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Immigration, ethnic diversity and voting: the role of individual income*

Giorgio Bellettini† Carlotta Berti Ceroni‡ Chiara Monfardini§

Abstract

We exploit a unique panel dataset merging data on individual socio-economic characteristics and individual turnout in an Italian municipality to investigate the relationship between ethnic diversity in residential neighborhoods and propensity to vote. Using these data, we document for the first time a differential effect of diversity on electoral turnout depending on household equivalent income. Specifically, we show that ethnic diversity in the neighborhood reduces the political participation of the poor, while it fosters that of the more affluent. These results highlight a potential democratic deficit stemming from reduced and unequal electoral turnout in increasingly heterogeneous neighborhoods.

JEL-Codes: D720, J10, C23

Keywords: Ethnic diversity, Electoral turnout, Income, Panel data.

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†University of Bologna, Department of Economics and CESifo.

‡University of Bologna, Department of Economics.

§University of Bologna, Department of Economics, IZA and CHILD-CCA. Corresponding author. Email: chiara.monfardini@unibo.it.

1 Introduction

As a consequence of the surge in immigration flows, Western countries are growing ethnically more diverse. This raises concern about possible implications in terms of reduced social cohesion, trust and pro-social behavior, such as civic engagement and political participation (Alesina and La Ferrara, 2000; Putnam, 2007).

A related issue is that of the impact of ethnic diversity on electoral turnout. This is particularly important, as changes in participation, especially insofar as they imply lower turnout concentrated among some specific group of voters (say the poor), may bring about gaps in democracy and an increase in political inequality.

In this paper we consider the possibility that **the impact of ethnic diversity on one's propensity to vote depends on individual resources.** Indeed, it is quite reasonable to expect that exposure to ethnic others should have larger impact on the less affluent, who are more easily exposed to undesired contacts with immigrants and more vulnerable to competition with them. Thus, the marginalization effect of local ethnic diversity may well be stronger for the poor than for the rich. Potential mobilization mechanisms may also work differently across income groups and overlooking heterogeneous effects may bias empirical results. Though important, this issue has been neglected in the literature so far, arguably because of the limited availability of reliable joint information on individual turnout, income and contextual characteristics of the neighborhood.

We are able to address these questions due to the availability of an original dataset on local elections in Bologna, a medium-sized municipality in the Center-north of Italy, which merges information on socio-economic characteristics of about 370,000 residents with individual electoral participation in two consecutive administrative elections in 2004 and 2009. Our dataset represents an extraordinary and, to the best of our knowledge, unprecedented

opportunity to investigate our research question as we had access to information on *individual* turnout from official electoral lists matched with data on *income* and other individual characteristics, taken from official income tax files and registry office records.[1]

Several goals can be achieved through our dataset. First, using registry office records we are able to measure diversity at the micro-level, in the precinct (neighborhood) of residence. In particular, we can construct different measures of contextual ethnic diversity by aggregating individual information at the electoral precinct level. Second, exploiting information on personal income and household composition, we can allow for heterogeneous effects on individuals' propensity to vote, depending on equivalent family income. Finally, the availability of repeated information on individual turnout, income, and ethnic diversity across the 2004 and 2009 elections enables us to identify heterogeneous effects of ethnic diversity through income, net of omitted variable bias due to any unobserved time-invariant individual and contextual characteristics.

As discussed in Bellettini et al. (2016), our case of study is particularly well suited to investigate the effect on turnout of increasing exposure to ethnic others in local contexts. In fact, between 2004 and 2009, Bologna received huge inflows of immigrants and the share of foreign residents increased from 6,8% to 11,6%, in line with national and other European countries' trends. The variability of foreign residents' share across precincts was indeed sizable, ranging between 0 and 30%; moreover on average ths share has increased 3 percentage points over the period. Another advantage of our case of study is that voters are almost all Italians born by Italian parents[2] and a large share of the non-franchised immigrants (Asian and African citizens) are visibly different, somatically and culturally, from them. Thus,

[1] By including matched individual level information on vote participation, income, residence and other data from administrative registry records, this dataset supplements and enlarges the one that we used in previous work (Bellettini et al., 2016), where we studied the relationship between neighborhood heterogeneity and turnout using aggregate precinct level data.

[2] Note that Italian citizenship is acquired "*iure sanguinis*".

our estimates can capture a purely contextual effect of inter-ethnic exposure on turnout, unrelated to political competition mechanisms which, instead, are at work when eligible voters belong to different ethnic groups.

The main result of our empirical analysis is that the effect of ethnic diversity on individual propensity to vote is *different* across income groups. In particular, we find that ethnic diversity in the neighborhood of residence *reduces* the probability of voting for low income individuals. This effect becomes weaker for individuals with higher income, turning to null moving up the income ladder and *positive* for upper income classes.

Our main result is consistent with the argument that vulnerability and economic insecurity enhance the sense of social alienation related to exposure to ethnic others which, in turn, reduces pro-social behavior and electoral turnout. Voters with larger means may be less sensitive to negative cues, have greater opportunities to avoid undesired casual contact with others (e.g. by avoiding public transports, spending holidays out of town rather than in public parks, buying in small specialized shops rather than in discounts, and so on), and generally have fewer reasons to face or fear competition from immigrants, in the labor market and in access to public services.

As far as the positive effect of ethnic diversity on turnout of the more affluent is concerned, notice that, in our case of study, the explanation is unlikely to be related to political competition or intra-ethnic group mobilization mechanisms, as discussed above. Rather, it is plausible that local ethnic diversity increases the salience of immigration as a social issue, eliciting turnout among voters to voice their concerns.[3] In particular, ethnic diversity may

[3]The recent upsurge of political support for overtly anti-immigrant populist parties in several Western democracies, including Northern League in Italy, suggests that immigration's actual and perceived consequences are indeed increasingly affecting political outcomes. For an analysis of the role of immigration in explaining electoral outcomes and turnout in Italy see Barone et al. (2016) and Caselli et al. (2018). For a discussion of economic determinants (including immigration) of the recent diffusion of populism in advanced countries see, for example, Guiso et al. (2017) and Inglehart and Norris (2016).

bring to the polls those who perceive immigrants as a threat and fear that they are attracted to the municipality to enjoy the inclusive local welfare policies there implemented by the left-wing coalitions that have long held office in Bologna.[4] Such mobilization effect may be moderated by conflicting interests prevailing among the less affluent: poor voters may refrain from supporting left-wing parties, feeling jeopardized by immigrants; at the same time they may not want to vote for right-wing parties, as they reckon them as not aligned with their interests.[5]

Similar mechanisms, that tend to disproportionally depress turnout among the less affluent, may well be generalized to other contexts, beyond our Bologna case. The marginalization effect related to vulnerability is clearly a general one; the moderation effect due to conflicting interests among the poor may also be relevant in other circumstances, both at the local and at the national level, as long as inclusive policies and pro-immigrants attitudes typically coexist in left-wing coalitions' programs.[6]

Although the focus of our paper is on ethnic diversity and income, our analysis considers other potential determinants of electoral participation. Consistently with existing studies, we find that the eldest, the natives (i.e. those who are born in the municipality), those who are married, and those who live in the city-center are more likely to vote. These characteristics are somehow related to the degree of integration and sense of belonging to one's community which may also be influenced by ethnic heterogeneity. As Blais (2000) puts it, "the socioe-

[4]In the election years covered by our study, populism had yet to gain momentum in Italy as Northern League and Five Stars Movement - the two populist anti-globalization parties running the Italian government after the latest national elections in 2018 - were far from being established as major political players in Bologna, traditionally a left-wing parties stronghold. In particular, both Northern League and Five Stars Movement had negligible vote shares (around 2%, out of the electorate) in 2009 municipal election. Northern League's vote share was close to zero in 2004, while Five Stars Movement still did not exist.

[5]Between the two elections, overall turnout in Bologna declined 5.4 p.p., from 81.8% to 76.4%; the centre-left coalition's vote share (out of the electorate) declined 4.3% p.p., from 39.6% to 35.3%, while the right gained 2 p.p., from 26.5% to 28,5%.

[6]Barone et al. (2016) propose an interpretation along these lines to explain their findings on aggregate turnout and votes obtained by different political coalitions in national elections in Italy. Specifically, they argue that "left-wing voters, who are ideologically in favor of a multi-ethnic society but are not happy about the immigration trends and regulations, might have decided not to vote instead of directly voting for the center-right coalition" (p.16).

conomic profile of voters and abstainers provides support for a sociological interpretation of the act of voting as expressing one's sense of belonging to the larger community"(p. 52).

Overall, our results suggest that both individual and contextual socio-economic characteristics are important determinants of electoral participation and that increasing ethnic diversity of residential neighborhoods may be a driver of disaffection for politics among the less affluent while boosting participation among the rich, with overall negative effect on turnout. Insofar as reduced and unequal political participation translates into unequal political representation, these results point to a potential democratic deficit in increasingly diverse communities.[7]

The remaining of the paper is organized as follows. Section 2 reviews the related literature. Section 3 describes the institutional framework while Section 4 provides data description. Section 5 illustrates the empirical strategy and shows the main results, and Section 6 concludes.

2 Related literature

Several economists and political scientists have argued that increasing ethnic diversity tends to reduce trust and civic engagement (see, for instance, Alesina and La Ferrara, 2000, 2002, Putnam, 2007). Reduced social cohesion then translates into lower political participation and reduced propensity to vote.

According to this view, the mechanism underlying the relationship between heterogeneity and individual electoral turnout is the exposure to people of different ethnic background and social status, that affects one's sense of belonging to the community and therefore the propensity to vote. In order to capture such mechanism, it is important to measure

[7]For a discussion of the problems associated to the link between unequal turnout and unequal influence see Lijphart (1997).

contextual variables at the micro-level, i.e. in the neighborhood of residence of individuals, as measurement at the macro-level would be likely to capture other confounding effects. Dinesen and Sønderskovb (2015) forcefully make this point in the estimation of the relationship between social trust and ethnic diversity. Using Danish survey data linked with register-based data, they provide convincing evidence that ethnic diversity in the micro-context negatively affects social trust, whereas the effect vanishes when larger contextual units are considered.[8]

The empirical literature about the relationship between ethnic (and racial) heterogeneity and individual turnout focuses on how turnout of individuals who belong to a given ethnic or racial group is influenced by the share of individuals belonging to other groups who live in the same neighborhood. For example, in the case of Britain, Fieldhouse and Cutts (2008) use individual data from marked election registers to show that non-Asian turnout is negatively affected by the neighborhood density of Asian population (measured at census output or electoral ward level). For the US, Gimpel, Dyck and Shaw (2004) use individual registration and participation records for residents in 16 counties in Florida, Iowa, New Mexico and Pennsylvania matched with aggregate data at census tract or precinct level. They find that individual participation (especially for Republicans) is dampened in neighborhoods where the majority has different political affiliation and there is a high concentration of blacks and hispanics.

More recently, Barber and Imai (2014) show that increases in the out-group neighborhood proportion (measured at the census block level) depress the probability of turnout,

[8]Recent contributions in the sociological literature challenge Putnam's view according to which ethnic diversity is harmful to social cohesion. For instance, Abascal and Baldassari (2015) show that the association between diversity and trust is mainly driven by a compositional artifact: non-whites report lower trust and tend to be overrepresented in heterogeneous communities. Portes and Vickstrom (2011) criticize the notion of social capital proposed and popularized by Putnam and argue that is not necessarily the main basis for cohesion in modern society. Van der Meer and Tolsma (2014) focus on theoretical mechanisms underlying the association between ethnic diversity and cohesion (such as homophily, anomie, group threat, etc.) to shed light on why existing empirical findings on the effects of ethnic diversity turn out to be highly inconclusive.

where the out-group is defined in terms of race or political partisanship. An opposite result can be found in Enos (2016), who shows that out-group exposure enhances individuals' political participation, with white voters' turnout in Chicago dropping substantially after the displacement of thousands of African Americans who had previously lived in proximity to white voters. Bhatti et al. (2016) use data on local government elections in Denmark to study the association between exposure to ethnic others and turnout of voters of Danish origin. They find no influence of ethnic diversity on the propensity to vote, controlling for several individual characteristics and contextual variables, as well as for time invariant factors. In the case of Germany, Förster (2018) shows that ethnic heterogeneity had adverse effects on individual turnout in the 2013 Federal elections. In a recent meta-analysis of the determinants of voter turnout, Cancela and Geys (2016) report that the majority of studies looking at the impact of minority population shares on turnout detect a negative relationship.

Even if these contributions control for several individual characteristics and contextual effects, they typically do not include information on individual income. Therefore, they cannot investigate the heterogeneous effect of ethnic diversity depending on individual resources. Our empirical analysis provides a first contribution in this direction and addresses the issue of whether immigration can have indirect negative effects on the quality of democracy by reducing overall turnout and equality in political participation.[9]

Notice also that the above cited papers typically fail to capture the purely contextual effect of inter-ethnic exposure on the probability of voting. Rather, they study the relationship between diversity and participation based either on political competition (according to which, for example, the rich might be induced to participate more in order to counterbal-

[9]One exception is Bhatti et al. (2016) who rely on data from administrative source including information on individual income. However, they do not investigate the possibility of non linear effects of ethnic exposure on turnout depending on individual income.

ance the increased number of poor, immigrants voters), or on within-group mobilization of individuals who belong to different ethnic and racial groups, and are *all entitled to vote*. As already mentioned, such mechanisms should not be at work in our context, because we consider how Italians' propensity to vote is affected by the proximity with immigrants who are not entitled to vote.

In a recent paper of ours (Bellettini et al., 2016), we investigated the contextual effects on precinct-level electoral aggregate turnout of different dimensions of neighborhood heterogeneity, including ethnic composition. Due to the availability of new information on individual turnout, in the current paper we take a crucial step forward and investigate how the latter affects the *individual* probability to cast a vote and whether the effect is *different across income groups*. As we have already discussed, we are not aware of other contributions in the literature that explore this issue.

A separate strand of literature investigates the effects of immigration on electoral outcomes of right-wing parties, trying to shed light on the recent upsurge of political support for anti-immigrant and anti-globalization platforms (see, among others, Barone et al., 2016; Becker and Fetzer, 2016; Brunner and Kuhn, 2018; Caselli et al., 2018; Edo et al., 2019; Harmon, 2018; Otto and Steinhardt, 2014).[10] In particular, for the case of Italy, using municipality-level data on national elections, Barone et al. (2016) and Caselli et al. (2018) find evidence that immigration intensity has contributed positively to the electoral outcomes of the right, with concomitant negative effect on turnout. Caselli et al. (2018) highlight the importance of focusing on the pre-crisis electoral period, as we do, since economic insecurity in the aftermath of the 2008 great recession piling up over years of increasing exposure to

[10] All these studies adopt a single-country (or city) perspective and use electoral outcomes data matched with economic and demographic information at convenient level of aggregation from different sources. Davis and Deole (2015) and Morricone et al. (2018) analyze the issue in cross-country perspective, relying on international individual survey data.

immigration seems to have radically changed the political context in Italy (as well as in other European countries), with the diffusion of anti-establishment populist movements (such as Five Stars Movement in Italy) and the decline of traditional parties. Instead, before the crisis, natives' uneasiness in the face of rapidly increasing immigrants' presence may have more frequently taken the form of abstaining from voting, which is the focus of our analysis.

Before concluding this section, we should mention the few other individual turnout studies based on registry office data. Bellettini et al. (2018) study the effects of changes in household structure - marriage, divorce, widowhood, and the presence of children of different ages, on individual-level voter turnout. Bhatti et al. (2012) investigate the impact of age on individual political participation in Denmark, Finland and Lubbock, Texas. They limit their attention to age and do not consider any other determinant of turnout. Martikainen et al (2005) use data from Finnish parliamentary elections to estimate the effect of individual socioeconomic factors, including personal taxable income, but ignore any contextual determinant of turnout.

3 The institutional framework

Immigration became a relevant phenomenon for Italian demographics since the mid-90's. According to the law that was then approved (Law 40/1998), the number of immigrants allowed to enter regularly in Italy is regulated yearly at the national level. The law warrants several fundamental rights to immigrants (including irregular ones, in some case), such as the right to education, health care, defense in court, family reunification, as well as political and social rights. Vote eligibility (active and passive), however, is restricted to Italian citizens in national elections and to EU citizens in municipal elections. Immigrants may acquire the right to vote through naturalization. However, the number of naturalized immigrants, though increasing, is still very small, as immigration is a relatively recent phenomenon and

the rules for the acquisition of citizenship are quite restrictive. According to ISTAT (2009), the estimated stock of foreigners who had acquired Italian citizenship at the end of 2008 was 315,000, corresponding to 0.8% of foreign residents in Italy.

The State and local institutions are jointly responsible of immigrants' integration policies. Regions play an important role in steering interventions which are implemented at the local level. Emilia-Romagna, of which Bologna is the regional capital, was the first region to adopt a regional law setting out rules for the social integration of immigrants, which was approved in 2004 (Regional Law 5/2004). According to the 2009 regional report on immigration (Regione Emilia-Romagna, 2009), following the approval of the regional law, Emilia-Romagna set out several interventions meant to ensure equal opportunities for immigrants in access to education, health care, housing, and jobs, and to favor immigrants' social integration and political participation, in coordination with municipalities and other local institutions. The reported data suggest that immigrants enjoy favorable living conditions in the region, mainly as a consequence of the high living standards there achieved, which contribute to explain its attractivity for immigrants. Indeed, Emilia-Romagna is one of the most developed regions in Europe[11], with elevated standards of public services[12] and high levels of social inclusion.[13]

According to the latest Census data, the number of foreign residents in Italy trebled

[11] According to the Eurostat Regional Statistical Yearbook (Eurostat, 2009), income per person in PPS in Emilia-Romagna was 125% of the EU27 average in 2006. The employment rate for the 15-64 group and the rate of unemployment were, in 2007, above 70% and below 4%, respectively, in line with European regions with best labor market performance.

[12] In a survey (Bripi et al., 2009) of a series of studies on the quality and efficiency of public services in Italy, mainly conducted by the Bank of Italy, Emilia-Romagna (together with other regions in the North-East of Italy) stands out for the high standards achieved, not only compared to the Italian average, but also in international comparison. We take as example the case of child care, a public service which is managed at the local level in Italy. In 2002 the European Council set the objective of ensuring provision of child care for at least 33% of children under 3 years of age by 2010. The share achieved was 41.2% in Bologna and 33.7% in Emilia-Romagna, 1.9 and 1.5 times the Italian average (22%). The share in Bologna is comparable to that of France (42%) which ranked fifth in Europe, behind Denmark, Sweden, Netherlands and Norway (the EU27 average was 28%).

[13] According to EU-SILC and ISTAT statistics, over the 2004-2009 period, the average share of people at risk of poverty and social exclusion was 13.5% in Emilia-Romagna, 12 p.p. below the Italian average, 10 p.p. below the EU27 average and close to the average share in Nordic countries (the average share over the same period was 17.5 in Finland, 15.4 in Norway, and 14.3 in Sweden).

between 2001 and 2011, from 2.3% to 6.8% of the population. Most immigrants settle in the advanced regions of Northern Italy, including Emilia-Romagna. In 2009, the share of foreign residents was 9.7% in Emilia-Romagna, the highest in Italy.[14] Due to immigration, Bologna underwent a radical transformation, from being an ethnically homogenous city to a multi-ethnic one, as the number of foreign residents increased more than five-fold, from 2.9% of the population in 1997 to 15.5% in 2017. Over the time span considered in our study, the share of foreign residents doubled, from 6.8% to 11.6%. Citizens of Asian and African countries, who are the majority (60% and 52% of foreign residents in 2004 and 2009, respectively), grew by a factor of 1.5, up to 6.1% of the population.[15]

These rapid changes took place in a socially inclusive context, characterized by high-quality public services and which is renowned for its high level of social capital and for having a long tradition of trust, solidarity, tolerance, and civic engagement (Putnam, 1993), making Bologna a particularly interesting case to study in order to investigate the impact of immigration on the attitudes and pro-social behavior of (Italian) voters, including the probability to vote, which is the focus of our analysis.

Surveys run at the local level (Centro Demoscopico Metropolitano - Provincia di Bologna, 2004, 2006) show that the view that "migration is one of the main social problems of our

[14]Statistics on foreign residents tend to underestimate the number of immigrants that are actually present. In fact, immigrants who entered in Italy irregularly or overstayed their permit of stay are not counted. Nor are those who have a regular permit of stay but do not satisfy income and housing requirements to be registered in registry office records. Although data on the incidence of irregular immigrants at the city and lower administrative unit, such as precinct, level are not available, estimates at the national level indicate that the share of irregular immigrants over foreign residents was relatively low in the two periods considered in our study. In fact, this share declined from above 30% to below 15% after each EU enlargement, in 2004 and 2007, and remained below 15% afterwards (Fondazione ISMU, 2017). Moreover, estimates available at the regional level (Emilia-Romagna, 2009) suggest that, as of 2008, more than 91% of the regular immigrants present in Emilia-Romagna were also registered in the registry office records as foreign residents. Assuming that irregular immigrants/regular immigrants not registered in the registry office records are not over-represented in Bologna relative to the national and regional average, our data should then cover approximately 75% of the immigrants belonging to the municipality in 2004 and 2009. The share may be even larger considering only non-European immigrants, who face higher immigration costs and are less likely to cross the borders unchecked.

[15]Following EU enlargements in 2004 and 2007, Bologna also experienced large increases in the number of European residents, as the rest of Italy. For example, after Romania's accession in 2007, Romanian residents in Bologna grew from 1,559 in 2006 to 6,698 in 2009, about 15% of the foreign residents and 1.8% of the entire population. These changes, however, most likely reflect regularizations of already present irregular immigrants, rather than new arrivals. In fact, the estimated number of irregular immigrants declined substantially after EU enlargements, as noted above.

times" or that "coexistence with foreign immigrants is a major concern in the neighborhood of residence" was minoritarian among Italian residents in Bologna in the period under consideration (less than 15% of the interviewed agreed with either statements concerning migration in the aforementioned surveys).

However, in his work on the public opinion about migration in Emilia-Romagna, based on a survey conducted in 2004, Colombo (2007) argues that there are large differences in attitudes towards immigration, depending on socio-economic status and political orientation. Overall, his results indicate that the opinion that immigrants take jobs from Italians and exploit the welfare state more than they contribute to it is more widespread among individuals of low social status or with center or center-right political orientation. Interestingly, only one third of the respondents thinks that the cost of integration should be born by the public sector (i.e. by local institutions), and this share does not change across the political spectrum, with the exception of the right-ward oriented, for whom it is halved. This suggests that voters may not reward local politicians for their interventions to favor immigrants' integration. Moreover, such interventions may determine a misalignment between the left-wing coalitions, that have long held power in Emilia-Romagna and Bologna, and their pool of voters.

By focusing on administrative elections, we may capture mobilization/demobilization effects of immigration on turnout going through voters' evaluation of the integration policies implemented by local institutions, that may be considered too liberal and imposing excessive direct and opportunity costs on the native-born, as suggested by the study on public opinion in Emilia-Romagna.

In our study, we consider two administrative municipal elections, held in June 2004 and 2009, for the appointment of the mayor and of the municipal council. Traditionally, Bologna

has high turnout rates in all types of elections, including those for the appointment of local institutions. Yet, turnout has been declining in the 2000s: in municipal elections it dropped from 87% in 1995 to 59,7% in 2016 (the last municipal election). In the period we consider, it declined 5.4 percentage points from 81.8% in 2004 to 76.4% in 2009.[16]

According to the Italian law, the mayor and the municipality council are appointed through local elections which take place every five years. The mayor is elected directly and faces a two-term limit. Each candidate must be supported by a list or a coalition of lists of residents in the municipality, Italian or EU citizens, who run for a seat in the council. In municipalities with more than 15.000 inhabitants, such as Bologna, the mayor is elected through a two-round majority system: if none of the candidates reaches the absolute majority of valid votes in the first round, the two most voted candidates enter in a runoff election ("*ballottaggio*") and the one who gets the relative majority is appointed. Sergio Cofferati, a former union leader, was appointed after the first round of the 2004 elections. In 2009, Cofferati chose not to run for re-election and the elected mayor was Flavio Delbono, a former professor of Economics at the University of Bologna, who won the elections in the second round.[17]

The municipal electoral register in Bologna entails 436 precincts which include geographically close areas. Eligible voters (Italian and EU citizens above 18 years of age who are residents in the municipality) are registered in a given precinct depending on their residence address. Registration is automatic for Italian citizens. Instead, eligible foreign residents must apply for registration on electoral lists in order to vote.

Considering the number of naturalized immigrants in Italy and the share of foreign residents in Bologna relative to the nationwide total (1% in 2008), the estimated number of

[16]For a description of data on aggregate turnout, across precincts and over time, see Bellettini et al. (2016).
[17]The turnout rate was 76.4% and 62.2% in the first and second round, respectively.

naturalized immigrants in Bologna as of 2008 is 400, which is negligible compared to the size of the electorate in the two election years we consider (eligible voters were 319,529 and 305,086 in 2004 and 2009, respectively). Since the percentage of foreign voters (EU citizens registered in electoral lists) is also close to zero in our sample (0.1% and 0.3% in 2004 and 2009, respectively), we can posit that eligible voters are ethnically homogenoeus in our sample, i.e. Italians with Italian parents. [18]

4 Data description

A crucial advantage of our data with respect to most existing studies is represented by the joint availability of repeated administrative individual-level information on the three key variables of our analysis, namely turnout, income and ethnicity, which is indeed quite unique in studies of the determinants of individual turnout.[19]

Our individual-level panel dataset was obtained merging different official registers: marked election registers, income tax files and registry office records. Voter-level turnout data cover the entire voting-eligible population of the city of Bologna in the 2004 and 2009 municipal elections. The data contain an anonymous, time-invariant voter identifier, which effectively gives us an unbalanced individual-level panel with up to two observations per voter. The turnout data are complemented with detailed administrative socio-demographic information covering *every* resident of Bologna (i.e., including non-voting-eligible residents) updated as of, approximately, the two election days in the sample. Among others, these data contain: citizenship, age in years, gender, marital status, precinct (neighborhood) of residence, years of residence in the municipality, as well as income and income taxes paid in the year of the

[18] To capture possible differential behavior of (the few) foreign voters relative to Italians, we control for foreign citizenship in our regressions.

[19] To our knowledge, the only two other papers that rely on a longitudinal data set from administrative source with repeated information on turnout, individual (including income) and neighborhood characteristics are Bhatti et al. (2016) and Bellettini et al. (2018).

election.[20] By cross-referencing data from electoral registers, income tax files and registry office records we are able to attach, to each eligible voter, detailed individual-level information, including equivalent family post-tax income which we compute starting from individual income tax files, and contextual indicators measured at the precinct level. Precincts - the tiniest administrative unit in the municipality, can be considered a good approximation of residential neighborhoods as they include geographically contiguous areas.[21]

As we rely on official data, we avoid the well-known problems related to over-reporting and under-representation of citizens with lower propensity to vote, which plague most turnout analyses, that are typically based on survey data. Moreover, availability of information on official individual post-tax income is truly unique in turnout studies. We are not aware of any other paper using official income data to construct a measure of family income, although it is arguably a relevant variable which shapes individual political participation.[22]

Following Bellettini et al. (2016), our preferred measure of neighborhoods' ethnic diversity is the share of Asians and Africans who are resident in the precinct over total precinct's population. The underlying idea is simply that exposure to ethnic others is stronger in local contexts with higher concentration of immigrants that are most likely perceived as ethnically diverse due to somatic and cultural traits.[23] In a preliminary specification, we also

[20] To construct the matched panel dataset with turnout and socio-demographic information, we digitized all Bologna's voter attendance sheets from the 2004 and 2009 elections. We then sent the turnout data to the municipal statistical office, which matched them against administrative socio-demographic records of the resident population. After anonymizing and de-identifying the matched data, the municipality of Bologna sent us two files (i.e., one per election) with the turnout and socio-demographic information. Note that, in our empirical analysis, for the 2009 election we considered only the first-round vote.

[21] The average geographical extension of precincts is about 0.32 square kilometers. The average number of residents per precinct was around 860 in both years.

[22] Data from individual income tax files may be subject to mismeasurement error due to unreported income earned in the underground/black market economy. Unfortunately, no data is available at the municipal level on the incidence of tax evasion. According to ISTAT (2010), the value added in the underground economy was between 16.3 and 17.5 of Italian GDP in 2008. Emilia-Romagna is a relatively "virtuous" region, due to its comparatively high level of development and social capital. For example, according to Giovannini (2011), over the 2004-2009 period, the average incidence of irregular labor in Emilia-Romagna was 8%, 4 p.p. below the national average.

[23] For a detailed description of data on foreign residents' shares in Bologna, across precincts and over time, see Bellettini et al. (2016).

use a measure which includes nationals of non-EU Eastern European countries, the second largest group after Asian and Africans among non-eligible to vote foreign residents.[24] However, Europeans may not attract much attention nor generate changes in attitudes towards immigration and in voters' behavior, as they are more similar to Italians and more easily integrated.[25] As mentioned above, since non-EU immigrants have no voting rights, our measures of ethnic diversity should capture a purely contextual effect on turnout in our case, differently than in previous studies where demobilization/mobilization mechanisms related to political competition are at work.[26]

Table A1 in the Appendix describes the variables on which we build our econometric analysis. Our initial dataset consists of all individuals (both eligible voters and residents with no right to vote) residing in the municipality of Bologna in 2004 and 2009, i.e. about 378,000 observations per year. In order to select our estimation sample we proceeded in three steps. First, we performed a careful cleaning of all cases with missing information or anomalies on relevant variables, as well as all cases showing discrepancies emerged by a number of cross-checks. We also dropped all individuals residing in communities for educational, religious, therapeutic and military reasons. The resulting dataset contains 364,187 observations in 2004 and 364,110 in 2009. We checked that the sample selection has a very negligible impact on the distribution of all variables of interest for our econometric analysis. Second, we used this

[24]The number of foreign residents with non-EU citizenship from other continents is very small.

[25]We do not use a more extensive measure of ethnic diversity, including citizens of recent EU-accession countries, although their number grew considerably, as we noted above. The motivation is two-fold. First, the exclusion of new EU-citizens ensures that ethnic diversity measures consider only foreigners with no voting rights, making it possible to interpret their effect as purely contextual (see Bellettini et al., 2016). Second, it reduces mismeasurement issues related to irregular immigration, as immigrants from EU-accession countries are known to largely contribute to the phenomenon, as we noted above.

[26]This is more likely true when using our preferred measure, considering only Asians and Africans. Although voters may be disinformed about which European countries belong to the EU and confuse EU and non-EU European immigrants, they are most likely aware that non-EU immigrants have no voting rights. Indirect evidence on the latter point is provided in the above-cited work on public opinion in Emilia-Romagna (Colombo, *cit*). Almost all the interviewed (98%) were in favor or against non-EU immigrants' enfranchisement in administrative elections and only a few (2%) did not express an opinion. This suggests that the native-born are well informed about immigrants' voting rights.

dataset to compute precinct-level measures of ethnic diversity, which we operationalize by the percentage of non-franchised foreign residents (of selected citizenships) in the precinct, and other contextual variables, such as mean income, the Gini index (both based on equivalent net income), population density, and the percentage of homeowners. Finally, we selected only the eligible voters: 302,588 individuals in 2004 and 284,434 in 2009 (corresponding to 83% and 78% of the previous sample respectively).

In **Table A2** we present the main summary statistics on the two pooled years, for the whole sample of eligible voters and for a balanced panel sub-sample, that includes only the eligible voters who are observed in both years. The latter observations are the ones that will contribute to our estimation exercises. It can be noticed that the discrepancies between the whole sample and the balanced-panel one are limited to age and age-dependent variables such as marriage status and years of residence in Bologna. This is explained by the fact that the latter sample includes only individual who were already 18 years old and entitled to vote in the 2004 election.

5 Estimation strategy and results

In order to identify the heterogeneous impact of ethnic diversity on turnout we exploit the observation of individual incomes on a continuous basis and for a large sample to categorize it into ten classes, based on corresponding quantiles, and specify a linear probability model, which entails a very flexible pattern for the partial effects of interest:

$$turnout_{ict} = \beta_1 + \beta_2 het_{ct} + \sum_{j=2}^{10} \beta_{3j} inc_j_{it} + \sum_{j=2}^{10} \beta_{4j} het_{ct} * inc_j_{it} + \beta_5 X_{ict} + \eta_t + a_i + u_c + \varepsilon_{ict} \quad (1)$$

where i denotes the eligible voter, c denotes the context/neighborhood in which she resides

(i.e. the electoral precinct), and $t = 2004, 2009$. The binary dependent variable $turnout_{ict}$ indicates individual participation at elections, het_{ct} is the ethnic heterogeneity measure, inc_j, $j = 2, ..., 10$, is a set of dummies denoting the income class, X_{ict} is a vector of observed individual and contextual time variant controls, η_t is the election year effect, a_i is the fixed effect which captures all unobserved individual time invariant characteristics, while u_c represents unobserved time invariant contextual variables. The idiosyncratic error term is assumed to be uncorrelated with all the other right-hand side variables, observed and unobserved. **Table A3** presents the distribution of income classes and other variables such as age and number of family components that we transform into categorical ones in order to achieve a flexible functional form. To obtain income classes we computed the deciles of the income distribution on the pooled 2004-2009 sample of eligible voters.

It is well known that model (1) implies a linear form of the response probability:

$$p_{ict} = prob(turnout_{ict} = 1|W_{ict}) = W_{ict}\delta$$

where all parameters are collapsed in δ and all the right-hand side variables but the error ε_{ict} are collected in W_{ict}. The interaction term between ethnic heterogeneity and income classes dummies makes it possible to analyze whether and along which pattern the partial effect of ethnic diversity changes for different income classes. The partial effects of ethnic heterogeneity in model (1) are the set of values:

$$\frac{\partial p_{ict}}{\partial het_{ct}} = \beta_2 + \beta_{4j} inc_j_{it}, \qquad j = 2, ..., 10 \tag{2}$$

and measure the change in the turnout probability for an individual in income class j caused by a 1 percentage point increase in the concentration of foreign residents in the precinct where she resides. The partial effect of ethnic heterogeneity for individuals in the lowest

income class is given by β_2.

We start estimating (1) by pooled OLS. Later, we will exploit the panel structure of the data and rely on individual fixed effects and individual and contextual fixed effects models. These models allow us to purge out the bias due to unobserved time individual and contextual characteristics from the OLS estimates, a possibility which is quite unique in turnout studies.

5.1 Pooled OLS regressions

The OLS estimation approach collapses all the unobserved components of model (1) in a composite error term $\eta_{ict} = a_i + u_c + \varepsilon_{ict}$. As a consequence, this section's results are based on the assumption that both a_i and u_c are uncorrelated with the included regressors. In other words, all possible omitted variable bias is accounted for by the (large number of) controls that we observe at the individual and contextual level.

Table 1 displays the results obtained on the coefficients of interest estimating eq. (1) by OLS using as ethnic diversity measures: (i) the share of non EU nationals resident in the precinct (columns 1-3), (ii) the share of Asians and Africans resident in the precinct (columns 4-6).[27] Both sets of results are displayed for specifications including an increasing set of controls (no controls, individual controls, contextual controls).

INSERT TABLE 1 HERE

Given the rich information contained in our dataset we can account for several determinants of individual turnout which have been identified in the empirical literature, and capture both individual and contextual characteristics.[28] The latter, which we measure at the precinct level, include mean income, population density, the percentage of homeowners, residence in the city center and the Gini index. As for individual level controls, we observe

[27] More precisely, as discussed above, the more extensive measure of ethnic diversity entails citizens of non-EU European countries (as of 2009) together with citizens of Asian and African countries.

[28] For a review of the relevant empirical literature, see Smets and Van Ham (2013).

age, number of household components, marital status, gender, residential mobility (i.e. having moved to Bologna from other municipalities), years of residence in Bologna, being born in Bologna, and being a foreign (EU citizen) eligible voter.

The coefficients of the share of non-EU residents and its interaction terms with income classes are found to be affected, despite not dramatically, by the insertion of observable individual and contextual characteristics. The baseline coefficient, which corresponds to the first income class ranges from -0.006 (first column) to -0.004 (third column). When the same specifications are estimated using the share of Asians and Africans, the value of the baseline and interaction coefficients are almost unaffected, with the former ranging between the same values (see the fourth and the sixth column). The standard errors reported in **Table 1** are heteroskedasticity robust. Since in our sample eligible voters can be clustered both at the precinct level and at the household level, we checked that the significance of our coefficient of interest is preserved when we evaluate clustered standard errors at either level and simultaneously at both levels.

The substantial similarity of the results obtained with the two alternative measures of ethnic diversity suggests that the effect is driven by the neighborhood concentration of immigrants from Asian and African countries, that is by ethnicities who are culturally and somatically more distant and therefore more likely to be perceived as ethnic others by eligible voters, who are almost all Italians with Italian parents, as discussed above.[29]

In the following specifications, we will always use the more restrictive measure of ethnic diversity, considering only Asians and Africans. **Table 2** reports the partial effects of ethnic diversity over the income distribution, using the estimation results of the model with the largest set of observable controls (last column of **Table 1**).

[29] A similar pattern was found in our previous paper (Bellettini et al. 2016). Here, we are able to uncover the individual-level mechanism underlying the aggregate results we obtained therein, showing that it is indeed exposure to the narrower measure of ethnic diversity that affects individual political participation.

INSERT TABLE 2 HERE

Our main finding is the strongly heterogeneous effect of ethnic diversity on individual turnout for different levels of individual income. According to our estimates, the probability of turnout of lower income individuals decreases in the presence of higher concentration of ethnic others, but this negative effect becomes weaker as income increases, turning to null in the middle part of the distribution and positive in the top part. In other words, diversity seems to have a marginalization effect on the *less affluent* (i.e. people whose equivalent income is in the bottom three classes, that is below 13,380 euros per year) and a mobilization effect on the *more affluent* (i.e. people whose equivalent income is in the upper four classes, that is above 20,820 euros per year). The effect is not statistically different from zero for the middle class. **Figure 1** allows for a visual inspection of this pattern.

INSERT FIGURE 1 HERE

In **Table 3** we show the results of a parallel model which does not include any interaction term and therefore does not allow to uncover the pattern of the varying impact of ethnic diversity. Adopting this model, we would be tempted to conclude that a 1 percentage point increase in the share of Asians and Africans implies a decrease of 0.04 percentage points (p.p.) in the propensity to vote of any eligible voter, regardless of her income. Though significant, the size of the coefficient is very small and one may wrongly conclude that exposure to ethnic others is only marginally relevant for the propensity to vote. Instead, our results show that its effect is definitely sizable and with opposite signs for individuals at the bottom and at the top of the income ladder, ranging from - 0,4 p.p. to + 0,2 p.p..

INSERT TABLE 3 HERE

Our findings for individual and contextual controls, other than individual income and ethnic diversity, are in line with the "sociological interpretation of the act of voting" (Blais,

cit.), in which the propensity to vote is positively related to social awareness and the strength of community ties, as well as to individual resources. In particular, consistently with previous results in the literature, we find that individual turnout increases with age, although it declines for the elderly (above 75 years of age in our sample), and is higher for men, the married, residents in the city-center, and natives (i.e eligible voters born in Bologna). Instead, the probability of voting is lower for new residents, i.e. people having moved to Bologna from another municipality, and for foreigners (registered EU citizens). We also find that individuals who belong to households with four components (for example, married with two children) are more likely to vote than singles and those who live with one or two others. The propensity to vote declines for individuals who belong to large households (five components or more).[30]

These results may reflect increasing awareness of social and civic matters, related to parenthood and interactions within the household, tempered by reduced time for political discussion and participation as the household gets very large. Among contextual variables, the Gini index is found to have a negative and significant coefficient, holding precinct average income constant, which suggests a negative effect of income inequality in the neighborhood of residence on electoral turnout.[31]

5.2 Fixed effect models

To improve the inference obtained so far, in this Section we exploit the repeated observation of voters in our data and estimate eq. (1) by means of fixed effects specifications to control for time invariant unobserved individual and contextual factors. The former may encompass

[30] **Table A4** reports the full set of estimation results.

[31] Income inequality is another dimension of neighborhood heterogeneity that may influence one's sense of belonging to the community, pro-social behavior and political participation. Other contextual variables, such as the percentage of homeowners and population density, have positive, but rather small effect in our context, possibly because we are already controlling for individual characteristics which are related to residential stability (non natives, moved from other municipality, years of residence) and the strength of social interactions (city center residence).

personal and socialization traits of the eligible voter, while the latter may reflect social and cultural characteristics that are peculiar to the precinct. All these may be correlated with the observed individual and contextual observed factors and represent a source of omitted variable bias.

The use of two waves of data raises the issue of those voters who change their precinct of residence between the two elections, and for whom the contextual unobserved effect u_c cannot be assumed to be time invariant. Aware of this, we start by keeping all voters in the sample and adopt an Individual Fixed Effects (IFE) approach where u_c is absorbed in the error term, that is $\eta_{ict}^{IFE} = u_c + \varepsilon_{ict}$.[32] Consistency of the IFE estimator requires that the unobserved contextual effect u_c is uncorrelated with the observed individual and contextual regressors, an assumption which is the more plausible the larger the number of observed individual and contextual controls. In this case, for eligible voters moving from precinct c to precinct c' between the two years, the difference $u_c - u_{c'}$ will be uncorrelated with the time difference in the observed individual and contextual regressors.

Next, in order to keep the unobserved contextual factors constant over time, we restrict the sample to eligible voters that did not change precinct of residence between 2004 and 2009 (non-movers) and turn to an Individual and Contextual Fixed Effects (ICFE) approach, where the unobserved contextual heterogeneity u_c is explicitly controlled for and therefore removed from the error term, that is $\eta_{ict}^{ICFE} = \varepsilon_{ict}$.

Table 4 and Figure 2 report the partial effects obtained with the IFE specification, always using our preferred measure of ethnic diversity and including all the observed time-

[32]The Fixed Effects identification strategy exploits time variation in turnout and in the main regressors of interest. The actual number of observations contributing to identification is often overlooked and not reported in FE analyses. In our sample, this amount to about 40000 individuals. We carefully checked that this IFE subsample does not systematically differ from the balanced-panel sample described in the previous section. Moreover, we evaluate the observed proportion of within variation on overall variation and find it to be sizable for most regressors (see **Table A5**).

varying individual and contextual controls. As in the pooled OLS estimation, the negative partial effect of ethnic diversity on turnout observed for individuals in the bottom class diminishes moving up the income ladder and becomes positive for individuals in the upper four classes.

INSERT TABLE 4 AND FIGURE 2

In the last set of estimates, we turn to the ICFE specification, which allows us to control for individual, a_i, and contextual, u_c, unobserved time invariant heterogeneity in eq. (1).[33] Although the results obtained within the ICFE specification should be considered valid only for the sub-population of non-movers, as the decision of changing residence is non random in our context, this specification is still our preferred one. In fact, it delivers results that we can confidently consider as causal, as they are net of all sources of bias related to unobserved time invariant factors.

Estimation results for the heterogeneous effect of ethnic diversity across income classes are reported in **Table 5 and Figure 3** (full estimation results are displayed in **Table A7**).[34]

INSERT TABLE 5 AND FIGURE 3 HERE

The increasing pattern spotted in the full sample is confirmed for non-movers. In particular, as shown in **Table 5**, the partial effect of ethnic diversity is estimated to be about -0.6 p.p. in the first two income classes, implying that the probability that an eligible voter casts a ballot in elections decreases by about 0.6 p.p. following an increase by 1 p.p. in the share of Asians and Africans in her neighborhood. The partial effect of ethnic diversity falls to about -0.5 p.p. for eligible voters in the third income class and to -0.3 p.p. in the fourth. Eligible voters in the central income classes (fifth to seventh) are found to be not

[33] **Table A6** describes our variables in the sub-sample of non-movers and testifies the existence of within variation needed for the ICFE estimation strategy.

[34] The ICFE specification, differently from the IFE one, allows for the computation of standard errors clustered at the precinct level, since all non-movers belong to the same precinct in the two subsequent years. Therefore, we account for clustered standard errors at precinct level in this set of results.

significantly affected by increased neighborhood diversity. On the contrary, higher ethnic diversity produces higher political participation for individuals with equivalent income in the upper three classes, with increasing magnitude of the partial effect, up to about 0.3 p.p. in the top class. Finally, notice that the overall effect on the probability of turnout of a 1 p.p. increase in ethnic diversity is negative and equal to - 0.12 p.p., similarly to what was obtained in Bellettini et al. (2016) with aggregate data at the precinct level.

Overall, our results suggest that immigration may have negative by-products on a cornerstone of representative democracy, that is electoral turnout. Not only immigration and the ensuing ethnic diversity contribute to depress overall turnout, but they also seem to sow the seeds for increased inequality in political representation, as the mobilization effect differs across the income distribution. The latter effect is potentially very insidious for the quality of democracy as it piles up on the well known lower political participation of the less affluent relative to the more resourceful, which is also confirmed by our analysis.

Before concluding this Section, we run some regressions for the probability of changing neighborhood of residence between 2004 to 2009 as a function of ethnic diversity in the neighborhood of residence in 2004, the change in diversity experienced over the two years, individual equivalent income in 2004, and all other individual and contextual observables included in the turnout model.

Results are presented in **Table 6**. As shown in the last column, the decision to move depends on several individual characteristics included in our turnout model but not on contextual factors and, in particular, *not on ethnic diversity in the neighborhood of origin.*[35] Thus, although the decision to move is not random, it does not depend on our main variable of interest, lending support to the generalizability of results obtained for non-movers, in our

[35] Among the factors explaining the individual decision to change residence, the choice of leaving one's household of origin and/or forming a new one seems to be the dominant one: out of 30,753 who changed precinct, corresponding to about 13% of eligible voters in the balanced panel sample, 42% also changed household between 2004 and 2009.

preferred specification, to the full sample. This conclusion is corroborated by the observation that the estimation results obtained in the two samples are fairly similar, as shown by inspection of **Table 1 and 3**.[36]

INSERT TABLE 6 HERE

6 Concluding remarks

In the presence of massive flows of migrants and refugees, it becomes particularly important to understand the implications of increasing exposure to ethnic others for civic and pro-social behavior in receiving countries.

This paper addresses these issues by focusing on the effects of neighborhood ethnic diversity on electoral turnout in the receiving community, that is Bologna, a medium sized municipality in Northern Italy, in our case of study. Overall, our results suggest that both individual and contextual socio-economic characteristics are important determinants of electoral participation and that increasing ethnic diversity of residential neighborhoods may be a driver of disaffection for politics among the less affluent while boosting participation among the rich, with overall negative effect on turnout. Insofar as reduced and unequal political participation translates into unequal political representation of the interests of different groups, these results point to a potential democratic deficit in increasingly diverse communities, as a by-product of immigration.

To the best of our knowledge, this paper is the first one in the literature that investigates and detects a non linear effect of diversity on individual electoral turnout via individual income. Our results, based on socio-economic characteristics and behavior of residents in an Italian municipality, highlight a possible link between immigration and political inequal-

[36] In the Online Appendix we present supplementary material where we perform a series of sensitivity tests on our preferred ICFE specification.

ity, that is associated to income inequality and might be particularly pernicious for the functioning of our democracies.

To the extent that our results will be confirmed and generalized by other studies to different contexts, they may have relevant policy implications for destination countries, such as Italy and other continental and southern European countries, which recently witnessed an upsurge of immigrants' inflows, rapidly changing the fabric of previously ethnically homogeneous societies.

Conflict of Interest: The authors declare that they have no conflict of interest.

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Tables and figures to be inserted in the body of the paper

Table 1. Turnout linear probability models. Pooled OLS results

	(1)	(2)	(3)	(4)	(5)	(6)
year 2009	-0.0574***	-0.0521***	-0.0551***	-0.0646***	-0.0574***	-0.0554***
	(0.0013)	(0.0012)	(0.0013)	(0.0011)	(0.0011)	(0.0011)
ethnic diversity	-0.0059***	-0.0059***	-0.0044***	-0.0059***	-0.0057***	-0.0041***
	(0.0005)	(0.0005)	(0.0005)	(0.0007)	(0.0007)	(0.0007)
2.inc net equiv*ethnic diversity	0.0008	0.0018***	0.0018***	-0.0002	0.0006	0.0005
	(0.0006)	(0.0006)	(0.0006)	(0.0009)	(0.0009)	(0.0009)
3.inc net equiv*ethnic diversity	0.0019***	0.0031***	0.0031***	0.0014	0.0021**	0.0021**
	(0.0006)	(0.0006)	(0.0006)	(0.0009)	(0.0009)	(0.0009)
4.inc net equiv*ethnic diversity	0.0035***	0.0044***	0.0044***	0.0033***	0.0039***	0.0040***
	(0.0006)	(0.0006)	(0.0006)	(0.0009)	(0.0009)	(0.0009)
5.inc net equiv*ethnic diversity	0.0035***	0.0041***	0.0042***	0.0028***	0.0033***	0.0033***
	(0.0006)	(0.0006)	(0.0006)	(0.0009)	(0.0009)	(0.0009)
6.inc net equiv*ethnic diversity	0.0044***	0.0049***	0.0049***	0.0041***	0.0046***	0.0047***
	(0.0006)	(0.0006)	(0.0006)	(0.0009)	(0.0009)	(0.0009)
7.inc net equiv*ethnic diversity	0.0046***	0.0050***	0.0051***	0.0044***	0.0048***	0.0049***
	(0.0006)	(0.0006)	(0.0006)	(0.0009)	(0.0009)	(0.0008)
8.inc net equiv*ethnic diversity	0.0058***	0.0060***	0.0062***	0.0060***	0.0061***	0.0064***
	(0.0006)	(0.0006)	(0.0006)	(0.0009)	(0.0008)	(0.0008)
9.inc net equiv*ethnic diversity	0.0060***	0.0059***	0.0062***	0.0059***	0.0057***	0.0062***
	(0.0006)	(0.0006)	(0.0006)	(0.0009)	(0.0009)	(0.0009)
10.inc net equiv*ethnic diversity	0.0059***	0.0058***	0.0062***	0.0056***	0.0054***	0.0060***
	(0.0006)	(0.0006)	(0.0006)	(0.0009)	(0.0009)	(0.0009)
Non-interacted income classes	YES	YES	YES	YES	YES	YES
Individual controls	NO	YES	YES	NO	YES	YES
Contextual controls	NO	NO	YES	NO	NO	YES
Constant	0.7736***	0.7858***	0.7274***	0.7578***	0.7689***	0.7120***
	(0.0046)	(0.0053)	(0.0075)	(0.0042)	(0.0050)	(0.0073)
R-squared	0.0381	0.0809	0.0816	0.0377	0.0806	0.0814
Number of observations	483,182					

Robust S.E. in brackets. **p<0.05, ***p<0.01

Ethnic diversity: perc foreign all, columns 1-3; perc foreign asia africa, columns 4-6.

Individual controls: age classes, ncomp classes, female married, foreign citizen, new resident, new resident*years of residence, non native.

Contextual controls: precinct mean inc equiv, gini inc net equiv, pop density, perc. homeown., city center residence.

Table 2. Partial effects of ethnic diversity by income class

Linear probability model - Pooled OLS -all controls						
Income class	dy/dx	Std. Err.	z	P>z	[95% Conf.Interval]	
		Delta-method				
1	-0.0041	0.0007	-5.5700	0.0000	-0.0055	-0.0026
2	-0.0035	0.0006	-5.9700	0.0000	-0.0047	-0.0024
3	-0.0019	0.0005	-3.5900	0.0000	-0.0030	-0.0009
4	-0.0001	0.0005	-0.1900	0.8520	-0.0011	0.0009
5	-0.0008	0.0005	-1.5100	0.1310	-0.0018	0.0002
6	0.0006	0.0005	1.2200	0.2210	-0.0004	0.0016
7	0.0008	0.0005	1.7600	0.0780	-0.0001	0.0018
8	0.0023	0.0004	5.1800	0.0000	0.0014	0.0032
9	0.0021	0.0005	4.3700	0.0000	0.0012	0.0031
10	0.0019	0.0005	3.5700	0.0000	0.0009	0.0029
Number of observations: 483,182						

Standard Errors evaluated by Delta-methods based on robust variance-covariance matrix.

Ethnic diversity: perc foreign asia africa.

Individual controls: age classes, ncomp classes, income classes.

Contextual controls: precinct mean inc equiv, gini inc net equiv, pop density, perc homeown., city center residence

Table 3. Turnout linear probability models. Pooled OLS results

No interaction of ethnic diversity with income classes.	
	POOLED
year 2009	-0.0555***
	(0.0011)
perc foreign asia africa	-0.0004**
	(0.0002)
Non-interacted income classes	YES
Individual controls	YES
Contextual controls	YES
Constant	0.6938***
	(0.0066)
R-squared: 0.0811	
Number of observations: 483,182	

Robust S.E. in brackets. *p<0.10, **p<0.05, ***p<0.01

Individual controls: age classes, ncomp classes, female, married, foreign citizen, new resident, new resident*years of residence, non native, income classes.

Contextual controls: precinct mean inc equiv, gini inc net equiv, pop density, perc homeown., city center residence.

Table 4. Partial effects of ethnic diversity by income class

Linear probability model - Individual Fixed Effects						
Income class	dy/dx	Std. Err.	z	P>z	[95% Conf.Interval]	
		Delta-method				
1	-0.0041	0.0010	-4.2800	0.0000	-0.0060	-0.0022
2	-0.0046	0.0008	-6.1000	0.0000	-0.0061	-0.0031
3	-0.0041	0.0007	-5.7000	0.0000	-0.0056	-0.0027
4	-0.0023	0.0007	-3.3900	0.0010	-0.0037	-0.0010
5	-0.0001	0.0007	-0.2100	0.8340	-0.0015	0.0012
6	-0.0002	0.0007	-0.2800	0.7760	-0.0015	0.0011
7	0.0007	0.0006	1.0800	0.2810	-0.0006	0.0019
8	0.0026	0.0007	3.9000	0.0000	0.0013	0.0038
9	0.0031	0.0007	4.5400	0.0000	0.0018	0.0045
10	0.0039	0.0008	4.6700	0.0000	0.0023	0.0056
Number of individuals: 241,591						

Standard Errors evaluated by Delta-methods based on robust variance-covariance matrix.
Ethnic diversity: perc foreign asia africa.
Individual controls: age classes, ncomp classes, income classes.
Contextual controls: precinct mean inc equiv, gini inc net equiv, pop density, perc homeown., city center residence.

Table 5. Partial effects of ethnic diversity by income class

Linear probability model - Individual and Contextual Fixed Effects (non-movers)						
Income class	dy/dx	Std. Err.	z	P>z	[95% Conf.Interval]	
		Delta-method				
1	-0.0062	0.0014	-4.3700	0.0000	-0.0090	-0.0034
2	-0.0063	0.0010	-6.1200	0.0000	-0.0083	-0.0043
3	-0.0049	0.0011	-4.5100	0.0000	-0.0070	-0.0028
4	-0.0029	0.0009	-3.1300	0.0020	-0.0047	-0.0011
5	-0.0004	0.0010	-0.4200	0.6770	-0.0023	0.0015
6	-0.0011	0.0008	-1.3500	0.1770	-0.0027	0.0005
7	0.0005	0.0009	0.5400	0.5910	-0.0012	0.0022
8	0.0029	0.0009	3.3100	0.0010	0.0012	0.0046
9	0.0031	0.0010	3.0600	0.0020	0.0011	0.0050
10	0.0033	0.0010	3.2300	0.0010	0.0013	0.0053
Number of individuals: 210,838						

Standard Errors evaluated by Delta-methods based on variance-covariance matrix clustered at precinct level.
Ethnic diversity: perc foreign asia africa.
Individual controls: age classes, ncomp classes, income classes.
Contextual controls: precinct mean inc equiv, gini inc net equiv, pop density, perc homeown., city center residence.

Table 6. Probability of moving between 2004 and 2009.

perc foreign asia africa 2004	0.0055	0.0053	0.0054	0.0052	0.0021	0.0019
	(0.0029)	(0.0028)	(0.0029)	(0.0028)	(0.0028)	(0.0026)
change 2004-2009 in perc		-0.0021		-0.0024		-0.0014
		(0.0025)		(0.0025)		(0.0026)
inc net equiv 2004			-0.0003***	-0.0003***	-0.0003***	-0.0003***
			(0.0001)	(0.0001)	(0.0001)	(0.0001)
age 2004					-0.0043***	-0.0043***
					(0.0001)	(0.0001)
ncomp 2004					-0.0102***	-0.0102***
					(0.0012)	(0.0012)
female					-0.0077***	-0.0077***
					(0.0011)	(0.0011)
married 2004					-0.0339***	-0.0340***
					(0.0022)	(0.0022)
city center 2004					0.0050	0.0031
					(0.0188)	(0.0196)
foreign citizen					0.0054	0.0049
					(0.0502)	(0.0502)
non native					0.0236***	0.0237***
					(0.0019)	(0.0019)
precinct mean inc 2004					-0.0005	-0.0008
					(0.0021)	(0.0022)
precinct gini 2004					0.1967	0.2009
					(0.1414)	(0.1434)
pop density 2004					0.0006	0.0007
					(0.0008)	(0.0008)
perc homeowner 2004					-0.0001	-0.0001
					(0.0005)	(0.0005)
Constant	0.1079***	0.1126***	0.1142***	0.1201***	0.3225***	0.3306***
	(0.0100)	(0.0072)	(0.0102)	(0.0071)	(0.0517)	(0.0518)
R-squared	0.0018	0.0021	0.0021	0.0025	0.0617	0.0618
Number of observations	241,591					

Standard errors clustered at precinct level in brackets
** p<0.05, *** p<0.01

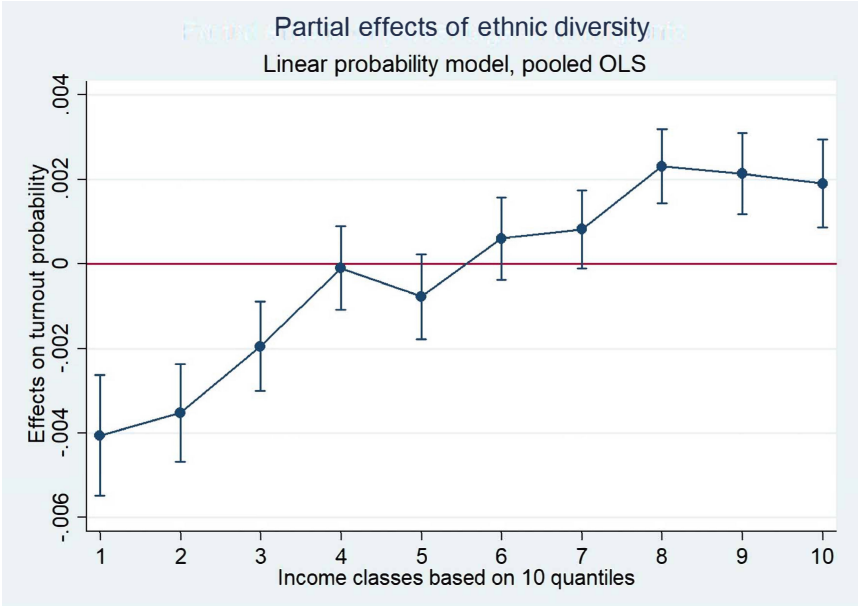


Figure 1

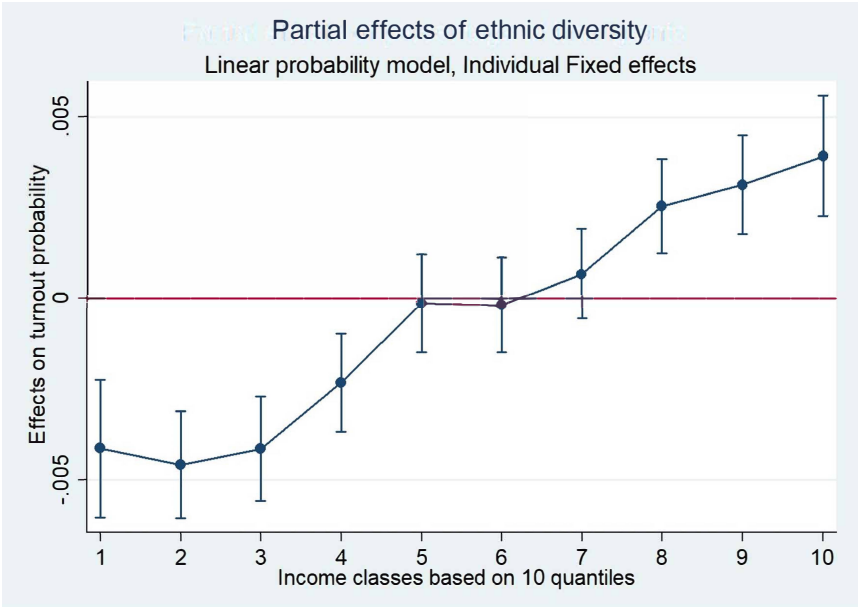
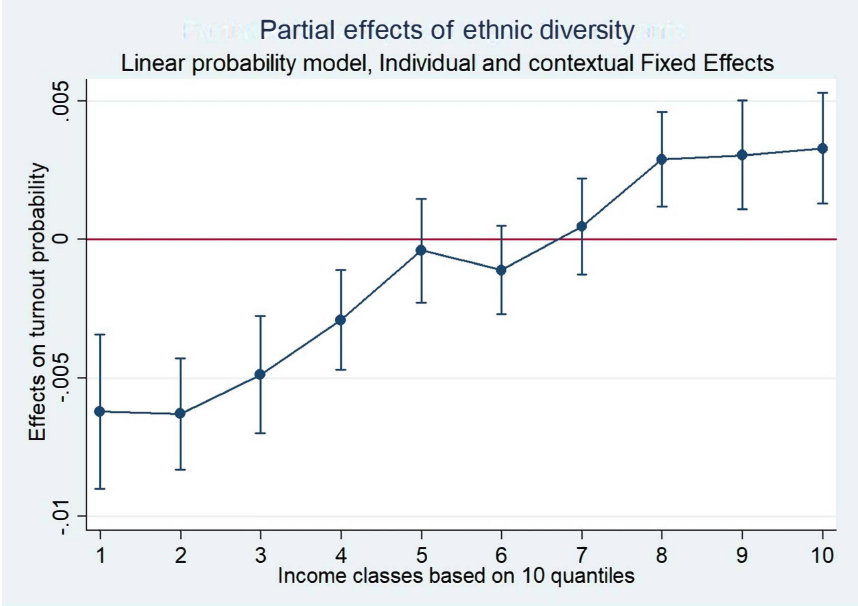


Figure 2


Partial effects of ethnic diversity
Linear probability model, Individual and contextual Fixed Effects
Effects on turnout probability
.005
0
-.005
-.01
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4
5
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8
9
10
Income classes based on 10 quantiles

Figure 3

Appendix A

Table A1. Variables' description

Individual level variables	
voted	=1 if individual voted at election, 0 otherwise
age	individual's age
ncomp	Number of components of the household
inc net equiv	Household's equivalent income (Eurostat's definition; thousand Euros, de
female	=1 if female, 0 if male
married	=1 if married, 0 otherwise
foreign citizen	=1 if the individual has a foreign citizenship, 0 otherwise
new resident	=1 if individual moved from another municipality, 0 otherwise
years of residence	Number of years since the individual has moved
non native	=1 if the individual was born outside Bologna, 0 otherwise
Contextual (precinct-level) variables	
perc foreign all	% foreign residents (all non-EU citizenships)
perc foreign asia africa	% foreign residents Asian and African citizenships
precinct mean inc equiv	Mean equivalent net income (thousands euros)
gini inc net equiv	Gini coefficient (equivalent net income, thousands Euros)
pop density	Population density (pop in thousands/km^2)
perc homeown	% of home-owner households
city center residence	=1 if the individual lives in the center of the city, 0 otherwise

Table A2. Summary statistics, years 2004-2009 pooled

	Whole sample				Balanced panel sample			
	Mean	Std Dev.	Min	Max	Mean	Std Dev.	Min	Max
voted	0.82	0.39	0	1	0.84	0.36	0	1
age	53.7	19.01	17	112	55.03	17.9	18	112
ncomp	2.34	1.15	1	17	2.36	1.12	1	17
inc net equiv	21.09	21.8	0	3293.25	21.94	21.26	0	2761.31
female	0.54	0.5	0	1	0.55	0.5	0	1
married	0.53	0.5	0	1	0.57	0.5	0	1
foreign citizen	0.00	0.05	0	1	0.00	0.02	0	1
new resident	0.67	0.47	0	1	0.66	0.48	0	1
years of residence	20.36	22.25	0	100	21.58	22.32	0	100
non native	0.57	0.5	0	1	0.55	0.5	0	1
perc foreign all	7.53	4.79	0.27	32.87	7.55	4.79	0.27	32.87
perc foreign asia africa	4.49	3.22	0	29.28	4.48	3.21	0	29.28
precinct mean inc equiv	18.76	4.21	10.76	39.32	18.77	4.19	10.76	39.32
gini inc net equiv	0.4	0.08	0.25	0.64	0.4	0.08	0.25	0.64
pop density	11.06	7.07	0.06	45.04	11.06	7.08	0.06	45.04
perc homeown	54.49	12.79	3.98	89.8	54.64	12.84	3.98	89.8
city center residence	0.14	0.35	0	1	0.14	0.34	0	1
Number of observations	587,022				483,182			
Number of individuals					241,591			

Table A3. Distribution of categorical variables, years 2004-2009 pooled. Balanced panel sample

		N	mean	St. Dev	min	max
age class						
	1	20,161	22.26	2.27	18	25
	2	59,113	31.09	2.82	26	35
	3	85,220	40.56	2.85	36	45
	4	80,321	50.43	2.90	46	55
	5	84,120	60.56	2.87	56	65
	6	81,104	70.38	2.85	66	75
	7	57,346	79.94	2.75	76	85
	8	14,869	88.80	2.54	86	95
	9	928	97.64	1.90	96	112
ncomp class						
	1	119,041	1	0	1	1
	2	168,490	2	0	2	2
	3	117,959	3	0	3	3
	4	61,376	4	0	4	4
	5	12,598	5	0	5	5
	6	2,766	6	0	6	6
	7	952	7.82	1.76	7	17
income classes*						
	1	37,307	0.99	1.74	0.00	5.45
	2	46,306	8.32	1.43	5.45	10.48
	3	48,099	12.02	0.82	10.48	13.38
	4	48,884	14.64	0.72	13.38	15.87
	5	49,278	17.06	0.69	15.87	18.25
	6	49,842	19.51	0.74	18.26	20.82
	7	50,189	22.26	0.86	20.82	23.78
	8	50,712	25.73	1.20	23.79	27.99
	9	51,034	31.52	2.38	27.99	36.37
	10	51,531	59.04	45.70	36.37	2761.31
Number of observations		483,182				

*Based on deciles of the distribution of household's equivalent income evaluated with the unbalanced panel sample of eligible voters

Table A4. Turnout linear probability models. Pooled OLS Results

year 2009	-0.0646***	-0.0574***	-0.0554***
	(0.0011)	(0.0011)	(0.0011)
perc foreign asia africa	-0.0059***	-0.0057***	-0.0041***
	(0.0007)	(0.0007)	(0.0007)
2.inc net equiv*perc foreign asia africa	-0.0002	0.0006	0.0005
	(0.0009)	(0.0009)	(0.0009)
3.inc net equiv*perc foreign asia africa	0.0014	0.0021**	0.0021**
	(0.0009)	(0.0009)	(0.0009)
4.inc net equiv*perc foreign asia africa	0.0033***	0.0039***	0.0040***
	(0.0009)	(0.0009)	(0.0009)
5.inc net equiv*perc foreign asia africa	0.0028***	0.0033***	0.0033***
	(0.0009)	(0.0009)	(0.0009)
6.inc net equiv*perc foreign asia africa	0.0041***	0.0046***	0.0047***
	(0.0009)	(0.0009)	(0.0009)
7.inc net equiv*perc foreign asia africa	0.0044***	0.0048***	0.0049***
	(0.0009)	(0.0009)	(0.0008)
8.inc net equiv*perc foreign asia africa	0.0060***	0.0061***	0.0064***
	(0.0009)	(0.0008)	(0.0008)
9.inc net equiv*perc foreign asia africa	0.0059***	0.0057***	0.0062***
	(0.0009)	(0.0009)	(0.0009)
10.inc net equiv*perc foreign asia africa	0.0056***	0.0054***	0.0060***
	(0.0009)	(0.0009)	(0.0009)
2.inc net equiv	0.0692***	0.0588***	0.0595***
	(0.0054)	(0.0053)	(0.0053)
3.inc net equiv	0.0989***	0.0877***	0.0874***
	(0.0052)	(0.0051)	(0.0051)
4.inc net equiv	0.1182***	0.0988***	0.0978***
	(0.0051)	(0.0050)	(0.0050)
5.inc net equiv	0.1391***	0.1161***	0.1144***
	(0.0050)	(0.0049)	(0.0049)
6.inc net equiv	0.1498***	0.1208***	0.1186***
	(0.0049)	(0.0049)	(0.0048)
7.inc net equiv	0.1577***	0.1253***	0.1224***
	(0.0048)	(0.0048)	(0.0048)
8.inc net equiv	0.1669***	0.1326***	0.1286***
	(0.0048)	(0.0047)	(0.0047)
9.inc net equiv	0.1744***	0.1363***	0.1308***
	(0.0048)	(0.0047)	(0.0047)
10.inc net equiv	0.1780***	0.1358***	0.1295***
	(0.0048)	(0.0048)	(0.0048)

Table A4-cont. Turnout linear probability models. Pooled OLS Results

2.age	-0.0215***	-0.0212***
	(0.0032)	(0.0032)
3.age	0.0054	0.0060
	(0.0031)	(0.0031)
4.age	0.0343***	0.0355***
	(0.0031)	(0.0031)
5.age	0.0369***	0.0377***
	(0.0032)	(0.0032)
6.age	0.0304***	0.0309***
	(0.0033)	(0.0033)
7.age	-0.0488***	-0.0481***
	(0.0036)	(0.0036)
8.age	-0.2932***	-0.2924***
	(0.0051)	(0.0051)
9.age	-0.6029***	-0.6030***
	(0.0132)	(0.0132)
2.ncomp	0.0031	0.0031
	(0.0017)	(0.0017)
3.ncomp	0.0028	0.0025
	(0.0018)	(0.0018)
4.ncomp	0.0106***	0.0102***
	(0.0021)	(0.0021)
5.ncomp	-0.0088**	-0.0089**
	(0.0035)	(0.0035)
6.ncomp	-0.0208***	-0.0207***
	(0.0071)	(0.0071)
7.ncomp	-0.1251***	-0.1233***
	(0.0141)	(0.0140)

Table A4cont. Turnout linear probability models. Pooled OLS Results. Foreigners from Asia and Africa

female		-0.0047***	-0.0047***
		(0.0010)	(0.0010)
married		0.0495***	0.0483***
		(0.0014)	(0.0014)
foreign citizen		-0.0752**	-0.0755**
		(0.0382)	(0.0384)
new resident		-0.0509***	-0.0506***
		(0.0019)	(0.0019)
new resident*years of residence		0.0012***	0.0012***
		(0.0000)	(0.0000)
non native		-0.0238***	-0.0236***
		(0.0015)	(0.0015)
precinct mean inc equiv			0.0018***
			(0.0002)
gini inc net equiv			-0.0525***
			(0.0125)
pop density			0.0003***
			(0.0001)
perc homeown			0.0006***
			(0.0001)
city-center residence		0.0048***	0.0115***
		(0.0015)	(0.0020)
Constant	0.7578***	0.7689***	0.7120***
	(0.0042)	(0.0050)	(0.0073)
R-squared	0.0377	0.0806	0.0814
Number of observations	483,182		

Robust S.E in brackets
** p<0.05, *** p<0.01

Table A5. Summary statistics by year and variation across years. Balanced panel sample.

	2004				2009				Ratio*
	Mean	Std Dev.	Min	Max	Mean	Std Dev.	Min	Max	
voted	0.88	0.33	0	1	0.81	0.39	0	1	0.56
age	52.58	17.73	18	107	57.49	17.73	22	112	0.14
ncomp	2.44	1.14	1	15	2.29	1.11	1	17	0.35
inc net equiv	22.23	21.61	0	2396.51	21.65	20.9	0	2761.31	0.39
female	0.55	0.5	0	1	0.55	0.5	0	1	0.00
married	0.57	0.49	0	1	0.56	0.5	0	1	0.27
foreign citizen	0	0.02	0	1	0	0.02	0	1	0.00
new resident	0.65	0.48	0	1	0.66	0.47	0	1	0.05
years of residence	19.95	21.41	0	95	23.22	23.08	0	100	0.09
non native	0.55	0.5	0	1	0.55	0.5	0	1	0.00
perc foreign all	4.82	3.04	0.27	31.49	10.28	4.67	1.58	32.87	0.67
perc foreign asia africa	3.54	2.61	0	29.28	5.42	3.47	0	25.91	0.49
precinct mean inc equiv	19.3	4.23	10.94	36.11	18.24	4.09	10.76	39.32	0.27
gini inc net equiv	0.38	0.08	0.25	0.64	0.41	0.08	0.27	0.64	0.29
pop density	11.08	7.09	0.06	45.04	11.05	7.07	0.07	45.04	0.24
perc homeown	56.46	13.33	3.98	89.8	52.82	12.05	4.36	85.64	0.31
city center residence	0.14	0.35	0	1	0.13	0.34	0	1	0.22
Number of observations	241,591								

*Ratio of within and overall variation

Table A5-cont. Summary statistics by year and variation across years. Balanced panel sample

	2004					2009					Ratio*
	N	Mean	Std Dev.	Min	Max	N	Mean	Std Dev.	Min	Max	
age class											
1	14,790	21.65	2.30	18	25	5,371	23.97	0.86	22	25	0.49
2	34,777	31.02	2.77	26	35	24,336	31.18	2.88	26	35	0.53
3	43,039	40.46	2.83	36	45	42,181	40.66	2.87	36	45	0.54
4	39,322	50.47	2.93	46	55	40,999	50.39	2.87	46	55	0.54
5	43,368	60.52	2.94	56	65	40,752	60.60	2.80	56	65	0.54
6	38,713	70.33	2.87	66	75	42,391	70.42	2.82	66	75	0.54
7	24,030	79.60	2.62	76	85	33,316	80.19	2.82	76	85	0.51
8	3,469	88.89	2.26	86	95	11,400	88.77	2.62	86	95	0.57
9	83	97.13	1.65	96	107	845	97.69	1.92	96	112	0,64
ncomp class											
1	54,259	1	0	1	1	64,782	1	0	1	1	0.38
2	81,473	2	0	2	2	87,017	2	0	2	2	0.44
3	63,434	3	0	3	3	54,525	3	0	3	3	0.48
4	33,327	4	0	4	4	28,049	4	0	4	4	0.45
5	7,002	5	0	5	5	5,596	5	0	5	5	0.49
6	1,546	6	0	6	6	1,220	6	0	6	6	0.53
7	550	7.76	1.58	7	15	402	7.91	2	7	17	0.51
income classes											
1	17,973	1.00	1.75	0.00	5.45	19,334	0.98	1.73	0.00	5.44	0.53
2	22,603	8.32	1.42	5.45	10.48	23,703	8.32	1.43	5.45	10.48	0.55
3	23,584	12.02	0.82	10.48	13.38	24,515	12.02	0.82	10.48	13.38	0.56
4	23,758	14.63	0.72	13.38	15.87	25,126	14.64	0.72	13.38	15.87	0.58
5	24,469	17.06	0.69	15.87	18.25	24,809	17.06	0.69	15.87	18.25	0.59
6	25,420	19.52	0.74	18.26	20.82	24,422	19.51	0.74	18.26	20.82	0.61
7	25,599	22.26	0.86	20.82	23.78	24,590	22.26	0.85	20.82	23.78	0.61
8	25,595	25.74	1.20	23.79	27.99	25,117	25.73	1.21	23.79	27.99	0.60
9	26,062	31.53	2.37	27.99	36.37	24,972	31.50	2.38	27.99	36.37	0.56
10	26,528	59.20	46.16	36.37	2396.51	25,003	58.87	45.20	36.37	2761.31	0.41
Number of obs.	241,591										

*Ratio of within and overall variation

Table A6. Summary statistics by year and variation across years. Balanced panel sample. Non-movers

	2004				2009				Ratio*
	Mean	Std Dev.	Min	Max	Mean	Std Dev.	Min	Max	
voted	0.88	0.32	0	1	0.81	0.39	0	1	0.56
age	54.11	17.47	18	107	59.02	17.47	22	112	0.14
ncomp	2.44	1.12	1	15	2.31	1.1	1	17	0.30
inc net equiv	22.39	21.56	0	2396.51	21.88	21.15	0	2761.31	0.37
female	0.55	0.5	0	1	0.55	0.5	0	1	0.00
married	0.59	0.49	0	1	0.57	0.49	0	1	0.26
new resident	0.66	0.47	0	1	0.66	0.47	0	1	0.04
years of residence	21.15	21.75	0	95	24.44	23.47	0	100	0.09
foreign citizen	0	0.02	0	1	0	0.02	0	1	0.00
non native	0.56	0.5	0	1	0.56	0.5	0	1	0.00
perc foreign all	4.77	3.02	0.27	31.49	10.25	4.66	1.58	32.87	0.66
perc foreign asia africa	3.5	2.6	0	29.28	5.4	3.46	0	25.91	0.46
precinct mean inc equiv	19.28	4.21	10.94	36.11	18.24	4.07	10.76	39.32	0.18
gini inc net equiv	0.38	0.08	0.25	0.64	0.41	0.08	0.27	0.64	0.22
pop density	11.03	7.11	0.06	45.04	11.04	7.09	0.07	45.04	0.05
perc homeown	56.68	13.32	3.98	89.8	52.97	11.99	4.36	85.64	0.23
city center residence	0.13	0.34	0	1	0.13	0.34	0	1	0.00
Number of obs.	210,838								

*Ratio of within and overall variation

Table A6-cont. Summary statistics by year and variation across years. Balanced panel sample. Non-movers

	2004					2009					Ratio*
	N	Mean	Std Dev.	Min	Max	N	Mean	Std Dev.	Min	Max	
age class											
1	11,575	21.45	2.29	18	25	4,603	23.95	0.86	22	25	0.47
2	24,574	31.17	2.76	26	35	16,921	31.03	2.95	26	35	0.54
3	35,981	40.56	2.82	36	45	32,707	40.81	2.86	36	45	0.53
4	35,431	50.52	2.93	46	55	35,924	50.44	2.87	46	55	0.55
5	40,383	60.54	2.94	56	65	37,509	60.63	2.79	56	65	0.54
6	36,603	70.33	2.87	66	75	39,861	70.43	2.82	66	75	0.55
7	22,916	79.60	2.62	76	85	31,636	80.20	2.81	76	85	0.52
8	3,295	88.88	2.26	86	95	10,876	88.76	2.62	86	95	0.57
9	80	97.16	1.67	96	107	801	97.69	1.94	96	112	0.64
ncomp class											
1	45,666	1	0	1	1	53,549	1	0	1	1	0.34
2	73,579	2	0	2	2	78,278	2	0	2	2	0.42
3	55,329	3	0	3	3	48,280	3	0	3	3	0.46
4	28,625	4	0	4	4	24,473	4	0	4	4	0.43
5	5,932	5	0	5	5	4,849	5	0	5	5	0.47
6	1,281	6	0	6	6	1,067	6	0	6	6	0.51
7	426	7.79	1.64	7	15	342	7.92	2.14	7	17	0.49
income classes											
1	14,114	1.01	1.77	0.00	5.45	15,118	1.02	1.76	0.00	5.44	0.52
2	19,444	8.34	1.41	5.45	10.48	20,389	8.33	1.43	5.45	10.48	0.54
3	20,890	12.02	0.82	10.48	13.38	21,714	12.03	0.82	10.48	13.38	0.55
4	21,032	14.63	0.72	13.38	15.87	22,328	14.64	0.72	13.38	15.87	0.57
5	21,690	17.06	0.69	15.87	18.25	21,943	17.06	0.69	15.87	18.25	0.58
6	22,588	19.52	0.74	18.26	20.82	21,591	19.51	0.74	18.26	20.82	0.60
7	22,560	22.25	0.86	20.82	23.78	21,614	22.26	0.85	20.82	23.78	0.60
8	22,493	25.73	1.20	23.79	27.99	22,083	25.73	1.21	23.79	27.99	0.59
9	22,778	31.54	2.37	27.99	36.37	21,958	31.50	2.38	27.99	36.37	0.55
10	23,259	59.14	46.17	36.37	2396.51	22,100	59.01	46.06	36.37	2761.31	0.39
Number of obs.	210,838										

*Ratio of within and overall variation

Table A7.Turnout linear probability models. Individual and Contextual Fixed Effects results

year 2009	-0.0696***	-0.0690***	-0.0698***
	(0.0015)	(0.0015)	(0.0022)
perc foreign asia africa	-0.0060***	-0.0059***	-0.0062***
	(0.0014)	(0.0014)	(0.0014)
2.inc net equiv*perc foreign asia africa	-0.0002	-0.0001	-0.0001
	(0.0012)	(0.0012)	(0.0012)
3.inc net equiv*perc foreign asia africa	0.0012	0.0013	0.0013
	(0.0013)	(0.0013)	(0.0013)
4.inc net equiv*perc foreign asia africa	0.0032**	0.0033**	0.0033**
	(0.0014)	(0.0014)	(0.0014)
5.inc net equiv*perc foreign asia africa	0.0058***	0.0058***	0.0058***
	(0.0016)	(0.0016)	(0.0016)
6.inc net equiv*perc foreign asia africa	0.0052***	0.0051***	0.0051***
	(0.0017)	(0.0017)	(0.0017)
7.inc net equiv*perc foreign asia africa	0.0068***	0.0067***	0.0067***
	(0.0014)	(0.0014)	(0.0014)
8.inc net equiv*perc foreign asia africa	0.0092***	0.0091***	0.0091***
	(0.0016)	(0.0016)	(0.0016)
9.inc net equiv*perc foreign asia africa	0.0095***	0.0093***	0.0093***
	(0.0018)	(0.0018)	(0.0018)
10.inc net equiv*perc foreign asia africa	0.0097***	0.0095***	0.0095***
	(0.0017)	(0.0017)	(0.0017)
2.inc net equiv	0.0174**	0.0158**	0.0158**
	(0.0075)	(0.0075)	(0.0075)
3.inc net equiv	0.0216***	0.0202**	0.0202**
	(0.0081)	(0.0081)	(0.0081)
4.inc net equiv	0.0227***	0.0219***	0.0219***
	(0.0082)	(0.0083)	(0.0083)
5.inc net equiv	0.0178**	0.0177**	0.0178**
	(0.0085)	(0.0086)	(0.0086)
6.inc net equiv	0.0167*	0.0170*	0.0170*
	(0.0088)	(0.0088)	(0.0088)
7.inc net equiv	0.0130	0.0132	0.0132
	(0.0083)	(0.0083)	(0.0083)
8.inc net equiv	0.0077	0.0077	0.0078
	(0.0086)	(0.0086)	(0.0085)
9.inc net equiv	0.0040	0.0039	0.0041
	(0.0089)	(0.0089)	(0.0089)
10.inc net equiv	0.0012	0.0007	0.0008
	(0.0092)	(0.0092)	(0.0092)

Table A7-cont.Turnout linear probability models. Individual and Contextual Fixed Effects results. Foreigners from Asia and Africa

2.ncomp	0.0215***	0.0215***
	(0.0039)	(0.0039)
3.ncomp	0.0136***	0.0136***
	(0.0046)	(0.0046)
4.ncomp	0.0131**	0.0131**
	(0.0057)	(0.0057)
5.ncomp	0.0075	0.0074
	(0.0083)	(0.0083)
6.ncomp	0.0402**	0.0401**
	(0.0164)	(0.0164)
7.ncomp	-0.0004	-0.0006
	(0.0279)	(0.0279)
married	0.0208***	0.0208***
	(0.0043)	(0.0043)
precinct mean inc equiv		0.0001
		(0.0008)
gini inc net equiv		0.0492
		(0.0459)
pop density		0.0013
		(0.0015)
perc homeown		-0.0001
		(0.0002)
Constant		0.8189***
		(0.0321)
Number of Observations	421676	

Standard Errors clustered at precinct level in brackets.
* p < 0.10, ** p < 0.05, *** p < 0.01

Appendix B: Supplementary material

Sensitivity analysis

In this Appendix we perform a series of sensitivity tests on our preferred ICFE model results (presented in **Table 5 and Figure 3 in the paper**), to check their robustness to the chosen measure of ethnic diversity and to various form of misspecification. We begin by considering fragmentation as an alternative measure of ethnic diversity. We then check whether omission of educational achievement, which we do not observe in our data, is a source of bias for our estimates. Next, we estimate the ICFE model on a sample that does not include multiple member per household. Finally, we adopt a non-linear formulation for the binary response model. In the following subsections we report the partial effects of ethnic diversity estimated within each exercise and describe their patterns. Figures B1-B4 allow for a visual inspection of the same findings.

Fragmentation

So far ethnic diversity in the voter's neighborhood was measured by ethnic concentration, i.e. the percentage of foreign residents. An alternative approach, often followed in the literature, is to consider the Herfindahl index of ethnic fragmentation that captures the number and relative size of various ethnic group in a given neighborhood:

$$H_{ct} = 1 - \sum_{g=1}^{G} s_{gct}^2$$

where s_{gct} is the concentration of ethnic group g in precinct c at time t ($t = 2004$, 2009).

The results of the ICFE specification using the Herfindahl index as a measure of ethnic diversity, reported in **Table B1**, show that the pattern of the effect of ethnic fragmentation

on turnout is qualitatively similar to that obtained using ethnic concentration.[37]

INSERT TABLE B1 HERE

Again, increased ethnic fragmentation causes a drop in turnout for the less affluent, which decreases in magnitude for individuals belonging to higher income classes and becomes positive for the richest.

Education

Education has long been considered as a crucial explanation for political participation (see, for example, Nie et al., 1996, and Wolfinger and Rosenston, 1980).[38] Unfortunately, education is not a reliable information in our register and official electoral lists data. To check robustness of our results, we therefore performed ICFE estimations on a sub-sample of eligible voters aged 25 and more in 2004, for whom we can assume that the educational attainment has remained constant in the subsequent five years.

Results in **Table B2** confirm the heterogeneous effect of ethnic diversity on turnout for individuals belonging to different income classes, with pattern and the magnitude very similar to those obtained using the whole sample of non-movers.

INSERT TABLE B2 HERE

Even if we restrict attention to individuals with the same level of education, who may share similar views concerning the consequences of immigration and the relevance of political participation, ethnic diversity seems to have different impact on the latter depending on income, with the more affluent being mobilized by increasing ethnic concentration in the

[37] The magnitudes of partial effects of concentration and fragmentation are not directly comparable to each other given the different scales of these measures.

[38] The causal interpretation of the conventional wisdom that education positively affects turnout has been questioned in recent studies which argue that unobservable personal traits and early-life socialization within the family might have confounded the relationship in earlier contributions. In fact, some studies find evidence of a causal effect (see for example, among others, Sondheimer and Green, 2010) while others do not (see for instance Berinsky and Lenz, 2011).

neighborhood and the less affluent being marginalized.

Individuals versus households in the sample

This robustness check aims at ruling out potential inferencial problems arising from the presence of multiple members per household in the sample. To this aim, we randomly select one eligible voter per household from the sample of non-movers and re-run the ICFE estimation. **Table B3** shows that the magnitude of the effects of ethnic diversity, their pattern across income classes as well as their significance are substantially unchanged with respect to the results contained in **Table 5 in the paper**, suggesting that clustering at the household level is not undermining the validity of the inference in our main estimation results.

INSERT TABLE B3 HERE

Non linear functional form

We contrast here the linear probability ICFE results with those of a logit model, which entails the following non linear formulation of the response probability:

$$\Pr(turnout_{ict} = 1) = \Lambda(\beta_1 + \beta_2 het_{ct} + \beta_3 income_{it} + \sum_{j=2}^{10} \beta_{4j} het_{ct} * inc_j_{it} + \beta_5 X_{ict} + \eta_t + a_i + u_c) \tag{3}$$

where $\Lambda(\cdot)$ denotes the cumulative density function of the logistic distribution. Given the non linear specification and our focus on the effect of ethnic diversity we avoid here over-parametrization and control for ethnic diversity with income expressed in level, rather than income class dummies as in our main model. **Table B4** reports the average partial effects of ethnic diversity obtained estimating the above logit formulation by individual and contextual fixed effects. They still turn from negative to positive across income classes, with

the only difference being the statistical insignificance for the top income classes. While we consider this result as further evidence in support of our general finding of heterogeneous ethnic diversity effects across income groups, as far as the numerical interpretation of the results is concerned we stick to the linear probability model discussed in the previous section, which is more flexible and robust to functional form misspecification.

INSERT TABLE B4 HERE

Table B1. Partial effects of ethnic diversity by income class

Linear probability model - Individual and contextual Fixed Effects (non-movers)						
Income class	dy/dx	Std. Err.	z	P>z	[95% Conf.Interval]	
		Delta-method				
1	-0.3357	0.0453	-7.4100	0.0000	-0.4246	-0.2469
2	-0.3074	0.0383	-8.0300	0.0000	-0.3824	-0.2324
3	-0.2341	0.0393	-5.9500	0.0000	-0.3112	-0.1571
4	-0.1291	0.0325	-3.9700	0.0000	-0.1289	-0.0653
5	-0.0239	0.0333	-0.7200	0.4730	-0.0893	0.0415
6	-0.0280	0.0343	-0.8200	0.4150	-0.0951	0.0392
7	0.0354	0.0367	0.9700	0.3330	-0.0363	0.1071
8	0.1272	0.0337	3.7700	0.0000	0.0611	0.1932
9	0.1530	0.0374	4.0900	0.0000	0.0797	0.2263
10	0.1639	0.0384	4.2700	0.0000	0.0887	0.2392
Number of individuals: 210,838						

Standard Errors evaluated by Delta-methods based on variance-covariance matrix clustered at precinct level.
Ethnic diversity: Herfindahl index of ethnic fragmentation.
Individual controls: age classes, ncomp classes, income classes.
Contextual controls: precinct mean inc equiv, gini inc net equiv, pop density, perc homeown., city center residence.

Table B2. Partial effects of ethnic diversity by income class

Linear probability model - Individual and Contextual Fixed Effects, eligible voters aged > 25						
Income class	dy/dx	Std. Err.	z	P>z	[95% Conf.Interval]	
		Delta-method				
1	-0.0062	0.0015	-4.0900	0.0000	-0.0092	-0.0033
2	-0.0068	0.0011	-6.2300	0.0000	-0.0089	-0.0046
3	-0.0051	0.0011	-4.6800	0.0000	-0.0072	-0.0030
4	-0.0035	0.0009	-3.7300	0.0000	-0.0054	-0.0017
5	-0.0003	0.0010	-0.2600	0.7910	-0.0022	0.0017
6	-0.0011	0.0008	-1.3400	0.1800	-0.0027	0.0005
7	0.0009	0.0009	1.0300	0.3050	-0.0008	0.0026
8	0.0031	0.0008	3.7300	0.0000	0.0015	0.0048
9	0.0031	0.0010	3.0000	0.0030	0.0011	0.0051
10	0.0032	0.0011	3.0300	0.0020	0.0011	0.0053
Number of individuals: 199,263						

Standard Errors evaluated by Delta-methods based on variance-covariance matrix clustered at precinct level.
Ethnic diversity: perc foreign asia africa
Individual controls: age classes, ncomp classes, income classes.
Contextual controls: precinct mean inc equiv, gini inc net equiv, pop density, perc homeown.,city center residence.

Table B3. Partial effects of ethnic diversity by income class

Linear probability model - Individual and Contextual Fixed Effects, one individual per household						
Income class	dy/dx	Std. Err.	z	P>z	[95% Conf.Interval]	
		Delta-method				
1	-0.0070	0.0016	-4.4200	0.0000	-0.0101	-0.0039
2	-0.0065	0.0013	-5.1700	0.0000	-0.0090	-0.0040
3	-0.0047	0.0013	-3.7000	0.0000	-0.0073	-0.0022
4	-0.0034	0.0011	-3.2400	0.0010	-0.0055	-0.0014
5	-0.0006	0.0011	-0.5400	0.5910	-0.0028	0.0016
6	-0.0010	0.0010	-1.0100	0.3150	-0.0029	0.0009
7	0.0003	0.0010	0.3100	0.7580	-0.0017	0.0023
8	0.0031	0.0010	3.0000	0.0030	0.0011	0.0051
9	0.0041	0.0012	3.5400	0.0000	0.0018	0.0064
10	0.0050	0.0012	4.0900	0.0000	0.0026	0.0073
Number of individuals: 128,460						

Standard Errors evaluated by Delta-methods based on variance-covariance matrix clustered at precinct level.

Ethnic diversity: perc foreign asia africa

Individual controls: age classes, ncomp classes, income classes.

Contextual controls: precinct mean inc equiv, gini inc net equiv, pop density, perc homeown.,city center residence

Table B4. Partial effects of ethnic diversity by income class

Logit model - Individual and contextual Fixed Effects (non-movers)						
Income class	dy/dx	Std. Err.	z	P>z	[95% Conf.Interval]	
		Delta-method				
1	-.0073101	.0018511	-3.95	0.000	-.0109382	-.0036819
2	-.0073809	.0017355	-4.25	0.000	-.0107824	-.0039794
3	-.0058905	.0016623	-3.54	0.000	-.0091486	-.0026323
4	-.002212	.0015712	-1.41	0.159	-.0052916	.0008676
5	.0013806	.0015224	0.91	0.364	-.0016032	.0043645
6	-.0009583	.0015873	-0.60	0.546	-.0040694	.0021528
7	.0012209	.0016424	0.74	0.457	-.0019981	.0044399
8	.0040335	.0017926	2.25	0.024	.0005201	.0075468
9	.0032725	.0019397	1.69	0.092	-.0005292	.0070742
10	.0011956	.0022514	0.53	0.595	-.0032171	.0056082
Number of individuals: 210,838						

Individual controls: age classes, ncomp classes, income classes.

Ethnic diversity: perc foreign asia africa

Contextual controls: precinct mean inc equiv, gini inc net equiv, pop density, perc homeown., city center residence.

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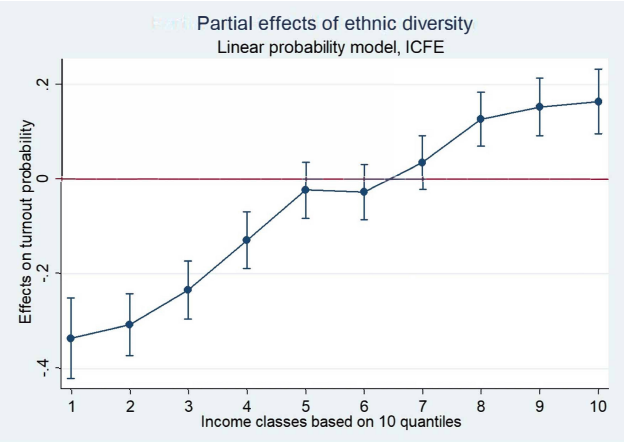

Figure B1

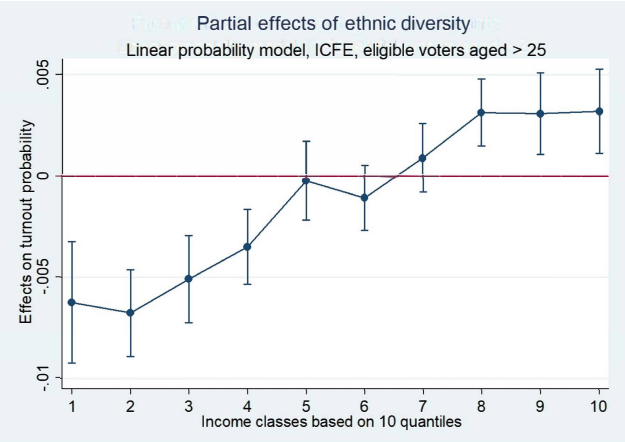

Figure B2

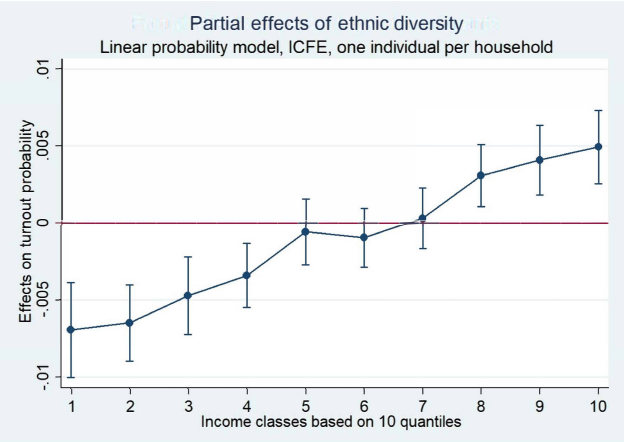

Figure B3

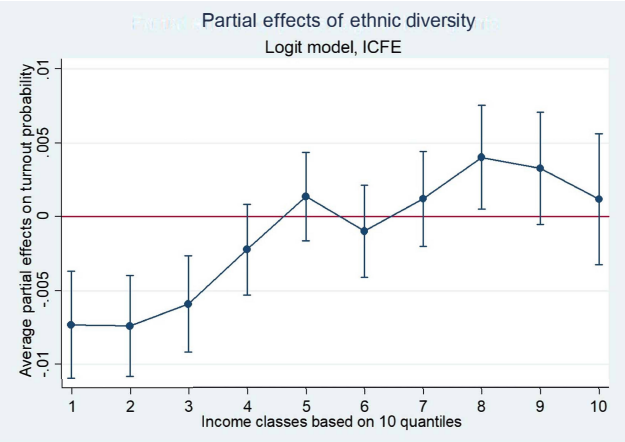

Figure B4