes the individual controls: gender, age, age squared, years of education, dummies for 9 occupations, dummy for urban type of domicil, years since arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent.

In this robustness check we extend the set of individual controls to include household income decile, marital status and a dummy for having children under 18 at home, which were excluded because many respondents did not answer these questions. We also add citizenship status, which was originally excluded because of concern that is endogenous to the migrant status and, conditional on the rest of our controls, its inclusion might risk absorbing part of the heterogeneity we aim to capture.

Table C.4 reports the OLS, reduced form and 2SLS results for the main specification. Columns 1-3 show the results with the main set of individual controls but limited to the subsample where the extended set of individual controls are available, and columns 4-6 add the extended set of individual controls. The results remain qualitatively similar, but with an increased magnitude in the coefficients for both first and second generation immigrants. This seems to be driven by the limited sample, rather than an omitted variable bias, as the results are very similar between columns 1-3 and columns 4-6.

Alternative instrument using 2000s baseline shares. The shift-share instrument in our main analysis constructs the "share" term using the settlement patterns of immigrants as of 1990. Choosing the baseline year for the shares posits a trade-off between better claim for exogeneity, the further in the past the historical patterns are; while more recent shares increase the relevance of the instrument. In addition, there might be origin countries that had no shares at all at the baseline period, and therefore the instrument will not vary by inflow shocks from those origins. To ensure that our results are not driven by a weak instrument or a limited variation due to the choice of 1990 shares, Table C.5 re-constructs the instrument with regional shares by origin countries as of 2001, obtained from the 2001 censuses. The table re-estimates all specifications of the main results in Table 1 and reports the OLS, reduced form and 2SLS regression results. As expected, we find stronger F-statistics for the first stages which lead to smaller coefficients in the 2SLS results, most prominently in the preferred specification of column 5. The reduced form remains almost unchanged and, reassuringly, the pattern of the results remains qualitatively similar.

Different clusters. Our main results cluster standard errors at the NUTS regional level to account for serial correlation, following conventional practice in studies most similar to ours with a shift-share design that varies at the region-year level with individual-level observations within region-year cells (see Moriconi et al. (2022), Edo et al. (2019)).

Table C.6 checks if the estimates remain robust to alternative clustering options, showing OLS, reduced form and 2SLS results of our main specification.

For baseline comparison, column 1 has no cluster and column 2 uses heteroskedasticity-robust standard errors. Column 3 is the main estimation which clusters at the region-level. We find that the first-stage F-stats are highly sensitive to region-clusters, which is expected since the shift-share instrument is serially correlated by construct through the invariant regional "share" component.

Errors might also be spatially correlated, especially in the exogenous shifts approach. Regions that share the same local exposure weights experience similar aggregate shocks and hence would be correlated within-year across regions. In time-series with only one shock, Borusyak et al. (2025) recommend cluster errors at the time level. Our case is a panel setting, and therefore it is more adequate to cluster at the shock level (see previous paragraph), nevertheless, as a robustness check column 4 clusters errors by year. We additionally report the confidence intervals at the 95 percent level, computed by using the wild bootstrap method, to adjust the confidence intervals for having too few clusters (11 periods). Column 5 uses a two-way clustering by region and ESS year. The first-generation differential remains robust in both specification, while in column 5 the second-generation effect becomes significant as well.

Moreover, for similar reasons, studies often cluster at a broader geographic level than the level of variation of the treatment (see Mayda et al. (2022), Autor et al. (2013), Tabellini (2020)), to account for within-country spatial correlation between regions and for serial correlation at the country-level. We test it in column 6, where we cluster by country, and in column 7, by country and year. Given the relatively small number of clusters (15 countries and 11 periods), we additionally report confidence intervals based on wild cluster bootstrap in both specifications. The results remain robust for these specifications as well.

In column 8 we cluster by country of birth of the respondents, and column 9 uses two-way clustering with country of birth and region. In this way, column 8 accounts for respondent-level correlation between immigrants from similar origins who live in different regions or respond in different years; and column 10 accounts for both similar-origin and within-region correlations. We again find stronger F-statistics in column 8, as in other cases that do not adjust for regional clusters, and similar standard errors in both specifications.

Finally, in columns 10-12 we account for potential spatial spillovers between geographically proximate regions, and use the Conley (1999) procedure for adjusting errors to different geographic lags. We cluster at the 50km, 100km, and 150km cutoffs to approximate the average centroid-to-centroid distances of adjacent regions at the NUTS3 (50 km), NUTS2 (100 km), and NUTS1 (150 km) levels. Although these values are somewhat ad hoc, they are motivated by the spatial scale of administrative regions. Again, we find very similar standard errors, but smaller F-stats for the first stages.

Cluster by baseline shares of immigrants by origin. After we tried a variety of options to cluster the standard errors, in Table C.7 we follow the approach of Moriconi et al. (2022) in response to the Adao et al. (2019) concern. As previously explained, errors might be clustered by groups of regions with similar historical shares, which evolve similarly. Therefore, each column in the table cluster the standard errors at regional level after grouping regions by deciles of the baseline migrants shares of the top 6 origin countries with highest Rotemberg weights. Reassuringly, the 2SLS estimated differential effect among the first-generation immigrants remains significant across all origin shares, with mostly smaller standard errors. However, based on the wild bootstrapped confidence intervals, the second-generation differential becomes statistically significant when clustering by deciles of the baseline shares from Romania, Czechoslovakia, and Hungary. Together with the results from Table C.6, these findings suggest that inference for the second-generation differential is sensitive to the choice of standard error adjustment. Since our preferred clustering approach, as well as the majority of alternative approaches, lead to a null result, we interpret the overall evidence as providing limited support for a second-generation differential effect.

Differential Sorting. A remaining possibility is that the relative decline in pro-migration attitudes among migrants reflects compositional change rather than preference updating. If migrants with systematically different views toward immigration are more likely to move into, remain in, or exit regions with high immigrant concentration, average attitudes among resident migrants could fall even in the absence of within-individual attitude change. To assess this channel, we examine whether exposure to newcomers predicts differential mobility and local tenure for migrants relative to natives, and whether such patterns vary by respondents' baseline stance toward immigration, using information on recent moves and length of residence from the 2002 wave of the ESS.[21] Since this information is only available in the cross-section, we estimate the 2SLS specification with in-

[21] We use the question item: "How long have you lived in this area?" with the answer being the number of years. The question exists only in ESS wave of 2002, and we code respondents who answered 2 or less as respondents who moved to the area in 2000 or later. See Supplementary Table A.2 for full detail of all questions used as outcomes.

dividual controls, region fixed effects as well as baseline controls interacted with group fixed effects and use the predicted migrant share in 2000 as the main treatment variable.

The results reported in Table C.8 provide little support for a sorting-based explanation. Column 1 shows a small negative estimated coefficient on the probability that immigrants move to regions with higher immigrant shares than natives, and column 2 shows that there is a differential positive impact on the duration of residence in the area. However, these differential patterns in mobility have no systematic heterogeneity by pro-migration attitudes. Columns 3 and 4 as well as columns 5 and 6 split the sample in above and below median pro-migration attitudes. For both outcomes, the coefficients between the samples are not statistically different from each other, suggesting that neither the mobility nor the duration of residence of migrants change differentially among migrants who initially had different views on migration.

Table C.1. Correlates of origin country shares with baseline regional characteristics

Dep. var =	(1) ROU	(2) YUG	(3) CZE	(4) HUN	(5) ALB	(6) BGR	(7) DEU	(8) CHN	(9) IRQ	(10) POL	(11) UKR	(12) PAK	(13) TUR	(14) RUS	(15) CHE	(16) SSIV
ln(Population)	-0.000	-0.003*	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000*	-0.000	0.000	0.000	-0.001	-0.000	0.000	-0.014*
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.008)
ln(GDP per capita)	-0.000	0.000	0.000	-0.000	0.000	-0.000	-0.002	0.000	-0.000	0.000	0.000	0.000	-0.000	0.000	0.000	0.007
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.008)
A Agriculture emp. sh.	-0.002	-0.029	-0.004	-0.002	0.000	-0.000	-0.009	-0.001	-0.002***	-0.021***	-0.001***	-0.004	-0.039***	-0.002**	0.004	-0.171*
	(0.003)	(0.018)	(0.004)	(0.003)	(0.000)	(0.000)	(0.012)	(0.001)	(0.000)	(0.007)	(0.000)	(0.002)	(0.014)	(0.001)	(0.003)	(0.095)
B-E Industry emp. sh.	0.006**	0.033**	0.006**	0.003	0.000	0.001**	0.009	-0.000	-0.001***	0.003	0.000	-0.002	0.011	0.001	0.000	-0.037
	(0.002)	(0.015)	(0.003)	(0.002)	(0.000)	(0.000)	(0.010)	(0.001)	(0.000)	(0.005)	(0.000)	(0.002)	(0.012)	(0.001)	(0.003)	(0.078)
F Construction emp. sh.	-0.012**	-0.024	-0.011*	-0.007	-0.001**	-0.002***	-0.000	-0.004***	-0.000	-0.022*	-0.001*	0.005	-0.050**	-0.003*	-0.002	-0.660***
	(0.005)	(0.030)	(0.006)	(0.004)	(0.000)	(0.001)	(0.020)	(0.001)	(0.001)	(0.011)	(0.001)	(0.004)	(0.023)	(0.002)	(0.005)	(0.160)
G-J Services emp. sh.	0.003	0.024	0.002	0.002	0.000	0.001	0.010	0.001	-0.003***	-0.009	-0.000	0.001	0.007	-0.001	0.006	0.072
	(0.003)	(0.022)	(0.004)	(0.003)	(0.000)	(0.000)	(0.014)	(0.001)	(0.001)	(0.008)	(0.000)	(0.003)	(0.017)	(0.001)	(0.004)	(0.114)
K-N Services emp. sh.	0.000	0.001	0.001	0.000	-0.000	0.000	0.019*	0.006***	0.003***	0.005	0.001*	0.002	0.026**	0.001	-0.005	0.364***
	(0.003)	(0.017)	(0.003)	(0.002)	(0.000)	(0.000)	(0.011)	(0.001)	(0.000)	(0.006)	(0.000)	(0.002)	(0.013)	(0.001)	(0.003)	(0.088)
O-U Services emp. sh.	-0.001	-0.012	-0.001	-0.000	0.000	-0.000	-0.018**	-0.002***	-0.001	0.002	-0.000	-0.000	-0.030***	-0.000	-0.001	-0.060
	(0.002)	(0.013)	(0.003)	(0.002)	(0.000)	(0.000)	(0.009)	(0.001)	(0.000)	(0.005)	(0.000)	(0.002)	(0.010)	(0.001)	(0.002)	(0.070)
Anti-mig. vote share	0.002**	0.007	0.003**	-0.000	-0.000	0.000	0.002	-0.000	-0.000***	0.009***	0.000***	-0.001	0.011**	0.001***	-0.000	0.030
	(0.001)	(0.007)	(0.001)	(0.001)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.002)	(0.000)	(0.001)	(0.005)	(0.000)	(0.001)	(0.035)
Observations	138	138	138	138	138	138	122	138	138	138	138	138	138	138	138	138
R-squared	0.157	0.146	0.121	0.051	0.075	0.122	0.250	0.712	0.471	0.284	0.295	0.283	0.255	0.263	0.088	0.413
$\hat{\alpha}_k$	0.238	0.154	0.112	0.087	0.074	0.065	0.047	0.032	0.023	0.020	0.016	0.015	0.012	0.012	0.012	-

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. Region-level regression results of the regional share of immigrants from an origin country out of total baseline population, on all regional characteristics, all measured at 1990. Each column shows the results for a different origin country: Romania, Yugoslavia, Czechoslovakia, Hungary, Albania, Bulgaria, Germany, China, Iraq, Poland, Ukraine, Pakistan, Turkey, and Switzerland. Column 16 shows the correlates with the main shift-share instrument as of 2000. German regions are excluded from the estimation of German immigrant shares. $\hat{\alpha}_k$ is the origin's Rotemberg weight computed by Goldsmith-Pinkham et al. (2020)'s STATA package bartik_weight.

Table C.2. Exposure-robust standard errors

Dep. var = Pro mig. index	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Natives	1st gen.	2nd gen.	Nat + 1st. Gen.	Nat + 2nd gen.	Full
Panel A: 2SLS						
Mig.share	-1.580	-1.865	-1.140			
	(1.516)	(1.100)	(0.678)			
1st gen. × Mig.share				-0.368		-0.389
				(0.149)		(0.146)
2nd gen. × Mig.share					-0.211	-0.252
					(0.173)	(0.180)
Exposure-robust SE	0.857	0.805	0.554	0.155	0.193	
Exposure-robust 95% CI	[-3.260, 0.100]	[-3.443, -0.287]	[-2.225, -0.055]	[-0.672, -0.065]	[-0.590, 0.168]	
Dep. var = Mig.share / Mig.share × 1st gen. / Mig.share × 2nd gen.						
Panel B: First stage						
Mig.share	0.129	0.220	0.261			
	(0.117)	(0.161)	(0.156)			
1st gen. × Mig.share				0.171		0.172
				(0.047)		(0.047)
2nd gen. × Mig.share					0.176	0.177
					(0.053)	(0.052)
Exposure-robust SE	0.088	0.109	0.110	0.027	0.045	
Exposure-robust 95% CI	[-0.043, 0.300]	[0.006, 0.433]	[0.045, 0.477]	[0.118, 0.225]	[0.088, 0.265]	
Observations	201131	19545	15325	220681	216461	236069
Individual controls	X	X	X	X	X	X
Region FE	X	X	X			
Year FE	X	X	X			
Baseline controls × year	X	X	X			
Sum of shares × year	X	X	X			
Region-year FE				X	X	X
Year-group FE				X	X	X
Region-group FE				X	X	X
Baseline controls × year × group				X	X	X

Notes: Standard errors clustered at the NUTS2 level. Regression results with shift-share instrument constructed from 13 broad groups of origin countries, reporting exposure-robust standard errors and confidence intervals obtained from R package *ShiftShareSE* that implements the method developed by Adao et al. (2019). Panel A reports 2SLS results with pro-migration index as the outcome, and panel B shows first-stage results with local migrant shares as the outcome or the interacted term of migrant shares with the respective immigrant group status. Each column uses a different sub-sample of observations. Column 1 is restricted to the native respondents; column 2 to the first-generation immigrants; and column 3 uses second-generation immigrants only. Column 4 includes natives and first-generation immigrants, and column 5 natives and second-generation immigrants. Column 6 is the full sample that includes all groups. All columns include all individual controls: arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. Columns 1 to 3 include NUTS region and survey year fixed effects, and controls for year dummies interacted with controls at baseline period of 1990: ln of total population and the ln of GDP per capita in PPP in 1990, as well as the local sum of shares by origin at 1990 interacted with year dummies. Columns 4 to 6 are equivalent to the preferred specification of column 5 in Table 1, which includes region-by-year, group-by-year and group-by-region fixed effects, and controls for the baseline regional controls interacted with year-by-group dummies. The total number of observations across the sub-samples does not sum perfectly to the pooled sample count because singleton observations are automatically dropped within the fixed effects groups - groups that had more than only one observation in the pooled sample (5 observations in the native sample, 15 in first-generation, and 48 in second generation).

Table C.3. Robustness check: additional baseline regional controls

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var = Pro mig. index	OLS	RF	2SLS	OLS	RF	2SLS
1st gen. × Mig.share	-0.046		-0.434***	-0.043		-0.440***
	(0.053)		(0.145)	(0.053)		(0.141)
2nd gen. × Mig.share	-0.039		-0.234*	-0.033		-0.243*
	(0.052)		(0.139)	(0.053)		(0.137)
1st gen. × Share × Flow		-0.107***			-0.112***	
		(0.032)			(0.033)	
2nd gen. × Share × Flow		-0.060*			-0.063*	
		(0.035)			(0.034)	
Observations	236069	236069	236069	236069	236069	236069
F-stat (1st gen × Mig.)			20.650			20.942
F-stat (1st gen × Mig.)			20.290			21.116
Individual controls	X	X	X	X	X	X
Region-year FE	X	X	X	X	X	X
Year-group FE	X	X	X	X	X	X
Region-group FE	X	X	X	X	X	X
Main baseline controls×year×group	X	X	X	X	X	X
Industry emp. sh. × year × group	X	X	X	X	X	X
Construction emp. sh. × year × group	X	X	X	X	X	X
Anti-mig vote share				X	X	X

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. Results from regressions specified as in columns 5 in Table 1 with an extended set of regional baseline controls interacted with year-by-group dummies. All columns include main specification regional controls: ln of total population and the ln of GDP per capita in PPP. Columns 1-3 show OLS, reduced form and 2SLS for regressions that add the interaction of year-by-group dumies with regional employment shares in the industry sector (B-E) and with the construction sector (F) both at 1990. Column 4-6 add the year-by-group interaction with regional vote share to anti-immigration parties at 1990s elections (as detailed in Table A.5). All columns include region-by-year, group-by-year and group-by-region fixed effects, and all individual controls: arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. The reported F-stats are the Sanderson-Windmeijer F statistic suggested by (Sanderson & Windmeijer, 2016) for multiple endogenous variables, obtained from the separate first stages of each instrument conditional on the other instrument and the rest of the controls and fixed effects in the corresponding model.

Table C.4. Robustness check: additional individual controls

Dep. var = Pro migration index	(1) OLS	(2) RF	(3) 2SLS	(4) OLS	(5) RF	(6) 2SLS
1st gen. × Mig.share	0.015		-0.847***	0.025		-0.818***
	(0.068)		(0.251)	(0.068)		(0.246)
2nd gen. × Mig.share	-0.037		-0.433	-0.033		-0.435
	(0.065)		(0.293)	(0.066)		(0.291)
1st gen. × Share × Flow		-0.228***			-0.220***	
		(0.049)			(0.047)	
2nd gen. × Share × Flow		-0.106			-0.106	
		(0.079)			(0.078)	
Observations	148028	148028	148028	148028	148028	148028
F-stat (1st gen × Mig.)			23.773			23.781
F-stat (2nd gen × Mig.)			14.874			14.849
Main individual controls	X	X	X	X	X	X
Extended individual controls				X	X	X
Region-year FE	X	X	X	X	X	X
Year-group FE	X	X	X	X	X	X
Baseline controls × year × group	X	X	X	X	X	X
Region-group FE	X	X	X	X	X	X

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. Columns 1 to 3 replicate OLS, reduced-form and 2SLS regression results from the preferred specification of the main results in column 5 of Table 1. The sample is restricted for the observations with non-missing values for the extended set of individual controls which are added in columns 4 to 6, these include: household income decile, dummy for being single, a dummy for having children under 18 at home, and a citizenship dummy. All columns include survey year-by-NUTS region fixed effects, NUTS region-by-group fixed effects, survey year-by-group fixed effects and survey year dummies interacted with regional controls at baseline period of 1990: ln of total population and the ln of GDP per capita in PPP in 1990. The main set of individual controls are also included in all columns: gender, age, age squared, years of education, dummies for 9 occupations, dummy for urban type of domicil, years since arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. The reported F-stats are the Sanderson-Windmeijer F statistic suggested by Sanderson & Windmeijer (2016) for multiple endogenous variables, obtained from the separate first stages of each instrument conditional on the other instrument and the rest of the controls and fixed effects in the model.

Table C.5. Robustness check: alternative SSIV using 2000s baseline shares

Dep. var = Pro migration index	(1)	(2)	(3)	(4)	(5)
Panel A: OLS					
Mig.share	-0.175***				
	(0.033)				
1st gen. × Mig.share	-0.035***	-0.048***	-0.044***	-0.049***	-0.050
	(0.010)	(0.008)	(0.008)	(0.010)	(0.053)
2nd gen. × Mig.share	-0.006	-0.017*	-0.014	-0.016	-0.040
	(0.008)	(0.010)	(0.010)	(0.011)	(0.049)
1st gen. migrant	0.216***	0.219***			
	(0.022)	(0.022)			
2nd gen. migrant	0.100***	0.090***			
	(0.015)	(0.016)			
Panel B: Reduced form					
$\text{Share}_{2000} \times$ Flow	-0.085**				
	(0.036)				
1st gen. × $\text{Share}_{2000} \times$ Flow	-0.045***	-0.064***	-0.059***	-0.068***	-0.082***
	(0.011)	(0.009)	(0.009)	(0.010)	(0.029)
2nd gen. × $\text{Share}_{2000} \times$ Flow	-0.009	-0.017*	-0.012	-0.012	-0.046
	(0.010)	(0.010)	(0.011)	(0.011)	(0.032)
1st gen. migrant	0.220***	0.216***			
	(0.021)	(0.022)			
2nd gen. migrant	0.100***	0.086***			
	(0.015)	(0.015)			
Panel C: 2SLS					
Mig.share	-0.370***				
	(0.135)				
1st gen. × Mig.share	-0.042***	-0.071***	-0.062***	-0.074***	-0.292***
	(0.015)	(0.012)	(0.011)	(0.012)	(0.108)
2nd gen. × Mig.share	0.005	-0.018*	-0.012	-0.012	-0.162
	(0.014)	(0.010)	(0.011)	(0.012)	(0.119)
1st gen. migrant	0.213***	0.225***			
	(0.024)	(0.023)			
2nd gen. migrant	0.095***	0.089***			
	(0.016)	(0.016)			
F-stat (Mig.share)	40.743				
F-stat (1st gen. × Mig.)	481.418	624.172	611.078	517.077	33.912
F-stat (2nd gen. × Mig.)	853.499	1236.404	979.917	894.602	41.713
Observations	236069	236069	236069	236069	236069
Individual controls	X	X	X	X	X
Year FE	X				
Region FE	X				
Region-year FE		X	X	X	X
Year-group FE			X	X	X
Baseline controls×year×group				X	X
Region-group FE					X

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. Results from OLS, reduced-form and 2SLS regressions of an alternative instrument version that takes the origin-specific shares at their 2000 values, instead of 1990. The regressions replicate all specifications of the main results of Table 1. Column 1 includes survey year fixed effects and NUTS region fixed effects, column 2 includes survey year-by-NUTS fixed effects, column 3 adds survey year-by-group fixed effects, column 4 additionally controls for survey year dummies interacted with regional controls at baseline period of 1990: ln of total population and the ln of GDP per capita in PPP in 1990, and column 5 adds NUTS region-by-group fixed effects. All columns include the following individual controls: gender, age, age squared, years of education, dummies for 9 occupations, dummy for urban type of domicil, years since arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. The reported F-stats are the Sanderson-Windmeijer F statistic suggested by Sanderson & Windmeijer (2016) for multiple endogenous variables, obtained from the separate first stages of each instrument conditional on the other instrument and the rest of the controls and fixed effects in the model.

Table C.6. 2SLS: Standard errors clustered at different levels

Dep. var = Pro mig. index	(1) *None*	(2) Robust	(3) r	(4) t	(5) $r+t$	(6) c	(7) $c+t$	(8) COB	(9) $r+COB$	(10) 50km	(11) 100km	(12) 150km
Panel A: OLS												
1st gen. × Mig.share	-0.050	-0.050	-0.050	-0.050	-0.050	-0.050	-0.050	-0.050	-0.050	-0.050	-0.050	-0.050
	(0.043)	(0.041)	(0.053)	(0.028)	(0.044)	(0.045)	(0.032)	(0.052)	(0.059)	(0.057)	(0.056)	(0.065)
2nd gen. × Mig.share	-0.040	-0.040	-0.040	-0.040	-0.040	-0.040	-0.040	-0.040	-0.040	-0.040	-0.040	-0.040
	(0.049)	(0.049)	(0.049)	(0.062)	(0.061)	(0.044)	(0.059)	(0.045)	(0.046)	(0.049)	(0.053)	(0.051)
CI 95% Wild bootstrap (1st gen.)				[-0.114, 0.013]		[-0.152, 0.043]	[-0.132, 0.037]					
CI 95% Wild bootstrap (2nd gen.)				[-0.170, 0.136]		[-0.139, 0.064]	[-0.197, 0.132]					
Panel B: Reduced Form												
1st gen. × Share × Flow	-0.087***	-0.087***	-0.087***	-0.087**	-0.087**	-0.087***	-0.087***	-0.087***	-0.087***	-0.087***	-0.087***	-0.087***
	(0.028)	(0.027)	(0.028)	(0.031)	(0.032)	(0.021)	(0.027)	(0.025)	(0.027)	(0.028)	(0.027)	(0.027)
2nd gen. × Share × Flow	-0.053	-0.053	-0.053	-0.053**	-0.053*	-0.053	-0.053*	-0.053	-0.053	-0.053	-0.053	-0.053
	(0.034)	(0.033)	(0.034)	(0.022)	(0.024)	(0.034)	(0.025)	(0.033)	(0.034)	(0.036)	(0.033)	(0.035)
CI 95% Wild bootstrap (1st gen.)				[-0.175, -0.008]		[-0.150, -0.036]	[-0.175, 0.000]					
CI 95% Wild bootstrap (2nd gen.)				[-0.106, 0.007]		[-0.154, 0.040]	[-0.137, 0.031]					
Panel C: 2SLS												
1st gen. × Mig.share	-0.398***	-0.398***	-0.398***	-0.398***	-0.398***	-0.398***	-0.398***	-0.398***	-0.398***	-0.398***	-0.398***	-0.398***
	(0.130)	(0.124)	(0.134)	(0.126)	(0.131)	(0.112)	(0.110)	(0.117)	(0.132)	(0.124)	(0.126)	(0.124)
2nd gen. × Mig.share	-0.247	-0.247	-0.247	-0.247**	-0.247**	-0.247	-0.247**	-0.247	-0.247	-0.247	-0.247	-0.247
	(0.158)	(0.155)	(0.162)	(0.100)	(0.114)	(0.160)	(0.113)	(0.166)	(0.157)	(0.160)	(0.161)	(0.171)
F-stat (1st gen. × Mig.)	29298.387	2472.149	19.508	120.917	17.807	18.072	22.125	103.014	20.362	7.336	6.389	7.398
F-stat (2nd gen. × Mig.)	24874.076	1886.679	15.971	178.292	17.895	19.054	25.148	16.544	20.535	6.885	6.228	6.457
CI 95% Wild bootstrap (1st gen.)				[-0.715, -0.073]		[-0.610, -0.121]	[-0.754, -0.035]					
CI 95% Wild bootstrap (2nd gen.)				[-0.467, 0.051]		[-0.573, 0.074]	[-0.616, 0.127]					
Observations	236069	236069	236069	236069	236069	236069	236069	236069	236069	236069	236069	236069
Individual controls	X	X	X	X	X	X	X	X	X	X	X	X
Region-year FE	X	X	X	X	X	X	X	X	X	X	X	X
Year-group FE	X	X	X	X	X	X	X	X	X	X	X	X
Region-group FE	X	X	X	X	X	X	X	X	X	X	X	X
Baseline controls × year × group	X	X	X	X	X	X	X	X	X	X	X	X

Notes: $p < 0.1$, $p < 0.05$, $p < 0.01$. OLS (panel A), reduced form (panel B) and 2SLS (panel C) results form regressions specified as in column 5 in Table 1, with different adjustment for standard errors correlation. In column 1 standard errors are not adjusted. Column 2 uses heteroskedasticity-robust standard errors. Column 3 clusters at the NUTS regional level. Column 4 clusters at the ESS year level, and uses wild bootstrapping to ensure valid confidence interval set with only 11 clusters, confidence intervals of each interacted instrument are reported. Column 5 clusters errors at the NUTS regional level and by years of ESS rounds. Column 6 clusters errors at the country level, and column 7 clusters by country and year. Due to few clusters, columns 6 (15 countries) and 7 (26 clusters) also report confidence intervals using wild bootstrapping method. Column 8 clusters errors by the country of birth of the respondents, and column 9 additionally clusters by region. Columns 10 to 12 cluster standard errors by different geographic lags: 50km, 100km, and 150km, respectively, according to the Conley (1999) procedure for spatial correlation. All columns include region-by-year, group-by-year and group-by-region fixed effects, and all individual controls: arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. The reported F-stats are the Sanderson-Windmeijer F statistic suggested by Sanderson & Windmeijer (2016) for multiple endogenous variables, obtained from the separate first stages of each instrument conditional on the other instrument and the rest of the controls and fixed effects in the corresponding model.

Table C.7. 2SLS: Standard errors clustered by deciles of regional origin shares

Dep. var = Pro mig. index	(1) *ROU*	(2) *YUG*	(3) *CZE*	(4) *HUN*	(5) *ALB*	(6) *BGR*
Panel A: OLS						
1st gen. × Mig.share	-0.050	-0.050	-0.050	-0.050	-0.050	-0.050
	(0.059)	(0.057)	(0.064)	(0.061)	(0.046)	(0.035)
2nd gen. × Mig.share	-0.040	-0.040	-0.040	-0.040	-0.040	-0.040
	(0.036)	(0.048)	(0.043)	(0.029)	(0.035)	(0.045)
CI 95% Wild bootstrap (1st gen.)	[-0.198, 0.068]	[-0.185, 0.074]	[-0.232, 0.084]	[-0.292, 0.076]	[-0.173, 0.057]	[-0.131, 0.040]
CI 95% Wild bootstrap (2nd gen.)	[-0.141, 0.052]	[-0.145, 0.082]	[-0.193, 0.063]	[-0.126, 0.021]	[-0.205, 0.074]	[-0.162, 0.071]
Panel B: Reduced Form						
1st gen. × Share × Flow	-0.087**	-0.087**	-0.087*	-0.087***	-0.087***	-0.087***
	(0.032)	(0.035)	(0.042)	(0.015)	(0.019)	(0.014)
2nd gen. × Share × Flow	-0.053*	-0.053	-0.053**	-0.053*	-0.053	-0.053*
	(0.024)	(0.037)	(0.019)	(0.025)	(0.030)	(0.024)
CI 95% Wild bootstrap (1st gen.)	[-0.213, -0.032]	[-0.193, 0.004]	[-0.232, -0.020]	[-0.186, -0.066]	[-0.170, -0.047]	[-0.123, -0.049]
CI 95% Wild bootstrap (2nd gen.)	[-0.111, -0.008]	[-0.221, 0.039]	[-0.102, 0.011]	[-0.149, -0.005]	[-0.143, 0.092]	[-0.112, 0.011]
Panel C: 2SLS						
1st gen. × Mig.share	-0.398***	-0.398***	-0.398***	-0.398***	-0.398***	-0.398***
	(0.102)	(0.153)	(0.133)	(0.101)	(0.063)	(0.090)
2nd gen. × Mig.share	-0.247***	-0.247	-0.247***	-0.247**	-0.247*	-0.247**
	(0.076)	(0.190)	(0.095)	(0.104)	(0.141)	(0.117)
F-stat (1st gen. × Mig.)	19.230	22.867	17.253	17.907	24.578	32.587
F-stat (2nd gen. × Mig.)	15.048	24.175	12.834	14.193	29.420	22.508
CI 95% Wild bootstrap (1st gen.)	[-0.645, -0.218]	[-0.706, 0.018]	[-0.855, -0.165]	[-0.862, -0.111]	[-0.620, -0.258]	[-0.702, -0.168]
CI 95% Wild bootstrap (2nd gen.)	[-0.421, -0.109]	[-0.690, 0.166]	[-0.449, -0.002]	[-0.619, -0.074]	[-0.481, 0.324]	[-0.547, 0.037]
Observations	236069	236069	236069	236069	236069	236069
Individual controls	X	X	X	X	X	X
Region-year FE	X	X	X	X	X	X
Year-group FE	X	X	X	X	X	X
Region-group FE	X	X	X	X	X	X
Baseline controls × year × group	X	X	X	X	X	X

Notes: $p < 0.1$, $p < 0.05$, $p < 0.01$. OLS (panel A), reduced form (panel B) and 2SLS (panel C) results form regressions specified as in column 5 in Table 1, where each column cluster the standard errors at regional level after grouping regions by deciles of shares of immigrants by the 6 origin countries most important in terms of Rotemberg weights: Romania, Yugoslavia, Czechoslovakia, Hungary, Albania and Bulgaria. The weights are presented in Table C.1. All columns include region-by-year, group-by-year and group-by-region fixed effects, and all individual controls: arrival for immigrants, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. All columns report the 95% confidence intervals using wild bootstrapping for each of interaction term, to ensure validity with only 10 clusters. The reported F-stats are the Sanderson-Windmeijer F statistic suggested by Sanderson & Windmeijer (2016) for multiple endogenous variables, obtained from the separate first stages of each instrument conditional on the other instrument and the rest of the controls and fixed effects in the corresponding model.

Table C.8. Differential sorting

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var =	Yrs in area ≤ 2	# Yrs in area	Yrs in area ≤ 2		# Yrs in area	
Sample:	Full sample	Full sample	Below-median pro-mig. index	Above-median pro-mig. index	Below-median pro-mig. index	Above-median pro-mig. index
1st gen. $\times$ Mig.share	-0.024**	0.921*	-0.020	-0.019*	0.619	0.790
	(0.011)	(0.526)	(0.025)	(0.011)	(0.898)	(0.530)
2nd gen. $\times$ Mig.share	0.028	0.758	0.027	0.013	0.797	0.889
	(0.018)	(0.821)	(0.030)	(0.020)	(1.194)	(0.922)
1st gen. migrant	-0.212	-8.968	0.047	-0.384	-17.304	-7.314
	(0.202)	(8.486)	(0.527)	(0.277)	(16.289)	(10.817)
2nd gen. migrant	0.450	-22.582**	-0.159	0.481	-43.687***	-2.191
	(0.288)	(10.264)	(0.545)	(0.432)	(14.197)	(11.931)
Observations	20856	20712	10333	10324	10333	10324
p diff. 1st gen $\times$ Mig.			0.973		0.870	
p diff. 2nd gen $\times$ Mig.			0.704		0.952	
F-stat (1st gen. $\times$ Mig.)	1219.413	1200.917	614.576	884.705	614.576	884.705
F-stat (2nd gen. $\times$ Mig.)	874.768	877.907	555.456	1061.941	555.456	1061.941
Individual controls	X	X	X	X	X	X
Region FE	X	X	X	X	X	X
Baseline controls $\times$ group FE	X	X	X	X	X	X

Notes: Standard errors clustered at the NUTS2 level. $p < 0.1$, $p < 0.05$, $p < 0.01$. The table shows the 2SLS results with the main instrument for the regional migrant shares. The sample is limited to survey year 2002 only and uses the question item "how long do you live in the area" as the dependent variable. The local migrant shares refers to the shares 2 years before the survey, at 2000. Columns 1, 3 and 4 estimate the influence on the probability to live in the area two years or less (i.e., moving in to area at 2000 or later). In column 2, 5 and 6 the outcome is the total number of years the respondent lives in the area. Columns 3-6 restrict the results to respondents with below- or above-median score of the pro-migration index. All columns include region fixed effects and the following baseline controls interacted by group dummies: the ln of total population and the ln of GDP per capita in PPP in 1990. Individual controls include: gender, age, age squared, years of education, dummies for 9 occupations, dummy for urban type of domicil, and dummies for the country of birth of the respondent, of the mother, and of the father of the respondent. The p value reported comes from a t-test for equality of the coefficients of each of the interaction terms across columns 3 and 4, and across columns 5 and 6. The reported F-stats are the Sanderson-Windmeijer F statistic suggested by (Sanderson & Windmeijer, 2016) for multiple endogenous variables, obtained from the separate first stages of each instrument conditional on the other instrument and the rest of the controls and fixed effects in the model.

Appendix D: Construction of Shift-Share IVs (SSIV)

D.1 Details on the baseline SSIV

This section provides implementation details for the leave-out shift-share instrument Z_{rt} defined in equation (3). Throughout, let o index origin countries, c index destination countries, and r index regions within destination country c. The baseline year is 1990, using information on population and migrant shares from Alesina et al. (2021).

Baseline settlement shares (the "share" component). We measure predetermined settlement patterns using the regional distribution of each origin group in the baseline year:

$$Share_{or,1990} = \frac{Mig_{or,1990}}{Mig_{o,1990}},$$

where $Mig_{or,1990}$ is the stock of immigrants from origin o living in region r in 1990, and $Mig_{o,1990} = \sum_{r \in c} Mig_{or,1990}$ is the national stock of immigrants from origin o in destination country c in 1990. These baseline stocks are obtained from population censuses and population registers.

Origin-specific migration shocks (the "shift" component). The shift term in (3) is the leave-out change in the stock of immigrants from one of 178 origins o across all destination countries in the sample other than c:

$$\Delta Mig_{ot}^{-c} = Mig_{ot}^{-c} - Mig_{o,1990}^{-c}, \qquad Mig_{ot}^{-c} = \sum_{c' \neq c} Mig_{oc't},$$

where $Mig_{oc't}$ denotes the national stock of origin-o immigrants in destination country c' in year t. Thus, ΔMig_{ot}^{-c} varies by (o, t) and is constructed separately for each destination country c via the leave-out sum over $c' \neq c$.

Constructing national stock series Mig_{oct}. A practical constraint is that annual national stocks Mig_{oct} are not consistently available for all (c, o) pairs back to 1990 at annual frequency. We therefore build a harmonized stock series using two ingredients:

1. *Benchmark stocks* $Mig_{oc,1990}$ and $Mig_{oc,2001}$ from censuses and population registers.
2. *Annual inflows* $Inflow_{oct}$ by origin and destination from the OECD International Migration Database, available annually from 2001 to 2021.

For years $t \geq 2001$, we construct a stock path by accumulating annual inflows forward from the 2001 benchmark:

$$Mig_{oct} = Mig_{oc,2001} + \sum_{\tau=2002}^{t} Inflow_{oc\tau}.$$

For the pre-2001 period, annual inflows are not available at the same level of detail, so we anchor the level using the stock difference between 1990 and 2001:

$$Mig_{oc,2001} - Mig_{oc,1990}.$$

This choice affects how smoothly the series evolves in the 1990s, but does not change the definition of the shock, which is always based on *changes in stocks* relative to 1990. In particular, ΔMig_{ot}^{-c} is computed from the constructed $Mig_{oc't}$ series exactly as in the definition above. Therefore, the shift term varies across 178 origin countries along 21 years, making in total 3738 origin-year-specific shocks.

Region-year instrument. Given the baseline shares and the leave-out shocks, the instrument used in the reduced form is:

$$Z_{rt} \;=\; \frac{1}{Pop_{r,1990}} \sum_{o} Share_{or,1990}\, \Delta Mig_{ot}^{-c},$$

where $Pop_{r,1990}$ is the total population in region r in 1990. Scaling by baseline population fixes the denominator prior to the sample period.

Relationship to predicted regional immigrant shares. Some presentations of shift-share instruments construct a predicted regional immigrant *stock* (or *share*) by adding a baseline level. In our setting, define the predicted immigrant stock in region r as

$$\widehat{Mig}_{rt} \;=\; Mig_{r,1990} + \sum_{o} Share_{or,1990}\, \Delta Mig_{ot}^{-c},$$

and the corresponding predicted immigrant share as

$$\widehat{Mig.share}_{rt} \;=\; \frac{\widehat{Mig}_{rt}}{Pop_{r,1990}} \;=\; \frac{Mig_{r,1990}}{Pop_{r,1990}} + Z_{rt}.$$

Because our specifications include region fixed effects (and, more generally, region-by-group fixed effects), the baseline term $Mig_{r,1990}/Pop_{r,1990}$ is absorbed. Hence using Z_{rt} as in (3) is equivalent to using the level-predicted share $\widehat{Mig.share}_{rt}$ up to an additive region-specific constant.

D.2 Details on the skill-specific SSIV

Following (Card, 2009) the skill-specific instrument proxies the regional skill composition of immigrants, that is, the ratio of immigrants with primary education out of total immigrants.

Data sources and their limitations. We obtain skill-specific national immigration data from the OECD's Database on Immigrants in OECD and non-OECD Countries (DIOC) and, similar to the baseline SSIV, use the censuses and population registers for the regional historical shares.

These datasets raise the following limitations:

1. The DIOC dataset details origins by continent, instead of specific countries, and at every 5 years, instead of annually.

2. The annual national stocks by education is available consistently across all years for only 8 out of the 15 destination countries of our sample.[22] Therefore, for the available countries, the aggregate flows ΔMig_{ots}^{-c} represent the leave-out total migration shock across all available countries; while the missing destination countries receive the aggregate shock ΔMig_{ots}, not leaving-out any value, as they are already not included in this term.

3. The skill-specific baseline stocks are missing for most countries in the 1990 censuses; therefore, we add the 2001 censuses and population registers to the predicted migration change between 2000 and the current year t, instead of using a predicted stock constructed from the 1990 census data as we do for the baseline SSIV. This means that at the year 2000, the instrument is equal to the actual shares and is endogenous, leading to excluding the first ESS round in the analysis.

[22] The missing countries are Austria, Belgium, Germany, Finland, Ireland, the Netherlands, and the UK.

Therefore, in this subsection, let o index one of 6 origin continents (Africa, Asia, Europe, Northern America, Oceania, and South and Central America and the Caribbean), and t index the years 2000 to 2020 in 5-years bins. s index skill level of immigrant flows, defined by 3 categories of educational attainment[23], c is the destination country and r index the regions within the destination country.

Origin-skill specific migration shocks. We first compute the annual skill share of immigrants as the proportion of the leave-out immigrant stock with educational level s out of the total leave-out immigrant stock, both from origin continent o in year t across all destination countries other than c (if c is a country that exists due to the limitations of the data):

$$\lambda_{ots}^{-c} = \frac{Mig_{ots}^{-c}}{Mig_{ot}^{-c}}, \qquad Mig_{ots}^{-c} = \sum_{c' \neq c} Mig_{oc'ts}, \qquad Mig_{ot}^{-c} = \sum_{s} \sum_{c' \neq c} Mig_{oc'ts} \tag{4}$$

Then, we compute the leave-out change in the total stock of immigrants from origin continent o in year t across all destination countries other than c:

$$\Delta Mig_{ot}^{-c} = Mig_{ot}^{-c} - Mig_{o,2000}^{-c}$$

(5)

The origin-skill specific shift term is captured by the interaction of the origin-specific leave-out immigrant shock ΔMig_{ot}^{-c} with the origin-specific annual proportion of immigrants by educational level λ_{ots}^{-c}.

Region-year skill-specific instrument. Using the same baseline shares used for the baseline SSIV as detailed in subsection D.1, the leave-out shocks, and the skill shares, the skill-specific predicted migrant stock is of the form:

$$\widehat{Mig_{rts}} = Mig_{r,2001,s} + \sum_{o} (Share_{or,1990} \Delta Mig_{ot}^{-c} \lambda_{ots}^{-c}) \tag{6}$$

and the corresponding predicted migrant share with educational attainment s out of the total population is:

$$Z_{rts} = \widehat{Mig.share}_{rts} = \frac{\widehat{Mig_{rts}}}{Pop_{r,1990}} \tag{7}$$

Skill composition instrument. To instrument the skill composition of the immigration inflows, we compute the ratio by dividing the skill-specific predicted shares of immigrants out of total population, with the predicted share of all immigrants out of total population (this is equivalent to the ratio between the migrant stocks, as the total population cancels out):

$$\widehat{Ratio}_{rts} = \frac{Z_{rts}}{Z_{rt}} \tag{8}$$

[23] The categories defined by the ISCED classification, as follows: primary education = ISCED 0/1/2; secondary education = ISCED 3/4; tertiary education = ISCED 5/6/7/8.

D.3 Details on the origin-specific SSIV

To get two region-year instruments predicting the migrant shares from either EU27 or from non-EU27 countries, we sum the origin-region-year level data across just a sub-group of origin countries $o' \in \{\text{EU27, non-EU27}\}$, rather than across all origin countries as we do in the baseline instrument.

Region-year instrument by origin. Given the same baseline settlement shares and leave-out origin-specific migrant shocks detailed in subsection D.1, the origin-specific reduced form is:

$$Z_{rto'} \;=\; \frac{1}{Pop_{r,1990}} \sum_{o'} Share_{o'r,1990}\, \Delta Mig_{o't}^{-c}$$

where $Z_{rto'}$ corresponds to the predicted stock of either EU27 or non-EU27 migrants, both scaled by $Pop_{r,1990}$, the baseline population at 1990 in region r.

Region-year origin-specific ratio instrument. To instrument the compositional change in the origin mix of the migrants, we simply divide the origin instrument with the baseline instrument:

$$\widehat{Ratio}_{rto'} \;=\; \frac{Z_{rto'}}{Z_{rt}} \;=\; \frac{\frac{1}{Pop_{r,1990}} \sum_{o'} Share_{o'r,1990}\, \Delta Mig_{o't}^{-c}}{\frac{1}{Pop_{r,1990}} \sum_{o} Share_{or,1990}\, \Delta Mig_{ot}^{-c}}$$

Since the baseline population terms cancel out, we get the ratio of the predicted migrant stock from sub-group o' countries out of the predicted total immigrant stock.