Levi, Eugenio; Mariani, Rama Dasi; Patriarca, Fabrizio

Working Paper

Hate at first sight? Dynamic aspects of the electoral impact of migration: The case of Ukip

GLO Discussion Paper, No. 364

Provided in Cooperation with:
Global Labor Organization (GLO)

Suggested Citation: Levi, Eugenio; Mariani, Rama Dasi; Patriarca, Fabrizio (2019) : Hate at first sight? Dynamic aspects of the electoral impact of migration: The case of Ukip, GLO Discussion Paper, No. 364, Global Labor Organization (GLO), Essen

This Version is available at:
http://hdl.handle.net/10419/200094

Hate at first sight? Dynamic aspects of the electoral impact of migration: The case of Ukip

Eugenio Levi,*
*Rama Dasi Mariani**,*
*Fabrizio Patriarca****

**Free University of Bozen-Bolzano*
***University of Rome "Tor Vergata"*
****University of Modena and Reggio Emilia*

Eugenio Levi: eugenio.levi@unibz.it, +393298030928
Fabrizio Patriarca: fabrizio.patriarca@unimore.it, +393387816115
Rama Dasi Mariani: mariani@economia.uniroma2.it, +393334610857

*We thank Christian Dustmann, Carlo De Villanova, Edoardo Di Porto, Tommaso Frattini, Majlinda Joxhe, Fabrizio Mazzonna, Paolo Naticchioni and Jackie Wabha for their comments and suggestions. A previous version of this work has been presented to the "International Conference on Migration and Welfare" (Sapienza University of Rome), "3rd Workshop on the Economics of Migration" (Southampton University), "LUMSA Economics Seminars" (LUMSA University), "The Economics of Post-Factual Democracy Conference" (University of Copenhagen), "The Law of Economics of Migration and Mobility Conference" (University of Bern), "Workshop on Recent Developments on Migration Issues" (BETA, Luxembourg), and to the INEQ Research Group meeting. We are grateful to all the participants for their useful hints. We thank the editor Klaus F. Zimmermann and two anonymous referees for their comments and suggestions that led to a considerable improvement of the paper. A slightly different version of this work circulated under the title "Hate at first sight? Dynamic aspects of the electoral impact of migration: The case of UK and Brexit" as a SPRU Working Paper. The usual disclaimer applies.

Abstract

In this paper, we test the hypothesis that the causal effect of immigrant presence on anti-immigrant votes is a short-run effect. For this purpose, we consider a distributed lag model and adapt the standard instrumental variable approach proposed by Altonji and Card (1991) to a dynamic framework. The evidence from our case study, votes for the UK Independent Party (Ukip) in recent European elections, supports our hypothesis. Furthermore, we find that this effect is robust to differences across areas in terms of population density and socioeconomic characteristics, and it is only partly explained by integration issues.

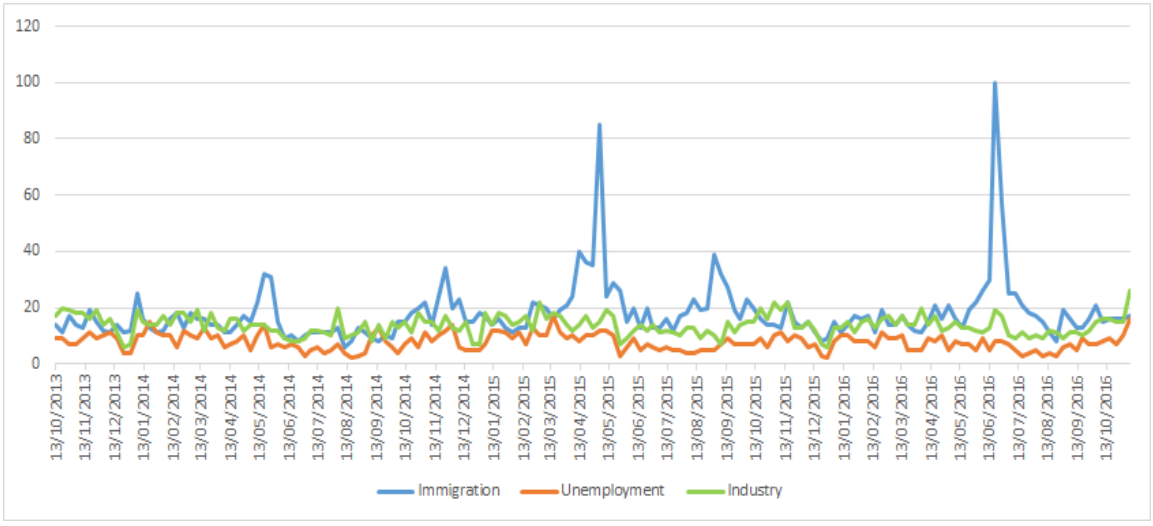
Keywords Immigration, Voting, Political Economy

JEL codes P16, J61, D72

1 Introduction

Although hardly a new topic, immigration has gained a significant role in the political agenda and has influenced voting preferences in various recent elections. The following suggestive evidence from Google Trends shows it very clearly. In Figure 1, we present the frequency of web searches in the UK for three different topics between 2013 and 2016: immigration, unemployment, and industry. In contrast to the cases of unemployment and industry, a surge of interest in immigration can be observed in the days preceding elections (the European elections of May 2014, the general election of May 2015 and the Brexit vote in June 2016), which disappears shortly thereafter.

Fig. 1 Google Trends in the UK by topic



Data originate from https://trends.google.it.

Recent studies investigate the *causal role* of immigration on voting, i.e., how electoral outcomes are influenced by the presence of immigrants in a neighborhood (Otto and Steinhardt 2014; Mendez and Cutillas 2014; Barone et al. 2016; Steinmayr 2016; Halla et al. 2017; Harmon 2018; Brunner and Khun 2018; Dustmann et al. 2018). Most of these studies provide evidence that living in an area with a greater number of immigrants increases the probability of voting for parties that promote tighter immigration policies. Nevertheless, several of these studies yield the opposite result (Steinmayer 2016; Colantone and Stanig 2018). Furthermore, the literature focusing directly on natives' attitudes toward immigration, rather than on voting, does not indicate a significant effect caused by the presence of foreign-born individuals in surrounding areas (Sheve and Slaughter 2001; Card et al. 2005). Anecdotal evidence related to the latest US presidential election and the Brexit vote has pointed in the same direction.[1]

Basing our work on this puzzling framework, we explore dynamic aspects related to this effect. In particular, we formulate the hypothesis that hostility toward immigration is temporary. Thus, the time dimension might hold the key to understand the way in which immigration affects voting outcomes. Different underlying mechanisms could lie at the root of such negative short-run effects, such as material concerns regarding the adjustment costs of new migrant inflows (the early phases of new immigrant integration) or prejudicial attitudes (initial attitudes not confirmed by experience), both denoting a "hate at first sight" effect. It is important to note that integration does not occur overnight. Immigration can initially exert increased pressure on the welfare system and labor market, causing natives to react with hostility to new immigrant flows. Over time, as local authorities and the native population learn to cope with the process, the potential initial distressing situation could be mitigated. The extensive literature that analyzes attitudes toward immigration has noted the negative attitudes regarding the effects of immigration on the labor market, crime and cultural homogeneity (Sheve and Slaughter 2001; Card et al. 2012). These attitudes might not reflect the effects of immigration *per se*; however, they could be influenced by a failure to anticipate the immigrants' integration. With respect to prejudicial attitudes, Arrow (1971) suggested that individuals only resort to stereotyping immigrants when they lack information regarding their habits, customs and traditions. Therefore, as soon as direct information regarding new immigrant neighbors is acquired, the negative attitude produced by their presence should cease. A similar argument is that political narratives regarding immigration might be more effective where immigration is more recent, as recent changes in the composition of a neighborhood's population could make them more salient.

After testing for this short-run effect, we will explore several channels related to integration, specifically unemployment, welfare expenditure and crime. Furthermore, political preferences have been shown to be very sensitive to differences between urban

[1]http://www.motherjones.com/kevin-drum/2016/11/support-trump-strongest-where- illegal-immigration-lowest; http://www.nytimes.com/2016/11/11/opinion/identity-over- ideology.html

and rural environments (e.g. Cesur and Mocan 2018). In particular, immigration to larger urban centers has generally started before immigration to more rural areas, which can explain why previous studies have found a different effect in these two different contexts (Barone et al. 2016; Dustmann et al. 2018). Considering our dynamic framework and heterogeneity in areas over different dimensions – population density and socioeconomic characteristics - we may derive insights as to why these previous studies found contradictory results. A general problem with these studies is that they search for individual channels through which hostility may arise even though voting data are expressed at a more aggregated level. This shortcoming may result in a misleading interpretation of the empirical results, and we will account for it when commenting on our findings. Indeed, when analyzing electoral outcomes, ecological fallacy issues may be relevant (Rotte and Steininger 2009; King 1997).

To study the dynamic features of the causal effect of immigration, we consider a finite specification of a distributed lag model (referred to as the DL model) and adapt to this model the empirical strategy commonly used in the literature (Halla, et al. 2017; Barone et al. 2016). We use a multi-instrument approach that considers the lagged values of the "shift-share" instrument proposed by Altonji and Card (1991). In a paper on the labor market effects of immigration, Jager et al. (2018) use a similar approach to disentangle a short-run effect from a long-run effect of immigration. In contrast to their work, we have panel data, and we study and test the specific identification conditions that arise in a panel IV estimation. Finally, instead of imposing a lag structure, we choose the DL specification according to the standard information criteria used in time series analyses. The best lag specification of our model for the UK includes two lags: the present lag and the two-year lag. As it will be clearer later on, the two coefficients of our DL model can be interpreted as coefficients associated with the overall level of immigrants (independent of their arrival dates) and the recent flows of new migrants, respectively.

We focus on European elections in the UK, a country in which the immigration issue has been central to all of the latest electoral outcomes. We analyze the votes for the UK Independent Party (Ukip), which, over the span of 3 election turnouts from 2004 to 2014, increased the share of its votes from 15.6 to 26.8 percent. In recent years, this party has proposed a strong anti-EU and anti-immigrant agenda. We will show that attitudes toward migrations in the UK are strongly related to attitudes toward the European integration process, which indicates that votes for Ukip in European elections are particularly appropriate for investigating the causal effect of the presence of immigrants. In Scotland and North Ireland, voting during the European elections has been influenced by nationalistic sentiments more than by migration; thus, we exclude data from these regions from the dataset.

To anticipate our results, the panel data estimation of our finite DL model regarding votes for Ukip shows that the two effects associated with the lag coefficients are both significant and have opposite signs. The presence of new immigrants has a positive effect

on votes for Ukip, but there is no positive effect based on the presence of immigrants *per se*. From our estimates, a one-standard deviation increase in the new flows of immigrants produces an increase in votes that amounts to approximately two-thirds of its standard deviation, while an equivalent increase in the share of immigrants entails a decrease in votes for Ukip of more than five-thirds of its standard deviation. This result strongly supports our hypothesis. In contrast to previous studies, in our case, this effect is robust to heterogeneity between areas. At same time, exploring these heterogeneities across different dimensions enables us to go beyond the city-country dualism of the existing results and suggests that other political and cultural factors may be relevant. Furthermore, we find that integration issues fail to fully explain the effect of immigration flows; however, they are indeed relevant in explaining this effect, particularly changes in welfare expenditure per capita.

In the next section, we provide a review of the literature on the political effects of immigration. We subsequently explain why votes for Ukip at European elections are an appropriate test for the immigrants' effect and present the data in section 3. In section 4, we establish the econometric strategy, and in section 5, we present our main results on the "hate at first sight" effect. In section 6, we run robustness tests, testing for self-selection in political preferences related to internal migrations and electoral turnout and estimating our model over other political outcomes (votes for Conservatives and Labor and turnout at elections). In section 7, we consider heterogeneity in areas and explore possible channels of the short-run effect by considering the interactions of migration inflows with economic, social and public policy variables. The final section presents our conclusions and suggests policy implications.

2 Related literature

This paper is related to literature examining the effects of immigration on electoral outcomes. Some studies belonging to this branch find a positive effect of the presence of immigrants on votes for parties with clear anti-immigration agendas. More specifically, Otto and Steinhardt (2014) study votes for far-right (anti-immigration) and green (pro-immigration) parties in Hamburg between 1987 and 2009, Barone et al. (2016) investigate electoral outcomes in Italy for the center-right coalition between 2001 and 2008, and Halla et al. (2017) analyze votes for FPOE in Austria from 1971 to 2013. Their results suggest that competition in the labor market, welfare issues and concerns for compositional amenities may drive the effect of the presence of immigrants. It should be noted, however, that these results are not without caveats. In many countries, only specific groups of immigrants cause an increase in votes for anti-immigrant parties. In the aforementioned paper by Halla et al. (2017), only low-skill immigrants are responsible for the immigrants' effect, while the opposite effect holds for highly skilled immigrants. In each country, a slightly different category seems to matter. More specifically, effects are found in Spain

only for African immigrants (Mendez and Cutillas 2014), in Denmark only for non-Western immigrants (Harmon 2018), and in Switzerland only for immigrants not from historically protestant and catholic non ex-Communist countries (Brunner and Khun 2018), which suggests overall that cultural distance and prejudices may be an important explanation. Several results on refugees suggest opposite conclusions altogether. Focusing on the 2015 wave in Austria, Steinmayer (2016) finds that hosting refugees decreases votes for FPOE. In studying the dismantling of the Calais jungle in France, Vertier and Viskanic (2018) find that where new refugee centers are established, Front National received fewer votes in the 2017 Presidential elections. Both these papers interpret their results in terms of the *contact theory* (Allport 1954), according to which repeated interactions between immigrants and natives prove to be beneficial.

Trying to explore the complex relation between immigration and voting, other studies have searched for no linear effects. Mayda et al. (2016) introduce in their main IV regressions on votes for the Republican party in the US both the linear and the quadratic term of the share of immigrants. They find that only the quadratic term of the share of immigrants is significant, which indicates that only where the immigration phenomenon has reached large proportions it has an impact on votes for anti-immigrant agendas. The interpretation is that perceived issues related to migration become salient for the natives in a certain area only if the share of immigrants is above a certain threshold. Among no linear effects, other researchers have focused on differences between large and small cities. Dustmann et al. (2018) find that the presence of refugees positively affects votes for anti-immigrant parties in Denmark in the years 1986-1998 only if they exclude the bigger municipalities from the sample. This effect is stronger in richer areas with a higher pre-existing presence of immigrants and more crimes. Barone et al. (2016) find the same results on immigration in big municipalities for Italy and suggest an interesting explanation for this pattern. It states that "*immigration in big cities may have started sooner than in small municipalities*".

We contribute to the literature on no linear effects of immigration on voting by testing the hypothesis that the history of migration matters. Most studies of the effects of immigration on voting behavior use a panel data model in which the main explanatory variable is the share of immigrants. This strategy fails to capture these dynamics. As we subsequently discuss in further detail, an analysis with fixed effects can show the effect of a variation in the number of immigrants on the change in the number of votes, regardless of the size or history of the existing foreign community. However, the process of integrating a foreign population into a receiving society requires time. Social and economic frictions, such as prejudices or integration issues, might emerge at the beginning; however, once the immigrant community has settled, it could be that its presence does not lead to further changes in political outcomes.

We also refer to a small number of papers on the political impact of migrations in the UK. Similar to us, Becker and Fetzer (2016) analyze votes for Ukip in European elections,

and they provided evidence that exposure to migration from Eastern Europe after 2004 boosted votes for Ukip. The same evidence has been found regarding Brexit, both in a comprehensive analysis of drivers of votes at a district level (Becker et al. 2017) and specifically with regard to Polish immigration (Viskanic 2017). What distinguishes our paper is the aim to disentangle a short-run effect and causally assess its relevance independent of the nationality of the immigrants.

3 The case of the UK

3.1 Political preferences toward Europe and attitudes toward immigration

Ukip was formed in 1993 by members of the Conservative party who disagreed with the position of their former party on the European integration process. Ukip founding members had the primary goal of having the UK leave the European Union. Nonetheless, over time, they developed clear anti-immigrant positions. In September 2014, Ukip spokeswoman Jane Collins stated trying to rally support for a law called "British jobs for British workers": "I want to know from the other parties whether they will give employers the right to put British youngsters first in regard to job vacancies". Another example is a debated poster they used for the campaign for Brexit, in which they associated criticism over Europe with the 2015 refugee flows using an image that looked strikingly similar to frames of an old Nazi propaganda video[2].

We argue that there is generally a strict relationship between the two main issues at stake in the European political debate: immigration and the European institutional setting. This relationship justifies our consideration of votes for Ukip in European elections to test the causal effect of immigration. Data from the 2014 European Social Survey provide evidence for the existence of a link between attitudes toward immigration and individuals' attitudes toward the European Union (Table 1). We analyzed UK data from the 2014 survey, excluding observations from Northern Ireland and Scotland. We considered a question that captures attitudes toward the process of European unification. It reads "Now thinking about the European Union, some say European unification should go further. Others say it has already gone too far. Using this card, what number on the scale best describes your position?". At the lower extreme, i.e., 0, the answer corresponded to "Unification already gone too far"; at the upper extreme, i.e., 10, it corresponded to "Unification should go further". We consider a broad range of variables that might be related to answers to this question, such as the type of job contracts of individuals, attitudes toward the government, the economy, religion and the country, self-reported measures of happiness and trust, and how much subjects watch TV. We also consider a whole set of attitudes toward migration. We do not only consider the standard question "To what extent do you think [country]

[2] See https://www.theguardian.com/politics/2016/jun/16/nigel-farage-defends-ukip-breaking-point-poster-queue-of-migrants.

should allow people from the poorer countries [in Europe or, alternatively, outside Europe] to come and live here?" but also other questions regarding immigrants' effects on the economy, the labor market, and well-being.

Table 1 Correlations with attitudes toward Europe

	European unification go further
Employment contract unlimited duration	0.02
How satisfied with the present state of the economy	0.04*
How satisfied with the national government	−0.03
TV watching	0.02
TV watching, news/politics/current affairs	0.04*
How happy are you	0.10***
Most people can be trusted	0.23***
How religious are you	−0.10***
How close do you feel to the country	0.18***
Allow many immigrants from poorer countries in Europe	0.40***
Allow many immigrants from poorer countries outside Europe	0.38***
Immigration good for country's economy	0.44***
Immigrants create new jobs in country	0.33***
Immigrants make country better place to live	0.45***
N	2599

Data originate from 2014 round of the European Social Survey. Values in the table are nonparametric Spearman rank correlations between the corresponding rows and column. $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$

We find that self-reported attitudes toward Europe show strong Spearman rank correlations with issues related to immigration. They range from 0.33 to 0.45. We also find moderate but highly significant correlations with answers to other social questions, with none as high as those regarding immigration. It should be noted that this survey was conducted before the 2015 refugee crisis. Therefore, such correlations could not have been driven by the border control emergency and the sense of panic that derived from this situation. Furthermore, there seems to be no substantial difference in the correlations between attitudes toward immigrants from Europe and those from the rest of the world. Answers to these two questions showed a correlation of 0.83. It is therefore not welfare or labor considerations related to European legislation on internal migration or social rights that are responsible for this outcome. Given this evidence, it makes sense to consider votes for Ukip in European parliamentary elections as a dependent variable for testing the effect of the presence of immigrants on votes.

3.2 Data and descriptive statistics

Immigration to the UK, defined according to the individual country of birth, has considerably increased, from 8 percent of the overall population in 2002 to 11 percent in 2014. Starting from London, it has also expanded to the North-Central regions and some areas in the South-West (refer to Figures 2 and 3). Greater variation occurred at the end of the period under analysis, namely, from 2012 to 2014 (refer to Figure 3). At the same time, Ukip has received a large consensus, obtaining, on average, 30 percent of the votes in the most recent elections (refer to Figure 4). Particularly interesting is the comparison between the maps showing the variation in the population immigrating to the UK and the electoral results for Ukip. Clearly, the regions where foreigners have arrived in greater numbers are also the areas where individuals have expressed a stronger preference for the anti-immigration party. This correlation does not emerge from the comparison of the maps showing the shares of the immigrants and the shares of votes for Ukip. In contrast, the correlation of the two variables seems to be negative. We attempt to better investigate the apparent relationships between immigration and political preferences for Ukip using data from the UK Electoral Commission for the electoral data, and data from the Office for National Statistics (ONS) for all of the other variables used in the analysis (Table 2).

The study concerns England and Wales, and it was performed at the Local Administrative Unit level (LAU1- NUTS3) for a total of 345 territorial units. From the total of 348 territorial units, we excluded the LAU of the City of London (which is a small subset of what is commonly considered London's financial district) because, curiously, no corresponding data on immigration are available. We also excluded the Isles of Scilly and the Isle of Wight, for which income estimates are missing. All variables are at the LAU level. We focus on immigrants by country of birth, so individuals who were born in another country and live legally in the UK regardless of their citizenship. This is the most commonly used definition by the OECD and in the literature. Unemployment is the estimated rate by the Regional Labour Market Statistics office of the ONS. The other time-variant control variables are the proportion of individuals younger than 35 years old and older than 65 years old, population and density. The last two variables should capture effects, linear and no linear, respectively, related to the urban features. For the pooled OLS estimates, we introduce additional time-invariant controls from the 2011 census data, including household income per year and high education, which is the share of individuals who have at least a bachelor's degree or equivalent, and regional fixed effects. Additional variables that we consider in further analyses are the number of crimes per capita and benefit expenditures per capita. Numbers on crimes derive from the ONS and the benefit expenditures from the Department of Work and Pensions of the UK government.

Fig. 2 Share of immigrants in England and Wales. 2000 and 2014.

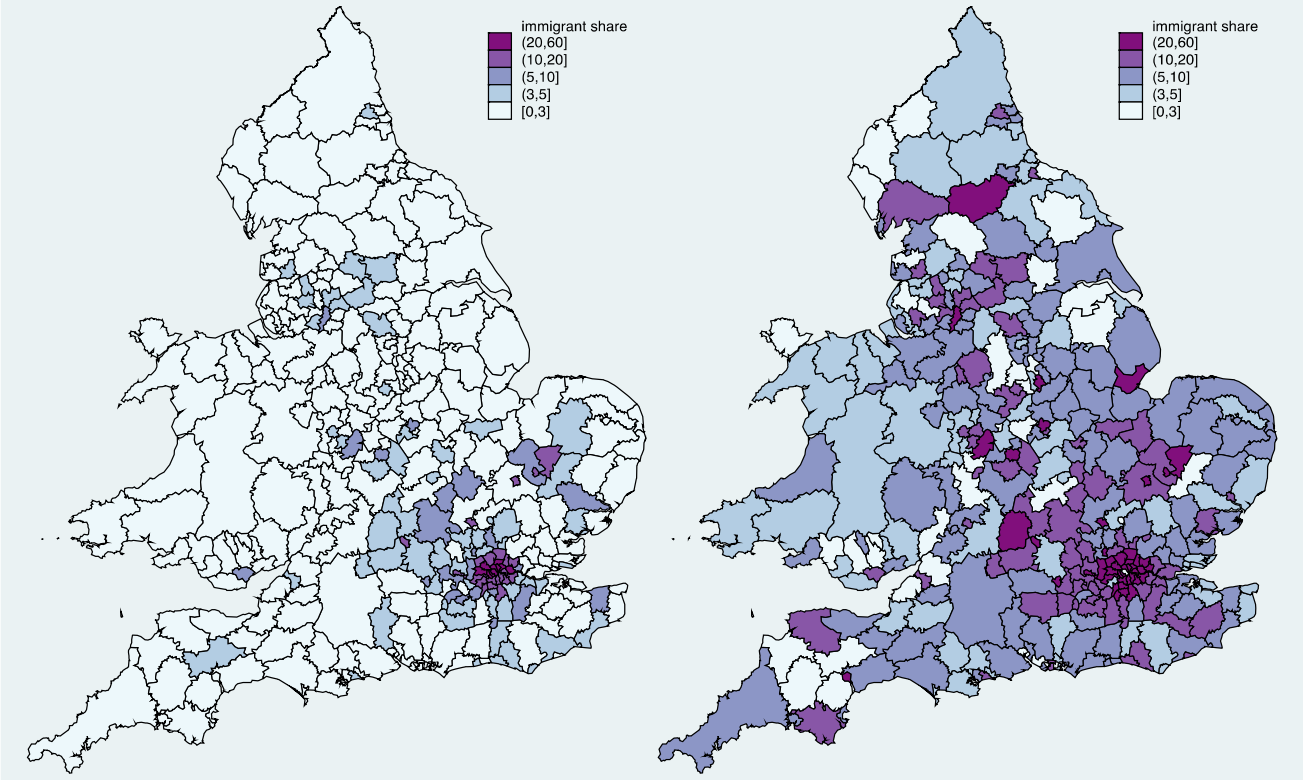


Fig. 3 Immigrant flows in England and Wales. 2012-2014 and 2000-2014.

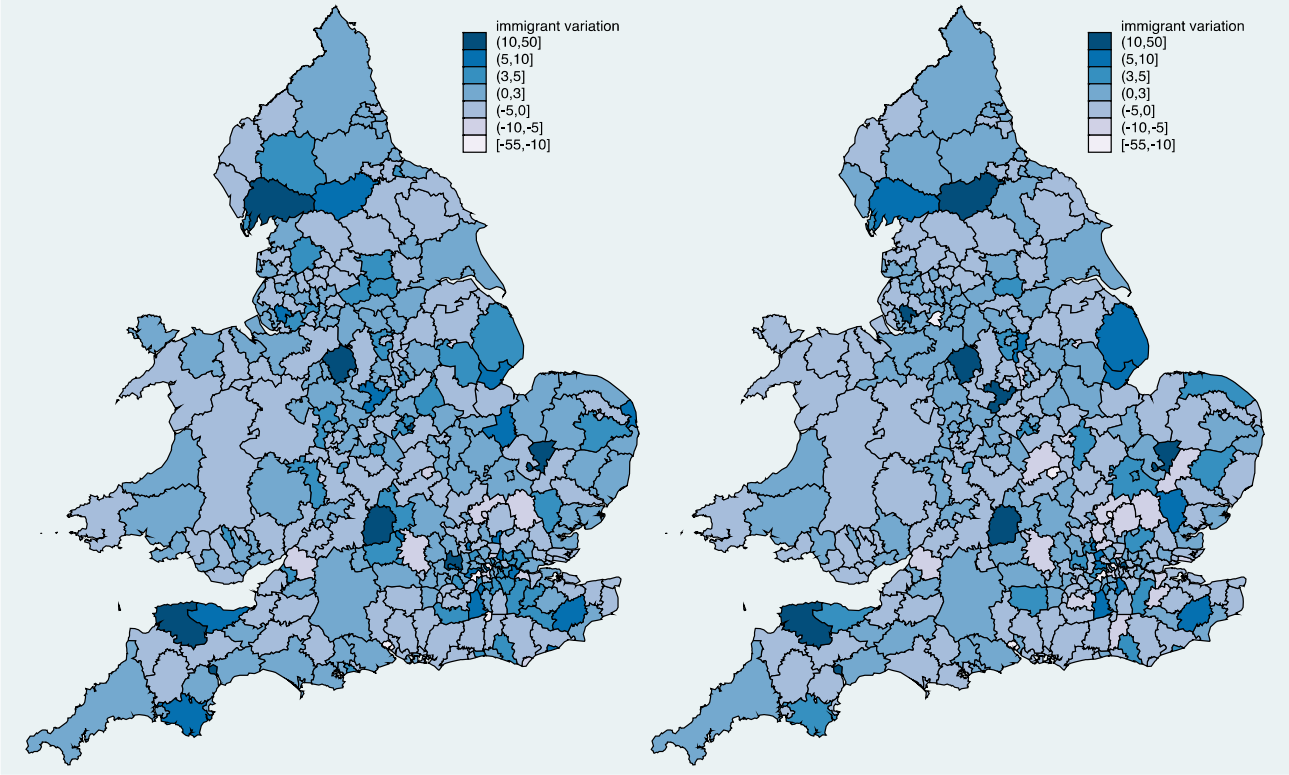


Fig. 4 Votes for Ukip in England and Wales. 2004 and 2014 European elections.

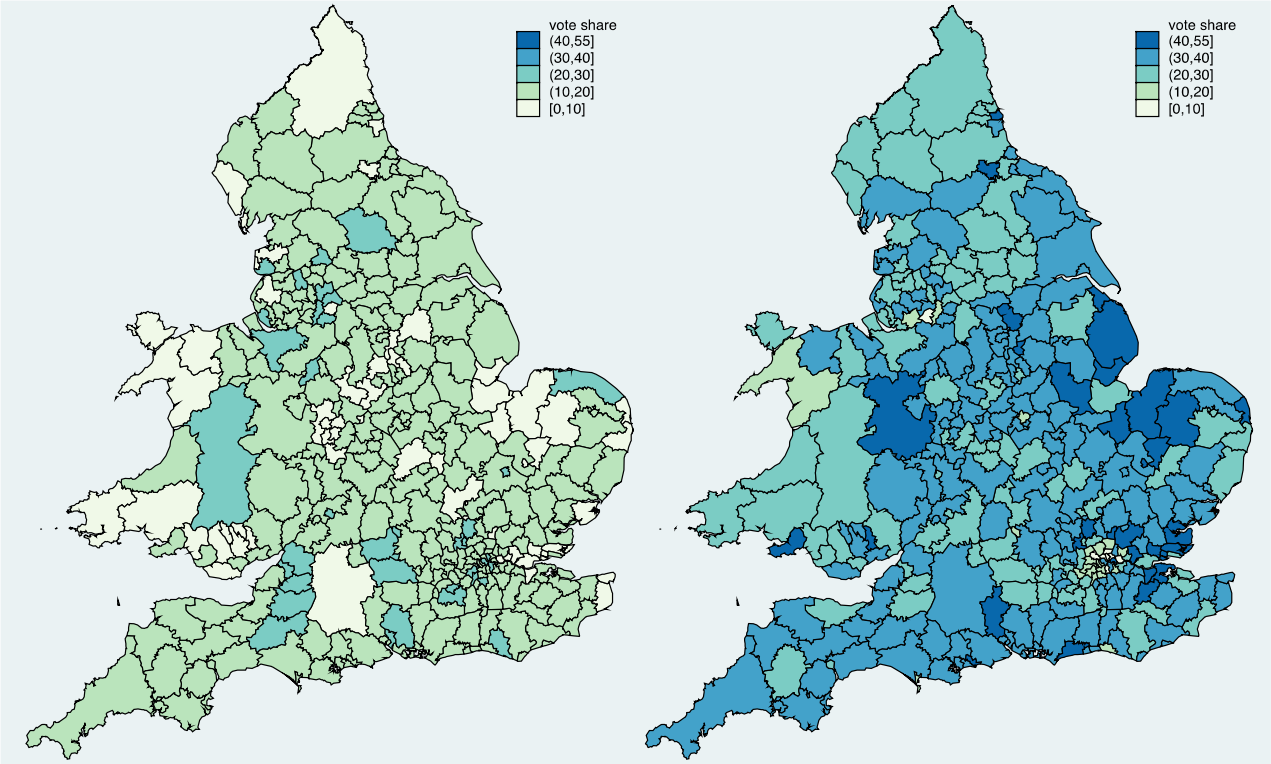


Table 2 Descriptive statistics

	Mean	Std. dev.	Min	Max
Ukip	0.211	0.093	0	0.516
Labour	0.196	0.110	0.031	0.643
Conservative	0.287	0.082	0.0014	0.486
Turnout	0.363	0.052	0.192	0.512
Immigrant share	0.0974	0.097	0	0.562
Immigration flows	0.00315	0.039	-0.432	0.509
Unemployment	5.843	2.414	1.8	14.707
Over 65	0.176	0.040	0.0601	0.319
Under 35	0.311	0.032	0.231	0.426
Population	159761.5	106823.9	34322	1101360
Density	15.477	22.651	0.240	148.741
High Education	0.270	0.077	0.142	0.684
Income	21138.57	12499.61	8469	225818
Benefits	0.00207	0.000601	0.000684	0.00951
Crime	-0.0110	0.016	-0.147	0.0616

Authors' elaboration over data from the Electoral Commission and ONS (refer to paper for more details). High education and income are time invariant variables from 2011 UK census; the remaining variables are time variant (2004, 2009 and 2014).

4 Econometric strategy

4.1 Model specification

To analyze the dynamic aspects of the causal effect of immigration, our econometric strategy extends the methodology used in previous studies, particularly in Barone et al. (2016). This literature has adopted the IV approach used in the analyses of immigration's impact on the labor market. To adapt this approach to a dynamic framework, we use a multi-instrument strategy based on the current and lagged values of immigration. Jager et al. (2018) use a similar approach to overcome the limitations of the standard static approach, i.e., that it "*conflates the short- and long-run responses to immigration".* In contrast to their work, we use panel data. This approach is not costless, as rank and order conditions in the panel case require further specific tests on the instruments. Finally, instead of imposing a lag structure, we choose the better specification according to the information criteria commonly used in time series analysis.

We start with the general specification of a distributed lag model:

$$y_{i,t} = \alpha + \beta^0 x_{i,t} + \cdots + \beta^l x_{i,(t-l)} + \cdots + \beta^L x_{i,(T-L)} + \boldsymbol{\gamma w}_{i,t} + \varepsilon_{i,t} \qquad (1)$$

where $y_{i,t}$ is the share of votes for anti-immigration parties in region *i* at time *t*, $x_{i,t}$ is the share of immigrants in region *i* (i.e., the number of immigrants among the overall population) at time *t*, $x_{i,(t-l)}$ is the share of immigrants at time $t - l$, $\boldsymbol{w_{i,t}}$ is a vector of control variables, $\varepsilon_{i,t}$ is the error term, and L is the total number of lags considered. The coefficients $\beta^0, \ldots, \beta^L$ explain the dynamic patterns of the impact of immigrants on voting behavior. In standard panel data model estimation, α and β^0 are estimated. However, if a dynamic process exists, i.e., if not all $\beta^1, \ldots, \beta^L$ are null, such a model would not be correctly specified.[3]

Therefore, as a first step in our analysis, we verify whether a dynamic process exists. As is standard in time series analysis, to perform the identification analysis of the lag structure, we use the Akaike information criterion (AIC) and the Bayesian information criterion (BIC). We consider the specification that has the lowest AIC and BIC between all of the possible specifications of our model, including lags of up to 4 years.

Table 3 shows the results for the possible lag structures with up to four-year lags. Both tests indicate that the best specification is the one in the 6th raw with only the two-year lag:

$$y_{i,t} = \alpha + \beta^0 x_{i,t} + \beta^l x_{i,(t-l)} + \gamma w_{it} + \varepsilon_{it} \qquad (2)$$

[3] In Appendix 1, we discuss the effect of such misspecification on the parameters' estimation and how it can explain some of the paradoxes in the literature.

Table 3 AIC and BIC tests of different lag specifications

Lags	AIC	BIC
1-0-0-0	5721.31	5755.90
1-1-0-0	5722.72	5762.26
1-1-1-0	5716.94	5761.42
1-1-1-1	5716.22	5760.70
1-0-1-0	**5715.02**	**5754.56**
1-0-1-1	5716.29	5760.78
1-0-0-1	5723.00	5762.54

where l is the two-year lag. As two years is a shorter time span than the electoral cycle of EU elections (the times t at which the variable y is realized are 2004, 2009 and 2014), the lag time dimension does not interact with our panel lag dimension (each realization of the variable x appears only in the equation corresponding to one realization of y).

As usual in finite DL models, prior to using least squares estimation, we first must check that the variable x is not a unit root. We use the Pesaran panel unit root test (Pesaran 2007). Table 4 presents the results of this test and confirms that there is no unit root up to the 2nd lag.

Table 4 Pesaran (2007) panel unit root test (CIPS)

lags	Zt-bar	p-value
0	-17.958	0.000
2	-3.318	0.000

Cips test assumes cross-section dependence in the form of a single, unobserved common factor.

The multi-instrument approach consists of using the same instrument z for both the T realizations of x_t and the T realizations of x_{t-l}. We will discuss the validity of the "shift-share" instruments in the next section; however, here we introduce a test to satisfy the order and rank conditions for identification in this multi-instrument approach. As we discuss technically in Appendix 2, identification in this case requires checking for the nonstationarity of the instruments. This is analogous to the OLS case. Table 5 shows the results of the Pesaran unit root test on the instrument z.

Table 5 Pesaran (2007) panel unit root test (CIPS) on the instrument

lags	Zt-bar	p-value
0	-24.564	0.000
2	-30.273	0.000

Cips test assumes cross-section dependence in the form of a single, unobserved common factor.

Although the specification in equation 2 does not significantly change the standard estimation approach, which is common when considering a finite DL structure, the main issue is the interpretation of the results. In this study, we follow a standard approach; we rearrange the model specification to provide an appropriate interpretation of the parameters.

In our one lag case, eq. 2 can be rewritten as

$$y_{i,t} = \alpha + \beta^s x_{i,t} - \beta^l \Delta x_{i,t} + \gamma w_{it} + \varepsilon_{it} \qquad (3)$$

where $\beta^s = \beta^0 + \beta^l$ and $\Delta x_{i,t} = x_{i,t1} - x_{i,(t-l)}$ represent immigration flows in the last l years.

In this manner, as a result of the specification in eq. 3, we can read the coefficient -β^l as the effect of the most recent migration flows and β^s as the effect of the current stock of migrations.[4] The "*hate at first sight*" eventual effect is represented by β^l, where the negative sign of the estimation results seems to be anticipated by the name that we give it: recent migration flows increase consensus for anti-immigrants agendas. In contrast, we do not formulate a hypothesis regarding the direction of the overall effect of immigration, which can be negative or positive.[5] If β^s is positive, we can conclude that immigration *per se* increases anti-immigration consensus. If β^s is negative, we should conclude that regions with higher levels of immigrants are more prone to immigration instead.

Any least squares estimation of the two specifications in eq. 2 and eq. 3 will obtain the same results once we consider the linear transformation $\hat{\beta}^s = \hat{\beta}^0 + \hat{\beta}^l$, and the estimators would have the same properties. The only difference is that, in the first case, we will obtain the standard errors for β^0, while in the second case, we obtain the standard errors for β^s. We consider the stock and flow specification in eq. 3 because their coefficients can be directly interpreted; however, we also consider the equivalent for the standard DL specification in eq. 2 to obtain the standard errors also for $\hat{\beta}^0$.

[4] It is useful to recall that although panel data estimations, namely, estimations with a within estimator, of the standard specification without lag of eq. 1 provide estimates of the effects of variations of x on variations of y, the underlying relation that they estimate is the effect of the level of $x_{i,t}$ on the level of $y_{i,t}$. In contrast, the panel estimations of eq. 3 would provide estimates of the effects of variations and acceleration of x on the variations in y.

[5] From such a perspective, the AIC and BIC test the specifications with only one lag corresponding to the second, fifth and last raw numbers in Table 3, which can be interpreted as a test of the best specification for the length of the "hate at first sight" effect.

4.2 Identification strategy

The existing literature raises common concerns with regard to the endogeneity of the migration phenomenon. The primary concern addresses reversal causality. Immigrants could avoid areas with anti-immigrant sentiments and locate where they could more easily integrate. For example, by analyzing the case of Switzerland, Slotwinski and Stutzer (2019) find evidence that foreign location choices are significantly affected by natives' attitudes to immigrants. Thus, in areas with more tolerant attitudes, the presence of immigrants would be larger than what would be predicted purely by push factors. This outcome generates a downward bias because there is an underestimation of the positive effect of immigration on votes for anti-immigrant agendas. The second concerns confounding factors that can drive both sorting decisions and political preferences. For example, Halla et al. (2017) suggested that an increase in votes for right-wing parties could be the result of a shift to greater pro-business attitudes. If these attitudes are determined by better economic performance in one area compared to other areas, it would create a pull factor for sorting decisions by immigrants. More generally, structural changes in the economy create the conditions for both a political shift in preferences and the emergence of a pull factor for immigration. We can assume that this spurious correlation generates an upward bias.

The sorting problem can be overcome using an instrumental variable approach. An important body of literature has argued that immigrants choose where to locate according to individual networks.[6] Then, we exploit the tendency of migrants to move to areas where individuals from the same country already live (Bartel 1989), and we predict the actual distribution of the foreign population by observing the past distribution. Therefore, we use the instrument suggested by Altonji and Card (1991), as slightly modified by Cortés and Pan (2014) and Barone et al. (2016):

$$Imm_{it} = \sum_n \frac{\lambda_{in}^{t_0} Imm_{nt,-i}}{Pop_i^t} \qquad (4)$$

where Imm_{it} is the predicted share of current immigrants in region i. It is equal to the number of immigrants originating from group n at time t at the country level, the net contribution of region i to the total, apportioned by the proportion of individuals originating from the same country and living in region i at time t_0, all aggregated to the main foreign nationalities present in the UK.

Setting in a new country can be easier if individuals from the same foreign ethnicity can share information regarding the labor market and other institutions of the receiving nation.

[6] Refer to, for example, Beine et al. (2011) and Mayda (2010).

Nonetheless, a vast amount of literature shows that when immigrants become geographically clustered, which gives rise to the so called ethnic enclaves, it can hamper the adjustment process. According to Dustmann and Preston (2007), ethnic concentration can result in a xenophobic attitude, while Bauer et al. (2007) argue that the labor market competition is the highest among immigrants. As a result, the arrival of new immigrants is deterred where the stock is already high, and the dynamics of the migration network is thus better represented by a concave function of past settlement (for an example, see Epstein and Heizler-Cohen 2016). This is what we do in a further specification of our estimating model.[7]

Using the past allocation of immigrants, we can argue that reverse causality issues are left out because the current political preferences are typically not anticipated. Furthermore, the time t_0 chosen must be such that the unobserved variables that cause voting today are not correlated with the determinants of immigration in the same year. This condition is reinforced if the voting behavior has changed over the last $t - t_0$ years. To validate this condition, in line with previous studies, we proceed to the choice of a year t_0 preceding the major changes in political attitudes related to the migration issue. This task becomes easy when we examine Ukip. It was founded in 1993 and as a Eurosceptic and anti-immigration party. It has represented a novelty on the political scene in the UK. Therefore, we choose the year 1981, well before the foundation of Ukip. We explicitly test for reverse causality related to this base year by regressing the share of immigrants in 1981 on the outcomes of the referendum on the permanence of the UK in the European Community in 1975. The choice of the 1975 referendum was based on the conditions being very similar to those in 2016. If we do not find a correlation between location choices by immigrants in 1981 and the results of the referendum, then even more so, these location choices should be independent from future political outcomes. The results of regression (1) in Table 6 show that the political preferences expressed at that time did not affect the location choices of past immigrants. In fact, a greater consensus for more open foreign policies does not seem to be correlated with the presence of immigrants in the area.

Moreover, public debates and party representatives' positions toward immigration have dramatically changed since 1981. The tones of public discussions of immigration have exacerbated compared to past years. The existence of a pro-immigration political climate in the early 1990s is confirmed by the UK's signature of the Amsterdam Treaty in 1997 and its position in favor of the enlargement of the European Union to Central and Eastern European countries. Instead, an example of the change in the role that immigration plays in political debate is a straight comparison between the slogans used by Prime Ministers of the UK in the mid-1990s and today. Blair stated "a simple way to take the measure of a country is to look at how many want in and how many want out", whereas May currently argues "the aim is to create here in Britain a truly hostile environment for illegal migration". This issue is not the result of a difference between the Conservative and Labor parties. John

[7] Similar identification strategy can also be found in Bianchi et al. (2012).

Major, the Conservative Prime Minister who preceded Tony Blair (1990-1997), also expressed opinions in favor of immigration during his time in office: "There was a different social value placed on immigration (...) I saw immigration at very close quarters in the 1950s. They shared my house. They were my neighbors. I played with them as boys. I did not see people who had come here just to benefit from our social system. I saw people with guts and the drive to travel halfway across the world in many cases to better themselves and their families. And I think that is a very conservative instinct." Immigration is also currently a hotly debated issue at the European level. Immediately after the win of Leave in the Brexit referendum, Nigel Farage stated at the European Parliament "You're in denial over Mrs. Merkel's call for as many people as possible to cross the Mediterranean – which has led to massive divisions between within countries and between countries". We believe that all of these arguments have spread consensus in favor of anti-immigration agendas.

Table 6 Tests for instrument validity

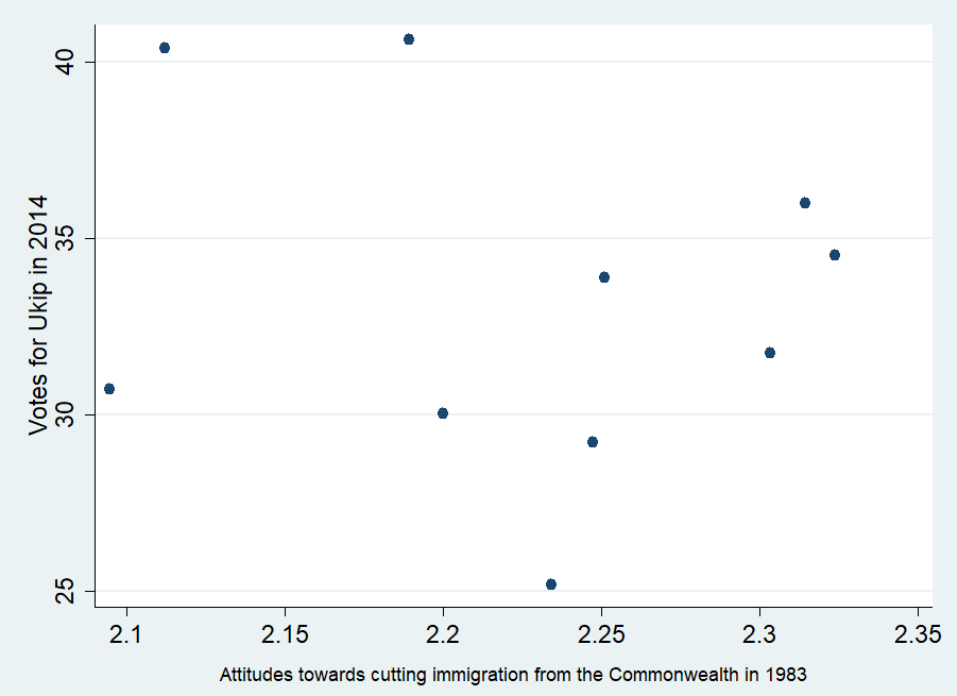
	(1) Immigrants in 1981	(2) Ukip
EU Referendum 1975	0.0294	0.131
	(0.0203)	(0.0995)
Controls	YES	YES
Regional fixed effects	YES	YES
Year fixed effects		YES
Observations	344	1035
R^2	0.622	0.644

OLS. Errors are clustered at the regional level in parentheses. In regression (1), controls include unemployment and age older than 65 in 1981 at the LAU level. In regression (2), controls include population, population density, unemployment, the percentage older than 65, higher education and income. The 1975 EU referendum results are at the county council level. $*$ p < 0.1, $**$ p < 0.05, $***$ p < 0.01

There is also empirical evidence that this shock has occurred, and it is both general and specific with respect to the immigration topic. As seen in regression (2) in Table 6, we show with a pooled OLS estimation over all of our time-variant and time-invariant controls that votes for Ukip do not depend on the results of the 1975 European Referendum. More specifically with respect to migration, in Figure 5, we show the share of votes for Ukip in 2014 by regions in relation to attitudes toward immigrants in 1983, codified in ranges from 1 (gone too far) to 3 (not gone far enough). This last bit of data originates from the 1983 wave of the British Election Studies, which comprises slightly less than 4000 observations. There is no significant difference in the consensus for Ukip between the areas where individuals were, on average, worried about the number of immigrants living in the UK and the areas where individuals were not worried. Both of these analyses support the idea that there was a political shock between 1981 and the years that we considered for our main analysis.

The figures for immigrants in Local Authority Units in 1981 are obtained from the 1981 census. We eliminated Harrogate from the units observed because it is missing from the census. This census divided immigrants into seven subgroups (Old Commonwealth, New Commonwealth, Pakistani, Irish, European Community, other Europeans and rest of the world), and we exploit this categorization in creating the instruments.

Fig. 5 Attitudes toward cutting immigration in 1983 and percentage of votes for Ukip in 2014



Data on attitudes toward migrations originate from the 1983 wave of the British Election Study. Each point represents a region.

5 Results

Table 7 shows the main results of our analysis. The first column corresponds to OLS estimates of standard eq. 3 without fixed effects. Here, we exploit both cross-section and time variability. As controls, both time-variant variables and time-invariant variables are included. Between these variables are regional and year fixed effects. In contrast to previous studies, we do not find that the share of immigrants has a positive effect on votes for Ukip: the coefficient is significant at the 10 percent level and negative (-0.11).

In column (2), we report the OLS results of the DL model in eq. 3. The same estimation corresponding to the specifications in eq. 2. is reported in Appendix 3. Once the appropriate linear transformations are considered, the coefficients are the same. This approach enables us to obtain the standard errors of the original specification. Recent immigration flows have significant and positive effects. A 1 percentage point increase in new flows is associated with an increase of 0.25 p.p. in votes for Ukip. Note that the coefficient associated with the

share of immigrants decreases to -0.25, which indicates that some of the positive effects of the immigrant flows were captured in the previous model by the share of immigrants, which is consistent with the theoretical underpinnings of our econometric analysis.

Column (3) provides the results of the specification with local authority fixed effects. Time-invariant variables are excluded from the analysis. This specification addresses many time invariant endogeneity concerns, such as measurement errors, omitted variables, and reverse causality. The coefficient of recent flows remains significant and greater than the coefficient of the share of immigrants (which remains negative but not significant). Both coefficients are smaller in magnitude when we consider fixed effects, which indicates that omitted variables related to political preferences at the LAU level were likely driving the coefficients up.

Table 7 Main results

	(1) OLS Ukip	(2) OLS Ukip	(3) FE Ukip	(4) FE-IV 2SLS Ukip	(5) FE-IV 3SLS Ukip	(6) FE-IV 2SLS Ukip
Immigrant share	−0.111*	−0.235***	−0.100	−1.666**	−1.666***	−1.864***
	(0.050)	(0.053)	(0.057)	(0.835)	(0.509)	(0.408)
Immigration flows		0.253***	0.077**	1.163***	1.163***	1.108***
		(0.052)	(0.027)	(0.230)	(0.187)	(0.243)
Unemployment	0.600	0.542	1.168**	0.506	0.506**	0.514
	(0.369)	(0.362)	(0.450)	(0.480)	(0.243)	(0.490)
Under 35	0.215**	0.203**	1.025*	1.046	1.046**	0.943*
	(0.086)	(0.084)	(0.495)	(0.661)	(0.444)	(0.541)
Over 65	0.632***	0.570***	1.028**	−0.714	−0.714	−0.916
	(0.153)	(0.123)	(0.416)	(1.107)	(0.608)	(0.561)
Population	−0.002	−0.001	−0.106**	0.048	0.048	0.054
	(0.003)	(0.003)	(0.034)	(0.096)	(0.050)	(0.096)
Density	−0.354***	−0.074	−3.543*	0.112	0.112	−0.767
	(0.108)	(0.120)	(1.836)	(5.593)	(2.270)	(4.421)
High Education	1.753	1.882				
	(2.360)	(2.236)				
Income	0.001**	0.011**				
	(0.004)	(0.004)				
Year fixed effects	YES	YES	YES	YES	YES	YES
Regional fixed effects	YES	YES	NO	NO	NO	NO
KP F-stat				17.00		587.45
Observations	1035	1035	1035	1032	1032	1032
R^2	0.658	0.670	0.794	0.685	0.749	0.685

Errors clustered at regional level in parentheses. Immigrant share is computed over total municipality population. For the FE-IV estimations, we use as an instrument the share of immigrants by LAU in 1981 (more details in the paper). In column (6), we consider as instruments the polynomial of the share of immigrants and immigration flows of degree two. The Hansen test of overidentification of multiple

instruments does not reject the null hypothesis of validity of the instruments (chi-sq = 3.62, p = 0.1634). ∗ p < 0.1, ∗∗ p < 0.05, ∗∗∗ p < 0.01

The more robust estimations are in columns (4), (5) and (6), in which we complement LAU fixed effects with the instrumental variable approach presented in the previous section, with a 2SLS estimation, a 3SLS estimation or by adding the quadratic term of the instruments. In these estimates, we account for all endogeneity concerns. The Kleibergen-Paap F statistic on multiple instruments when we only consider the linear term of the instruments is 17, which is greater than the level of 10 that typically causes concerns for weak instruments. When we consider the quadratic term of the instruments, the F increases up to 587.45, which indicates the relevance of nonlinear effects in immigrants' exploitation of pre-existing ethnic networks. Both coefficients associated with the share and recent flows of immigrants remain significant and with the same sign, although the former is less significant. They both increase in magnitude. Areas where there has been an acceleration of new arrivals by 1 percentage point see an increase in votes for Ukip by 1.1-1.2 p.p. In contrast, an increase of 1 p.p. in the share of immigrants corresponds to 1.7-1.9 p.p. fewer votes for Ukip. To put it differently, a one-standard deviation increase in immigration flows and in the share of immigrants entail an increase in votes for Ukip of 0.68 percent of its standard deviation and a decrease of 1.71, respectively. This increase in the size of the coefficients is consistent with previous results, specifically with Halla et al. (2017) and Harmon (2018), and its size is similar to Barone et al. (2016) and Dustmann et al. (2018). In particular, it suggests that there is a downward bias for OLS and the FE coefficients of immigration flows and an upward bias for OLS and the FE coefficients of the share of immigrants.

6 Robustness

6.1 Political preferences, internal migration flows and turnout

We discuss here two important issues that may affect our results: internal migration flows and the electoral turnout.

An important body of the previous literature (Card and Di Nardo 2000; Borjas 2006; Peri and Sparber 2011) has argued that cross-regional analyses are invalidated because natives decide to relocate in response to immigration flows. In the case of political preferences, individuals with more anti-immigrant attitudes could move to other regions because of the arrival of new immigrants. To date, the existing studies have produced scant evidence of the so-called *skating rink* effect, according to which "each new immigrant knocks a native off the ice". We do not make *a priori* hypotheses; however, we explicitly test for it as a robustness check. In our case, the effect of a negative sentiment related to immigration might have pushed anti-immigrant natives to migrate internally, thus reducing

the number of individuals voting for Ukip in areas with high concentrations of immigrants. We add net internal migration flows in our empirical strategy to control for this potential bias. In particular, we distinguish between the internal migrations of natives and foreign-born citizens, both deriving from the Internal Migration Dataset of the ONS, and we regress the net flows of natives on the flows of immigrants. We subsequently use the fitted values, i.e., the relocation decisions of natives due to immigration, as a control.

Table 8 Internal migrations and electoral turnout

	(1) Ukip	(2) Ukip	(3) Ukip
Immigrant share	−1.666**	−1.514*	−1.666*
	(0.835)	(0.902)	(0.870)
Immigration flows	1.163***	1.137***	1.139***
	(0.230)	(0.204)	(0.230)
Unemployment	0.506	0.530	0.631
	(0.480)	(0.470)	(0.443)
Under 35	1.046	0.868	1.044
	(0.661)	(0.548)	(0.672)
Over 65	−0.714	−0.601	−0.646
	(1.107)	(1.151)	(1.139)
Population	0.0474	0.0441	0.0404
	(0.0964)	(0.0860)	(0.0949)
Density	0.112	−0.0125	−0.170
	(5.593)	(5.512)	(5.525)
Internal flows		−680.0	
		(863.1)	
Electoral Turnout			0.114
			(0.0798)
Year fixed effects	YES	YES	YES
KP F-stat	17.00	36.84	18.98
Observations	1032	1032	1032
R^2	0.685	0.693	0.691

Errors clustered at regional level in parentheses. All models are FE-2SLS. Immigrant share is computed over total municipality population. All regressions are estimated with the IV approach explained in section 4.2 (refer to column (4) of Table 7 for the baseline specification). $*$ p < 0.1, $**$ p < 0.05, $***$ p < 0.01

Similarly, it has been argued that radical right parties' results may be related to electoral turnout. There is mixed evidence regarding this issue; however, some studies have found that radical right parties benefit from low turnout (Immerzeel and Pickup 2015; Stockemer 2017; Abbondanza and Bailo 2018). If individuals who attend the elections have more anti-immigrant preferences due to this effect, taking into consideration the electoral turnout permits to better pin down the coefficient of the level and flows of immigrants. Therefore, we introduce the share of turnout at elections as a control in our main specification.

Table 8 shows that internal flows do not have a significant effect on the vote share for the Ukip party, which indicates that internal migrants are not selected with respect to their political preferences. As a result, the addition of the internal flows to the estimating equation does not produce a sizeable change in the other coefficients. The same goes for electoral turnout. While we find a positive relation between turnout and votes for Ukip, it is not significant, and there is no change in the other coefficients.

6.2 Immigrants' effects on other political outcomes

As a robustness check, we examine the political outcomes of other parties and with the turnout in the same European elections. If our results are robust, we should find some consistency between the short-run effects related to immigration flows regarding votes for other parties and their agendas regarding migration.

In Table 9, we consider the fixed effects 2SLS specification of the model (column 4 in Table 7) and change the dependent variable. We test the effects of the share of immigrants and their recent flows on votes for the Conservative party, votes for the Labour party and turnout at the elections.

Table 9 Other political outcomes

	Conservative	Labour	Turnout
Immigrant share	−0.499	0.310	−0.000
	(0.349)	(0.260)	(0.611)
Immigration flows	−0.129	−0.602**	0.212
	(0.244)	(0.262)	(0.165)
Unemployment	−0.038	0.121	−1.092***
	(0.369)	(0.236)	(0.273)
Under 35	0.570	−2.125***	0.013
	(0.512)	(0.411)	(0.234)
Over 65	−0.342	−0.729*	−0.596
	(0.542)	(0.389)	(0.455)
Population	−0.051	0.093	0.062
	(0.066)	(0.061)	(0.041)
Density	−1.057	−0.937	2.475
	(2.459)	(2.865)	(1.971)
Year fixed effects	YES	YES	YES
KP F-stat	17.00	17.00	17.00
Observations	1032	1032	1032
R^2	0.343	0.379	0.343

Errors clustered at regional level in parentheses. All models are FE-2SLS. Immigrant share is computed over total municipality population. All regressions are estimated with the IV approach explained in section 4.2 (refer to column (4) of Table 7 for the baseline specification). $*$ p < 0.1, $**$ p < 0.05, $***$ p < 0.01

The Labour party in these years was much in favor of immigration. We previously cited Tony Blair, who viewed immigration as a measure of the success of the UK. There is also speculation that favoring immigration was a deliberative policy of the Labour governments of the 1990s and 2000s[8]. In contrast, Conservatives' view in these years was more nuanced. In a political speech to his party in 2011, David Cameron explicitly stated regarding immigration "I believe the role of politicians is to cut through the extremes of this debate and approach the subject sensibly and reasonably". He noted the great contributions of immigrants to the UK's life and at the same time the need to ease the increasing pressure on the UK's borders.

Our results are as consistent with these parties' attitudes toward migration as they were with votes for Ukip. In fact, we do not identify a significant effect of share or flows of immigrants on votes for the Conservative party. Citizens likely did not see the party's position on immigration as a clear stance on the matter. In contrast, there is a 0.6 p.p. significant and negative effect of recent flows of immigrants on votes for the Labor party. Given their policies on issues related to immigration, this outcome is not surprising. We do not identify a significant effect on turnout for European elections: immigration flows pushed individuals in local authorities to vote more for Ukip and not abstain from the vote in protest. Note that all of these models have lower goodness of fit than the model on Ukip, ranging from 0.343 to 0.379 compared to 0.685. It truly seems that differences in attitudes regarding migration might explain this difference.

7 Additional results

7.1 Heterogeneity by areas

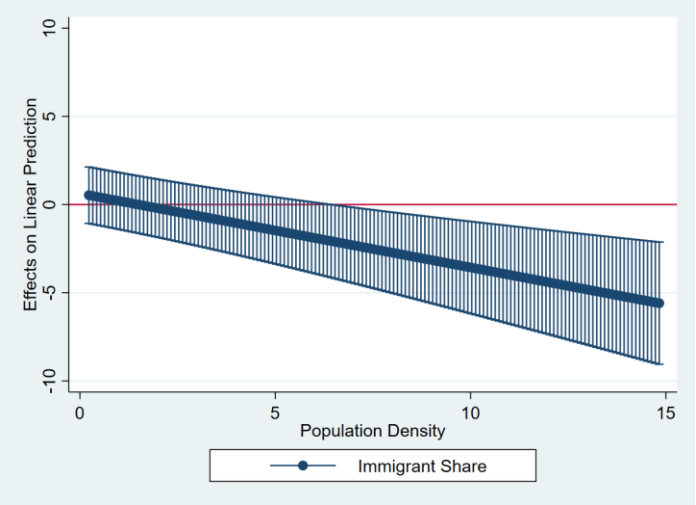
The literature to which we contribute has found evidence of relevant heterogeneity in the immigrants' effects by socioeconomic features, particularly in the gradient big cities-small municipalities. The effect of the presence of immigrants is higher in small municipalities than in big cities (Barone et al. 2016; Becker and Fetzer 2016; Dustmann et al. 2018). As noted in the introduction, our distinction between stock and flows may explain this difference because it captures the different immigration history of the areas. If both coefficients remain significant and with the same sign regardless of the size of the municipality, the "hate at first sight" effect would explain much of the previous evidence. Therefore, to test this hypothesis, we proceed in three steps. First, as we have electoral results at the LAU level, we use the population density as a proxy of this geographical heterogeneity and compute the same model of our preferred specification adding an interaction term of the stock of immigrants with the density. In this way, we intend to reproduce previous findings. Second, we add an interaction term between population

[8] https://www.migrationwatchuk.org/press-article/83

density and the flows of immigrants to test whether the distinction helps explain previous findings.

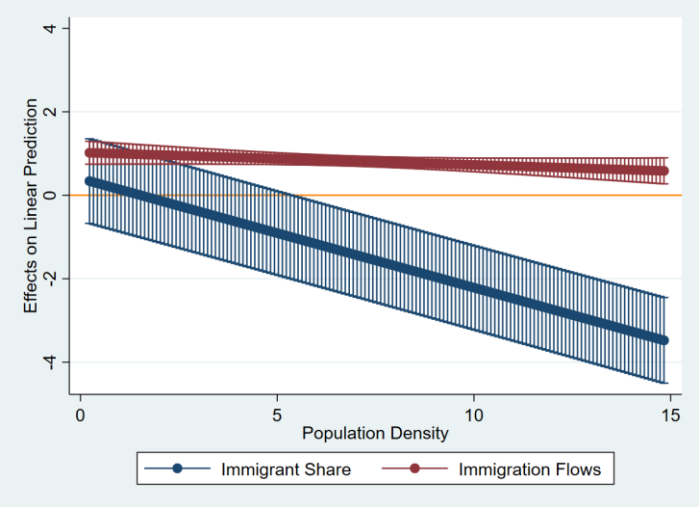
The results from the first two steps are shown in Figures 6 and 7. The underlying regressions are presented in Appendix 4. In Figure 6, we represent the effect of the immigrant share by population density. We reproduce previous findings. For low-density areas, the effect of the immigrant share is positive; however, it is not significant. In our dataset, 50 percent of the LAUs have a population density below 0.55; thus, the number of areas where this effect is positive is not negligible. Figure 7 shows that disentangling flows and share of immigrants does not completely explain this result. On one side, the effect of the immigration flows is significant and positive at all levels of population density. Regardless of the population density, the effect has almost a uniform magnitude, albeit slightly decreasing. This result runs counter to previous findings. Disentangling the time components of the immigrants' effect isolates a short-run effect, which is robust to heterogeneity in areas. On the other side, the effect of the share of immigrants maintains the same attributes of the previous analysis. It is positive for low-density areas and negative for high-density areas. Therefore, we can conclude that our distinction provides insights on heterogeneity, although it does not fully explain previous findings in the literature.

Fig. 6 Average marginal effects of the immigrant share by population density



Regressions are FE-2SLS. Refer to Appendix 4.Confidence intervals in the figure are at 95 percent level.

Fig. 7 Average marginal effects of the immigrant share and immigration flows by population density



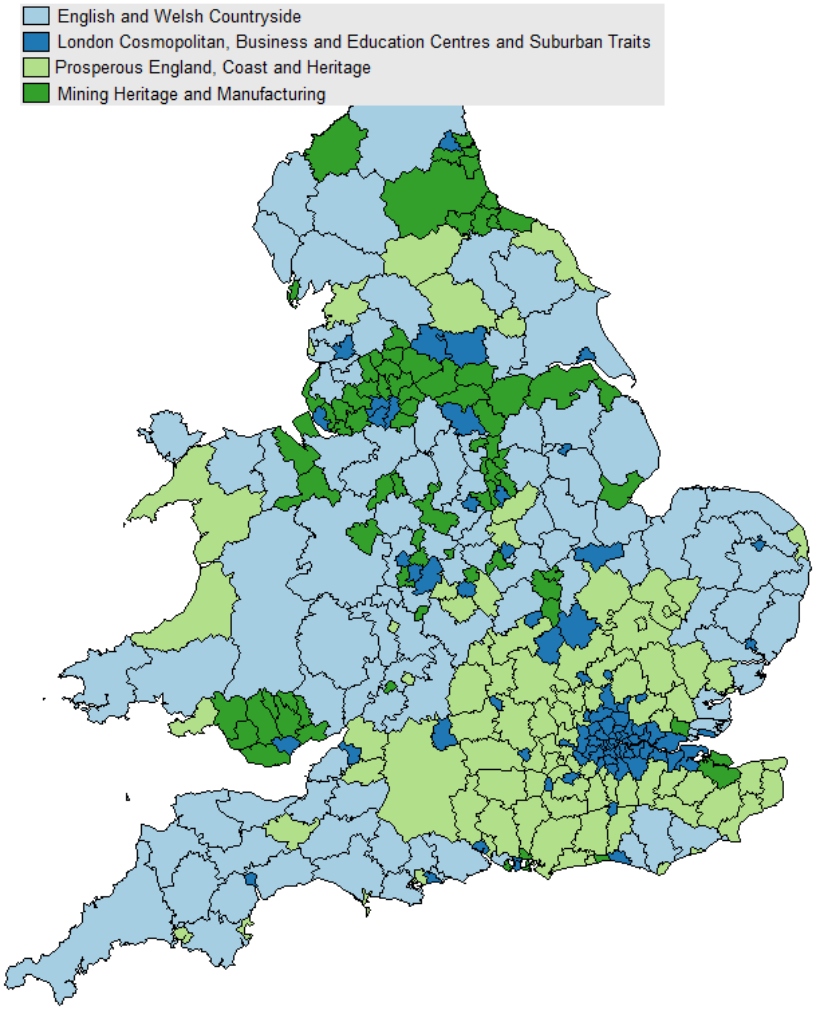
Regressions are FE-2SLS. Refer to Appendix 4. Confidence intervals in the figure are at 95 percent level.

Third, we further investigate this issue by exploiting a classification of the Local Administrative Level 1 in the 2011 UK Census based on 59 social variables. In particular, we aggregate areas using this classification to form 4 supergroups, as shown in Figure 8. The first supergroup corresponds to the category of "English and Welsh Countryside". Compared to the UK average, these individuals work more in agriculture, have lower education levels, are more home owners, married, and use more private transports. The second supergroup includes higher density areas with a more tertiary vocation, where the immigration incidence is higher as the weight of single young individuals who use public transports and rent flats. It includes the three categories "London cosmopolitan", "Suburban traits" and "Business and Education centres". The third category is a mixture of the first two supergroups; similar to the first one, it has a lower population density, individuals use more private transport or bicycle and are more home owners, while similar to the second one, it is characterized by a broader service sector and has a higher weight of medium and high education levels. It includes "Prosperous England" and "Coast and Heritage". The last supergroup is the "Mining Heritage and Manufacturing", which comprises the "working class" areas that were the hard core of the Labor Party social base. In this class, immigration is below the average, low education is higher, as well as social renting and there is a higher presence of divorced and separated.

The results are shown in Table 10, where we use the same specification in column (1) of the main results (Table 7). As in the previous analysis, immigration flows have a positive and significant effect in all cases. Thus, this result is robust not only to heterogeneity in population density but also in social contexts. However, there is a relevant difference in the magnitude of the coefficient by supergroups. This coefficient is strikingly high in the "English and Welsh Countryside". The other supergroup where this effect is higher is the "working class" supergroup, which is consistent with the results on the Labour Party in

Table 9. Territorial specific features have an impact on the effect of immigration levels, which is not significant in the two low-density supergroups (columns (2) and (4)). Interestingly, the two supergroups in which the effect is significant are very different from each other. “London cosmopolitan, Suburban traits and Business and Education centres” and “Mining Heritage and Manufacturing” differ in education levels and economic activities; the former has higher education levels and more economic activities in services, while the latter has lower education levels and more industry. This evidence suggests that it may be better to go beyond the city-country dualism and explore other possible channels yielding this effect. It suggests that political and cultural factors may be relevant in explaining heterogeneity by subgroups of areas, as differences in both cosmopolitan attitudes and past political preferences may have affected these results.

Fig. 8 Areas by supergroup



This figure represents the areas divided by supergroup based on the 2011 UK Census.

Table 10 Results by supergroup areas

	Baseline	By supergroup of areas			
	(1) Ukip	(2) Ukip	(3) Ukip	(4) Ukip	(5) Ukip
Immigrant share	−1.864***	−0.807	−3.202***	0.044	−4.177***
	(0.408)	(0.984)	(0.521)	(0.891)	(1.140)
Immigration flows	1.108***	2.173***	0.966*	0.918**	1.554*
	(0.243)	(0.572)	(0.538)	(0.369)	(0.902)
Unemployment	0.514	−0.748	1.883**	0.540	−1.167*
	(0.490)	(0.586)	(0.745)	(0.472)	(0.653)
Under 35	0.943*	−0.161	1.181	−0.085	4.825*
	(0.541)	(1.455)	(1.012)	(0.631)	(2.670)
Over 65	−0.916	0.451	−2.186	−0.588	−4.534
	(0.561)	(0.964)	(2.927)	(0.680)	(3.170)
Population	0.054	0.083	0.032	0.190**	−0.183
	(0.096)	(0.163)	(0.155)	(0.087)	(0.218)
Density	−0.767	82.210	−2.793	−9.372	5.593
	(4.421)	(64.270)	(4.719)	(9.070)	(27.350)
Year fixed effects	YES	YES	YES	YES	YES
KP F-stat	587.45	10.41	42.14	64.75	14.26
Observations	1032	297	252	252	231
R^2	0.685	0.665	0.408	0.487	0.623

Errors clustered at regional level in parentheses. All models are FE-2SLS. Immigrant share is computed over total municipality population. All regressions are estimated with the IV approach explained in section 4.2 (refer to column (6) of Table 7 for the baseline specification). Area Classification for Local Authorities: column (1) is over all England and Wales, column (2) is English and Welsh Countryside, column (3) is London Cosmopolitan, Business and Education Centres and Suburban Traits, column (4) is Prosperous England, Coast and Heritage, and column (5) is Mining Heritage and Manufacturing. $*$ $p < 0.1$, $**$ $p < 0.05$, $***$ $p < 0.01$

7.2 Integration issues

Failures in integration might be related to competition in the labor market, social benefits, or crime. First, if there is no immediate integration in the local labor market, immigrants may increase unemployment. Second, benefit expenditures per capita may not adjust to the arrival of new immigrants. Third, failures in integration may induce an increase in crimes. Hostility toward immigrants could be caused by any of these issues.

We test for these possibilities by adding an interaction term to the baseline IV model. This term captures the effects of immigration flows in areas where there might have been integration issues. These areas are captured by a dummy that takes the value of 1 if they are characterized by higher than the average growth in the unemployment rate, the expenditures on social benefits per capita and the crime rate.

Table 11 Interactions with immigration flows

	(1) Ukip	(2) Ukip	(3) Ukip	(4) Ukip
Immigrant share	−1.864***	−1.776***	−2.047***	−1.875***
	(0.408)	(0.384)	(0.438)	(0.373)
Immigration flows	1.108***	0.833***	1.776***	1.087***
	(0.243)	(0.305)	(0.312)	(0.251)
Unemployment	0.514	0.550	0.584	0.531
	(0.490)	(0.383)	(0.541)	(0.529)
Under 35	0.943*	0.908*	0.807*	0.909*
	(0.541)	(0.467)	(0.485)	(0.537)
Over 65	−0.916	−0.840*	−1.297**	−0.927*
	(0.561)	(0.490)	(0.657)	(0.544)
Population	0.054	0.042	0.034	0.054
	(0.096)	(0.096)	(0.078)	(0.096)
Density	−0.767	−1.821	1.199	−0.983
	(4.421)	(4.567)	(6.781)	(4.289)
ΔUnemployment		−4.193*		
		(2.453)		
Immigration flows*ΔUnemployment		0.642*		
		(0.366)		
ΔBenefits			1.656*	
			(0.909)	
Immigration flows*ΔBenefits			−0.948***	
			(0.326)	
ΔCrime				−0.343
				(0.390)
Immigration flows*ΔCrime				0.008
				(0.136)
Year fixed effects	YES	YES	YES	YES
KP F-stat	587.45	222.43	373.24	167.80
Observations	1032	1032	1032	1032
R^2	0.685	0.653	0.607	0.686

Errors clustered at regional level in parentheses. Immigrant share is computed over total municipality population. All regressions are estimated with the IV approach explained in section 4.2 (refer to column (6) of Table 7 for the baseline specification). ∗ p < 0.1, ∗∗ p < 0.05, ∗∗∗ p < 0.01

The results in Table 11 suggest that although adjustment costs to new migration inflows matter, there is substantially more that is left unexplained. Only interactions with areas that have spent more on benefits are significant. Not surprisingly, it is negative, which indicates that in areas where there is a reduction in benefit expenditures per capita, immigration flows have a greater positive effect on votes for Ukip. However, the two effects do not compensate for each other. The effect of recent flows remains positive after subtracting the interaction term. The remainder of the interaction terms are not strongly significant, although they go in the right direction and slightly decrease the coefficient associated with immigration flows. Only the coefficient associated with the variation in unemployment is

weakly significant, which suggests that previous results in the literature related to the presence of immigrants may also hold for flows.

Nevertheless, in contrast to previous literature, we do not draw conclusions regarding individual preferences. Rather, we focus on the identification of local socioeconomic conditions that push the vote for anti-immigration parties. Therefore, what we have stressed is not the existence of competition mechanisms between natives and immigrants but the suitability of a territory to properly integrate the newly arrived. This perspective accounts for the *ecological fallacy* caveat, according to which one should be very cautious in inferring about individual behaviors from group analyses.

8 Discussion and conclusions

This paper analyzes the impact of migrant inflows on votes. It modifies the standard IV strategy used in the literature to test the dynamic aspects of the political effect of immigration, and it considers a distributed lag specification and the correspondent additional tests for the rank and order conditions. We built a panel dataset based on England and Wales at the LAU level (345 territorial units) by matching data from different administrative sources with the electoral data on European elections from 2004 to 2014.

Focusing on the UK Independence Party, our results robustly support the hypothesis that the time path of immigration is essential; immigration flows have a positive effect on the political consensus over anti-immigration parties, although this is a short-run effect and it vanishes before the parliamentary term. Accordingly, to understand the effects of immigration on the popular vote by simply analyzing the stock of immigrants *per se* can be deceptive. In the case of Ukip, the stock of immigrants *per se* would have exerted a negative effect on votes, although one that was barely significant. However, considering immigrant flows enables us to find evidence that immigration was indeed a key factor in boosting votes for Ukip. As additional results, we find that the short run-effect is independent of the size of cities. At the same time, we find suggestions that considering different subgroups of areas based on social resemblance may provide insights into the cultural and political motives for hostility toward immigrants. Finally, introducing interactions between immigration flows and changes in unemployment, benefit expenditures and crimes suggests that adjustments in welfare systems might be an issue. We find that areas where there is a quicker increase in welfare after the arrival of new immigrants become less hostile toward new immigrants.

Our results provide insights into policy issues. First, if immigration flows drive hostility toward immigrants more than their share, it undermines some explanations for the emergence of anti-immigrant agendas and their corresponding proposed policies. Racism, changes in the equilibrium in the labor market and compositional concerns might be less relevant than other mechanisms, although they typically attract significant attention in both economic research and the media. Second, policies should focus more on integration over

its cultural, social and economic sides. Over time, social forces can drive toward integration; however, it would likely be better if policies expedited this process. Third, a positive effect related to immigration flows indicates that there is a need to pay closer attention to how flows are distributed over time and space: it is probably better to allow immigrants to arrive in small waves rather than large ones and distribute recent arrivals in a homogenous manner, rather than having immigrants concentrate in certain areas.

In conclusion, we wish to note that our analysis is necessarily only a starting point. The elements that underlie the short- and long-term effects and the relationship between the two remain to be better investigated. There might be attitudes rooted in culture that could derive from historical events, such as decolonization or racism. However, it could also be that failures in integration policies are responsible for these effects. Moreover, we are not fully aware of the roles played by the media and political narratives. Given the current relevance of "postfactual" phenomena, there is a need to investigate this issue.

In the 1930s, alternative facts and propaganda in Europe were fueling prejudices against ethnic or religious minorities. At that time, similar to now, the same arguments over minorities, tinged with nationalist tones, were propagated about immigrants. There would appear to be nothing new under the sun. At the same time, over the last twenty years, there has been an unprecedented rise in immigration flow across Europe. Both issues determine the need to further investigate the political impact of migration. Our contribution to the subject is the conclusion that the effect of immigration on voting patterns depends on the specific time path of immigration.

The authors declare that they have no conflict of interest.

References

Abbondanza G, Bailo F (2018) The electoral payoff of immigration flows for anti-immigration parties: the case of Italy's Lega Nord. Eur Political Sci, 17:378-403.

Allport GW (1954) The nature of prejudice. Addison-Wesley, Oxford.

Altonji JG, Card D (1991) The effects of immigration on the labor market outcomes of less-skilled natives. In: Abowd J M and Freeman R B (ed), Immigration, Trade and the Labor Market, pp. 201–234. University of Chicago Press.

Arrow K (1971) The theory of discrimination. Discrimination in labor markets 3(10):3-33.

Barone G, D'Ignazio A, De Blasio G, Naticchioni P (2016) Mr. Rossi, Mr. Hu and politics. The role of immigration in shaping natives' voting behavior. J Public Econ 136:1 – 13.

Bartel AP (1989) Where do the new U.S. immigrants live?. J Labor Econ 7(4):371–391.

Bauer T, Epstein G S, and Gang, I N (2007) The influence of stocks and flows on migrants' location choices. Res in Labor Econ 26:199-229.

Becker SO, Fetzer T (2016) Does migration cause extreme voting?. Center for Competitive Advantage in the Global Economy and The Economic & Social Research Council.

Becker SO, Fetzer T, Novy D (2017) Who voted for Brexit? A comprehensive district-level analysis. Econ Policy 32(92):601-650.

Beine M, Docquier F, Özden Ç (2011) Diasporas. J Dev Econ 95(1): 30–41.

Bianchi M, Buonanno P, and Pinotti P (2012) Do immigrants cause crime?. J Eur Econ Assoc 10(6):1318-1347.

Borjas GJ (2006) Native internal migration and the labor market impact of immigration. J Hum Resour 41(2):222–258.

Brunner B, Kuhn A (2018) Immigration, Cultural Distance and Natives' Attitudes Towards Immigrants: Evidence from Swiss Voting Results. Kyklos 71(1):28-58.

Card D (2001) Immigrant inflows, native outflows, and the local market impacts of higher immigration. J Labor Econ 19:22–64.

Card D, Di Nardo J (2000) Do immigrant inflows lead to native outflows? Am Econ Rev 90(2):360–367.

Card D, Dustmann C, Preston I (2005) Understanding attitudes to immigration: the migration and minority module of the first european social survey. CDP Discussion Paper Series 03/05, Centre for Research and Analysis of Migration, University of London.

Card D, Dustmann C, Preston I (2012) Immigration, wages, and compositional amenities. J Eur Econ Assoc 10(1):78–119.

Cesur R, Mocan N (2018) Education, religion, and voter preference in a Muslim country. J Popul Econ, 31(1):1-44.

Colantone I, Stanig P (2018) Global competition and Brexit. Am Pol Sci Rev 112(2):201-2018.

Cortés P, Pan J (2014) Foreign nurse importation and the supply of native nurses. J Health Econ 37:164–180.

Dustmann C, Preston I (2007) Racial and economic factor in attitudes to immigration. The BE J Econ Anal Policy (Contributions) 7(1):1–39

Dustmann C, Vasiljeva K, Damm AP (2018) Refugee migration and electoral outcomes. Rev Econ Stud rdy047.

Epstein GS, Heizler-Cohen OH (2016) The formation of networks in the diaspora. Int J Manpow 37(7):1136-1153.

Facchini G, Mayda AM (2009) Does the welfare state affect individual attitudes toward immigrants? Evidence across countries. Rev Econ Stat 91(2):295–314.

Halla M, Wagner AF, Zweimüller J (2017) Immigration and voting for the far right. J Eur Econ Assoc 15(6):1341-1385.

Harmon NA (2018) Immigration, ethnic diversity, and political outcomes: Evidence from Denmark. Scand J Econ 120(4):1043-1074.

Immerzeel T, Pickup M (2015) Populist radical right parties mobilizing 'the people'? The role of populist radical right success in voter turnout. Elect Stud 40:347-360.

Jaeger DA, Ruist J, Stuhler J (2018) Shift-Share Instruments and the Impact of Immigration. NBER Working Paper No.24285.

King G (1997) A solution to the ecological inference problem. Princeton University Press, Princeton.

Mayda AM (2006) Who is against immigration? A cross-country investigation of individual

attitudes toward immigrants. Rev Econ Stat 88(3):510–530.

Mayda AM (2010) International migration: A panel data analysis of the determinants of bilateral flows. J Popul Econ 23(4):1249–1274.

Mayda AM, Peri G, Steingress W (2016) Immigration to the US: A Problem for the Republicans or the Democrats? NBER Working Paper No.21941.

Mendez I, Cutillas IM (2014) Has immigration affected Spanish presidential elections results? J Popul Econ 27(1):135-171.

Otto AH, Steinhardt MF (2014) Immigration and election out-comes—evidence from city districts in Hamburg. Reg Sci Urban Econ 45:67–79.

Peri G, Sparber C (2011) Assessing inherent model bias: An application to native displacement in response to immigration. J Urban Econ 69: 82–91.

Pesaran MH (2007) A simple panel unit root test in the presence of cross-section dependence. J Appl Econom 22(2):265-312.

Rotte R, Steininger M (2009) Crime, unemployment, and xenophobia? An ecological analysis of right-wing election results in Hamburg, 1986-2005. Rev Reg Res 29:29-63

Scheve KF, Slaughter MJ (2001) Labor market competition and individual preferences over immigration policy. Rev Econ Stat 83(1):133-145.

Slotwinski M, Stutzer A (2019) The deterrent effect of an anti-minaret vote on foreigners' location choices. J Popul Econ 32: 1043–1095

Steinmayr A (2016) Exposure to refugees and voting for the far-right: (Unexpected) results from Austria. IZA Discussion Papers 9790.

Stockemer D (2017) The success of radical right-wing parties in Western European regions–new challenging findings. J Contemp Eur Stud 25(1):41-56.

Vertier P, Viskanic M (2018) Dismantling the "Jungle": Migrant Relocation and Extreme Voting in France. CESifo Working paper 6927.

Viskanic M (2017) Fear and loathing on the campaign trail: did immigration cause Brexit?. https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=2941611

Appendix 1 Biases of mis-specified lag structures

$$y_{i,t} = \alpha + \beta x_{i,t} + \gamma w_{it} + \varepsilon_{it} \text{ (A1)}$$

If instead the true relationship has a dynamic dimension, such a model is mis-specified since a more general case of eq. 1 should be considered. The consistent estimator $\hat{\beta}$ for the parameter β of eq. A1 would be a consistent estimator of the parameter β^0 of the true model in eq. 1 only if there is no serial correlation of *x;* thus, we can consider each lag as a different omitted variable which does not affect the correlation with the error term. A lack of serial correlation is clearly not so for the case of the immigration level variable. Conversely, if the $x_{i,t}$ serial correlation is 1, the estimated coefficient $\hat{\beta}$ estimated would be a consistent estimator of the sum of all the coefficients $\beta^0, \beta^1, .., \beta^L$ since the lags of *x* converge in *plim* to *x*. The unit root test that we performed confirms that this scenario is also not the case for immigration in the UK. In all other cases, the estimated $\hat{\beta}$ would be a consistent estimator of a linear combination of the true parameters $\beta^0, \beta^1, .., \beta^L$ with weight given by the serial correlation of *x* with each specific lag *l*. In cases in which the coefficients may have different signs, as the one of this paper, the estimated $\hat{\beta}$ could also have the opposite sign of both: the "true" coefficient β^0 and the sum of all coefficients.
In our specific case, since the effect of new flows is different from the effect of overall immigration, the bias of the estimations of the overall effect of immigration will be higher when flows and stock are less correlated, that is, when there is a process of change in the location of migrants. The sensitivity of the results to the large city/country found in the literature that we have considered in section 2 could be the result of the different effect of immigration in new, rather than the oldest, destinations of migration.

Appendix 2 Identification of OLS and IV estimations in the case of eqs. 2 and 3.

The finite lag model can be interpreted as a non-linear case based on the lag operator. Using Wooldridge's (2010, pg. 342) notation, we can write:

$$y = m(x, \boldsymbol{\theta_0}) + u = \alpha + \beta^0 x + \theta g(x) + u \qquad \text{(A2)}$$

where using the lag operator L (which maps x_t onto x_{t-l}), the function $g(x)$ is equal to Lx for eq. 2 and to $(1-L)x$ for eq. 3. Since the specifications are linear in the parameters (the lag operator is an algebraic function), if we have an instrument z_t for x_t at any $t \in (1-l; 1; ...; T-l; T)$, we can rely on standard 2SLS estimations by adding $g(z)$ as instrument for $g(x)$ (ibid pg. 235). It is analogous to the linear case of two distinct endogenous variables instrumented with two distinct instruments.
Regarding the identification conditions, the order condition is satisfied since we have in each equation the number of excluded endogenous variables, and the number of included

exogenous ones corresponds; however, for the rank condition, the dynamic relation between the instruments impose a further condition. Indeed, the covariance matrix of the estimator is given in the two cases of eqs. 2 and 3, respectively, by:

$$\begin{bmatrix} x_t{}' z_t & x_t{}' z_{t-l} \\ x_{t-l}{}' z_t & x_{t-l}{}' z_{t-l} \end{bmatrix} \text{(A3)}$$

$$\begin{bmatrix} x_t{}' z_t & x_t{}' (z_t - z_{t-l}) \\ (x_t - x_{t-l})' z_t & (x_t - x_{t-l})' (z_t - z_{t-l}) \end{bmatrix} \text{(A4)}$$

If one of the two variables *x* and *z* has unit roots, in both cases, the expectation and the *plim* of this matrix would not have full ranks. In the case in A3, the rows or the column would correspond; in the second case, one column or one raw number would be null.

Appendix 3 Results using the specification in eq. 2

We report in Table 12 an alternative version of table 6 with regressions on the original FDL specification in eq. 2. By construction, the coefficient of the lagged immigrant share is equal to the opposite of the coefficient of the flows in table 6, while the coefficient of the first raw number is equal to the sum of the coefficients of the two first raw numbers in table 6. While standard errors change, the results are all confirmed.

Table 12 Main results using the original FDL specification in eq. 2

	(1) OLS	(2) OLS	(3) FE	(4) FE-IV 2SLS	(5) FE-IV 3SLS	(6) FE-IV 2SLS
	Ukip	Ukip	Ukip	Ukip	Ukip	Ukip
Immigrant share	−0.111*	0.018	−0.023	−0.502	−0.502	−0.756*
	(0.050)	(0.061)	(0.043)	(0.989)	(0.523)	(0.415)
Lagged immigrant share		−0.253***	−0.077**	−1.163***	−1.163***	−1.108***
		(0.052)	(0.028)	(0.230)	(0.187)	(0.243)
Unemployment	0.600	0.542	1.168**	0.506	0.506**	0.514
	(0.369)	(0.362)	(0.450)	(0.480)	(0.243)	(0.490)
Under 35	0.215**	0.203**	1.025*	1.046	1.046**	0.943*
	(0.0857)	(0.0835)	(0.495)	(0.661)	(0.444)	(0.541)
Over 65	0.632***	0.570***	1.028**	−0.714	−0.714	−0.916
	(0.153)	(0.123)	(0.416)	(1.107)	(0.608)	(0.561)
Population	−0.002	−0.001	−0.106**	0.047	0.047	0.054
	(0.00303)	(0.003)	(0.033)	(0.096)	(0.050)	(0.096)
Density	−0.354***	−0.0738	−3.543*	0.112	0.112	−0.767
	(0.108)	(0.120)	(1.836)	(5.593)	(2.270)	(4.421)
High Education	1.753	1.882				
	(2.360)	(2.236)				
Income	0.001**	0.011**				
	(0.004)	(0.004)				
Year fixed effects	YES	YES	YES	YES	YES	YES
KP F-stat				17.00		587.45
Observations	1035	1035	1035	1032	1032	1032
R^2	0.658	0.670	0.794	0.685	0.749	0.685

Errors clustered at regional level in parentheses. Immigrant share is computed over total municipality population. For the FE-IV estimations, we use as instrument the share of immigrants by LAU in 1981 (more details in the paper). In column (6), we consider as instrument the polynomial of the share of immigrants and of immigration flows of degree two. The Hansen test of overidentification of multiple instruments does not reject the null hypothesis of validity of the instruments (chi-sq = 3.62 , p = 0.1634). ∗ p < 0.1, ∗∗ p < 0.05,∗∗∗ p < 0.01

Appendix 4 Regressions by population density

In this Appendix we report the underlying regressions to the Figures 7 and 8 on the average marginal effects of the immigrant share and of the immigration flows. In column (1), in order to reproduce previous findings we change our model by removing the immigration flows and by adding the interaction term of the immigrant share with the population density (as a continuous variable), in column (2) we add an interaction term of the immigration flows too.

Table 13 Regressions with the interaction terms with the population density

	(1) Ukip	(2) Ukip
Immigrant share	0.582	0.399
	(2.204)	(0.517)
Immigration flows		1.025***
		(0.144)
Unemployment	0.486	0.390
	(0.605)	(0.560)
Under 35	−0.873	0.620
	(1.587)	(0.610)
Over 65	−0.783	0.121
	(0.563)	(0.374)
Population	−0.017	0.001
	(0.053)	(0.054)
Density	8.880	6.715***
	(10.940)	(1.617)
Immigrant share*Density	−0.522**	−0.261***
	(0.259)	(0.013)
Immigration flows*Density		−0.030
		(0.019)
Year fixed effects	YES	YES
KP F-stat	87.013	89.68
Observations	1032	1032
R^2	0.183	0.564

Errors clustered at regional level in parentheses. All models are FE-2SLS. Immigrant share is computed over total municipality population. All regressions are estimated with the IV approach explained in section 4.2 (refer to column (6) of Table 7 for the baseline specification). $*$ p < 0.1, $**$ p < 0.05,$***$ p < 0.01