Voting Cultures: Network Effects and the Political Participation of Naturalized Citizens in U.S. Elections*

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Abstract

Social networks may play an especially crucial role in encouraging the political participation of naturalized citizens, for whom baseline political participation is often lower than for the rest of the population. This paper uses recent data on the demographics and turnout decisions of naturalized citizens in U.S. national elections to lend empirical support to this hypothesis. Using ethnic residential concentration to infer the extent of ethnic networks and exploiting variation in voting rates across ethnic groups, I find that ethnic networks exhibit a strong differential mobilizing effect, increasing the likelihood of voting much more when co-ethnics are politically active relative to when co-ethnics are not active. I employ a variety of strategies to show that the network effects I estimate are not due to patterns of residential selection nor due to strategic mobilization by political actors. Finally, I provide evidence that ethnic networks encourage political socialization by increasing the frequency of casual conversation about politics and the likelihood of participation in other forms of civic engagement.

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1 Introduction

The increasing inflow of immigrants to the U.S. and other democratic industrialized countries in recent decades, and the subsequent political participation of these immigrant groups, has captured the attention of politicians, native-born citizens and the media alike. With immigrants accounting for 13.5% of the total U.S. population in 2016, and naturalized citizens comprising nearly 9% of the eligible voters, immigrants are an increasingly pivotal demographic. While the rising electoral influence of immigrants may induce feelings of anxiety among the native-born population, increased levels of political participation may not only help immigrants identify as citizens but may also confer significant political benefits for immigrant communities.[1]

The costs that recent immigrants face in voting and in other forms of political participation are especially high, however. Immigrants must satisfy particular requirements to pass administrative hurdles and become acquainted with a system of politics that may be unfamiliar.[2] Motivated by the idea that social and cultural immersion is the surest path to ameliorating the costs and introducing the benefits of political participation, research investigating the question of how immigrants become voters has tended to focus on processes of assimilation.[3] Education, time spent in the host nation and income have all been identified as markers of assimilation and strong determinants of political participation. However, the social determinants of immigrants' political behavior have received comparably less attention. In line with the assimilation hypothesis, social contact with natives may encourage the acquisition of skills necessary to vote. Meanwhile, immigrant networks may themselves play an essential role in encouraging political behaviors by facilitating political socialization within these networks.[4] Because immigrants rely heavily on co-ethnic networks in particular to facilitate access to labor market opportunities and for other means of economic and social support, connections with immigrants from the same country of origin may be especially important.

How do ethnic networks affect political participation? In this paper, I empirically examine the

[1] See Cascio and Washington (2014) and Fujiwara (2015) for evidence of the redistributional gains to political enfranchisement.

[2] Naturalized citizens consistently vote at a lower rate than native-born citizens, with a turnout gap of between 9-12 percentage points which persists even after accounting for differences in socioeconomic status (Wang and Kim (2011)).

[3] Much of this research has taken place in the political science literature. While economists have dedicated significant attention to the rate at which immigrants integrate along economic dimensions, the question of how immigrants integrate politically has been relatively less studied. A notable exception is Shertzer (2016), who provides evidence that immigrants to the U.S. in the early 20th century were mobilized by the local Democratic Party in accordance with their share of the local electorate.

[4] The inadequacy of relying on individual characteristics to predict the political participation of immigrants has been recognized by political scientists. This recognition is encapsulated by Cho (1999), who concludes that "socioeconomic status variables merely provide the skills necessary for political activity in a suitable political context. Socialization determines how these skills will be manifested." Subsequent work by political scientists has aimed to fill this gap, but existing studies are limited by identification problems and data limitations.

effect of co-ethnic networks, and the political participation of these networks, on immigrants' decision to vote. I consider the context of the U.S. in particular, home of a large and diverse immigrant population.[5] The results challenge the intuition that assimilation is what matters most for encouraging the political participation of immigrants.

While economists have recognized the importance of ethnic networks in affecting labor market outcomes and rates of wage convergence, the consequences of ethnic networks for immigrant political behavior are less well understood. Despite the lack of conclusive evidence, there are strong reasons to suspect that ethnic networks may play a crucial role in socializing immigrants politically. A large body of evidence has established the importance of social image and peer effects for encouraging voting and other forms of political participation.[6] Immigrants, who may lack crucial information about how to vote and an established social and cultural context which encourages political activity may be particularly responsive to the presence of these social factors.

Empirical confirmation of this intuition is complicated by the consideration that immigrants who live in areas with high co-ethnic concentration may be more or less likely to vote for a number of reasons, not all of which are attributable to the effect of networks. Ethnic networks are endogenous due to self-segregation—immigrants who sort into dense ethnic networks may differ along many characteristics from those who choose to live further away from one's ethnic group. In addition, correlated individual and group political participation outcomes may be affected by shared unobserved characteristics. Meanwhile, high concentrations of co-ethnic immigrants may also represent more attractive targets for enterprising political campaigns.[7] These identification issues have plagued existing studies of the social factors underlying immigrant turnout.

While the effect of patterns of ethnic segregation on individual turnout decisions is both directionally ambiguous and difficult to interpret, the network effects hypothesis yields a testable prediction which allows it to be distinguished from confounding theoretical and econometric explanations. In particular, because the socializing effect of networks depends not only on the size of the network but also on the knowledge and attitudes of those within the network, network effects should be increasing in the political experience and activity of one's ethnic group. In other words, the effect of increased ethnic concentration should be stronger for individuals from ethnic groups that are politically active than for members of ethnic groups that are less so.

I provide empirical evidence for this hypothesis in the context of the contemporary U.S. using data on the turnout decisions of naturalized citizens in national elections from recent waves of the

[5] I focus on the voting decisions of naturalized citizens—immigrants who have successfully applied for U.S. citizenship and thereby have acquired the legal right to vote.

[6] Empirical evidence has largely come from experimental studies, beginning with the seminal get-out-the-vote experiment by Gerber et al. (2008). DellaVigna et al. (2017) and Perez-Truglia and Cruces (2017) are examples of more recent work.

[7] This is precisely the argument of Shertzer (2016).

Current Population Survey (CPS) administered by the Census Bureau. The CPS dataset uniquely combines detailed demographic characteristics (including country of origin) and geographic identifiers of appropriate resolution with measures of political participation.[8] I employ an empirical strategy adapted from the methodology presented by Bertrand et al. (2000) in their study of the effects of language networks on welfare use. In particular, I proxy for the size of ethnic networks by defining a measure of ethnic concentration using the number of naturalized citizens from one's country of origin living in one's neighborhood and consider the national voting rate of one's ethnic group as a measure of the "quality" of one's network. I then construct a measure of "network strength" as the interaction between ethnic concentration (network size) and the national group voting rate (network quality).

This strategy allows me to exploit two sources of variation in the data. First, I exploit variation in individuals' choice of ethnic concentration, both within ethnic groups (across localities) and within localities (across ethnic groups). This allows for the inclusion of both group and area fixed effects. Because voting decisions may be affected by area- and group-specific shocks or shared characteristics, these two sets of fixed effects are essential to the identification of network effects. Second, I exploit variation in the political participation of ethnic groups, which I proxy for using the average group turnout rate. I then construct a measure of network strength as the *interaction* between ethnic concentration and the group voting rate. This construction allows for the inclusion of the lower-order ethnic concentration term as a way to account for unobserved differences between those who sort into dense (co-)ethnic networks and those who do not. The goal is to examine the differential effect of an increase in the size of one's ethnic network for individuals belonging to ethnic groups of varying political "quality".

Using this empirical framework, I find that the measure of network strength I construct has a large positive effect on the likelihood that naturalized citizens vote, evidence of the differential effect of ethnic concentration characteristic of network effects. I show that this result is robust across a range of specifications and samples. In particular, I estimate that a one-standard-deviation increase in ethnic concentration makes a naturalized citizen from an ethnic group that votes at one standard deviation above the mean 3.8% more likely to vote in presidential elections than a comparable citizen from an ethnic group that votes at the average rate. The size of this difference is large, corresponding roughly to the effect of having spent an additional 12 years of one's life in the U.S.

I contend with two alternative sets of explanations unrelated to the action of network effects: (1)

[8] This allows me to overcome data limitations of past studies. For example Cho et al. (2006) use voting records to study the socializing effects of ethnic neighborhood context on the turnout of immigrants but due to a lack of information on ethnicity are forced to limit their study to Asian-Americans, the only group for whom country of origin can be reliably inferred from names. Their analysis is also restricted only to 16 counties. These limitations are representative of many similar existing studies.

differential selection and (2) strategic mobilization. First, while I am able to control for selection on unobservables that is fixed across ethnic groups, selection on unobservables which differs according to group-level political participation poses a threat to identification. I follow Bertrand et al. (2000) in referring to this as the issue of *differential selection*. Second, institutional factors affect observed patterns of voting behavior which may affect the estimates I report. For instance, political campaigns may strategically target ethnic neighborhoods which already vote at high rates. I refer to the effect of institutional factors aimed at "top-down" mobilization of voters as *strategic mobilization*.

I employ various strategies to show that the results are not explained by differential selection nor by strategic mobilization. I begin by investigating whether differential selection affects the estimated network effect by instrumenting for ethnic concentration in one's metropolitan area using ethnic concentration at the state level. Since measuring ethnic concentration at a higher level of geographic aggregation should ameliorate the bias introduced by differential selection, the IV estimate of an effect driven by self-segregation should be significantly lower than the OLS estimate (Bertrand et al. (2000), Evans et al. (1992)). On the contrary, I find that the estimated network effect is largely unaffected by the IV strategy. I then examine the effect of removing important education controls as a way to infer the direction and magnitude of the potential bias introduced by unobservable variables which may be equally important determinants of voting behavior. Similarly, I find that the network effect estimates are robust to this exercise. The invariance of the results under these two strategies suggest that the measured network effects are not due to differential patterns of self-selection.

I also argue that the effects I observe are not indicative of strategic mobilization. First, I show that the estimates remain large and positive when excluding immigrants from Spanish speaking countries who may be differentially mobilized by Spanish media networks and who also inhabit an especially salient position in recent general elections. Second, I find that the estimated network effect is not significantly stronger in swing states, where vastly more campaign resources are spent, than in non-swing states. Finally, because political campaigns often target immigrants who have already registered to vote (and are therefore easier to mobilize), I turn to voter registration as an outcome which is less affected by strategic mobilization. In addition, I use detailed data from the CPS on the method of registration to exclude registrations that are likely to be attributable to strategic mobilization. I find that the estimated network effect for both the raw and the refined registration outcomes remains large and positive.

In addition to affecting rates of voter registration, I identify social and civic behaviors strongly associated with voter turnout through which network effects may act. In particular, I find that network strength strongly predicts the frequency of political conversations as well as a broad civic engagement index, suggesting that ethnic networks with high levels of political participation

may increase voter turnout by fostering greater communication about political issues as well as community engagement.

Within the broad literature devoted to the economic and cultural assimilation of immigrants, this paper relates to the strand of literature studying the effect that living in ethnic neighborhoods has on the rates at which immigrants assimilate culturally and economically (Abramitzky et al. (2014), Borjas (1995), Borjas (1998), Edin et al. (2003), Munshi (2003)).[9] In addition, it relates to a large literature in economics studying political participation, including studies on the role of media (Gentzkow (2006)), cultural practices (Madestam and Yanagizawa-Drott (2012)), and election closeness (Bursztyn et al. (2017)) in increasing turnout. Within this literature is a growing body of experimental evidence on the mobilizing potential of social image considerations and peer effects conducted by both economists and political scientists (Gerber et al. (2008), Funk (2010), DellaVigna et al. (2017), Nickerson (2008), Fafchamps et al. (2017), Perez-Truglia and Cruces (2017)). The results of this paper also relate to findings from the literature on ethnic fractionalization that local diversity leads to lower levels of civic engagement and provision of public goods (Alesina et al. (1999), Alesina and La Ferrara (2000), Luttmer (2001)).

Finally, this paper relates to the interdisciplinary literature on the political participation of immigrants and ethnic minorities. Shertzer (2016) and Pons and Liegey (2018) are recent examples from the economics literature, studying political participation from the perspective of elite mobilization, while Oberholzer-Gee and Waldfogel (2005) and Oberholzer-Gee and Waldfogel (2009) studies the effect of ethnic mobilization through targeted media markets. In political science, a long tradition has focused on social context as an especially important factor in the voting decision (Huckfeldt (1979), Weatherford (1982), Straits (1990), Putnam (2000)), and a growing body of other work has brought the social dimension of political participation to bear on immigrant and ethnic minority populations (Cho (1999), Cho et al. (2006), Leighley (2001)). These studies have pointed to the fact that the size of co-ethnic networks has widely varying consequences for the political participation of different ethnic groups, focusing on broadly defined Latino, Asian-American and African-American group definitions. This paper contributes to this literature by adopting an empirical approach designed to circumvent the identification concerns associated with past studies of network effects and accounting for the heterogeneous effects of ethnic networks in a systematic way by considering political activity within the network.

The remainder of the paper is organized as follows. In Section 2, I provide brief background on ethnic networks and their relationship to political participation in the U.S. The empirical strategy is outlined in Section 3. Section 4 describes the data and sample selection and Section 5 provides the main results and specification checks. Section 6 concludes.

[9] While the ethnic networks I study are related to ethnic enclaves, I perform my analysis at the level of the metropolitan area (MSA), the largest of which may often contain many independent ethnic enclaves.

2 Institutional and Theoretical Background

Why might ethnic networks affect the political participation of immigrants? One set of explanations involves the strategic behavior of political actors who may be more likely to mobilize immigrants who are highly concentrated—I refer to this as strategic mobilization. A second set of explanations centers on the idea that political participation is at least partially determined by the attitudes and knowledge of the social connections in one's network. I refer to these explanations as network effects.

While these explanations are by no means mutually exclusive, different institutional settings may support the predominance of one type of mobilization over the other. In the early 20th century, political machines such as Tammany Hall mobilized U.S. immigrants (the vast majority of whom were European) in large numbers. The voting rates of these immigrants sometimes exceeded those of the native-born as a result of these mass mobilization efforts. However, the importance of "top-down" immigrant mobilization has greatly decreased over the course of the 20th century. The decline of political machines like Tammany Hall has often been cited as one explanation for the contemporaneous decline in immigrant voting rates. Diversification of the U.S. immigrant population, with immigrants coming increasingly from undemocratic countries, has also made the prospect of strategic mobilization more difficult.[10] It is therefore plausible that ethnic network effects operating at the local level may play the predominant role in "mobilizing" contemporary immigrants.

On the other hand, campaign outreach undoubtedly continues to play a major role in the contemporary U.S. political system for all citizens, including for naturalized citizens. If politicians selectively target ethnic groups which already vote at high rates, my empirical strategy will be unable to distinguish this strategic mobilization from network effects. However, I provide strongly suggestive evidence that the estimates are not being driven by "top-down" efforts, reinforcing the interpretation that network effects acting at the local level are responsible for the observed patterns of voter turnout. First, because political campaigns often focus their efforts on voters who are already registered, examining voter registration as an outcome variable instead of voter turnout can help us to distinguish between the two classes of effects.[11] I find that the estimated

[10] The political science literature has pointed to the difficulties that political campaigns face in mobilizing minority voters. Wong (2006) studies Chinese and Mexican immigrants, concluding that low rates of political participation are due to the inability of political parties and organizations to mobilize immigrants. Stevens and Bishin (2011) uses data from the 2004 American National Election Study to show that minorities are less likely to be contacted by major parties and more likely to be contacted using inefficient methods.

[11] In recent elections, however, politicians recognizing the growing importance of the immigrant vote have made efforts to register new immigrant voters through the organization of registration drives. Data-driven mobilization efforts open the possibility for these drives to selectively target immigrants in a way which would bias my results. Using information from the CPS data on how naturalized citizens registered, I find that even when excluding those registered through registration drives, the network effect on voter registration remains large.

network effect on voter registration remains over 4/5ths as large as the estimated network effect on voter turnout. Second, institutional characteristics of U.S. presidential elections predict particular patterns of strategic mobilization. In particular, under the Electoral College system, the candidate who wins the popular vote in any given state will receive all the electors assigned to that state.[12] This provides strong incentives for presidential candidates in general elections to spend a disproportionate amount of campaign time and finances in states where the election is expected to be close, since the returns to campaigning in states which are unlikely to be "swung" one way or the other are likely to be marginal. If campaign mobilization is driving the effects, we should find that the estimated network effects are significantly larger in these "swing states." However, I find that the effect of swing state status on the strength of the estimated network effects in negligible. I present these results in Section 5.

A third possibility explaining a relationship between the benefits of political participation and the size of one's ethnic group is introduced if individuals within a group vote as a bloc. Large ethnic groups may then be more likely to be pivotal and the instrumental benefits to voting may be higher as a result. I do not consider this instrumental channel for two reasons. First, because the ethnic group populations I study at the metropolitan area level are small relative to the population at-large, the probability of the group$\times$area cell being pivotal in national elections remains extremely small.[13] Second, individual turnout only translates to a meaningfully higher probability of group-level electoral success if individual decisions can be expected to affect the decisions of others within the group.[14] Network effects are therefore a precondition for group-based instrumental effects. However, instrumental considerations may nonetheless serve to augment the importance of network effects.

With these distinctions between network effects and other explanations of mobilization in hand, network effects may themselves be separated into more particular mechanisms. There at least two different channels to consider: (1) social pressure and (2) social learning.

Individuals may face *social pressure* to vote if voting is seen as socially desirable. Under this interpretation, individuals vote in order to signal to others that they are a civically engaged citizen. Alternatively, individuals may experience *social learning* if they learn from others about the importance of civic duty, about political candidates and issues, or about the logistics of voting.[15]

[12] The number of electors assigned to states is given by the number of representatives and senators the state has in Congress and is roughly a function of states' populations.

[13] Another possibility is that immigrants may vote as a bloc across ethnicities, effectively forming a much larger group that is more likely to be pivotal. While the main specification does not take into account this possibility, I find that controlling for the size of the total immigrant population at the area level has a negligible effect on the estimated network effects.

[14] In Coate and Conlin (2004) for instance, individuals are group-rule utilitarians—citizens vote according to a decision rule which they assume all other members of their group also assume.

[15] The social learning mechanism may thus be interpreted as either raising individuals' intrinsic benefit to voting (e.g. sense of civic duty) or lowering voting costs (e.g. information about how and where to register to vote).

While my empirical methodology cannot distinguish between these two types of social effects, these mechanisms yield a common prediction: the effect of increased ethnic concentration should be stronger for individuals from ethnic groups that vote at high rates than for members of ethnic groups that are less politically active. The differential behavior of network effects across groups with varying political activity allows network effects to be differentiated from non-network effect explanations that depend only on ethnic concentration.

To see why this differential behavior is characteristic of network effects, we turn to the basic framework for social image presented in Bénabou and Tirole (2006) and further developed by Bursztyn and Jensen (2017) to write:

$$S_i(e_i) = \lambda_i \mathrm{E}_i(\omega_k) \mathrm{Pr}_{-i}[\sigma_i = h | R_i](e_i).$$

Here, $\mathrm{Pr}_{-i}[\sigma_i = h|R_i](e_i)$ denotes the probability that an individual is perceived by their group as being of type h conditional on their voting decision R_i while $\mathrm{E}_i(\omega_k)$ is the individual's expectation about the social desirability ω_k of being perceived by group k as being of type h. λ_i is a parameter capturing the overall importance of social image. In our context, it is plausible to expect for $\mathrm{Pr}_{-i}[\sigma_i = h|R_i](e_i)$ to be increasing in the size of one's ethnic network, since individuals are more likely to encounter members of their group. Meanwhile, individuals' expectations about the social desirability of voting, $\mathrm{E}_i(\omega_k)$, ought to be higher in groups that vote at high rates. Therefore, this basic framework suggests that if social pressure matters for immigrant turnout, the effect of ethnic concentration should indeed be stronger for members of groups that are more politically active.

A similar story can be told for the social learning channel. While the size of one's ethnic group may determine how often or how much information of any kind one receives from their social network, those who belong to groups that are more politically active will be more likely to receive information relevant to political participation.[16] In this way, social learning as a network effect should also manifest differentially, in the same manner as described for the social pressure channel.[17]

This differential effect is therefore the focus of the empirical strategy which I outline in the next section.

[16] This information acquisition may occur through explicit communication or just by observing the actions of others.

[17] Both channels might be broadly subsumed under the heading of what has been called "social capital." While the concept has many definitions, Aldridge et al. (2002) define social capital as the "network, norms, relationships, values and informal sanctions that shape the quantity and co-operative quality of a society's social interactions." An analogous intuition suggests that social capital should be increasing in the "quality" of in-group others. This is made explicit in the following quote from the sociologist Bourdieu (1987): "The volume of social capital possessed by an agent thus depends on the size of the network of connections he can effectively mobilise and on the volume of capital (economic, cultural or symbolic) possessed in his own right by each of those to whom he is connected" (248-249).

3 Empirical Framework

The identification of network effects poses several challenges. If we suppose that one's network has an effect on an individual's own outcome, we must be able to measure the presence of social interactions. Since data on the type and strength of social pressure one's network exerts, or the information an individual learns from their contacts is usually unavailable, a proxy must be found. An intuitive choice is to consider mean neighborhood characteristics which leads to the linear-in-means model of social interactions:

$$Pr(Vote_{ij}) = \alpha \overline{Vote}_j + \beta X_i + \epsilon_{ij}$$

where i indexes individuals and j indexes areas, $Vote_{ij}$ is an indicator for whether an individual votes and X_i is a vector of personal characteristics. Here, the mean voting rate of neighborhood j serves as a proxy for the "network effect strength" of individual i's network.

The issue with the above is that we cannot be sure whether one's network increases the probability that individual i votes or whether omitted characteristics correlated with both $Pr(Vote_{ij})$ and $\overline{Vote}_j$ are driving the correlation. These omitted characteristics can be related to either personal characteristics of the group (e.g. individuals who live in wealthy areas tend to be more civically engaged) or to characteristics of the area itself (e.g. some areas have more polling places than others).

Ideally, we would like to control for both omitted group characteristics and omitted neighborhood characteristics. The empirical framework I employ is adapted from Bertrand, Luttmer and Mullainathan (2000), who study the role that network effects of language groups play in welfare usage. As a first step, the authors use language spoken at home as a measure of social links and infer the size of an individual's social network using the number of people from the same language group in the same area. This strategy exploits variation in the size of social networks across neighborhoods within a given language group as well as variation in the size of social networks within neighborhoods across the language groups living there. Exploiting both dimensions of variation thus allows for the inclusion of both neighborhood and ethnic group fixed effects.

As in Borjas (1992), I use ancestry, defined by country of origin, as a measure of ethnicity.[18] I define a measure of ethnic concentration, e, as the number of naturalized citizens from the same country of origin j as individual i living in area k.

If we suspect that simply having a large ethnic network increases the probability of voting, we

[18] Although individuals in a general population sharing a given ancestry may be loosely connected in general, this concern is alleviated since I only consider first-generation immigrants in the present analysis.

arrive at the following specification:

$$Pr(Vote_{ijk}) = \alpha e_{jk} + \beta X_i + \gamma_j + \delta_k + \epsilon_{ijk}$$

where e_{jk} denotes the ethnic concentration in area j of group k, γ_j are neighborhood fixed effects and where δ_k are group fixed effects. However, a concerning endogeneity remains since ethnic concentration is a choice variable which may be affected by unobserved characteristics also influencing the voting decision.[19] If individuals who choose to live in areas of high ethnic concentration differ from those who select away form their co-ethnic group, these unobservables may bias our estimate of $\hat{\alpha}$ even in the presence of both neighborhood and group fixed effects.[20]

To deal with this concern, I construct a measure of "network strength" as the interaction between ethnic concentration and the political "quality" of one's ethnic group. I proxy for political "quality" using the average voting rate of one's co-ethnics. In particular, I use the average *national* voting rate instead of the local voting rate since, as Bertrand et al. note, using the average group mean at the neighborhood level may bias the coefficient if individuals share unobserved characteristics with their local reference group. Explicitly, I construct my measure of "network strength" as

$$Netw_{jk} = \underbrace{\begin{pmatrix} \text{Ethnic} \\ \text{concentration of} \\ \text{group } k \text{ in area } j \end{pmatrix}_{jk}}_{e_{jk}} \times \underbrace{\begin{pmatrix} \text{Political} \\ \text{"quality" of} \\ \text{group } k \end{pmatrix}_{k}}_{\overline{Vote}_k}.$$

Importantly, a regression specification including this interaction term can also include a lower order ethnic concentration term e_{jk} as a regressor. The lower order term will then be able absorb any unobserved differences correlated with individuals' choice of ethnic concentration.[21] The basic specification that I consider is then given by:

$$Pr(Vote_{ijk}) = \alpha \underbrace{(e_{jk} * \overline{Vote}_k)}_{Netw_{jk}} + \theta e_{jk} + \beta X_i + \gamma_j + \delta_k + \epsilon_{ijk}$$

where γ_j are area fixed effects, δ_k are group fixed effects and X_i is a vector of individual-level controls. α is the coefficient of interest.

However, unobserved personal characteristics that are correlated with $e_{jk} * \overline{Vote}_k$ may still intro-

[19] On the other hand, the spatial mismatch hypothesis suggests that immigrants may be *forced* to segregate due to housing market restrictions (Ihlanfeldt and Sjoquist (1998)).

[20] For example, suppose "civic engagement" is an unobserved characteristic which affects the voting decision. If individuals who choose to live in dense ethnic networks are more civically engaged then $\hat{\alpha}$ will be biased upwards.

[21] The other lower order term, $\overline{Vote}_k$, is automatically included by way of the group fixed effects.

duce a source of bias. While the inclusion of e_{jk} controls for differences between those living in areas of high and low co-ethnic concentration which are constant across ethnic groups, an omitted variable bias remains if these differences vary across ethnic groups as a function of the average group voting rate. Bertrand et al. (2000) refer to this issue as *differential selection*. It is perhaps easiest to envision the possibility for differential selection in the present context if we consider that groups with higher voting rates may also, for instance, be more skilled. In that case, following the argument of Borjas (1998), high-skill individuals from groups with low average skill may select away from highly co-ethnic neighborhoods due to human capital externality considerations while a comparably high-skill individual from a highly skilled group may make the opposite choice. If skill is unobserved and affects voting behavior, the correlation between group skill and group political participation would then introduce an omitted variable bias. In Section 5, I follow Bertrand et al. (2000) in testing for the presence of differential selection in the sample by instrumenting for ethnic concentration at the MSA level with ethnic concentration at the state level. I also assess the importance of dropping education controls in order to infer the magnitude and direction of unobservables which may affect residential choice in a similar way. The results of both strategies suggest that effects I observe are not due to differential selection. I examine this issue in more detail in Section 5.

4 Data

The principal source of data comes from the Voting and Registration Supplement to the Current Population Survey (CPS) conducted by the U.S. Census Bureau for the Bureau of Labor Statistics. The CPS is conducted on a monthly basis, surveying roughly 60,000 households using a combination of live telephone and in-person interviews. While the basic monthly survey is used primarily to collect statistics on the status of the U.S. labor force, on even-numbered years the November CPS includes a supplementary questionnaire collecting information on voting and registration patterns (Voting Supplement). This paper considers the six most recent CPS Voting Supplements, spanning a period of 10 years, beginning with the 2006 midterm election and ending with the 2016 presidential election. While I analyze presidential and midterm general elections separately, the final sample includes three national elections of each kind, yielding a sufficiently large sample size for both presidential and midterm elections.[22]

Data on core demographic and economic characteristics come from the basic monthly survey. These include gender, age, household income, family characteristics, education level, marital status, date of entry and country of origin. Crucially, foreign-born respondents are also asked to re-

[22]The CPS surveys households multiple times, surveying for four consecutive months one year and again during the same four months the following year. However, since each election type occurs once every four years, each household is observed only once in the final sample.

port their citizenship status, allowing me to differentiate between immigrants who have acquired the right to vote and those who have not. I then restrict the sample to naturalized citizens only. Because immigrants are known to naturalize selectively, the universe of naturalized citizens will not be representative of the immigrant population as a whole and the results should be interpreted with this in mind.[23]

The smallest unit of geography available in the CPS is the Metropolitan Statistical Area (MSA); I use the MSA definitions to outline neighborhoods of residence.[24] MSAs contain an urban core with a population of at least 10,000 and as well as adjacent neighborhoods based on economic and social integration with the urban core.[25]

I construct a measure of ethnic concentration, which I denote e, using the number of naturalized citizens from a given country of origin living in a particular MSA. Since the CPS surveys only 60,000 households, more precise population estimates can be obtained from the Census' American Community Survey (ACS) which currently samples over 2 million households each year. At the MSA level, the Census Bureau additionally makes available multi-year ACS datasets which pool responses from multiple years of the ACS and provide more accurate population estimates. Since the populations I estimate for some ethnic groups are quite small, I use 5-year ACS data releases to determine the population of ethnic groups within each MSA.[26]

Following Bertrand et al. (2000), I define e_{jk} as the share of the population within area j that is co-ethnic, divided by the share of the U.S. population that is co-ethnic. Explicitly,

$$e_{jk} = \frac{C_{jk}/A_j}{L_k/T}$$

where C_{jk} is the number of people in area j who belong to ethnic group k, A_j denotes the total population in area j, L_k is the total number of people in the U.S. in ethnic group k and T is the total population of the U.S. This choice of e_{jk} ensures that small ethnic groups are not systematically associated with smaller e_{jk}. Further, if the distribution of co-ethnic members is uniform, the quantity

[23] Naturalization is itself an outcome variable which has been studied as a significant milestone on immigrants' paths to political participation (Shertzer (2016)). I do not consider naturalization as an outcome in this paper since various institutional barriers to naturalization exist which may differentially affect immigrants of different ethnicities. One such example is the issue that some countries allow emigrants to acquire dual-citizenship while others do not, a fact which has been found to significantly impact naturalization rates in the host country.

[24] This unit of geographic analysis is larger than in analyses of network and neighborhood effects which often use data from the Census Public Use Micro Sample (PUMS) containing data at the PUMA level (roughly 100,000 people). While MSAs may provide a noisier measure of network effect strength, this unit of analysis may also be less susceptible to bias introduced by self-segregation. Bertrand et al. (2000) use MSA-level data as well as PUMA-level data to argue that their results are not driven by differential sorting.

[25] There are 382 total MSAs in the US and Puerto Rico, but these vary significantly in size since they are associated with cities and their peripheries. While MSA boundaries do not overlap, many rural areas are not included in any MSA.

[26] In particular, I rely on the 2011-2016 5-year ACS data to estimate ethnic populations for the years 2012-2016 and the 2007-2012 data for the years 2006-2012.

$e_{jk} = 1$.[27]

To restrict the sample to the subset of naturalized citizens who are eligible to vote, I drop all respondents below age 18 (the age required to vote). I also exclude all naturalized citizens whose country of origin is coded as unspecified or as an overfill category (e.g. Europe, not specified).[28] Similarly, I drop respondents whose MSA identifier is unspecified or missing.[29] Finally, I exclude ethnic groups with fewer than 60 observations (averaging less than 10 counts per election) from the sample.[30]

The turnout variable is derived from the following question from the Voter Supplement: *"In any election, some people are not able to vote because they are sick or busy or have some other reason, and others do not want to vote. Did you vote in the election held on Tuesday, November X, XXXX?"*[31] The referenced election is either the presidential or midterm general election held that year. In addition to using this variable as the outcome of interest, I also use responses to this variable to compute group-level voting rates at the national level for each election, taken as the percentage of eligible naturalized citizens who report voting.

The final sample consists of 70 ethnic groups, 249 MSAs and 3,264 MSA-ethnic group cells and 24,909 individual-level observations (12,533 in presidential elections and 12,376 in midterm elections).

4.1 Summary statistics

I present summary statistics of the main demographic characteristics and constructed variables in Table 1. In addition to reporting summary statistics for the full sample, I also report mean characteristics for those with above-median ethnic concentration (where ethnic concentration is as defined above) and those with below-median ethnic concentration. The last column reports that naturalized citizens living in areas of high ethnic concentration differ from those living in areas with low levels of ethnic concentration along several dimensions, showing that there is significant selection on observables. Those living in areas of high ethnic concentration report significantly lower average family incomes ($78,854 vs. $90,940) and fewer years spent in the U.S. (25.43 vs. 26.41 years). They also report larger average family sizes and are less likely to be married. The

[27] I perform extensive specification checks to test the robustness of the results to this choice of e in Section 5.3.

[28] This represents 2.2% of the untrimmed sample of naturalized citizens.

[29] Of the untrimmed sample of naturalized citizens, 0.4% are coded as living in an unidentified MSA, 5.8% are coded as not living in an MSA and 2% are missing.

[30] I do this so that a reasonable fixed effect can be estimated and to limit the sampling error of the ACS estimates in smaller MSAs. The results are insensitive to this selection.

[31] A significant issue with this question is that answers are not validated against voter records. While it has been argued that the CPS provides the most dependable voting variable of the major election surveys, aggregate comparisons of CPS turnout and validated turnout reveal that over-reporting in the CPS may be as high as 12%.

education gap is especially notable: those living in areas with high levels of ethnic concentration are less likely to have a high school diploma (78.54% vs. 85.62%) as well as less likely to hold a bachelor's degree (30.55% vs. 40.67%). These large differences illustrate the importance of treating ethnic concentration as a choice variable.

Directionally, these differences on observables predict that those living in highly co-ethnic areas should vote at significantly lower rates. But interestingly, voting and registration rates are largely similar for both groups, a preliminary suggestion that ethnic networks may serve to counterbalance the socioeconomic disadvantages of those living in areas with high ethnic concentration with respect to political participation.

Table A.1 reports characteristics at the group level for each of the ethnic groups in the sample. A wide range of voting rates as well as average ethnic concentration is represented. Immigrants from Mexico are by far the largest group, representing over 16% of the full sample. The Philippines, Vietnam, India and China follow as the next most common countries of origin. Immigrants from several countries in the Anglosphere (the U.K., Ireland, and Canada) vote at among the highest rates (above 70%) while those from several countries in the Middle East—Jordan, Syria and Armenia—vote at the lowest rates (near 30%).

4.2 Ethnic concentration across groups

Before presenting the main results, I address the concern that the average voting rate of an ethnic group already reflects the action of network effects. A potential concern arises if ethnic groups do not exhibit comparable patterns of residential segregation. In particular, if groups which vote at high rates also exhibit higher levels of ethnic concentration, the average group voting rate may overstate the political knowledge and experience of these ethnic groups. This could complicate the interpretation of the magnitude of the estimated effects. Figure 1 presents a visual representation of the relationship between group voting rate and average ethnic concentration, showing that there is no obvious case of differential ethnic concentration across different levels of group voting rates. In Table A.2, I consider this issue statistically. In column (1), I report results from regressing group voting rate on ethnic concentration at the group level. In column (2), I instead regress group voting rate on ethnic concentration at the individual level, including the full set of demographic controls and fixed effects. I find that there is no observable relationship between ethnic concentration and group voting rate in either case. Therefore, the coefficient of interest can be safely interpreted as reflecting differences in the strength of network effects rather than differential patterns of segregation.

5 Results

I start by recalling the main specification. Pooling three election years indexed by t, I estimate the following equation:

$$Pr(Vote_{ijkt}) = \alpha(e_{jkt} * \overline{Vote}_{kt}) + \theta e_{jkt} + \beta X_{it} + \gamma_{jt} + \delta_{kt} + \epsilon_{ijkt}$$

I estimate a linear probability model for the majority of my results.[32] However, in Section 5.3 I show that the results are robust to estimating probit or logit models instead. My demographic controls include (logged) household income, family size, age, age squared, years since entry, a gender dummy, a labor force participation dummy, 6 marital status dummies and 8 education dummies.[33] I cluster standard errors at the level of variation of network strength, i.e. at the level of the group$\times$area cell.

Throughout my results, I estimate the above specification for presidential and midterm general elections separately since they represent very different institutional settings. Presidential elections are frequently perceived as more important and a large amount of information about candidates and issues is disseminated by political campaigns during the course of a presidential race. In contrast, midterm elections are subject to be perceived as less important political events.[34] As a result, turnout averages about 20% lower in midterm elections over the course of the time period I consider.[35] In addition to the fact that campaign strategies for mobilizing voters in presidential elections may differ from those in midterm elections, these differences may also affect the relationship between ethnic networks and turnout.

5.1 Main Results

The results of estimating the specification above are presented in Table 2. Column (1) displays results for presidential elections from the OLS specification. We see that the OLS estimate of the network effect is large and positive for presidential elections. As I discuss below, this estimate is both statistically and economically significant. In column (2), I report IV estimates from instrumenting for ethnic concentration at the *MSA* level with ethnic concentration at the *state* level to

[32] Since we are interested only in the marginal effects, it is a priori unclear whether a probit or logit specification will outperform a linear probability model which offers somewhat more tractability.

[33] Household income is not available for 6.7% of the sample. I therefore also include a dummy which takes value 1 whenever the income variable is missing.

[34] Offices which are up for election during the midterms, held every four years during the middle of each presidential term, include (but are not limited to) roughly a third of the 100 seats in the U.S. Senate, all 435 seats in the House of Representatives and 34 of the 50 state governerships.

[35] I estimate this figure using the CPS data from 2006-2016. The absolute gap in turnout rate for immigrants and for the population at-large is remarkably similar, but because immigrants are less likely to vote to begin with, the size of this gap is larger for immigrants in relative terms.

investigate the importance of differential selection. The intuition behind the IV strategy is that while the OLS estimate is biased by both differential selection between states and within states, the IV estimate is biased only by differential selection between states. The difference between the OLS and IV estimates then provides information about the magnitude of the differential selection bias. If the positive estimate in column (1) is driven by differential selection, we would expect the IV estimate to fall significantly relative to the OLS estimate. However, column (2) shows that the IV strategy hardly deviates from the OLS estimate.[36] I interpret this as evidence that the positive estimate in column (1) cannot be attributed to differential selection alone.

The estimated coefficients on the covariates are in general in the expected directions. Table 2 shows that likelihood of voting is increasing in family income, age, education and years spent in the U.S, in line with the findings of past studies of immigrant voting patterns. I also find positive and significant coefficients on the female gender dummy and a dummy for being employed.

To interpret the magnitude of the coefficient, I consider the effect of a one-standard-deviation increase in ethnic concentration for members of ethnic groups with different levels of political participation. I first note that the average in-group voting rate (in presidential elections) for an individual in our sample is 64.0% with 12.0% standard deviation. The standard deviation of our measure of ethnic concentration (in presidential elections) is given by 8.25. With $\hat{\alpha} = 0.038$ (reported in column (1)), for an immigrant whose ethnic group votes at one standard deviation above the mean rate (76%), the effect of a one-standard-deviation increase in ethnic concentration is (.038)(76.0)(8.25)=23.83% while the same increase for an immigrant whose group votes at exactly the mean rate (53.3%) is (.038)(64.0)(8.25)=20.06%.[37] The differential effect is a 3.8% difference in the likelihood of voting. To develop a sense of the economic importance of this difference we can compare the size of this effect to the estimated effect of additional time spent in the U.S., an important predictor of social and cultural assimilation. Doing so, I find that the size of this differential effect induced by a one-standard-deviation increase in ethnic concentration corresponds roughly to the effect of the immigrant from the more politically active ethnic group (voting at one standard deviation above the mean) having spent an additional 12 years of their life in the U.S.

On the other hand, the estimated coefficient on the lower-order ethnic concentration term is negative and statistically significant. The lower-order term will incorporate both the action of network effects as well as the self-selection of immigrants into areas of high ethnic concentration, but it may nonetheless be useful to understand the total estimated marginal effect of ethnic concentra-

[36] Bertrand et al. (2000) argue that even some decrease in the IV estimate does not necessarily support the alternative hypothesis that differential selection is driving the results since it should be much more costly to move between coarse geographic units (states in this case) than between more finely defined areas (MSA's). The difference in the estimates in Table 2 is so negligible that this argument is unnecessary.

[37] This is only the contribution of ethnic concentration from the interaction term; a computation of the overall effect of ethnic concentration will also have to take into account the coefficient on the lower-order term e which is negative. Here, only the difference between the two figures matters.

tion. Due to $\hat{\alpha}$, this effect is differential across ethnic groups. I illustrate this by considering the marginal effect of a one-standard-deviation increase in ethnic concentration for comparable immigrants from three different groups. For an immigrant from an ethnic group voting at one standard deviation below the mean, a one-standard-deviation increase in ethnic concentration leads to a 4.0% decrease in the likelihood of voting. The same increase for an immigrant from an ethnic group voting at the mean leads to a 0.2% decrease in the likelihood of voting. Finally, evaluating the overall marginal effect at a group voting rate one standard deviation above the mean predicts a 3.5% *increase* in the likelihood of voting. Again, these conclusions can only be interpreted very tentatively, but the estimated effects suggest that for immigrants whose group exhibits high rates of political activity, being surrounded by one's ethnic group may in fact lead to higher rates of political participation. The summary statistics in Table 1 provide further support for this conclusion, however, showing that those living in areas of high ethnic concentration are less educated, earn lower incomes and have spent less time in the U.S. On the basis of these observations, we might expect that differences in personal characteristics between those choosing to live in areas with different levels of ethnic concentration only cause the estimated overall effect to *understate* the increase in political participation attributable to network effects.

Columns (3) and (4) report estimates from the same set of specifications repeated for data collected during midterm elections. I find that the OLS estimate is even higher than in the case of presidential elections, consistent with the interpretation that ethnic networks may play a larger role in midterm elections by facilitating the acquisition of information about candidates and issues which are less readily available through other channels.[38] The differential effect of a one standard deviation increase in e for an immigrant whose group voting rate is one s.d. above the mean is 4.8% higher than for an immigrant whose group with an average voting rate. The estimate of the coefficient on the lower-order ethnic concentration term remains negative while the rest of the covariates follow a similar pattern as in the case of presidential elections. Interestingly, the IV estimate for midterm election years results in a slight *increase* relative to the OLS estimate, suggesting that if differential selection is present, it is acting in the direction *against* finding a positive network effect.

5.2 Dropping Controls

The fact that the IV estimates in Table 2 do not significantly decrease relative to the OLS estimates provides evidence against the hypothesis that the estimated network effects are driven by differential selection. I investigate a second test of the differential selection hypothesis by dropping

[38] The conclusion that established social networks may be especially important in midterm elections is also consistent with work showing that recent movers are disproportionately less likely to vote in midterm elections (see Jackson (2000)).

education dummies from the regression. Since education is a very strong predictor of voting likelihood, dropping education controls should provide information about the size and direction of differential selection of an important observable. As Bertrand et al. (2000) note, if the mechanisms governing selection on unobservables is similar to the mechanisms governing selection on education, the removal of education dummies should result in a large change in the OLS estimate. I test the importance of considering education and other covariates as unobservables in Table 3.

In column (1), I begin with a minimal version of the main specification, including only the network strength interaction term, the lower-order ethnic concentration term and time-varying group fixed effects. This yields a positive and significant effect similar in magnitude to the coefficient reported for the full specification. In column (2), I find that adding area fixed effects yields a slight increase in the estimate. Column (3) additionally includes the full set of demographic covariates excepting the education dummies, resulting in a minor decrease in the estimate. Finally, I add the education dummies in column (4).[39] Again, the estimate slightly decreases. Columns (5)-(8) repeat this process for data collected during midterm election years. A very similar story is borne out.

Two things are made evident by this exercise. First, the fact that the estimates are fairly robust to the exclusion of observable covariates suggests that the contribution of differential selection to the estimated network effect is minimal. Second, the fact that the coefficients decrease instead of increase between columns (2) and (3) and between columns (3) and (4) suggests that differential selection on observables acts in the direction against the estimation of a positive network effect (biasing the estimated network effect downwards). While Table 3 does not rule out the possibility that there exists selection on unobservable variables governed by mechanisms very different from selection on observables, the combination of the results of Table 3 and the IV estimates in Table 2 strongly suggest that the hypothesis that differential selection is responsible for the large network effect I estimate is implausible.

5.3 Specification Checks

Because the network effect I estimate is the coefficient on an interaction term between constructed variables, the results reported in Table 2 may be quite sensitive to changes in the functional form of these variables as well as broader assumptions about the form of the specification. Table 4 investigates this sensitivity by estimating network effects using specifications with various alternative functional form assumptions. I find that the main results are robust to all the specifications I try.

I start with the possibility that a non-linear binary response model may better describe the underlying effect of networks on the likelihood that individuals vote. In rows (2) and (3) of Table 4, I

[39] There are 8 education dummies in total, of which I choose two to report: the coefficient on having a H.S. diploma and the coefficient on having a bachelor's degree. The coefficients on the unreported dummies are each positive and statistically significant.

estimate the model using logistic regression and probit regression, respectively. Row (1) presents the estimates from the linear probability model for reference. The results show that the estimated network effect coefficient remains large and positive under these alternative specifications.

In row (4), I consider the fact that network strength may be a non-linear function of the group voting rate. In particular, I estimate the main specification replacing the group voting rate with the log of this number in the interaction term. Taking into account the change in the scale of the right-hand-side variable, the coefficient is also similar in magnitude to the main estimates.

In rows (5)-(7), I consider different ways of defining a measure of ethnic concentration. While in the main specification, I define $e_{jk} = \frac{C_{jk}/A_j}{L_k/T}$, it may be the case that the underlying networks depend on the presence of one's ethnic group relative to non co-ethnics in a different way. In row (5), I specify e as the percentage of the population within one's MSA which is co-ethnic. As discussed in Section 4, this choice of e systematically assigns lower network strength to individuals from smaller ethnic groups. In row (6), I take the definition of e used in the remainder of the paper and replace it with the log of this measure. In other words, I specify $e_{jk} = \log\left(\frac{C_{jk}/A_j}{L_k/T}\right)$. The estimate in both cases remains positive and highly significant. Finally, in row (7), I consider the possibility that the lower-order (non interacted) ethnic concentration term may enter into the model non-linearly, resulting in a biased estimate on the interaction term. To investigate this, I add an e^2 term (where e is defined as in the original specification) as an additional covariate. Again, the estimate hardly changes.

Next, I assess the importance of sample choice. Table 5 estimates the main specification for two subsamples of the data. First, I exclude immigrants from English-speaking countries from the sample.[40] Because English speakers may assimilate into the native-born population more easily, e may not adequately capture the extent of ethnic networks. The resulting estimate is slightly higher than the estimate for the full sample, but because the number of English speakers in the sample is small (constituting only 5.1% of the sample), this difference is marginal.

In row (3), I consider the effect of excluding Spanish speakers instead.[41] Spanish speakers constitute a much larger fraction of the sample (29.3%). For this reason, one might question whether the results are driven primarily by Spanish speakers. More importantly, there are several reasons why estimated network effects for Spanish speakers may be particularly susceptible to bias introduced by strategic mobilization. In particular, the political salience of Latinos as an important voter demographic may increase the likelihood that strategic efforts targeting Latinos also target or reach Spanish-speaking immigrants. In addition, the fact that Spanish-language local television news is much more widespread than ethnic television in other languages may have an important influence

[40] I define an English-speaking country as one in which over half the population speaks English as their first language. In my sample, this includes Ireland, the United Kingdom and Canada.

[41] Analogously, I define a Spanish-speaking country as one in which over half the population speaks native Spanish.

on turnout among Spanish-speaking immigrants.[42] When I exclude Spanish speakers from the sample, the magnitude of the estimated network effect in presidential elections decreases by 11.6% relative to the effect size for the full sample.[43] While this decrease is not economically insignificant, it shows that network effects remain strong outside of the Spanish-speaking demographic. Although "top-down" mobilization schemes may still contribute to the estimated network effect for non Spanish speakers, the robustness of the estimate in row (3) provides tentatively suggests that strategic mobilization is not the primary cause of the positive coefficient. I provide additional evidence against the "top-down" interpretation in Sections 5.4 and 5.5.

5.4 Heterogeneity in Network Effects

How are network effects distributed? In Table 6, I investigate how the strength of network effects depends on several demographic and institutional variables.

5.4.1 Demographic variables

I start by examining the effect of time spent in the U.S. on the strength of network effects. While time spent in the U.S. has been found to increase the likelihood of voting, the directional dependence of network effect strength on time spent in the U.S. is *a priori* ambiguous. On one hand, if network effects act in a cumulative way, the size of the cross-sectional network effect may be increasing in time spent in the U.S. This may be the case, for instance, if social learning occurs gradually, over the course of many years. On the other hand, if immigrants are expected to assimilate to a greater degree as the amount of time spent in the host country increases, their voting decision may depend less on their ethnic network as time passes. I investigate how network effect strength depends on time in the U.S. by introducing the interaction between network strength and time spent in the U.S. and reporting the coefficient on this interaction term in a specification including all lower order terms.[44] The results reported in Panel A show that in presidential elections, time in the U.S. significantly attenuates the strength of network effects. The prediction that immigrants who have just arrived in the U.S. will experience the largest network effects is consistent with the assimilation hypothesis.

I perform a similar investigation in Panel B for educational attainment. I define a dummy taking value 1 for individuals with a high school diploma or less and interact this dummy with network

[42] The success of the major Spanish-language networks Univision and Telemundo is well documented. Oberholzer-Gee and Waldfogel (2009) argues that Hispanic turnout significantly increases when Spanish-language television becomes available.

[43] The coefficient for midterm elections exhibits a comparable decrease.

[44] Since network strength is itself an interaction term, this constitutes a triple interaction. There are therefore 5 lower order terms, all of which are included in the regressions I run, although not all are reported in Table 6.

strength. Again the directional dependence of network effects on educational attainment is ambiguous. In fact, I find that in presidential elections, this education dummy does not significantly affect the magnitude of network effects.

While the estimated network effects for midterm elections have been qualitatively similar to those in presidential elections up to this point, the network strength heterogeneity in midterms differs notably from the patterns observed for presidential elections in both Panels A and B. In Panel A, I find that network effects are weakly *increasing* in time spent in the U.S. Although this effect is small, it contrasts with the significant negative effect I observe for presidential elections. Meanwhile, in Panel B, while education has no observable effect on network effects in presidential elections, network effects are significantly weaker among lower educated immigrants in midterm elections. These results demonstrate that network effects may act more strongly as a mobilizing force on different segments of the population for presidential and midterm elections and is worthy of further investigation.

5.4.2 Institutional variables

Next, I investigate the effect of institutional factors on the size of network effects. In Panel C, I examine the effect of Voter ID laws. Voter ID laws stipulate that voters must provide a valid form of identification in order to vote and are implemented on a state-by-state basis. Ostensibly enacted in order to prevent voter fraud, many have argued that Voter ID laws make it more difficult for minorities and other marginalized populations to vote. Indeed, previous studies have found that naturalized citizens are more likely than the native-born population to not have an available form of identification satisfying voter ID requirements (Barreto et al. (2009)). States that adopt voter ID laws are also more likely to adopt other legislation that may make voting or registering to vote more difficult for immigrants. Voter ID laws (and the array of other rules and restrictions they may proxy for) are of interest in my context since institutional barriers to voting may affect the estimated network effects if they disproportionately suppress votes in the ethnic neighborhoods of groups which vote at low rates to begin with. The results show that this is not the case.

Using information on the adoption of voter ID laws from the National Conference of State Legislatures (NCSL)[45], I code a dummy variable taking value 1 for individuals living in states with a voter ID law in place the year the individual is observed.[46] As in Panels A and B, I interact

[45]This information was collected from the following webpage: http://www.ncsl.org/research/elections-and-campaigns/voter-id-history.aspx.

[46]Not all voter ID laws have the same identification requirements. Voter ID laws can be either strict or non-strict. Non-strict laws leave the possibility open that a voter will be able to vote without identification by signing an affidavit of identity, for example. Strict laws stipulate that voters without identification must take additional steps after voting in order for their ballot to be counted. Further, voter ID laws can either require photo or non-photo identification. However, the voter ID dummy I construct takes value 1 when any voter ID law is in place.

this dummy with my measure of network strength. I find that voter ID laws are associated with weaker network effects in both presidential and midterm elections. The estimates reported in Panel C suggest that in presidential elections, network effects in states with voter ID laws in place are less than half the size of network effects in states without voter ID laws. The decrease for midterm elections, while less precisely estimated, is of comparable magnitude.

There exists an ongoing political and academic debate about whether voter ID laws suppress the votes of minority and other marginalized populations. While the results I present here can only be interpreted as tentative, they suggest that examining how voter ID laws affect immigrant turnout through the lens of network effects may provide fresh insight into this discussion.

Finally, Panel D investigates whether the estimated network effects in presidential elections may be driven by strategic mobilization by testing if network effects are larger in battleground states. Due to the winner-take-all style of the U.S. Electoral College, presidential general elections are often decided by the popular vote at the state-level within a small number of "swing" states. The vast majority of campaign advertising dollars, ground mobilization efforts and candidate attention is spent in these battleground states.[47] While battleground states often retain their battleground status for multiple consecutive elections, states may be considered more or less contentious in different election years. I define a dummy taking value 1 for individuals living in a state considered a swing state for the given election using the list of swing states published by POLITICO during each presidential election year.

The hypothesis that political campaigning is responsible for the results I observe predicts that the estimated network effects should be significantly stronger in swing states. However, Panel D shows that although swing states have a strong direct effect on voting likelihood across ethnic groups, the estimated network effect in swing states is less than 10% higher than the network effect observed in non-swing states.[48] Due to the relatively small share of the sample living in swing states, the estimated effect in non-swing states remains extremely close to the overall estimate (0.0377 vs. 0.0380). This evidence suggests political campaigning does not contribute significantly to the estimated network effect I report. I test the strategic mobilization hypothesis in one final way in the next section.

5.5 Mechanisms

How do ethnic networks increase immigrant turnout? In Table 7, I examine the relationship between network strength and several outcomes which affect the voting decision.

[47] Data published by the *Washington Post* after the 2012 election showed that the candidates each dedicated over 95% of total campaign television ad spending in just 10 states. Political scientists have also examined this issue in detail (see Shaw (2006) and Goldstein and Freedman (2002)).

[48] This increase is far from statistical significance, with a p-value of 0.782.

I begin by considering voter registration. As for voting, there is a gap between the registration rate of naturalized citizens and that of the native-born. This discrepancy has been argued to stem largely from restrictive registration requirements, language barriers and lack of information about where or how to register (Wang and Kim (2011)). Since registration is a requirement for voting, encouraging potential voters to register is likely to be an important margin through which network effects increase turnout.[49] Registration may be particularly crucial for the electoral participation of immigrants—naturalized citizens who are registered vote at similar rates to the native-born population (Wang and Kim (2011)).

I find that network strength is strongly associated with likelihood of registration for both presidential and midterm elections. In fact, the estimated network effect with registration as the outcome is over 4/5ths the size of the network effect with voting as the outcome, suggesting that encouraging immigrants to register to vote may be an especially important mechanism through which ethnic networks act.

Further, because political campaigns often focus their mobilization efforts on voters who are already registered, the observed relationship between network strength and voter registration is somewhat less susceptible to bias which may be introduced by strategic mobilization. Nonetheless, in recent presidential and congressional races, politicians who have increasingly recognized the importance of mobilizing minority populations have also turned to organizing registration drives, some of which have been targeted toward immigrants in particular. Many non-profit organizations as well as other partisan and non-partisan organizations interested in encouraging immigrants to vote also regularly organize registration drives. In order to determine whether the estimated network effect in column (1) can be attributed to these efforts, I use detailed information on method of registration provided in the CPS Voting Supplement to define a registration variable which takes value 1 if an individual is a registered voter who did not register through a registration drive.[50] Having filtered the registrations likely to have resulted from political campaigning and the efforts of other organizations, I argue that voter registration through other channels is largely unaffected by "top-down" mobilization schemes. When I consider only non-drive registrations (column (2)), the estimated network effect becomes smaller but remains significant and large (0.0252 vs. 0.0311 in presidential elections). I interpret this robustness as evidence against the hypothesis that the network effect observed in column (1) is due to strategic mobilization. More generally, since registration is a necessary condition for voting, this also serves as evidence that the estimated network effects in Table 2 with respect to turnout are in fact capturing network effects distinct from strategic mobilization. As mentioned, however, registering to vote is itself an

[49] Beyond being a requirement for voting, registering to vote has been found to be an important indicator of political interest. Socioeconomic predictors of turnout decrease in importance among those who have already registered to vote. See, for example, Erikson (1981).

[50] About 5% of the sample reports registering through a drive. The other most common channels are by mail, at the Department of Motor Vehicles (DMV), and by going to a government registration office.

important moment of political participation.

The question remains as to how network effects may socialize immigrants to register and vote. In Section 2, I discuss two possible mechanisms by which the political activity of one's social network may affect political participation: social pressure and social learning. While I am unable to test these mechanisms independently, I use data from a second CPS supplement, the Civic Engagement (CE) Supplement, to investigate the relationship between network strength and social behaviors which may plausibly increase the importance of social pressure and social learning effects.

I first consider respondents' reported frequency of conversations about politics. I extract this information from the question: "*How often were politics discussed when communicating with family and friends,—basically every day, a few times a week, a few times a month, once a month, or not at all?*"[51] In order to treat responses to this question as an outcome variable, I consider two coding schemes. In column (5), I code each response option to the monthly frequency implied by the response text (i.e. a few times a month $\Leftrightarrow$ 3, a few times a week $\Leftrightarrow$ 12, etc.), while in column (6) I consider a dummy variable taking value 1 if the respondent reported talking about politics "a few times a week" or more. I find large and significant positive associations between network strength and political conversation in both cases, suggesting that ethnic networks with high rates of political participation may foster more casual communication about politics between close social connections.[52]

Individuals that are more civically engaged in a variety of ways may also be more likely to vote. To investigate civic engagement as a mechanism for network effects, I use data from the CE supplement regarding participation in a range of civic and political activities. These include protests, boycotts, political meetings, school/community/neighborhood associations, service/civic organizations, religious organizations and sports/recreation organizations. Since less than 10% of the sample reports participating in any given one of the seven listed activities, I consider an an aggregate measure of civic engagement. In particular, I construct a civic engagement index as the number of activities respondents reported engaging in (out of 7). In column (7), I treat this index as the dependent variable. Unlike the question asking about the frequency of political conversation, the questions regarding several of the categories of activities I consider were only asked in 2008. Despite the smaller sample size, I find a large and significant positive correlation between network strength and the engagement index, suggesting that politically active ethnic networks may also encourage other types of civic engagement, an outcome widely shown to increase the

[51] Since the CE Supplement is conducted on a different schedule than the Voting Supplement, the regressions in columns (5) and (6) use a different sample than that used in the rest of the paper. In particular, data for these regressions come from the years 2008, 2009, 2010, 2011 and 2013, the years in which the CE Supplement was administered.

[52] While not reported in Table 7, regressing a voting indicator on either of these political conversation variables shows that the frequency of political conversation strongly predicts voting even when the full set of fixed effects and demographic controls used in the main specification are included.

likelihood of voting.[53]

6 Conclusion

In this paper, I provide evidence that network effects play an important role in the turnout decisions of naturalized citizens and that the size and direction of this effect is strongly dependent on the political participation of the other members of one's ethnic network. I show that focusing on this dimension of heterogeneity allows for network effects to be distinguished from changes in political participation due to residential self-selection and strategic mobilization efforts. This approach allows me to highlight not only the importance of the social determinants of immigrant voter turnout but also the fundamental fact that the effect of ethnic networks depends on both the number of members within one's network as well as the political activity and experience of these connections.

The estimated effects I report introduce the possibility that the overall effect of co-ethnic concentration may be positive for immigrants from certain groups. While this estimate is undoubtedly biased by issues of residential selection, a comparison on observables suggests that eliminating differences due to selection may further strengthen this conclusion, challenging the prevailing intuition that assimilation is what matters most for the political participation of immigrants in every case. I interpret this as suggestive evidence highlighting an important avenue for future work. Although high levels of ethnic segregation may be undesirable from a variety of other perspectives, understanding the role that ethnic networks play in the political socialization of immigrants contributes to a discussion of the benefits and harms of patterns of spatial segregation.

While I have focused on the effects of ethnic networks for first-generation immigrants, another important avenue for future research is to understand how ethnic network effects may affect political participation across generations. Immigration economists have argued, for instance, that ethnic differences in parental earnings may be reproduced in the next generation through human capital investment (see Borjas (1992)). An investigation of whether similar mechanisms of intergenerational transmission may exist in the case of political socialization could shed new light on the question of why rates of political participation continue to differ between ethnic groups through the second-generation and beyond.

[53] When I regress individual turnout on the engagement index I construct, I find that the relationship between civic engagement and voting also holds in the sample I consider (unreported).

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Figures and Tables

Figure 1: Voting Rates by Ethnic Group

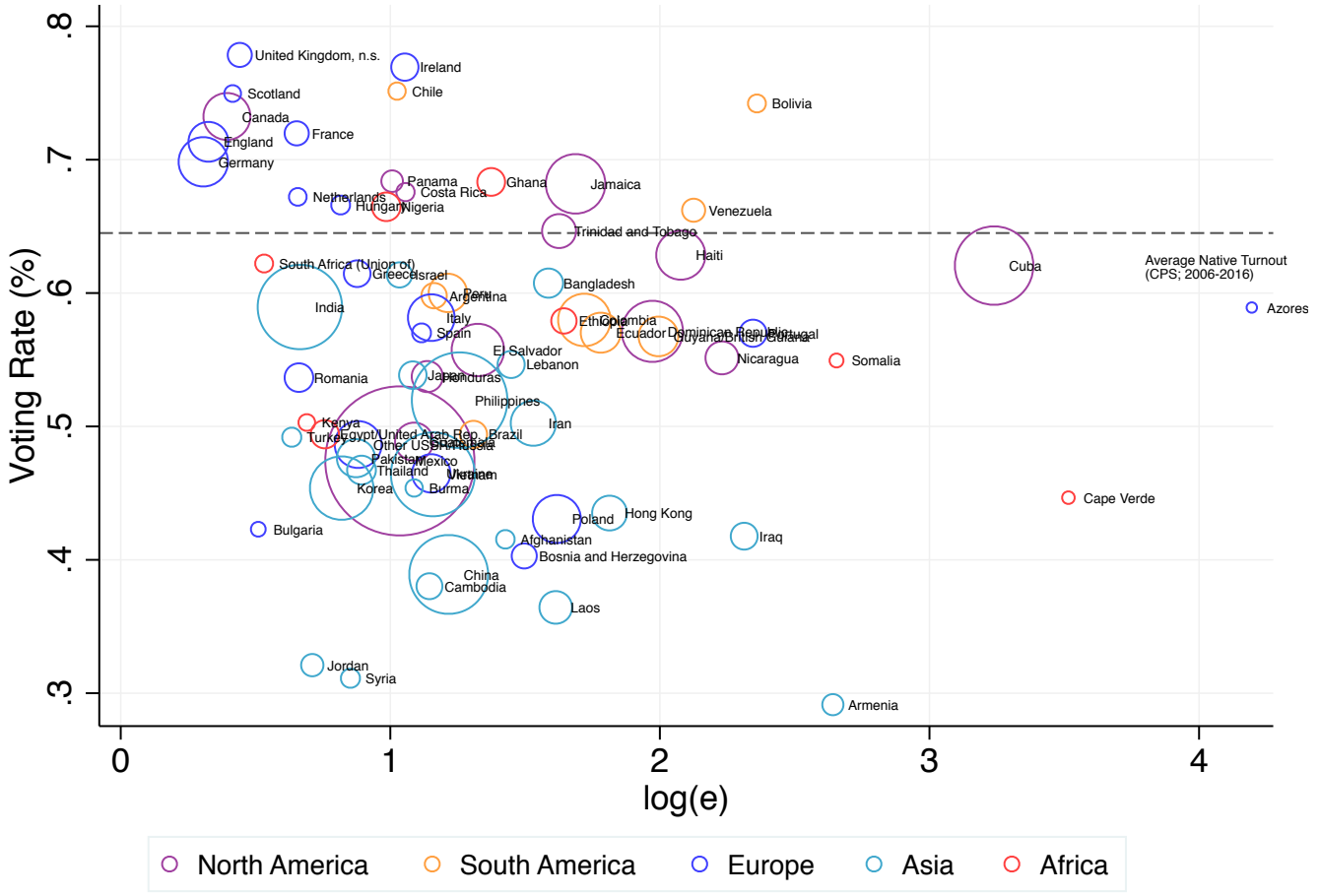

Table 1: Sample Summary Statistics

	Full Sample	Low e	High e
N	24,909	12,477	12,432
Voted (%)	53.33	53.38	53.27
Registered (%)	69.52	69.50	69.54
Highschool Degree (%)	82.09	85.62	78.54***
Bachelor's Degree (%)	35.62	40.67	30.55***
Employed (%)	66.63	67.32	65.93**
Female (%)	54.69	54.47	54.91
Married (%)	68.65	69.83	67.45***
Age	51.25	51.11	51.38
	(15.92)	(16.09)	(15.76)
Family income ($)	84,937	90,940	78,854***
	(85,155)	(88,815)	(80,828)
Years in U.S.	25.92	26.41	25.43***
	(13.33)	(13.98)	(12.62)
Family size	3.26	3.12	3.40***
	(1.68)	(1.62)	(1.72)
Contacts (level)	156,948	48,050	266,240***
	(316,302)	(120,382)	(402,581)
Contact share (%)	0.03	0.01	0.04***
	(0.05)	(0.02)	(0.06)
Contact ratio (e)	4.81	1.19	8.44***
	(7.98)	(0.66)	(10.05)

Notes: Low e refers to individuals living in areas where ethnic concentration is less than the sample median while High e refers to individuals living in areas where co-ethnic concentration is above the sample median. Asterisks in the High e column refer to p-values from t-tests of equality with the Low e group. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2: Network Effects in Voting

	Presidential		Midterm	
	(1) OLS	(2) IV	(3) OLS	(4) IV
Network Strength	0.0380***	0.0379***	0.0511***	0.0618***
	(0.00821)	(0.00922)	(0.00676)	(0.0114)
Ethnic Concentration	-0.0246***	-0.0243***	-0.0188***	-0.0242***
	(0.00582)	(0.00697)	(0.00309)	(0.00552)
log(family income)	0.0364***	0.0364***	0.0189***	0.0189***
	(0.00660)	(0.00651)	(0.00629)	(0.00619)
Family Size	-0.00151	-0.00153	-0.00672*	-0.00663*
	(0.00396)	(0.00390)	(0.00368)	(0.00363)
Age	0.00690***	0.00690***	0.0126***	0.0125***
	(0.00223)	(0.00220)	(0.00196)	(0.00193)
$Age^2/100$	-0.00261	-0.00261	-0.00672***	-0.00670***
	(0.00213)	(0.00210)	(0.00188)	(0.00186)
Female	0.0234***	0.0234***	0.000682	0.000800
	(0.00854)	(0.00841)	(0.00759)	(0.00748)
Married (spouse present)	0.00390	0.00396	0.0307*	0.0308*
	(0.0182)	(0.0179)	(0.0172)	(0.0168)
High school degree	0.114***	0.115***	0.110***	0.109***
	(0.0318)	(0.0313)	(0.0287)	(0.0282)
Bachelor's degree	0.278***	0.278***	0.213***	0.212***
	(0.0332)	(0.0327)	(0.0293)	(0.0288)
Years in U.S.	0.00315***	0.00315***	0.00366***	0.00366***
	(0.000460)	(0.000454)	(0.000486)	(0.000481)
Employed	0.0336***	0.0336***	0.00572	0.00608
	(0.0122)	(0.0120)	(0.0132)	(0.0130)
N	12533	12533	12376	12376
adj. R^2	0.127	–	0.138	0.138
Clusters	2683	2683	2587	2587
Neighborhood F.E.	✓	✓	✓	✓
Ethnicity F.E.	✓	✓	✓	✓

Notes: Column (1) reports OLS estimates from the main specification, where the dependent variable is a dummy taking value 1 if the respondent voted in the presidential general election the year they are observed. Column (2) reports IV estimates where ethnic concentration at the state level is used to instrument for ethnic concentration at the MSA level (see the text for discussion). Columns (3) and (4) report the same for midterm election years. "Network strength" reports the coefficient of interest. Standard errors are clustered at the MSA×ethnic group cell level (shown in parenthesis). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Sensitivity to Controls

	Presidential				Midterm			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Network Strength	0.0353***	0.0418***	0.0392***	0.0380***	0.0460***	0.0551***	0.0533***	0.0511***
	(0.00844)	(0.00906)	(0.00859)	(0.00821)	(0.00704)	(0.00746)	(0.00675)	(0.00676)
Ethnic Concentration	-0.0228***	-0.0292***	-0.0266***	-0.0246***	-0.0175***	-0.0226***	-0.0205***	-0.0188***
	(0.00609)	(0.00651)	(0.00614)	(0.00582)	(0.00341)	(0.00341)	(0.00315)	(0.00309)
High school degree				0.114***				0.110***
				(0.0318)				(0.0287)
Bachelor's degree				0.278***				0.213***
				(0.0332)				(0.0293)
N	12533	12533	12533	12533	12376	12376	12376	12376
adj. R^2	0.045	0.062	0.103	0.127	0.042	0.067	0.123	0.138
Clusters	2683	2683	2683	2683	2587	2587	2587	2587
Ethnicity F.E.	✓	✓	✓	✓	✓	✓	✓	✓
Neighborhood F.E.		✓	✓	✓		✓	✓	✓
All Other Controls			✓	✓			✓	✓
Education Dummies				✓				✓

Notes: OLS estimates for the main specification where various sets of covariates are treated as unobservables. Column (1) reports estimates from regressing a voting indicator on network strength, ethnic concentration and ethnic group fixed effects. Column (2) adds neighborhood fixed effects. Column (3) restores all demographic controls except for the 8 education dummies. Column (4) reports estimates for the full specifications (the model identical to that reported in Table (2), column (1)). Standard errors are clustered at the MSA×ethnic group cell level (shown in parenthesis). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: Functional Form Checks

	Presidential	Midterm
(1) Baseline Model (Table 1)	.0380***	.0511***
	(.0082)	(.0068)
(2) Logistic Regression	.2252***	.2479***
	(.053)	(.0389)
(3) Probit Regression	.1205***	.1456***
	(.0281)	(.0208)
(4) Same as (1) but with VR_k replaced by $\log(VR_k)$	.0225***	.0192***
	(.004)	(.0027)
(5) Same as (1) but with $e := C_{jk}/A_j$	7.54***	11***
	(1.851)	(2.41)
(6) Same as (1) but with $e := \log(\frac{C_{jk}/A_j}{L_k/T})$	.2641***	.2805***
	(.0354)	(.0399)
(7) Same as (1) but with e^2 included as a control	.0381***	.0506***
	(.0085)	(.0067)

Notes: OLS estimates of the coefficient on network strength under various functional form adjustments. Ethnic concentration in the baseline model is specified as $e_{jk} = \frac{C_{jk}/A_j}{L_k/T}$. Standard errors are clustered at the MSA×ethnic group cell level (shown in parenthesis). * p $<$ 0.1, ** p $<$ 0.05, *** p $<$ 0.01.

Table 5: Sample Selection Checks

	Presidential	Midterm
(1) Baseline Model (Table 1)	.0380***	.0511***
	(.0082)	(.0068)
	[12,533]	[12,376]
(2) Excluding English Speaking Countries	.0384***	.0513***
	(.0083)	(.0067)
	[11,899]	[11,756]
(3) Excluding Speaking Speaking Countries	.0336***	.0469***
	(.0088)	(.0065)
	[8,867]	[8,690]

Notes: OLS estimates of the coefficient on network strength with various sample choices. English-speaking countries are defined as those in which over half the population speaks English as their first language. Spanish-speaking countries are defined as those in which over half the population speaks Spanish as a native language. Standard errors are clustered at the MSA×ethnic group cell level (shown in parenthesis). * p $<$ 0.1, ** p $<$ 0.05, *** p $<$ 0.01.

Table 6: Network Effect Heterogeneity

	Presidential	Midterm
Panel A: Years in US		
Network Strength * Years in US	-8.0e-04**	1.7e-04
	(3.9e-04)	(3.5e-04)
Network Strength (Just arrived)	.0615***	.0464***
	(.0142)	(.0102)
Years in US	.003***	.0039***
	(5.4e-04)	(5.6e-04)
N	12,533	12,376
adj. R^2	.1275	.1383
Panel B: Education		
Network Strength * High School Degree or Less	.0025	-.0153*
	(.0117)	(.0079)
Network Strength (Some college or more)	.0363***	.0596***
	(.01)	(.007)
High School Degree or Less	-.3243***	-.2931***
	(.0346)	(.0327)
N	12,533	12,376
adj. R^2	.1271	.1385
Panel C: Voter ID Laws		
Network Strength * Voter ID Law	-.0238**	-.0205
	(.0101)	(.0174)
Network Strength (No voter ID law)	.0412***	.0532***
	(.0084)	(.007)
Voter ID Law	.076*	-7.1e-05
	(.0395)	(.039)
N	12,533	12,376
adj. R^2	.1276	.1384
Panel D: Swing States		
Network Strength * Swing State	.0035	–
	(.0129)	(–)
Network Strength (Non-swing states)	.0377***	–
	(.0107)	(–)
Swing State	.0851***	–
	(.0284)	(–)
N	12,533	
adj. R^2	.1278	

Notes: Reports OLS estimates from models interacting network strength with various demographic and institutional variables. Since network strength is itself the interaction between ethnic concentration and average national group voting rate, the reported interaction terms are triple interactions. All 5 lower order terms are included in all regressions although not all are reported. "Voter ID Law" takes value 1 if individual lives in a state which has instituted a voter ID law of any kind at the time of observation (source: National Conference of State Legislatures). "Swing State" takes value 1 if individual lives in a state listed as swing state by POLITICO in the presidential general election during the year of observation. Standard errors are clustered at the MSA×ethnic group cell level (shown in parenthesis). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Network Mechanisms

	Registered		Registered Excluding Drives		Political Conversation		Civic Engagement
	(1) Presidential	(2) Midterm	(3) Presidential	(4) Midterm	(5) Frequency	(6) Dummy	(7) 2008 (Pres.)
Network Strength	0.0311***	0.0310***	0.0252***	0.0231***	0.493***	0.0242***	0.0724**
	(0.00743)	(0.00646)	(0.00689)	(0.00689)	(0.181)	(0.00818)	(0.0364)
Ethnic Concentration	-0.0192***	-0.0108***	-0.0159***	-0.00766**	-0.229**	-0.0133***	-0.0560**
	(0.00521)	(0.00321)	(0.00486)	(0.00325)	(0.112)	(0.00512)	(0.0261)
log(family income)	0.0359***	0.0333***	0.0338***	0.0386***	0.556***	0.0239***	0.0332
	(0.00587)	(0.00644)	(0.00656)	(0.00669)	(0.172)	(0.00798)	(0.0215)
Family Size	-0.00270	-0.0101***	-0.00327	-0.00733**	-0.0838	-0.00300	-0.0116
	(0.00388)	(0.00373)	(0.00413)	(0.00366)	(0.110)	(0.00553)	(0.0109)
Age	0.00412*	0.00839***	0.00307	0.00736***	0.0336	0.00110	0.00688
	(0.00215)	(0.00216)	(0.00213)	(0.00210)	(0.0565)	(0.00254)	(0.00681)
$Age^2/100$	-0.000608	-0.00429**	0.0000908	-0.00367*	-0.0523	-0.00207	-0.0116*
	(0.00208)	(0.00212)	(0.00205)	(0.00206)	(0.0535)	(0.00237)	(0.00639)
Female	0.0188**	0.0203**	0.0177**	0.0185**	-0.805***	-0.0440***	0.0512*
	(0.00733)	(0.00800)	(0.00817)	(0.00807)	(0.255)	(0.0133)	(0.0292)
Married (spouse present)	-0.0000739	0.0568***	0.0125	0.0494***	-0.118	-0.0113	0.122**
	(0.0178)	(0.0169)	(0.0176)	(0.0183)	(0.473)	(0.0212)	(0.0529)
High school degree	0.118***	0.133***	0.110***	0.120***	-0.403	-0.00436	0.00612
	(0.0312)	(0.0307)	(0.0305)	(0.0300)	(0.827)	(0.0399)	(0.0584)
Bachelor's degree	0.263***	0.269***	0.256***	0.252***	1.054	0.0789*	0.208***
	(0.0316)	(0.0308)	(0.0319)	(0.0295)	(0.865)	(0.0429)	(0.0659)
Years in U.S.	0.00358***	0.00530***	0.00355***	0.00451***	0.0209	0.000445	0.00466**
	(0.000418)	(0.000497)	(0.000424)	(0.000531)	(0.0139)	(0.000675)	(0.00181)
Employed	0.0400***	0.0506***	0.0376***	0.0424***	-0.486	-0.0152	0.0289
	(0.0108)	(0.0125)	(0.0128)	(0.0135)	(0.343)	(0.0168)	(0.0366)
N	12372	12091	12372	12091	6035	6035	3906
adj. R^2	0.122	0.143	0.105	0.122	0.102	0.093	0.102
Clusters	2667	2554	2667	2554	1605	1605	1182
Neighborhood F.E.	✓	✓	✓	✓	✓	✓	✓
Ethnicity F.E.	✓	✓	✓	✓	✓	✓	✓

Notes: see next page. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Notes: OLS estimates reported for the main specification, with various outcome variables. Dependent variable describe in the column heading. "Registered" takes value 1 for individuals registered to vote at the time of observation. "Registered Excluding Drives" take value 1 for individuals registered to vote who didn't register through a voting drive. There are two measures of "Political Conversation". "Frequency" recodes the question options to (roughly) the frequency of political conversations each month. "Dummy" constructs a dummy which takes value 1 for individuals reporting participating in political conversations at least a few times a week. Finally, "Civic Engagement" is an index of participation in civic and political activities. Standard errors are clustered at the MSA$\times$ethnic group cell level (shown in parenthesis).

Appendix

Table A.1: Group Characteristics

Country of Origin	N	Voting Rate (%)		Registration (%)		*e* (mean)	*e* (s.d)
1. Mexico†	4082	47.18	[47.42]	60.11	[61.04]	2.67	1.61
2. Philippines	1965	51.56	[51.97]	69.54	[70.32]	4.77	4.53
3. Vietnam	1328	46.37	[46.41]	62.32	[63.19]	3.04	3.10
4. India	1317	58.89	[58.95]	76.15	[75.59]	1.87	1.25
5. China	1129	38.62	[38.91]	54.41	[53.55]	3.14	2.54
6. Cuba†	1014	61.84	[62.06]	77.30	[77.13]	24.53	15.42
7. Korea	832	45.57	[45.38]	62.76	[62.78]	2.33	1.64
8. Dominican Republic†	665	56.73	[57.13]	72.64	[72.93]	6.67	3.62
9. Jamaica	624	67.69	[68.19]	84.83	[83.66]	5.08	3.25
10. Germany	560	69.64	[69.84]	81.98	[81.90]	1.31	0.73
11. Canada*	539	73.14	[73.24]	85.69	[85.36]	1.49	0.89
12. El Salvador†	539	56.30	[55.73]	65.85	[68.58]	4.10	2.50
13. Colombia†	521	57.08	[57.99]	75.73	[76.09]	5.09	4.89
14. Italy	471	57.88	[58.16]	78.28	[76.96]	2.97	2.04
15. Poland	465	42.88	[43.07]	62.88	[61.06]	4.83	3.89
16. Russia	426	49.06	[48.64]	63.66	[63.14]	2.26	1.34
17. Iran	410	50.41	[50.25]	70.79	[70.55]	4.07	3.68
18. Haiti	409	62.53	[62.84]	79.16	[78.77]	7.58	7.04
19. England*	345	71.08	[71.34]	86.39	[85.65]	1.32	0.59
20. Guatemala†	307	48.99	[48.86]	63.12	[62.74]	2.86	2.31
21. Peru†	295	59.31	[60.01]	75.78	[74.79]	3.08	2.31
22. Ukraine	283	46.43	[46.48]	68.12	[67.07]	2.87	1.82
23. Ecuador†	275	56.11	[57.03]	72.59	[74.24]	5.38	3.95
24. Laos	262	36.51	[36.44]	49.39	[50.21]	4.92	5.42
25. Pakistan	261	47.25	[47.62]	69.62	[70.10]	2.25	1.30
26. Guyana	246	56.69	[56.75]	75.73	[74.46]	6.81	4.37
27. Portugal	228	57.97	[56.99]	72.00	[72.94]	22.72	21.38
28. Hong Kong	224	43.24	[43.51]	65.14	[64.85]	5.45	4.92
29. Trinidad and Tobago	202	64.59	[64.65]	84.54	[83.48]	4.34	2.95
30. Nicaragua†	182	54.80	[55.14]	78.33	[75.98]	8.64	8.93
31. Honduras†	178	53.62	[53.74]	67.80	[69.66]	2.89	2.68
32. Japan	177	52.61	[53.85]	62.29	[67.28]	5.53	7.19
33. Ireland*	172	76.78	[76.94]	89.22	[88.57]	2.73	1.97
34. Thailand	169	47.08	[46.73]	59.51	[65.78]	2.41	1.93
35. Egypt/United Arab Rep.	168	49.59	[49.41]	71.52	[71.94]	2.11	1.70
36. Nigeria	162	66.65	[66.47]	79.38	[78.62]	2.77	1.79
37. Cambodia	160	37.21	[38.02]	52.23	[55.27]	3.25	2.27

Continued on next page

Table A.1 – *Continued*

Country of Origin	N	Voting Rate (%)		Registration (%)		*e* (mean)	*e* (s.d)
38. Bangladesh	160	58.07	[60.75]	74.68	[74.33]	4.24	3.27
39. Brazil	158	49.22	[49.41]	66.88	[64.64]	3.44	4.06
40. Greece	155	61.23	[61.45]	76.47	[73.64]	2.51	1.70
41. Romania	152	53.64	[53.66]	70.67	[67.02]	1.84	1.09
42. Lebanon	152	54.72	[54.65]	81.08	[80.83]	3.82	3.95
43. Ethiopia	141	59.73	[57.91]	77.70	[78.32]	5.71	4.49
44. Ghana	141	69.11	[68.33]	86.96	[87.78]	3.62	2.70
45. United Kingdom, n.s.*	133	77.90	[77.85]	86.36	[84.30]	1.56	0.81
46. Bosnia and Herzegovina	130	38.45	[40.29]	66.67	[68.33]	5.42	7.30
47. Argentina†	123	59.89	[59.80]	77.24	[74.77]	2.92	3.49
48. France	123	72.53	[71.98]	81.15	[81.45]	1.75	0.93
49. Iraq	122	41.65	[41.78]	59.32	[58.34]	8.68	7.72
50. Israel	121	61.39	[61.36]	77.69	[75.90]	2.73	1.63
51. Venezuela†	103	66.97	[66.21]	71.84	[70.62]	7.24	8.38
52. Jordan	96	31.73	[32.11]	54.74	[55.19]	1.90	1.16
53. Panama†	88	67.73	[68.39]	79.55	[84.20]	2.38	1.85
54. Hungary	85	65.26	[66.60]	84.52	[86.10]	2.19	1.62
55. Armenia	81	29.38	[29.14]	43.66	[39.42]	12.54	7.83
56. Turkey	78	49.15	[49.19]	69.74	[67.43]	1.83	1.17
57. Netherlands	77	66.82	[67.21]	81.58	[79.64]	2.12	2.47
58. Afghanistan	75	41.81	[41.54]	58.33	[59.19]	4.04	3.37
59. Syria	74	29.79	[31.12]	71.83	[70.31]	2.19	1.62
60. Cape Verde	72	48.11	[44.66]	67.61	[53.99]	46.59	18.54
61. Spain†	71	58.11	[57.02]	80.88	[75.11]	2.70	2.18
62. South Africa	71	62.82	[62.22]	79.71	[77.08]	1.63	0.96
63. Kenya	67	51.75	[50.30]	68.75	[66.39]	2.06	1.49
64. Burma	66	45.58	[45.39]	73.85	[71.77]	2.85	3.47
65. Bolivia†	66	71.98	[74.22]	84.38	[81.39]	12.07	10.26
66. Chile†	66	74.47	[75.14]	81.82	[83.77]	2.49	2.30
67. Costa Rica†	66	67.53	[67.57]	80.95	[78.94]	2.75	2.43
68. Scotland*	65	74.02	[74.96]	86.15	[86.60]	1.38	0.69
69. Bulgaria	58	41.03	[42.30]	63.79	[67.53]	1.85	1.69
70. Somalia	45	51.00	[54.95]	68.89	[65.11]	15.32	9.27

Notes: Summary statistics for each of the ethnic groups included in the sample, sorted by the number of observations in the sample (N). The column labeled "Voting Rate" reports the average voting rate in the sample while the "Registration" column reports the average registration rate in the sample. Population estimates (calculated using the CPS sampling weights) are reported in brackets in both columns. e refers to ethnic concentration and is defined as $e_{jk} = \frac{C_{jk}/A_j}{L_k/T}$. †indicates that the country is Spanish-speaking; * indicates that the country is English-speaking (defined in the text).

Table A.2: Ethnic Concentration and Group Voting Rate

	Group-level		Individual-level	
	(1)	(2)	(3)	(4)
Ethnic Concentration	-0.000888	0.000261	0.000108	0.000155
	(0.000882)	(0.000884)	(0.000186)	(0.000188)
log(family income)		0.0767**		0.00225***
		(0.0302)		(0.000792)
Family Size		0.0105		-0.000386
		(0.0150)		(0.000489)
Age		-0.0177		-0.0000326
		(0.0108)		(0.000243)
$Age^2/100$		0.0209**		0.000135
		(0.0105)		(0.000227)
Female		0.0711		0.000437
		(0.0640)		(0.000812)
Married (spouse present)		-0.194**		0.000618
		(0.0964)		(0.00204)
High school degree		-0.256***		0.00124
		(0.0857)		(0.00318)
Bachelor's degree		-0.249***		0.00290
		(0.0910)		(0.00324)
Years in U.S.		0.00730***		0.0000326
		(0.00181)		(0.0000539)
Employed		0.246***		0.000245
		(0.0822)		(0.00140)
N	416	416	24909	24909
adj. R^2	0.313	0.500	0.799	0.799
Clusters	–	–	3906	3906
Year F.E.	✓	✓	✓	✓
Neighborhood F.E.			✓	✓
Ethnicity F.E.			✓	✓

Notes: Reports OLS estimates from regressing group voting rate on ethnic concentration. Column (1) reports estimates from regressing at the group-level (with each ethnic group×election year as one observation). Column (2) adds controls for average group characteristics. Columns (3) and (4) report estimates from regressing at the individual-level. Standard errors shown in parenthesis and clustered at the MSA×ethnic group cell level for individual-level regressions. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.