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How Settlement Locations and Local Networks Influence Immigrant Political Integration

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Abstract

To what extent do early experiences in the host country shape the political integration of immigrants? We argue that the initial neighborhoods immigrants settle in establish patterns of behavior that influence subsequent political participation. Using Norwegian administrative register data, we leverage quasi-exogenous variation in the placement of refugees to assess the consequences of assignment to particular neighborhoods. We find that the difference in turnout between refugees initially placed in 20th and 80th percentile neighborhoods is 12.6 percentage points, which represents 47 percent of the participation gap between refugees and residents. To assess the mechanism, we draw on individual-level data on all neighbors present at the time of each refugees' arrival, and evaluate the relative impact of neighborhood characteristics and available social networks. Our findings suggest that while neighborhood socioeconomic factors play a limited role, early exposure to politically engaged neighbors and peer cohorts increases immigrants' turnout over the long run.

1 Introduction

In recent years, developed democracies have placed increased emphasis on immigrant integration. Yet while governments have implemented a broad range of policies designed to support immigrant access to welfare programs and the labor market, they have less leverage when seeking to promote civic and political incorporation. Building on the belief that the exercise of political rights will accelerate engagement with the host society, policymakers have identified immigrants' electoral participation as a key integration metric (Tillie, 2004; Munro, 2008; De Graauw and Vermeulen, 2016). However, immigrant turnout remains low relative to natives across the majority of developed democracies (Bird, Saalfeld, and Wüst, 2010), and targeted interventions return inconsistent effects (Chong and Junn 2011; Bhatti et al. 2014; Pons and Liegey 2016; Bergh et al. 2016). Moreover, recent studies have suggested that immigrants' political participation may not significantly improve with length of residence, suggesting a relatively stable equilibrium (Bevelander and Pendakur, 2011; Voicu and Comsa, 2014).

Weak political engagement among immigrants presents several policy challenges. First, low participation might effectively bias public policy against immigrant preferences (see e.g. Vernby 2013). Second, an absence of political engagement may stymie immigrants' social and cultural integration more broadly, preventing successful adaptation to host societies.[1]

Yet despite the importance of the issue, our knowledge of the factors that shape immigrant political participation remains incomplete. Standard predictors such as socioeconomic status typically play a more limited role in predicting immigrants' political participation than among natives (De Rooij, 2012; Wass et al., 2015). In response, one promising line of work has highlighted immigrants' experiences prior to arrival, such as cultural background and prior exposure to democracy, as key factors influencing levels of political engagement with the host society (Dancygier, 2013; Voicu and Comsa, 2014; Stri-

[1] In 2016, the EU Commission noted that while "employment is a core part of the integration process...actively contributing and being allowed to contribute to the political, cultural, and social life is at least as important." (Action Plan on the Integration of Third-Country Nationals)

jbis, 2014; Wass et al., 2015; Ruedin, 2017; Rapp, 2018). Other work has moved beyond individual-level predictors to emphasize the importance of context, highlighting the role played by local governments, immigrant associations, and advocates in promoting immigrants' political incorporation within the cities in which they reside (see e.g. Koopmans, 2004; Bloemraad, 2005; Schönwälder and Bloemraad, 2013; De Graauw and Vermeulen, 2016).

This paper builds on these lines of inquiry by emphasizing the importance of context and cumulative experience. However, we specifically focus on the initial post-arrival context, and argue that immigrants' early experiences within the host country play a key role in shaping subsequent trajectories of political integration. Prior research has argued that the period after arrival represents an "integration window," in which immigrants may be open to habit change (Hainmueller et al. 2015, 2017; Ferwerda, Finseraas, and Bergh 2018). During this adjustment period, cues from neighbors and peers may be particularly influential, and immigrants are likely to internalize local expectations related to political participation. Once established, these new modes of behavior may become habituated and persist in a path dependent manner. While we expect the socio-demographic characteristics of immigrants to remain relevant, we thus hypothesize that immigrants' initial experiences serve as a policy-relevant determinant of long-term integration trajectories.

Although early experiences are shaped by a variety of institutional and contextual factors, we place particular emphasis on the initial neighborhood of residence. Empirical evidence suggests that settlement locations influence a variety of factors relevant to integration, such as downstream labor market outcomes (Edin et al 2003, Åslund and Rooth 2007, Damm 2009; 2014, Godøy 2017, Bansak et al 2018), crime (Damm and Dustmann 2014) and health (White et al. 2016). However, there is limited evidence concerning whether and to what degree initial settlement locations shape immigrants' political integration at a more granular level, as well as over the long-run.[2]

[2]Lindgren, Nicholson, and Oskarsson (2017) highlight a link between ethnic enclaves within the initial location and the decision to run for political office. Our approach differs by examining the effect of neighborhood placement on mass political participation.

Political integration is a multi-dimensional concept, ranging from trust in societal institutions to the expression of political preferences within the context of elections (Tillie, 2004; Bloemraad, 2006; Hochschild and Mollenkopf, 2009). As a parsimonious measure, we focus on electoral participation. Studies suggest that turnout tends to be tightly correlated with alternative measures of political integration (Fennema and Tillie, 1999), and electoral participation can be considered as the first step towards other types of political behavior, such as party membership or political candidacy. As a result, electoral participation serves as a tangible behavioral proxy for immigrants' socio-political integration more broadly.[3]

We hypothesize two mechanisms through which the initial settlement location influences political integration: neighborhood effects and peer effects. Neighborhood effects refer to local socio-demographic characteristics that plausibly influence the transmission of political norms, including material resources, ethnic diversity, immigrant service organizations, and local partisanship (see e.g. Leighley 1990; Leighley and Matsubayashi 2009; Fieldhouse and Cutts 2012; Bloemraad and Schönwälder 2013; Bhatti and Hansen 2016, Belletini et al 2016, Bhatti et al 2017). Peer effects, by contrast, refer to the direct influence of neighbors on political behavior. Empirically, studies using credible identification strategies have suggested that peer and household effects play an important role in shaping patterns of political participation (Grosser and Schram 2006, Nickerson 2011, Sinclair et al. 2012, Bhatti et al. 2017; Foos and de Rooij 2017).

Our approach provides several contributions to the literature. First, while recent research has evaluated whether immigrants' cultural backgrounds shape subsequent patterns of participation, we broaden the scope of inquiry to include formative experiences after arrival. Second, while extant studies examining spatial variation in immigrant participation

[3]We argue that the exercise of voting rights is indicative of political integration, irrespective of the motivation for voting. Nonetheless, building on group-based arguments of immigrant political mobilization (Portes and Rumbaut, 2006; Lee, 2008) and collective grievance (Simon and Klandermans, 2001), an alternative perspective has argued that turnout reflects efforts to advance group interests (Giugni, Michel, and Gianni, 2014; Pérez, 2015). In Norway, however, survey evidence suggests that refugee turnout is positively correlated with self-reported attachment to the host country (see Table A25). In contrast, attachment to the origin country or religiosity are both weakly associated with turnout. These results parallel findings of Kranendonk, Vermeulen, and van Heelsum (2018) with respect to Muslim immigrants, and suggest that within the empirical context we study, turnout can be plausibly considered as a behavioral measure of political integration.

have largely focused on the *contemporaneous* relationship between context and turnout, we evaluate whether contextual factors exert path dependent effects on immigrants' political behavior. Moving beyond short-term effects is important from a theoretical and policy perspective, as it highlights the importance of institutional factors which may have cumulative effects on immigrants' political integration.

Our design also addresses a persistent empirical challenge facing prior studies, namely the bias that results from immigrants self-selecting into particular locales. We identify the causal effect of available neighborhood and peer networks by leveraging the quasi-exogenous placement policy of the Norwegian refugee resettlement program, which directly places UNHCR refugees within Norwegian neighborhoods. Linking administrative data on refugee placement with validated individual-level turnout records, we assess the long-term consequences of the initial placement location on electoral participation. Our analysis goes beyond neighborhood-level variation by leveraging administrative registers to identify the individuals who lived within refugee neighborhoods at the time of arrival. By examining different clusters of these individuals, as well as their socio-demographic and behavioral characteristics, we proxy the influence of local peer networks available upon arrival, as delineated by age, gender and minority status. The data also permit the inclusion of family fixed effects, which allow us to assess the impact of peer networks while holding a range of other variables fixed.

The results suggest that the initial placement neighborhood explains a significant proportion of the variation in refugees' future electoral participation. Investigating the mechanism, we find that while neighborhood socio-demographic characteristics such as poverty or local diversity weakly predict outcomes, the political engagement of peers within the arrival location is strongly linked to refugees' future electoral participation. Refugees placed in neighborhoods where turnout was one standard deviation above the mean were three percentage points more likely to participate in subsequent elections. This estimate increases to five percentage points — roughly one quarter of the gap between refugee and non-refugee turnout — when examining turnout among same-sex and same-age cohorts, suggesting that the downstream influence of networks can be primarily attributed to peer

effects rather than to generalized social capital in the arrival location. Finally, the results indicate that the effect of the initial neighborhood persists over the long run, with residual effects observed for refugees who were placed two decades prior to the election we examine.

These findings provide, to our knowledge, the first causal evidence that settlement neighborhoods exert path dependent effects on immigrant political integration. In doing so, we speak to a larger debate on the relative role played by background characteristics and contextual factors in shaping immigrant's electoral participation (Jones-Correa, 2001; Tillie, 2004; Maxwell, 2010). More broadly, this evidence underscores the importance of initial experiences in shaping the integration trajectories of refugees and immigrants, and highlights specific pathways through which patterns of political participation are formed after arriving in the host country. In particular, our results suggest that the influence of neighbors and peers plays a central role in establishing modes of behavior within the host society. From a policy perspective, these results suggest that policymakers seeking to promote immigrant integration may observe elevated returns when targeting interventions towards improving immigrants' initial arrival experience and facilitating positive interactions with existing residents. More broadly, as developed democracies grapple with the challenges of increased refugee and asylum seeker flows, our results suggest that moving from a policy regime focused on refugee dispersal to a regime focused on assigning refugees to neighborhoods where they are likely to succeed may be a cost effective means to promote integration.

2 Empirical Setting

Although historically homogeneous, immigration to Norway has increased markedly over the last few decades. As of 2017, 16.8% of the population had an immigrant background. While this trend has largely been driven by labor migration, it has also been shaped by Norway's comparatively generous asylum and refugee resettlement policies.[4]

[4]See Bratsberg et al. (2017) for a detailed description of recent trends. Figure A1, SI: 1, displays the proportion of immigrants from each category.

In this paper, we focus on UNHCR resettlement refugees admitted to Norway. These refugees are vetted by international agencies prior to arrival and must have a documented claim of persecution. As a result, their demographics differ slightly from other immigrant populations in Norway (Table A1, SI: 1). Nevertheless, because the quota program is not targeted to a particular region, there is overlap in the nationality and background characteristics of UNHCR refugees when compared to the broader population of asylum seekers and immigrants from non-OECD states. Moreover, these groups have similar baseline rates of electoral participation (Table A3, SI: 1). Thus, although this paper focuses on a specific group to isolate the causal impact of the settlement location, we expect that the findings may be generalizable to other classes of immigrants from low-income source regions.

In contrast to asylum seekers, the number of resettlement refugees admitted to Norway is decided each year by the Norwegian parliament (Figure A2, SI: 1). While asylum seekers are initially placed in reception centers and only housed in a municipality if their application is accepted, the refugees we focus on are directly placed in Norwegian municipalities from abroad. Although participation among receiving municipalities is voluntary, resettlement refugees cannot select their initial municipality or initial neighborhood of residence, and there is no communication between the refugee and the settlement caseworker prior to arrival in Norway (Godøy, 2017).[5]

The Norwegian system for housing resettlement refugees is decentralized. As in the United Kingdom, accommodation is offered on a no-choice basis (Darling, 2011), and the resettlement program explicitly focuses on dispersal and desegregation (Robinson, Andersson, and Musterd, 2003; Phillips, 2006). Rather than housing resettlement refugees within centralized reception facilities, UNHCR refugees are placed within public housing units within each municipality immediately after arrival in Norway (IFHP, 2015). However, the exact location within the municipality depends primarily on the availability

[5]The agency that resettles refugees, the Directorate of Integration and Diversity, primarily allocates refugees across municipalities based on capacity. However, the agency also considers the presence of family members already in Norway, special labor market skills, and health conditions when making placements.

of suitable public housing at the time of arrival. Studies repeatedly find that available housing is a persistent issue municipalities face when housing refugees (Thorshaug et al., 2011, 25). As a result, the local availability of housing at the time of arrival provides quasi-exogenous variation in placement neighborhoods. Our design thus rests on the fact that we empirically demonstrate that within each municipality, the specific neighborhood a refugee is placed in is as-if random conditional on the year of arrival.[6]

Using data on the initial placement location, we measure context at a fine-grained level. To proxy neighborhoods, we rely on the smallest geographical unit constructed by Statistics Norway (grunnkrets). These units are nested within municipalities and are constructed so that they cover a contiguous and relatively homogeneous area (with respect to zoning). In 2015, Norway was divided into 13,850 such units, with a median population size of 239.

Our main outcome consists of validated turnout in local elections. Local elections take place every four years, midway through the national election cycle. In comparison to other OECD states, Norway is relatively decentralized, and key components of the welfare state, such as social assistance, health care, and schooling, are governed by municipalities and funded (in part) via local income and property taxation. As a result, local elections receive significant media attention and are characterized by relatively high participation rates (60 percent in 2015). In addition, we focus on local elections due to broad eligibility criteria which imply that we observe outcomes for all adult refugees within our sample. Voter registration is automatic, and since 1983, all foreign nationals with at least three years of continuous legal residence have the right to vote. All voting-age refugees who arrived prior to 2012 were thus eligible to vote in the 2015 elections.[7]

[6]See Beaman (2011) and Damm and Dustmann (2014) for similar identification strategies using refugee resettlement offices in the United States and Denmark.

[7]Election observers describe the 2015 election as a normal election (Christensen and Saglie, 2017). In 2015, participation rates among eligible immigrants lagged significantly behind natives: in the municipalities we study, the turnout rate among immigrants was 33.8 percent, contrasted to a 65.9 percent turnout rate among non-immigrants.

3 Research Design

In addition to estimating the aggregate influence of the initial neighborhood on refugees' future political participation, our design explores the influence of various social networks within the arrival neighborhood.

Although granular data on networks are typically unavailable to researchers, the rich administrative data in Norway enable us to individually identify all individuals who resided in the placement neighborhood in the year each refugee was placed. By aggregating different individuals, we flexibly proxy different types of potential social networks within the arrival location. For instance, this approach enables us to focus on all residents in the neighborhood, as well as same-gender, same-age, and immigrant cohorts. It is important to note that an absence of verified ties between individuals implies that we do not directly measure personal relationships or strong ties. Rather, our approach measures characteristics of different residents within the arrival neighborhood to proxy the social interactions available to refugees upon arrival.[8] Our expectation is that these networks provide individuals with information and cues regarding norms of political engagement (Cho, Gimpel, and Dyck, 2006; Leighley and Matsubayashi, 2009). While political socialization at the neighborhood level is well established (Straits, 1990; Huckfeldt and Sprague, 1995; Baker, Ames, and Renno, 2006; Gerber, Green, and Larimer, 2008), we expect that these effects will be heightened for new immigrants, who lack established habits of political behavior within the host country.

Our data enables us to measure a range of characteristics of individuals residing in the placement neighborhood during the year of arrival, including ethnic composition, educational achievement, labor market earnings, and reliance on welfare benefits. Given

[8] Our interpretation of the results assumes that refugees engage in some degree with these available social networks. Although interaction cannot be measured directly with administrative data, our analysis of data from the Norwegian Immigrant Living Conditions Surveys, which are targeted to the largest immigrant nationalities and include an oversample of refugee respondents, suggests that recently arrived refugees report interacting with neighbors relatively frequently (Figure A7, SI: 18). Roughly a third of refugees also report having 'good' Norwegian language skills 2-3 years after arrival, which reflects the fact that municipalities had to agree to provide language training courses in order to receive resettlement refugees (NOU, 2005).

that digitized voter censuses are only available beginning in 2013, our individual-level measurement of neighborhood turnout is measured in the election year rather than in the year in which refugees arrived. Using future outcomes of residents is common when measuring variation in neighborhood quality (see e.g. Chetty et al., 2014; Chetty and Hendren, 2018); moreover, it permits us to expand the sample to assess the effect of peer networks for refugees who arrived as children. To reduce the possibility that contemporary factors affecting both immigrants and natives influence the results, we employ sibling fixed effects, which implies that bias from contemporary factors must be cohort-specific to influence the estimate. We also present findings where we demonstrate that the results remain robust to replacing neighborhood turnout with municipal turnout in the election prior to arrival, and to estimating turnout only among initial network members who no longer live in the same neighborhood as the refugee.

If subsequent voting behavior for existing residents is influenced by the fact that an immigrant was placed in the neighborhood — as some work on ethnic diversity might suggest (Putnam, 2007; Enos, 2016) — our design estimates the total effect of placement and not solely the effect of neighborhood residents on refugees. Although the total effect is arguably the most relevant from a policy perspective, we nevertheless demonstrate that refugee placement within a neighborhood has no substantive effect on residents' electoral participation.

Dependent Variable

We measure political integration as the participation of refugees in the 2015 local elections. Our dependent variable consists of a validated individual-level turnout indicator from the 27 municipalities with a digitized voter census.[9] We study the total population of

[9]The 27 municipalities are (ordered by population size, from large to small): Oslo, Bergen, Trondheim, Stavanger, Bærum, Fredrikstad, Drammen, Sandnes, Sarpsborg, Asker, Skien, Skedsmo, Bodø, Ålesund, Sandefjord, Larvik, Tønsberg, Karmøy, Porsgrunn, Haugesund, Mandal, Vefsn, Hammerfest, Re, Tynset, Radøy, and Bremanger. Residents in these municipalities have on average higher earnings and higher employment levels than residents elsewhere in Norway.

resettlement refugees initially placed in these municipalities between 1990 and 2012.[10] The 27 municipalities include the largest cities in Norway, and together cover 43 percent of the electorate. Over the period we study, 32.2 percent of the resettlement refugees were placed in one of these 27 municipalities.[11]

Empirical Specification

We run regressions of the following form:

$$Y_{in} = \alpha + \beta NT_n + \gamma X_i^{'} + \chi V_n^{'} + \epsilon_{in} \quad (1)$$

where i indexes individuals and n indexes neighborhood. Y is refugee turnout, while NT represents turnout in the respective neighborhood. It is important to note that NT measures turnout among those individuals in the neighborhood *in the year of arrival*, irrespective of whether these people still live in the same neighborhood. X refers to a vector of individual level controls for each refugee measured prior to arrival in Norway, including gender, education, family size, age, and region of origin, while V refers to a vector of neighborhood-level controls.[12] All specifications control for the year of arrival. In some specifications these vectors also include country of origin fixed effects and family fixed effects (comparing siblings).

Validating the Design

Before presenting the results, we validate the research design. As stated previously, our approach does not rest on the claim that refugees are randomly allocated across the full set of neighborhoods. In the supporting information, we demonstrate that while there is

[10] 1990 is the earliest year for which the administrative data are available. We end the observation period in 2012 to ensure that all cohorts are eligible to participate in the 2015 elections.

[11] As seen in Tables A3-A4 (SI: 2), UNHCR refugees within these 27 municipalities were broadly similar to UNHCR refugees elsewhere in the country.

[12] While the literature has identified a variety of other individual-level factors that influence turnout, such as family income and marital status (Smets and Van Ham, 2013; Ruedin, 2017; Wass et al., 2015), these variables are measured after arrival in Norway, and may be a consequence of early experiences within the country. As a result, including them in the specification would result in post-treatment bias.

a high degree of variation in the level of education and turnout across refugee-receiving neighborhoods, refugees tend to be placed in neighborhoods that have slightly lower levels of education and turnout. Instead, our design leverages the fact that refugees cannot select their initial neighborhood within a municipality; moreover, limited information and variation in housing availability implies that caseworkers cannot match refugees to specific neighborhoods. This placement process enables us to identify the effect of the initial neighborhood, independent of self-selection.

The empirical implication of this claim is that turnout within the arrival neighborhood should not be strongly related to refugee background characteristics. To examine this relationship, we fit regressions of the following form:

$$NT_n = \alpha + \gamma X_i^{'} + \epsilon_i \tag{2}$$

Where X refers to a vector of individual-level variables measured at time of arrival, including gender, three polynomials of age, and dummies for level of education, family size, region of origin, and year of arrival. After fitting the model, we conduct F-tests to examine how these variables predict neighborhood turnout.

The key results from the F-tests are presented in Table 1, while the full set of coefficients are presented in Table A7 (SI: 6). We find that the full vector of refugee background characteristics produces an F-value of 2.87, which is statistically significant. However, this result is driven by the set of arrival year dummies; other covariates produce small F-values when year of arrival is included. We therefore consider neighborhood turnout as quasi-exogenous when we control for arrival year fixed effects. These results parallel Godøy's (2017) interviews with placement officers, which suggest that officers do not match refugees to specific neighborhoods.[13]

[13] In the supporting information we consider possible exceptions to this assignment process (Table A16, SI:14).

Table 1: F-tests of relationship between initial characteristics and neighborhood turnout

	F-test	p-value
Full set of variables	2.888	0.000
All variables except year of arrival	1.315	0.185
Year of arrival	3.188	0.000
Education	1.542	0.188
Gender	0.326	0.568
Family size	1.182	0.317
Region of origin	1.661	0.174
Three polynomials of age	1.121	0.339

Note: N of obs=9,354. N of neighborhoods=1,395.

4 Aggregate Effect of the Neighborhood

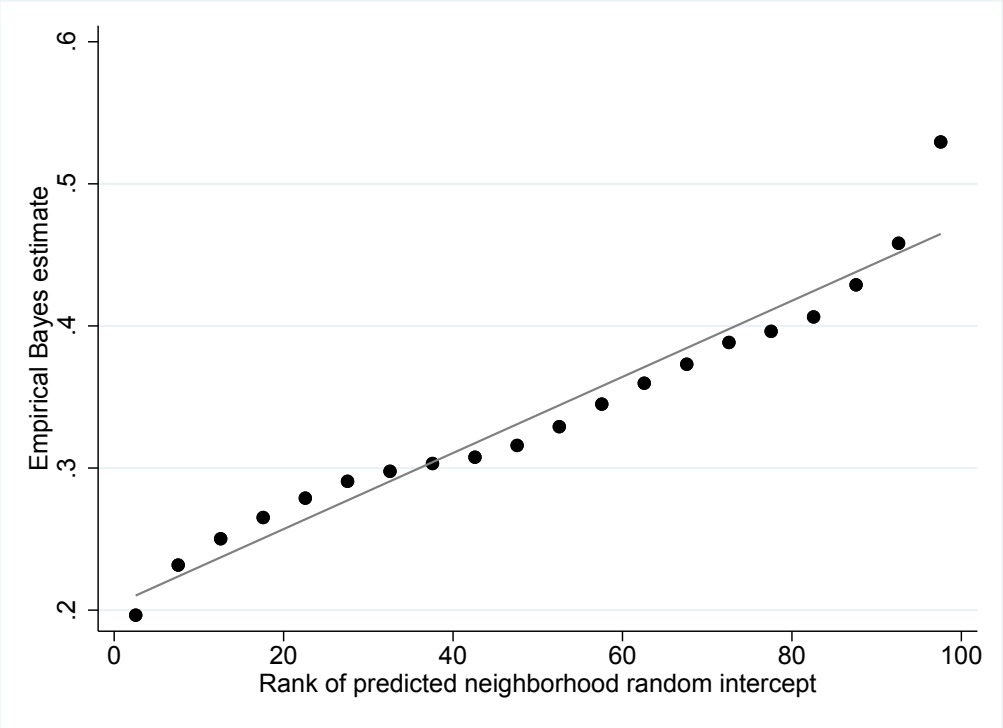
We first examine whether the initial placement neighborhood explains variation in subsequent electoral participation. We begin by calculating the residual effect of the neighborhood on each refugees' electoral participation, after controlling for the vector of individual characteristics measured at the time of arrival. We then leverage an Empirical Bayes procedure to conservatively shrink the estimated impact of each neighborhood toward the sample mean based on how much information we have from a specific neighborhood. The intuition behind the shrinkage procedure is that we have less reliable information about neighborhood effects from neighborhoods that were assigned relatively few refugees. To account for this issue, the procedure uses a weighted average of the specific neighborhood effect and the average neighborhood effect.[14]

Figure 1 summarizes the predictions from this analysis. Each point represents five percent of the sample, ranked according to the expected effect of the neighborhood on refugees' electoral participation. The results suggest that the initial placement neighborhood is associated with wide variation in electoral turnout. Refugees placed in a neighborhood with the median influence on turnout are predicted to have an electoral

[14]The Empirical Bayes procedure leads to the best linear prediction in terms of minimizing the mean squared error. See Chetty et al. (2014) for a recent application.

participation rate 20 percentage points lower than refugees placed in neighborhoods with elevated neighborhood effects (above the 95th percentile). This pattern is not driven by outliers: the gap in expected refugee turnout between the 20th (with a predicted turnout rate of 27.7 percent) and the 80th percentile neighborhood (predicted turnout 40.3 percent) is substantial at 12.6 percentage points, which represent 37 percent of the average turnout in our refugee sample and 47 percent of the observed turnout gap between refugees and extant neighborhood residents.[15]

Figure 1: Importance of neighborhoods for refugee turnout



Note: Empirical Bayes predictions of voter turnout for refugees placed in different neighborhoods (Y-axis). Estimates are ranked from smallest to largest on the X-axis. Each point represents 5 percent of the sample neighborhoods, weighted by number of resettled refugees. In total, there were 1,395 neighborhoods in the digitized voter data that received refugees between 1990 and 2012.

[15] In a separate analysis, Table A10 (SI: 9) regresses individual-level turnout on the set of initial characteristics examined in Table 1, as well as socioeconomic characteristics measured at the neighborhood level. The inclusion of neighborhood fixed effects increases the R-squared from 0.04 to 0.26 (adjusted R-squared increases from 0.03 to 0.12). The addition of municipality fixed effects or country of origin fixed effects does not have a comparable effect: the R-squared and adjusted R-squared increase to 0.05 and 0.04 for the former, and to 0.06 and 0.05 for the latter.

5 Decomposing the Neighborhood Effect

Having established that the initial neighborhood shapes refugees' downstream political participation, we next evaluate why local context matters. We begin by regressing refugee turnout on individual characteristics measured prior to arrival, as well as neighborhood-level covariates. As seen in Tables A10 and A11 (SI: 9-10), the results suggest that the socioeconomic characteristics of the initial neighborhood — including income level, the share of individuals with an immigrant background, the percentage of residents on social assistance, and the percentage of residents with a tertiary education — poorly explain variation in refugees' subsequent electoral participation. As a result, in the remainder of the analysis we focus on the hypothesis that the effect is driven by informal norms and resources transmitted by the social networks available upon arrival. We first examine the political engagement of all residents within the same neighborhood, and subsequently extend the analysis to fine-grained peer cohorts.

Table 2 presents the results for the full sample. In column 1 we estimate the relationship between neighborhood turnout and an indicator for each refugees' electoral participation, excluding all controls other than year of arrival fixed effects.[16] The results suggest that a standard deviation increase in neighborhood turnout increases refugees' subsequent electoral participation by approximately two percentage points.[17] As seen in column 2, the estimate is not sensitive to the inclusion of the individual level controls we use to evaluate the as-if-random assumption. Finally, in column 3 we add neighborhood-level controls at the time of arrival, including the share of residents with a migrant background, neighborhood size, the share of social assistance recipients, average income, and the share with a university education. Controlling for these factors increases the point estimate to 3.2 percentage points. Although the fluctuation in the point estimate suggests that neighborhood turnout is correlated with other neighborhood characteristics, the estimates

[16] The results are not sensitive to the exclusion of arrival year effects.

[17] As seen in Table A8 (SI: 7), this effect size is on par with that observed for gender, and larger than e.g. neighborhood education level or family status. Similar to other recent studies, we also find that region of origin is the strongest predictor of turnout.

in columns 2 and 3 are not statistically different from each other, and point estimates for the other neighborhood characteristics remain small.

Table 2: Linear probability models: voting propensity

	(1)	(2)	(3)
Neighborhood Turnout	.018	.016	.032
	(.007)	(.006)	(.010)
Year of Arrival	✓	✓	✓
Individual Controls		✓	✓
Neighborhood Controls			✓
N obs	9,354	9,354	9,354
N neighborhoods	1,395	1,395	1,395

Coefficients represent the change in refugee electoral participation following a one standard deviation change in neighborhood turnout. Individual controls include gender, region of origin, and age, educational attainment, and family size at the time of arrival; neighborhood controls include size, average income, and the share with an immigrant background, social assistance, and college education. For covariate coefficients, see Table A8. Standard errors clustered within neighborhoods. Average turnout: 0.34 refugee, 0.61 neighborhood.

Proxying Peer Networks

The results thus far suggest that initial placement within a politically engaged neighborhood is associated with an increase in refugees' downstream electoral turnout. However, if propensity to vote is influenced by social networks, we would expect to observe larger coefficients when measuring the influence of residents who are more likely to engage in social interactions with refugees. Accordingly, we use data on the characteristics of each neighbor to construct plausible peer networks for each refugee.

First, to approximate the peer networks available upon arrival, we construct age-specific cohorts, defined in terms of $+/-$ five years around the refugees' year of birth. Column 3 of Table 3 demonstrates that with a saturated specification, a one standard deviation difference in turnout among neighbors from one's age cohort is associated with a 5.6 percentage point increase in refugee's electoral participation. This effect is substantive, and represents 25% of the turnout gap between refugees and non-refugees within the sample.

Second, in columns 4-7, we restrict the sample to siblings below the age of 18 at arrival, and measure turnout among similarly aged members of the network with family fixed effects.[18] In addition to providing estimates for individuals who were children upon arrival, these models provide a conservative specification by only assessing variation among siblings within the same family. This test accounts for unobserved variables at the neighborhood and family level, including contemporaneous factors, that affect siblings in the same manner. The remaining variation is due to the fact that siblings belong to different age cohorts that have different propensities to vote.

Table 3: Linear probability models: voting propensity (Peer Cohorts)

	Age Cohort			Siblings < 18			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Peer Cohort Turnout	.052	.044	.056	.034	.041	.041	.037
	(.006)	(.006)	(.007)	(.012)	(.018)	(.018)	(.018)
Year of Arrival	✓	✓	✓	✓			
Individual Controls		✓	✓			✓	✓
Neighborhood Controls			✓				✓
Family Fixed Effects					✓	✓	✓
N obs	9,197	9,197	9,197	1,696	1,696	1,696	1,696
N families					705	705	705

Coefficients represent the change in refugee electoral participation following a one standard deviation change in neighborhood turnout. For covariate coefficients, see Table A9. Standard errors are clustered within networks. Observations with fewer than five network members are dropped from the regressions. Age-cohort average turnout: 0.34 refugee, 0.58 network. Sibling average turnout: 0.28 refugee, 0.47 network.

Although the siblings specification controls for time-invariant confounders, it remains possible that the estimate is biased by other factors that vary across cohorts. We therefore include a similar set of neighborhood controls, defined at the cohort level, to explore

[18] In this sample, the peer group consists of neighborhood residents born within one year of the refugee youth. In Norway, the majority of municipalities have designated a "reception" school with special classes for newly arrived refugee children. The children are prepared for participation in ordinary classes, with a special emphasis on language training. Refugee children typically spend 10 months to 2 years at the reception school before they are placed with same-age natives in their neighborhood school (see NOU 2010 for details).

robustness.[19] When we tighten the identification in this manner (column 7), we obtain stable estimates which suggest a standard deviation difference in peer cohort turnout is associated with a 3.7 percentage point increase in the probability of voting. This difference represents 20% of the turnout gap within the sub-sample. In addition to demonstrating an influence of neighborhoods on refugees who arrived as children, these specifications increase confidence that the results are driven by variation in peer networks rather than by unobserved factors at the neighborhood or family level.[20] We also show that the conclusions remain the same if we exclude initial residents that are still living in the neighborhood (see Table A24, SI: 17). This result is reassuring since the approach completely rules out contemporary effects, but the downside is that we condition the network variable on a potentially endogenous variable.

Beyond conceptualizing available peer networks in terms of age cohorts, we further examine networks delineated by sex and minority status. Using the age cohort and sibling samples, we first assess whether the turnout of same-sex neighborhood members drives the observed pattern. If the results reflect the influence of social interactions among peer networks, it is plausible that influence is stronger from those of the same gender. We therefore calculate the turnout of same-sex and opposite-sex members and include both variables in the specification. The point estimates in Table 4 suggest that turnout among same-sex members has a stronger influence on subsequent refugee turnout than turnout among opposite sex members, but they are too imprecise to make strong claims. However, the estimates lend credibility to the claim that the political engagement of peers is important, and, we argue, it weakens the claim that the overall level of social or civic capital in the neighborhood is the main mechanism at work, since such arguments do not have a gender-specific component.

[19] Socioeconomic network variables for youth at the time of arrival are determined using information on parents of their peers.

[20] In Table A15 (SI: 13) we examine heterogeneity by age at entry. Although results in columns 1-3 indicate that the influence is lower for older refugees than for the younger age groups, the interaction term attenuates and is not significant in columns 4-6 where we examine age cohorts. The implication is that the full neighborhood population represents a poor proxy for the actual network of older refugees, which bolsters our interpretation that the relationship reflects peer influences.

Table 4: Linear probability models, by network sex and immigrant background

	Age Cohort				Siblings (<18)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Same sex NT	.036	.036			.042	.028		
	(.006)	(.007)			(.015)	(.015)		
Opposite sex NT	.021	.025			.008	.017		
	(.006)	(.006)			(.017)	(.018)		
Immigrant NT			.027	.024			.059	.058
			(.006)	(.006)			(.024)	(.024)
Native NT			.045	.047			.023	.019
			(.006)	(.007)			(.026)	(.026)
Year of Arrival	✓	✓	✓	✓				
Individual Controls		✓		✓		✓		✓
Neighborhood Controls		✓		✓		✓		✓
Family FE					✓	✓	✓	✓
N obs	9,192	9,192	8,225	8,225	1,682	1,682	1,052	1,052
N families					701	701	503	503

Coefficients represent the change in electoral participation following a one standard deviation change in network turnout. Standard errors clustered within networks.

Second, we explore the degree to which the influence of neighbors differs by immigrant background. We divide neighborhood residents into groups according to whether they are from an immigrant or native background, and include turnout from each group within the specification. We find that an increase in the turnout of other residents with an immigrant background has a positive effect on subsequent refugee participation rates, ranging from 2.4 percentage points in the age cohort sample to 5.8 percentage points in the siblings sample. These results, which suggest that the behavior of other minority groups within the neighborhood may have positive spillover effects, are in line with previous research that identifies positive aspects of spatial ethnic networks in Scandinavian countries (Damm, 2014, 2009; Edin, Fredriksson, and Åslund, 2003). However, we find a larger effect of native turnout on refugees' subsequent participation within the age cohort sample, suggesting that the behavioral cues of non-immigrants play an equally important role in shaping refugees' downstream electoral participation. In contrast, the effect of native turnout for

the siblings sample is smaller. Given that this latter sample is limited to those who were below the age of 18 at arrival, this may reflect a tendency for children to associate with peers of similar minority status.

Temporal Factors

Our analysis indicates that the political engagement of neighbors, and in particular peers, within the initial arrival neighborhood explains variation in refugees' subsequent electoral participation. In this section, we examine two additional implications of the argument. First, we assess whether estimates differ between refugees that remained in the placement neighborhood versus those that left shortly after arrival. Our expectation is that individuals who changed their residence were less integrated with local social networks, leading to attenuated effects. Second, we assess the degree to which initial experiences persist by evaluating whether the results differ as a function of the time since resettlement in Norway.

We evaluate how effects vary by level of exposure by dividing refugees into groups according to the length of residence within the initial neighborhood.[21] Table A13 (SI: 12) displays the results from a specification which interacts neighborhood turnout with dummy variables for individuals who relocated within various two-year intervals after arrival. Consistent with a mechanism that operates through social ties, the coefficients suggest that the relationship between neighborhood turnout and electoral participation is significantly weaker for refugees who did not remain within the initial placement neighborhood. The table also indicates that largest effect sizes are obtained for refugees who stayed more than three years in the initial neighborhood.

To determine whether the influence of the initial placement neighborhood persists, we separate refugee arrivals into five year bins. Next, we fit the baseline specification, interacting the effect of neighborhood turnout with each arrival bin. As seen in Table A14 (SI: 13), no statistically significant interaction effect can be observed. In other

[21] Residency data is available on an annualized basis. Depending on the month of arrival, this ranges from 12 months to 24 months.

words, individuals placed within neighborhoods with high turnout at the start of the period (1990-1994) had similar expected turnout in 2015 as individuals placed within high turnout neighborhoods more recently. Given that the earliest group arrived in Norway over two decades prior to the 2015 election, these results suggest that the effect of the initial neighborhood persists over the long run.

Robustness Checks: Outmigration and Refugee Influence

Before concluding, we address two remaining issues: First, to what extent does outmigration from the sample influence our estimates? Second, do refugees influence the turnout of people who initially resided in the assigned neighborhood?

Because the individual turnout data are limited to residents in the 27 municipalities with a digitized voter census, we do not observe turnout of refugees who leave their assigned neighborhood for destinations outside the dataset. If this mobility depends on neighborhood characteristics, we condition our sample on an endogenous variable. To address this concern, we first evaluate whether sample attrition depends on neighborhood turnout. Among the refugees initially resettled in one of the municipalities with a digitized census and who would have been in the electorate had they remained (N=12,714), 25.3 percent are missing from the voter data (15.6 percent moved abroad and 9.7 percent to a municipality outside our turnout data). When we regress an indicator for whether the refugee has outmigrated on neighborhood turnout, we find that refugees initially assigned to a high turnout neighborhood are less likely to outmigrate (Table A18, SI: 15). However, the correlation is weak and not statistically significant: a standard deviation increase in neighborhood turnout is associated with less than a 0.5 percentage point reduction in the outmigration rate. Moreover, the correlation changes sign and remains statistically insignificant when we account for other characteristics of the neighborhood. In other words, there is no indication that the final sample is not representative of the original cohort of resettled refugees with respect to neighborhood turnout. A related concern is the outmigration of neighbors. If their propensity to leave the neighborhood is associated with turnout, our measure of turnout will diverge from the initial neighborhood. We examine

this issue by studying the correlation between mobility and neighborhood turnout among individuals who were present within the 2015 electorate and resided in one of the 27 municipalities in 1991. When we regress an indicator for mobility on neighborhood turnout, we find that the relationship is negative (columns 1-2, Table A19, SI: 15). However, the partial correlation changes sign when we account for other neighborhood characteristics, indicating that the negative correlation is driven by other neighborhood covariates. Although there is no indication that the attrition of members biases the results, we nevertheless investigate the sensitivity of the estimates with two different approaches. First, we impute turnout under the alternative assumptions that turnout among movers is zero or complete. Although point estimates differ slightly, we find that the positive association between neighborhood turnout and refugee participation remains robust to such extreme assumptions (Table A20, SI: 16). In the second approach, we treat the outmigration rate as a neighborhood covariate within the regression models. If observed neighborhood turnout relates strongly to outmigration, the coefficient estimate should be sensitive to the inclusion of the additional covariate. As Table A21 (SI: 16) shows, the outmigration rate of neighbors does not appear to influence refugee turnout, and inclusion of the variable in the model has no bearing on our estimates of neighborhood or network turnout on refugee political participation.

Finally, we explore the degree to which aggregate neighborhood turnout is influenced by the refugees placed in their neighborhood (Putnam, 2007; Enos, 2016). If this is the case, we estimate the total effect of placement and not the pure effect of the neighborhood on refugee political integration. Table A22 (SI: 16) evaluates this possibility. We first identify individuals' neighborhood in 1991 and regress turnout in 2015 on an indicator of whether the neighborhood received any refugees between 1992 and 2012. We find that turnout is two percentage points lower among those who resided in refugee-receiving neighborhoods. However, when we control for individuals' age and level of education, as well as two measures of neighborhood wealth (average income and fraction on social assistance), this correlation falls to less than 0.2 percentage points. Moreover, if we replace individual propensity to vote with an indicator of the father's level of education — an

outcome which is not affected by refugee inflow to the child's neighborhood — we find coefficients of the same size. This 'placebo' exercise suggests that the correlation between refugee settlement and neighbors' turnout is driven by selection and not by a direct effect of refugee settlement.[22]

Endogenous mobility and turnout would be less of a concern had we observed the political participation of neighbors prior to refugee arrivals. Unfortunately, historical validated turnout data at the individual level do not exist, nor are aggregate data at the neighborhood level available from past elections. Nevertheless, in Table A12 (SI: 11), we demonstrate that we obtain similarly sized estimates when we rely on municipal-level variation in turnout measured at the time of arrival, instead of the neighborhood turnout measure used above. The effect of municipal turnout is, however, imprecisely estimated as identification draws on variation across a smaller number of units.[23]

6 Conclusion

What factors shape the political integration of immigrants? While extant research has largely focused on socioeconomic characteristics, this paper demonstrates that early experiences within the host country play an important role in shaping long-term patterns of political engagement. Leveraging a quasi-exogenous placement policy in Norway, we find that the initial neighborhood in which refugees are placed is highly predictive of future electoral participation.

While previous studies have highlighted the importance of the arrival location in shaping integration outcomes, this study is the first to assess the causal impact of initial settlement locations on electoral participation. Given the low baseline rates of immigrant turnout in Norway and other developed democracies, the effect sizes we document for

[22] As a further test, we exploit the fact that we have individual turnout data from two elections — 2013 and 2015 — to study the correlation between refugee settlement and turnout (Table A23,SI: 17). We find that in a balanced panel of individuals observed in both elections, the negative correlation between settlement and turnout changes from -0.03 to zero when we add neighborhood or individual fixed effects. We therefore conclude that the effects we identify in Tables 2-4 mainly result from the effects of neighbors on refugees and that refugees have a limited effect on the electoral participation of other residents.

[23] Figure A6 (SI: 11) shows that the two measures of turnout are strongly correlated.

the initial placement location are substantively large. Refugees initially placed within an 80th percentile neighborhood had, on average, turnout rates 12.6 percentage points higher than refugees placed within a 20th percentile neighborhood. Indeed, our results suggest that the initial location holds more explanatory power than many socioeconomic factors in shaping subsequent electoral participation.

The rich administrative data in the Norwegian registers enables an examination of the mechanism underlying this pattern. Drawing on individual-level data on the inhabitants of each neighborhood at the time of each refugees' arrival, we assess the relative influence of neighborhood characteristics on refugees' downstream political participation. Our findings suggest that while local socio-demographic characteristics such as income, education, or ethnic diversity do not strongly influence subsequent electoral participation, turnout among neighbors and peers is particularly influential. A one standard deviation increase in the turnout rate of neighbors is associated with an expected three percentage point increase in future electoral participation. Larger point estimates, of approximately five percentage points, are observed when examining the influence of available peer networks, such as age cohorts. While the data do not permit us to determine whether these effects are driven by the transmission of political knowledge or by participatory norms, they do suggest that early exposure to politically engaged peer networks plays a key role in shaping political integration over the long run.

Although our analysis is restricted to the Norwegian refugee resettlement program, we expect the findings will be applicable to other contexts. Similar to many other receiving states in Europe and North America, the Norwegian resettlement program disperses refugees across a national territory and relies on the decentralized provision of housing and public services. We expect local networks within the arrival location to play an important role within other countries where refugees are placed directly within host communities from abroad. We also expect that our findings may be generalizable to other groups of immigrants. UNHCR refugees represent a distinct immigrant group with a verified history of persecution, and in contrast to other immigrants, do not have the ability to select their initial residence location. Nevertheless, refugees arrive in Norway from a

variety of national contexts, with differing levels of political and economic development (Table A1, SI: 2). The consistent effects we observe across demographic groups suggest that the influence of the settlement location may not be strictly confined to a particular sub-population.[24]

These results contribute to an emerging body of research that argues that the initial experiences of immigrants within host societies play a key role in shaping subsequent civic and political integration (Hainmueller, Hangartner, and Pietrantuono, 2015; Hainmueller, Hangartner, and Lawrence, 2016; Ferwerda, Finseraas, and Bergh, 2018). Our findings also speak to the literature on social context and turnout (Cho et al. 2006; Leighley and Matsubayashi 2009; Bhatti and Hansen 2016), by demonstrating its importance using a research design focused on causal inference. Finally, our results have implications for debates on the relative role of context and socio-demographic characteristics in shaping the political participation of immigrants. While other studies have convincingly argued that local networks and institutions matter (Schönwälder and Bloemraad, 2013), our design enables us to fully rule out self-selection and compositional differences as alternative explanations for spatial variation in immigrants' political participation. Moreover, our analysis establishes that initial as well as contemporary contextual effects play a role, and that these formative experiences persist over the long-run.

In addition to contributing to our understanding of the factors that shape immigrants' political participation, our findings also have implications for refugee resettlement policies. Over the past decade, developed democracies have observed sharp increases in the flow of refugees and asylum seekers. The majority of countries accepting these vulnerable individuals distribute them across national territories according to dispersion and burden sharing principles (Robinson, Andersson, and Musterd, 2003; Phillips, 2006; Darling, 2011). However, this approach overlooks the long-term consequences of assigning refugees to particular communities. Our findings indicate that the first three years after arrival may constitute a critical "integration window", in which context plays a key role in ha-

[24] One exception may relate to asylum seekers housed within centralized reception facilities. Long stays in reception centers will shape early experiences and effectively constitute the initial placement.

bituating modes of interaction with the host society. As a result, we expect policymakers will observe elevated returns if they focus on improving levels of support and engagement with host communities during the initial post-arrival period. Similarly, the importance of location we document suggests that governments should take factors beyond capacity and dispersion into account when allocating refugees across a national territory. By improving the match between refugees and the initial settlement location, governments have access to a cost-effective policy lever to improve integration outcomes for vulnerable populations.

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Supplementary information
"How Settlement Locations and Local Networks Influence Immigrant Political Integration"

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Descriptive statistics

Figure A1: Immigrant inflows to Norway by group. 1990-2017

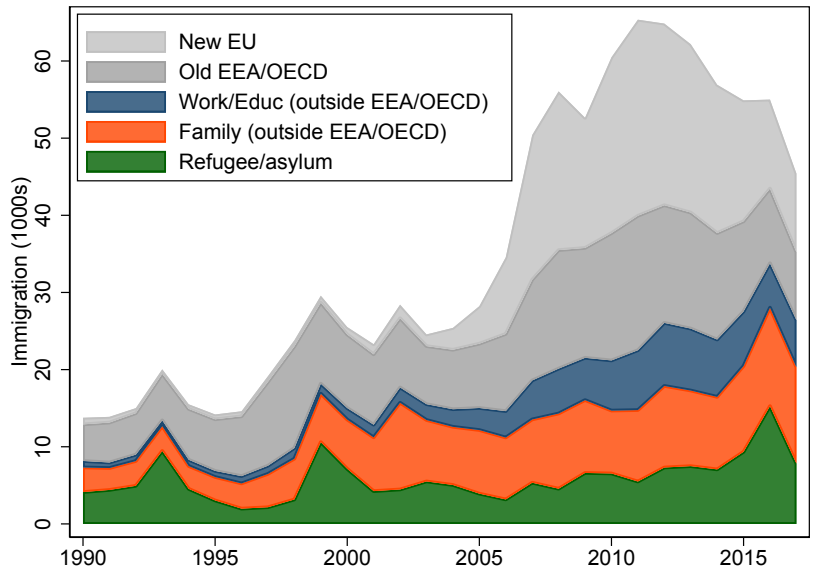
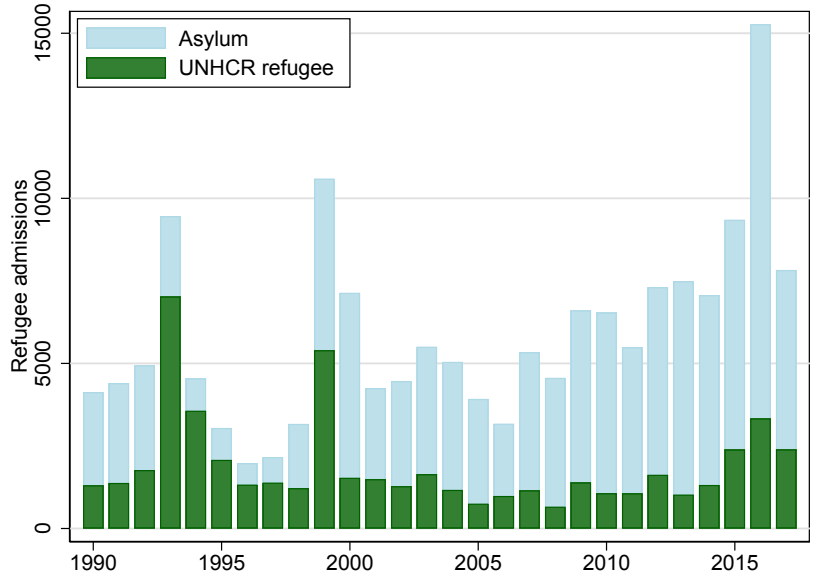


Figure A2: Asylum and UNHCR refugee inflows to Norway. 1990-2017



Own calculations. Asylum refers to individuals admitted following a successful asylum application.

Table A1: Demographic Characteristics, by Immigrant Status (Norway)

	n	Age at Arrival	Female	Family Size
UNHCR Refugees	37,633	23.27	0.50	3.90
Asylum Seekers	77,735	24.69	0.37	2.32
Outside EEA/OECD	178,465	25.33	0.62	2.75
From EEA/OECD	281,529	28.62	0.42	1.87

Categories are mutually exclusive. All immigrants who arrived in Norway after 1990 and were present in the country on January 1 2015. Family size measured at the time of arrival.

Table A2: Largest Nationalities, by Immigrant Status (Norway)

UNHCR Refugees	%	Asylum Seekers	%	Outside EEA/OECD	%
Bosnia	24.92	Somalia	19.33	Philippines	8.17
Iran	12.02	Eritrea	13.5	Pakistan	8.11
Iraq	11.14	Iraq	11.27	Thailand	7.05
Myanmar	6.62	Afghanistan	9.61	Russia	5.23
Vietnam	5.60	Kosovo	6.97	Vietnam	4.88
Afghanistan	4.82	Russia	5.83	Somalia	4.81
DR Congo	3.42	Syria	4.27	Turkey	4.60
Somalia	2.45	Iran	3.87	India	4.49
Sudan	2.19	Ethiopia	3.81	Iraq	3.99
Syria	2.18	Sudan	2.2	Iran	3.73

Table A3: Demographic Characteristics, by Immigrant Status (Voter files)

	n	Age at Arrival	Female	Family Size	Turnout Rate
UNHCR Refugees	18,614	24.24	0.49	3.68	0.34
Asylum Seekers	33,788	26.18	0.37	2.20	0.36
Outside EEA/OECD	81,483	26.19	0.62	2.68	0.34
From EEA/OECD	95,178	30.53	0.39	1.58	0.23

Categories are mutually exclusive. All immigrants who arrived in Norway after 1990, who resided within one of the 27 municipalities with a digitized voter file in 2015. Turnout Rate refers to the share voting in the 2015 Local Elections.

Table A4: Largest Nationalities, by Immigrant Status (Voter files)

UNHCR Refugees	%	Asylum Seekers	%	Outside EEA/OECD	%
Bosnia	29.25	Somalia	23.01	Pakistan	8.11
Iraq	14.64	Iraq	15.31	Iraq	6,45
Iran	13.17	Afghanistan	9.23	Philippines	6.40
Vietnam	7.55	Kosovo	8.42	Thailand	6.17
Afghanistan	4.80	Eritrea	7.12	Russia	5.80
Myanmar	4.29	Russia	4.88	Somalia	5.63
DR Congo	2.36	Iran	4.01	Turkey	5.46
Ethiopia	2.27	Ethiopia	3.73	India	3.80
Kosovo	2.16	Sri Lanka	3.36	China	3.52
Somalia	1.85	Palestine	2.13	Sri Lanka	3.37

Table A5: Summary Statistics: Main Sample

	Mean	Std. Dev.	Min	Max
2015 Turnout	0.341	0.474	0	1
Neighborhood Covariates				
Neighborhood Turnout	0.612	0.092	0.091	0.885
% Immigrant Background	0.209	0.138	0	1
Size	899	904	18	6542
% on Social Assistance	0.085	0.070	0	0.507
Income	405137	93755	43937	947030
% With College	0.309	0.136	0	0.799
Individual Covariates (Pre-Arrival)				
Female	0.482	0.5	0	1
Education (ref=Primary or Below)				
High school	0.144	0.351	0	1
College	0.109	0.312	0	1
Post-Graduate	0.028	0.166	0	1
Missing	0.467	0.499	0	1
Family Size (ref=1)				
2	0.121	0.326	0	1
3-4	0.296	0.457	0	1
5-6	0.159	0.366	0	1
7+	0.092	0.289	0	1
Region of Origin (ref=Europe)				
Africa	0.156	0.363	0	1
Asia	0.577	0.494	0	1
South America	0.008	0.091	0	1
Age at Immigration / 10	2.56	1.474	0	8.2
Age at Immigration^2 / 100	8.728	9.13	0	67.24
Age at Immigration^3 / 1000	35.123	55.278	0	551.368

N=9,354. Note that the sample size differs from Table A3 given that not all residents of the 27 municipalities in 2015 were originally settled within the municipality. Education and family size are measured at the time of entry to Norway.

Table A6: Summary Statistics: Siblings Sample

	Mean	Std. Dev.	Min	Max
2015 Turnout	0.281	0.449	0	1
Network Covariates				
Network Turnout	0.466	0.168	0	1
% Immigrant Background	0.292	0.217	0	1
Size	46.032	56.456	5	369
% on Social Assistance	0.172	0.152	0	0.833
Income	793061	280200	0	3546560
% With College	0.375	0.190	0	1
Individual Covariates (Pre-Arrival)				
Female	0.475	0.500	0	1
Family Size (ref=1)				
2	0.055	0.229	0	1
3-4	0.366	0.482	0	1
5-6	0.337	0.473	0	1
7+	0.243	0.424	0	1
Region of Origin (ref=Europe)				
Africa	0.134	0.341	0	1
Asia	0.645	0.479	0	1
South America	0.002	0.048	0	1
Age at Immigration / 10	0.884	0.431	0	1.7
Age at Immigration^2 / 100	0.968	0.763	0	2.89
Age at Immigration^3 / 1000	1.175	1.212	0	4.913

N=1,696. Socioeconomic network characteristics at time of arrival determined by the parents of siblings' peers. Family size is measured at the time of entry to Norway. Network includes neighbors born within one year of the refugee youth; sample is restricted to observations with at least five network members.

Refugee placement across neighborhoods

Figure A3 plots the distribution of refugees across neighborhoods, characterized by their level of education in 1991 (left plot). The figure shows that refugees tend to be resettled in neighborhoods where residents have marginally lower education levels. The right plot visualize the relationship between neighborhood education levels and refugees' pre-migration level of education. There is a slight tendency for highly educated refugees to be placed in neighborhoods with a high level of education, but the correlation is weak and not statistically significant. Figure A4 is similar to Figure A3, but the neighborhood education level in 1991 is replaced with the turnout rate in 2015. Again we find that refugees are more likely to be placed in the lower part of the distribution, but the relationship between neighborhood turnout and pre-migration level of education is weak. Table A7 assesses the correlation between refugee background characteristics and neighborhood turnout, and finds no statistically significant predictors, suggesting that neighborhood turnout is plausibly exogenous to refuge background characteristics.

Figure A3: Density plots of the distribution of refugees across neighborhoods (A) and the relationship between neighborhood level of education and refugees' level of education (B).

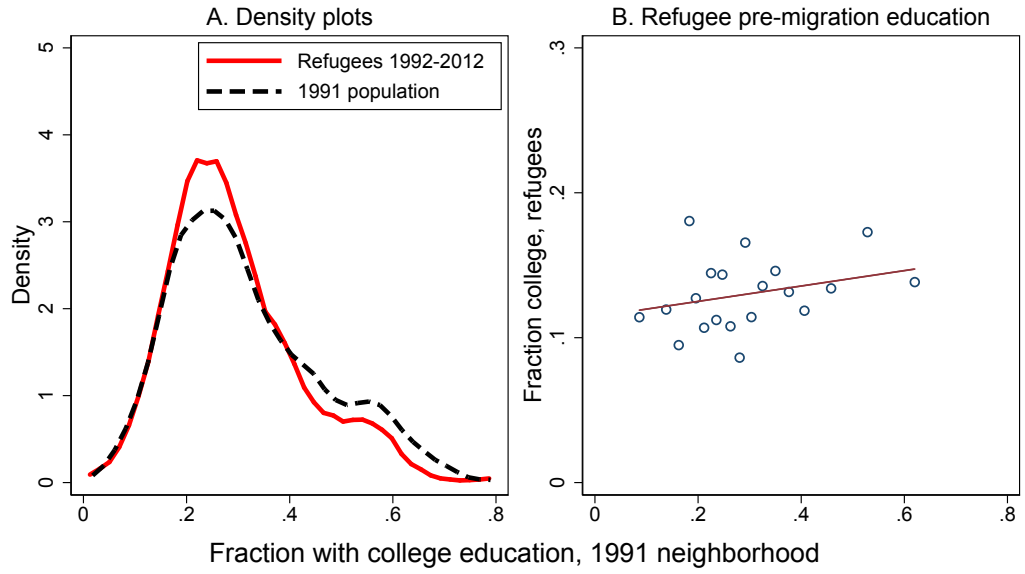


Figure A4: Density plots of the distribution of refugees across neighborhoods (A) and the relationship between neighborhood level of turnout and refugees' level of education (B).

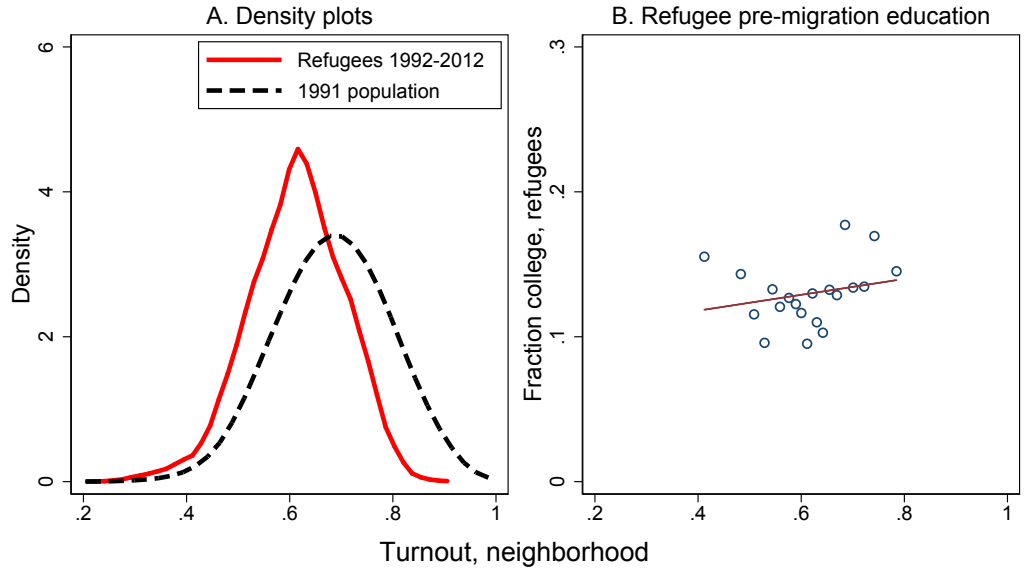


Table A7: Relationship between Pre-Arrival Characteristics and Neighborhood Turnout

	Neighborhood Turnout (x100)
Female	-0.108
	(0.190)
Education (ref Primary or below)	
High school	-0.079
	(0.398)
College	0.461
	(0.464)
Post-graduate	0.747
	(0.739)
Missing education	-0.578
	(0.339)
Family size (ref 1):	
2	-0.017
	(0.412)
3-4	-0.369
	(0.424)
5-6	-1.070
	(0.665)
7+	0.743
	(0.832)
Region of Origin (ref Europe)	
Africa	0.255
	(1.052)
Asia	0.001
	(0.965)
South America	2.580
	(1.428)
Im. age (/10)	0.111
	(0.453)
Im. age-sq (/100)	-0.095
	(0.150)
Im age-cubic (/1000)	0.010
	(0.015)
Year of Arrival FE	✓
R-sq	0.049
N obs	9,354
N neighborhoods	1,395

Standard errors are clustered within neighborhoods.

Results tables with covariates

Due to space constraints, Tables 2 and 3 within the main text do not display covariates. The full tables with all covariates, with the exception of year of arrival, are displayed below.

Table A8: Table 2, with covariates

	Full Sample		
	(1)	(2)	(3)
Neighborhood Turnout	0.018	0.016	0.032
	(0.007)	(0.006)	(0.011)
Neighborhood % Immigrant			0.006
			(0.008)
Neighborhood Size			0.010
			(0.008)
Neighborhood % Social Assistance			-0.007
			(0.010)
Neighborhood Income			-0.027
			(0.011)
Neighborhood % College			0.001
			(0.011)
Female		0.021	0.020
		(0.009)	(0.009)
Education (ref Primary or below)			
High school		-0.008	-0.009
		(0.019)	(0.019)
College		0.097	0.096
		(0.021)	(0.021)
Post-graduate		0.094	0.092
		(0.032)	(0.032)
Missing		0.008	0.007
		(0.016)	(0.016)
Family size (ref 1):			
2		0.010	0.012
		(0.019)	(0.019)
3-4		0.001	0.002
		(0.015)	(0.015)
5-6		-0.006	-0.005
		(0.020)	(0.021)
7+		-0.014	-0.012
		(0.026)	(0.026)
Region of Origin (ref Europe)			
Africa		0.458	0.140
		(0.024)	(0.024)
Asia		0.077	0.072
		(0.018)	(0.018)
South America		0.166	0.157
		(0.073)	(0.072)
Im. age (/10)		0.005	0.006
		(0.027)	(0.027)
Im. age-sq (/100)		0.022	0.022
		(0.009)	(0.009)
Im age-cubic (/1000)		-0.004	-0.004
		(0.001)	(0.001)
Constant	0.341	0.169	0.172
	(0.006)	(0.034)	(0.034)
Year of Arrival	✓	✓	✓
N obs	9,354	9,354	9,354
N neighborhoods	1,395	1,395	1,395

Coefficients for network turnout and neighborhood characteristics represent the change in electoral participation expected following a one standard deviation change in the covariate.

Table A9: Table 3, with covariates

	Age Cohorts			Siblings Sample			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Network Turnout	0.052	0.044	0.056	0.034	0.041	0.041	0.037
	(0.006)	(0.006)	(0.007)	(0.012)	(0.018)	(0.018)	(0.018)
Network % Immigrant			0.004				0.012
			(0.007)				(0.038)
Network Size			0.009				-0.086
			(0.005)				(0.072)
Network % Social Assistance			-0.004				-0.003
			(0.008)				(0.029)
Network Income			-0.026				0.005
			(0.009)				(0.024)
Network % College			0.000				0.047
			(0.008)				(0.028)
Female		0.020	0.019			0.081	0.080
		(0.010)	(0.010)			(0.025)	(0.025)
Education (ref Primary or below)							
High school		-0.003	-0.005				
		(0.017)	(0.017)				
College		0.112	0.110				
		(0.019)	(0.019)				
Post-graduate		0.111	0.107				
		(0.033)	(0.033)				
Missing		-0.010	-0.003				
		(0.014)	(0.014)				
Family size (ref 1)							
2		-0.002	0.001				
		(0.017)	(0.017)				
3-4		0.002	0.004				
		(0.015)	(0.015)				
5-6		-0.004	-0.002				
		(0.019)	(0.019)				
7+		-0.014	-0.006				
		(0.019)	(0.019)				
Region of Origin (ref Europe)							
Africa		0.158	0.151				
		(0.020)	(0.020)				
Asia		0.087	0.084				
		(0.015)	(0.015)				
South America		0.179	0.174				
		(0.060)	(0.059)				
Constant	0.341	0.245	0.245	0.281	0.281	0.242	0.243
	(0.005)	(0.018)	(0.018)	(0.011)	(0.009)	(0.015)	(0.015)
Year of Arrival	✓	✓	✓	✓			
Family Fixed Effects					✓	✓	✓
N obs	9,197	9,197	9,197	1,696	1,696	1,696	1,696
N families					705	705	705

Follows Table 3 in text, with all covariates except year of arrival shown. Coefficients for network characteristics represent the change in electoral participation expected following a one standard deviation change in the covariate. In the siblings sample, network social assistance, income, and college are computed for the parents of the network peers. Education at arrival is not measured in the siblings sample given that all members were aged less than 18 upon arrival.

Factors influencing refugee turnout

Tables A10 and A11 assess individual, municipal, and neighborhood characteristics.

Table A10: Linear probability models of refugee turnout, with fixed effects

	(1)	(2)	(3)	(4)	(5)
Female	0.020	0.018	0.021	0.021	0.023
	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)
Education (ref: Primary or Less)					
High School	-0.008	-0.012	-0.009	-0.009	-0.009
	(0.019)	(0.019)	(0.019)	(0.019)	(0.022)
College	0.097	0.094	0.096	0.096	0.096
	(0.021)	(0.021)	(0.021)	(0.021)	(0.025)
Post-graduate	0.095	0.093	0.092	0.092	0.072
	(0.033)	(0.032)	(0.033)	(0.033)	(0.036)
Family Size (ref: 1)					
2	0.010	0.013	0.011	0.011	-0.003
	(0.019)	(0.019)	(0.019)	(0.019)	(0.024)
3-4	0.001	0.001	0.001	0.000	-0.010
	(0.015)	(0.016)	(0.016)	(0.016)	(0.020)
5-6	-0.007	-0.003	-0.007	-0.007	-0.021
	(0.020)	(0.020)	(0.021)	(0.021)	(0.026)
7+	-0.013	-0.004	-0.013	-0.013	-0.029
	(0.026)	(0.026)	(0.026)	(0.026)	(0.034)
Region of Origin (ref: Europe)					
Africa	0.149	0.139	0.144	0.143	0.151
	(0.024)	(0.025)	(0.024)	(0.024)	(0.032)
Asia	0.078	0.076	0.075	0.074	0.071
	(0.018)	(0.019)	(0.018)	(0.018)	(0.025)
South America	0.171	0.158	0.166	0.165	0.150
	(0.073)	(0.072)	(0.073)	(0.073)	(0.097)
Age at Immigration (/10)	0.005	0.006	0.007	0.007	0.015
	(0.027)	(0.027)	(0.027)	(0.027)	(0.031)
Age at Immigration^2 (/100)	0.022	0.022	0.022	0.022	0.020
	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)
Age at Immigration^3 (/1000)	-0.004	-0.004	-0.004	-0.004	-0.004
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Neighborhood Covariates					
% Immigrant Background			0.001	0.001	
			(0.007)	(0.008)	
Size			0.013	0.013	
			(0.008)	(0.008)	
% Social Assistance			-0.013	-0.013	
			(0.009)	(0.009)	
Income			-0.023	-0.020	
			(0.011)	(0.012)	
% College			0.019	0.018	
			(0.009)	(0.009)	
Municipal Covariates					
Social Democratic Voteshare				0.006	
				(0.007)	
Constant	0.170	0.170	0.172	0.173	0.184
	(0.034)	(0.061)	(0.034)	(0.034)	(0.071)
Year of Arrival FE	✓	✓	✓	✓	✓
Municipality FE		✓			
Neighborhood FE					✓
R^2	0.037	0.045	0.038	0.038	0.256
adj. R^2	0.033	0.039	0.034	0.034	0.122
N obs	9,354	9,354	9,354	9,354	9,354
N fixed effects		27			1,395

Coefficients for neighborhood chars represent a one sd change. Standard errors clustered within neighborhoods.

Table A11: Linearity probability model of refugee turnout: effect of a one standard deviation change in neighborhood covariates on electoral participation

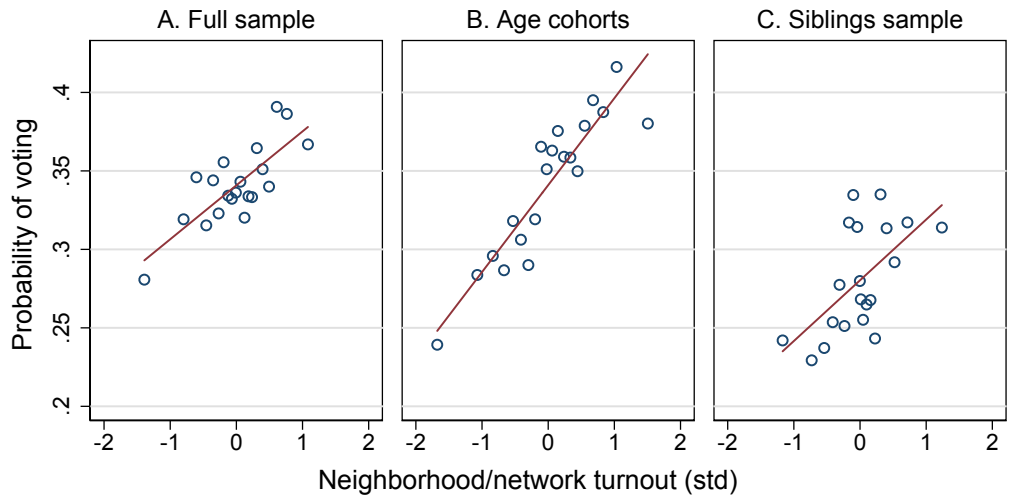
	(1)	(2)	(3)	(4)	(5)	(6)
Neighborhood Turnout	0.018					
	(0.007)					
% Immigrant		0.003				
		(0.006)				
Size			0.013			
			(0.008)			
% Social Assistance				-0.001		
				(0.006)		
Income					-0.021	
					(0.007)	
% College						0.009
						(0.008)
Year of Arrival	✓	✓	✓	✓	✓	✓
N obs	9,354	9,354	9,354	9,354	9,354	9,354
N neighborhoods	1,395	1,395	1,395	1,395	1,395	1,395

In contrast to Table A10, where coefficients are estimated jointly, in this table each neighborhood characteristic is tested separately. Standard errors are clustered within neighborhoods.

Relative importance of neighborhood turnout

Figure A5 visualizes the importance of neighborhood/peer cohort turnout in shaping refugees' subsequent electoral participation. Each panel displays the result of a regression controlling for year of arrival and the full set of individual and neighborhood characteristics of Tables 2 and 3; panel C controls for family fixed effects. The 20 scatter points are of equal size and represent 5 percent of each sample. The figure suggests that a two standard deviation change in turnout (-1 to 1) is associated with approximately a 6% increase in the probability of voting within the full sample, 13% in the age cohort sample, and 7% in the siblings sample.

Figure A5: Binscatter Plots of Turnout vs. probability of voting



Note: The Y-axis shows the probability of voting while the X-axis shows network turnout in standard deviations around the sample mean.

Results using municipal turnout

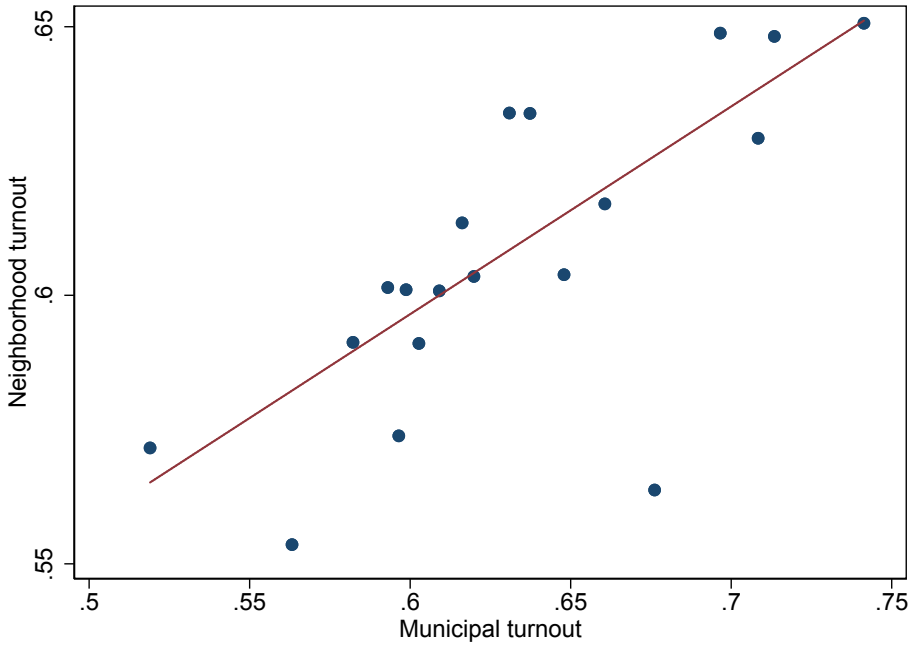
Table A12 examines whether the results are robust to using municipal turnout in the year of arrival. Point estimates are similar, albeit imprecisely estimated due to the decreased number of units. Figure A6 demonstrates that the two measures are tightly correlated.

Table A12: Linear probability models of propensity to vote and network turnout.

	Neighborhood (1)	Municipal (2)	Neighborhood (3)	Municipal (4)
Neighborhood Turnout	0.194	0.223	0.176	0.125
	(0.072)	(0.272)	(0.069)	(0.238)
Controls				
Year of Arrival FE	✓	✓	✓	✓
Individual Controls			✓	✓
N obs	9,354	9,354	9,354	9,354
N neighborhoods	1,395	27	1,395	27

Coefficients represent the effect of a one unit (not standardized) change in network turnout. Standard errors are clustered within 1,395 neighborhoods (columns 1 and 3) or 27 municipalities (columns 2 and 4). Sample mean turnout: 0.34 refugee, 0.61 neighborhood, 0.63 municipal.

Figure A6: Binscatter plot of the correlation between neighborhood turnout (2015) and municipal turnout (year of arrival).



Note: Figure shows relationship between municipal turnout in the last local election before arrival and network turnout in the 2015 election in the refugee analysis sample.

Temporal Factors

Table A13 examines how the effects vary as a function of the length the refugee lived in the original arrival neighborhood. The results suggest that the majority of effects of the neighborhood are obtained within the first three years of arrival. Table A14 demonstrates that effects are consistent across arrival cohorts. Table A15 examines effect heterogeneity by age at arrival, demonstrating that younger cohorts experience stronger effects.

Table A13: Effects by Length of Residence in Initial Neighborhood

	Full Sample			Age Cohorts		
	(1)	(2)	(3)	(4)	(5)	(6)
Neighborhood/Network Turnout	0.030	0.027	0.045	0.068	0.060	0.072
	(0.010)	(0.012)	(0.015)	(0.009)	(0.009)	(0.010)
NT * Moved before 2nd Year	-0.027	-0.024	-0.026	-0.036	-0.036	-0.037
	(0.014)	(0.016)	(0.016)	(0.013)	(0.013)	(0.013)
NT * Moved 2nd or 3rd Year	-0.013	-0.012	-0.013	-0.024	-0.023	-0.023
	(0.013)	(0.017)	(0.017)	(0.013)	(0.013)	(0.013)
NT * Moved 4th or 5th Year	0.003	0.004	0.003	0.005	0.005	0.007
	(0.016)	(0.020)	(0.020)	(0.015)	(0.015)	(0.015)
Moved before 2nd Year	0.014	0.012	0.009	0.013	0.015	0.013
	(0.014)	(0.017)	-0.017)	(0.014)	(0.014)	(0.014)
Moved 2nd or 3rd Year	0.012	0.003	-0.000	0.009	0.003	-0.000
	(0.014)	(0.017)	(0.017)	(0.014)	(0.014)	(0.014)
Moved 4th or 5th Year	-0.003	-0.004	-0.006	-0.005	-0.004	-0.007
	(0.017)	(0.020)	(0.020)	(0.017)	(0.017)	(0.017)
Year of Arrival	✓	✓	✓	✓	✓	✓
Individual Controls		✓	✓		✓	✓
Neighborhood Controls			✓			✓
N obs	9,354	9,354	9,354	9,197	9,197	9,197

Coefficients on network turnout represent the change in refugee electoral participation following a one standard deviation change. Standard errors are clustered within neighborhoods/networks. Reference group are those with at least six years in the initial neighborhood.

Table A14: Effects by Arrival Period

	Full Sample			Age Cohorts		
	(1)	(2)	(3)	(4)	(5)	(6)
Neighborhood/Network Turnout	0.023	0.023	0.038	0.051	0.044	0.057
	(0.008)	(0.010)	(0.012)	(0.008)	(0.009)	(0.009)
NT * 1995-1999	-0.008	-0.012	-0.008	-0.008	-0.010	-0.009
	(0.013)	(0.015)	(0.015)	(0.012)	(0.012)	(0.012)
NT * 2000-2004	-0.015	-0.017	-0.014	0.009	0.008	0.007
	(0.015)	(0.020)	(0.020)	(0.016)	(0.016)	(0.016)
NT * 2005-2009	-0.012	-0.015	-0.010	0.023	0.024	0.023
	(0.017)	(0.022)	(0.022)	(0.016)	(0.016)	(0.016)
NT * 2010-2012	0.009	0.005	0.009	-0.027	-0.026	-0.026
	(0.019)	(0.025)	(0.025)	(0.020)	(0.020)	(0.020)
Year of Arrival	✓	✓	✓	✓	✓	✓
Individual Controls		✓	✓		✓	✓
Neighborhood Controls			✓			✓
N obs	9,354	9,354	9,354	9,197	9,197	9,197

Coefficients on network turnout represent the change in refugee electoral participation following a one standard deviation change. Standard errors are clustered within neighborhoods/networks. 1990-1994 is the reference cohort.

Table A15: Heterogeneity by age at arrival

	Full Sample			Age Cohorts		
	(1)	(2)	(3)	(4)	(5)	(6)
Neighborhood/Network Turnout	0.027	0.028	0.044	0.037	0.040	0.052
	(0.009)	(0.011)	(0.013)	(0.009)	(0.010)	(0.010)
NT * Age 18-29	0.002	-0.001	-0.000	0.016	0.008	0.008
	(0.012)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
NT * Age 30+	-0.027	-0.030	-0.030	-0.010	-0.015	-0.013
	(0.012)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Age arrival 0-17 (baseline)	-	-	-	-	-	-
Age 18-29	0.073	0.009	0.009	0.039	0.030	0.020
	(0.012)	(0.024)	(0.024)	(0.015)	(0.018)	(0.018)
Age 30+	0.101	0.021	0.021	0.060	0.048	0.033
	(0.012)	(0.038)	(0.037)	(0.015)	(0.018)	(0.018)
Year of Arrival	✓	✓	✓	✓	✓	✓
Individual Controls		✓	✓		✓	✓
Neighborhood Controls			✓			✓
N obs	9,354	9,354	9,354	9,197	9,197	9,197

Coefficients on network turnout represent the change in refugee electoral participation following a one standard deviation change. Standard errors are clustered within neighborhoods/networks.

Potential Exceptions

While Godøy's (2017) interviews with case-workers suggest that placement officers do not match refugees to neighborhoods, she notes a few potential exceptions. First, caseworkers may take refugees' level of education and health status into account when selecting the destination municipality. Second, caseworkers might take family ties into account. The education exception is unlikely to be relevant in this instance because quota refugees tend to be low-skilled. Nevertheless, Table A16 demonstrates that the results are stable to excluding refugees with high levels of education, excluding refugees that received a disability pension within 3 to 5 years after arrival. The table also demonstrates that the estimates are robust when conditioning on family size, and when including country of origin fixed effects (Table A17).

Table A16: Potential exceptions to assignment rules

Excluding refugees with high education

	All		Drop college		Drop college and high school	
	(1)	(2)	(3)	(4)	(5)	(6)
Network Turnout	0.052	0.056	0.044	0.054	0.047	0.055
	(0.005)	(0.006)	(0.005)	(0.007	(0.006)	(0.007)
Year of arrival FE	✓	✓	✓	✓	✓	✓
Individual controls		✓		✓		✓
Neighborhood controls		✓		✓		✓
N obs	9,197	9,197	7,923	7,923	6,593	6,593

Excluding refugees with health conditions

	All		Drop if disabled 3 yrs after arrival		Drop if disabled 5 yrs after arrival	
	(1)	(2)	(3)	(4)	(5)	(6)
Network Turnout	0.052	0.056	0.053	0.058	0.053	0.058
	(0.005)	(0.006)	(0.005)	(0.006)	(0.006)	(0.007)
Year of arrival FE	✓	✓	✓	✓	✓	✓
Individual controls		✓		✓		✓
Neighborhood controls		✓		✓		✓
N obs	9,197	9,197	8,946	8,946	8,610	8,610

Excluding large families

	All		Drop if family size above 6		Drop if family size above 4	
	(1)	(2)	(3)	(4)	(5)	(6)
Network Turnout	0.052	0.056	0.051	0.056	0.050	0.057
	(0.005)	(0.006)	(0.005)	(0.007)	(0.006)	(0.007)
Year of arrival FE	✓	✓	✓	✓	✓	✓
Individual controls		✓		✓		✓
Neighborhood controls		✓		✓		✓
N obs	9,197	9,197	8,352	8,352	6,888	6,888

Linear probability model of propensity to vote on network turnout (standardized coefficients). Standard errors are clustered within networks. Specifications correspond to Table 3, cols 1 and 3.

Table A17: Country of origin fixed effects

	Full sample			Age cohorts		
	(1)	(2)	(3)	(4)	(5)	(6)
Neighborhood/Network Turnout	0.017	0.016	0.032	0.054	0.043	0.055
	(0.007)	(0.007)	(0.010)	(0.005)	(0.005)	(0.006)
Year of arrival FE	✓	✓	✓	✓	✓	✓
Individual controls		✓	✓		✓	✓
Neighborhood controls			✓			✓
Country of birth FE	✓	✓	✓	✓	✓	✓
N obs	9,354	9,354	9,354	9,197	9,197	9,197
N fixed effects	115	115	115	115	115	115

Linear probability model of propensity to vote on network turnout (standardized coefficients). Standard errors are clustered within neighborhoods/networks.

Accounting for Outmigration

The following tables examine whether the outmigration of refugees (A18) or residents (A19) is correlated with neighborhood turnout. Tables A20 and A21 use bounds and controls to demonstrate that the effect is robust to outmigration.

Table A18: Linear probability models of refugee outmigration and neighborhood turnout

	(1)	(2)	(3)
Neighborhood Turnout	-0.003	-0.003	0.008
	(0.007)	(0.006)	(0.011)
Year of arrival FE	✓	✓	✓
Individual controls		✓	✓
Neighborhood controls			✓
N obs	12,714	12,714	12,714
N neighborhoods	1,574	1,574	1,574

Dependent variable is the fraction of refugees resettled in the 27 municipalities with digitized voter records who moved out of the sample by 2015; mean is 0.253. Standard errors are clustered within neighborhoods.

Table A19: Linear probability models of non-refugee outmigration and neighborhood turnout

	(1)	(2)	(3)
Neighborhood Turnout	-0.015	-0.007	0.010
	(0.002)	(0.002)	(0.002)
Year of arrival FE	✓	✓	✓
Individual controls		✓	✓
Neighborhood controls			✓
N obs	1,186,456	1,186,456	1,186,456
N neighborhoods	3,519	3,519	3,519

The sample is the 1991 population of the 27 municipalities with digitized voter records and present in the 2015 electorate, while the outcome is the whether they reside in any of these 27 municipalities in 2015. Mean is 0.176. Standard errors are clustered within neighborhoods.

Table A20: Linear probability models using lower and upper bounds of network turnout

	Lower bound			Upper bound		
	(1)	(2)	(3)	(4)	(5)	(6)
Neighborhood/Network Turnout	0.019	0.042	0.046	0.033	0.054	0.033
	(0.008)	(0.006)	(0.019)	(0.009)	(0.006)	(0.018)
Year of arrival FE	✓	✓		✓	✓	
Individual controls	✓	✓	✓	✓	✓	✓
Neighborhood controls	✓	✓	✓	✓	✓	✓
Family fixed effects			✓			✓
N obs	9,354	9,197	1,696	9,354	9,197	1,696

Linear probability model of propensity to vote on network turnout (standardized coefficients). In the lower bounds estimations we assume that all movers are non-voters, while in the upper bound estimations we assume that all movers are voters. Standard errors are clustered within neighborhoods/networks. Columns 2 and 5 use the age cohorts and columns 3 and 6 the siblings network specification.

Table A21: Accounting for network outmigration in models of refugee turnout

	(1)	(2)	(3)	(4)	(5)	(6)
Outmigration rate	0.087	0.042	0.147	0.086	0.176	0.077
	(0.094)	(0.096)	(0.095)	(0.097)	(0.100)	(0.101)
Neighborhood/Network Turnout			0.020	0.034	0.053	0.056
			(0.007)	(0.011)	(0.053)	(0.056)
Year of arrival FE	✓	✓	✓	✓	✓	✓
Individual controls		✓		✓		✓
Neighborhood controls		✓		✓		✓
N obs	9,354	9,354	9,354	9,354	9,197	9,197

Linear probability model of propensity to vote on network turnout (standardized coefficients). Standard errors are clustered within neighborhoods/networks. Columns 5 and 6 use the age cohorts network specification.

Refugee inflow and network turnout

Tables A22 and A23 demonstrate that an influx of refugees has a mimimal effect on residents' turnout.

Table A22: Linear probability models of propensity to vote and inflow of refugees.

	Cross-section		Placebo		Balanced panel	Neighbor-hood FE	Individ FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Refugee Inflow	-0.021	0.003	-0.012	-0.002	-0.032	-0.000	-0.001
	(0.004)	(0.002)	(0.006)	(0.003)	(0.006)	(0.004)	(0.005)
Controls		✓		✓			
Neighborhood FE						✓	
Individual FE							✓
N obs	976,084	976,078	760.355	760,350	1,770,548	1,770,548	1,770,548
N neighborhoods	3,524	3,524	3,512	3,512	2,177	2,177	2,177

Controls include education, age, mean neighborhood income, and fraction with social assistance. The placebo outcome is the father's level of education. Standard errors are clustered within neighborhoods.

Table A23: Linear probability models of propensity to vote and inflow of refugees.

	Cross-section		Placebo		Balanced panel	Neighbor-hood FE	Individ FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Refugee Inflow (ref=None)							
Below 1%	-0.009	0.006	-0.000	-0.002	-0.028	0.003	0.001
	(0.004)	(0.002)	(0.008)	(0.003)	(0.007)	(0.004)	(0.005)
Between 1-3%	-0.040	-0.004	-0.034	-0.001	-0.052	-0.018	-0.015
	(0.006)	(0.003)	(0.009)	(0.005)	(0.013)	(0.007)	(0.007)
Between 3-6%	-0.056	-0.008	-0.034	-0.002	-0.050	0.004	0.012
	(0.009)	(0.005)	(0.010)	(0.007)	(0.042)	(0.015)	(0.016)
Between 6-10%	-0.099	-0.018	-0.098	-0.013	-0.112	-0.026	-0.019
	(0.016)	(0.009)	(0.013)	(0.009)	(0.012)	(0.011)	(0.018)
Above 10%	-0.046	-0.004	-0.029	0.022			
	(0.019)	(0.009)	(0.025)	(0.012)			
Controls		✓		✓			
Neighborhood FE						✓	
Individual FE							✓
N obs	976,084	976,078	760.355	760,350	1,770,548	1,770,548	1,770,548
N neighborhoods	3,524	3,524	3,512	3,512	2,177	2,177	2,177

Controls include education, age, mean neighborhood income, and fraction with social assistance. The placebo outcome is the father's level of education. No neighborhoods are within the top bin for the balanced panel specifications (limited to a two year period). Standard errors are clustered within neighborhoods.

Mitigating correlated contemporary effects

Table A24 re-estimates the effect of the initial network, excluding any individuals who still reside within the neighborhood. This approach rules out contemporary effects within the neighborhood.

Table A24: Exclude current network members from initial network

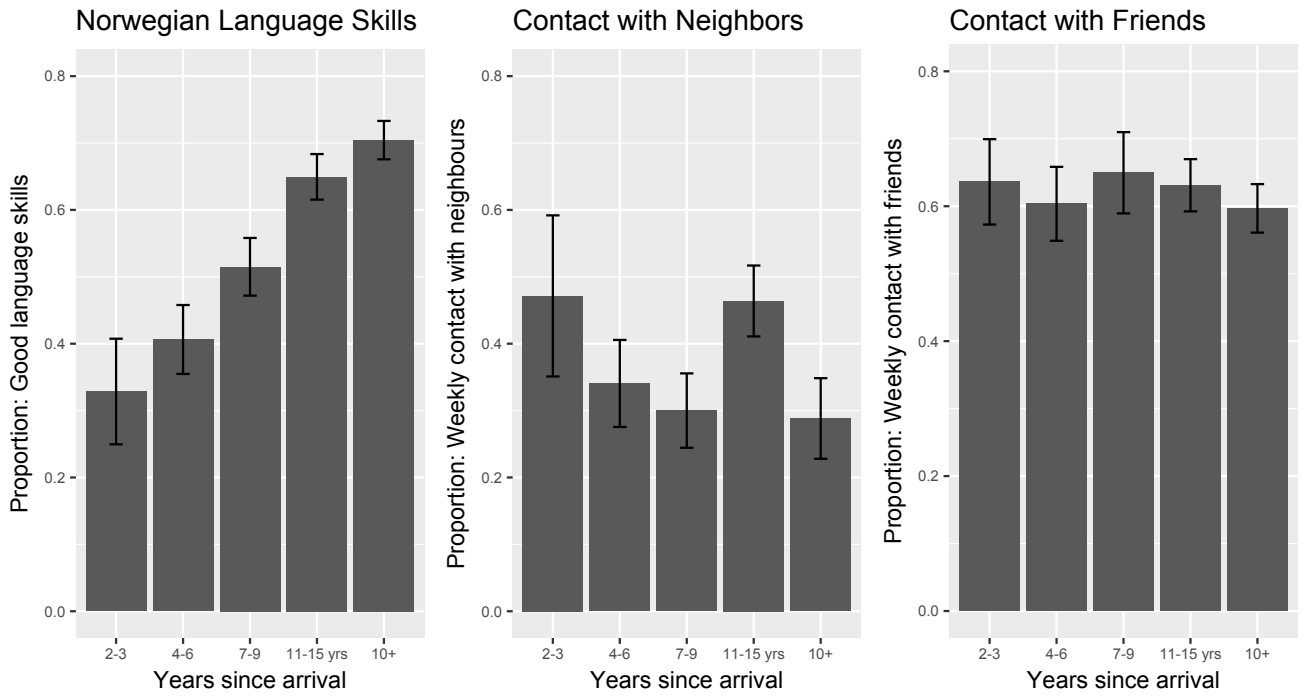
	Full Sample		Age Cohorts		Siblings	
	(1)	(2)	(3)	(4)	(5)	(6)
Neighborhood/Network Turnout	0.016	0.024	0.048	0.048	0.040	0.036
	(0.007)	(0.010)	(0.005)	(0.006)	(0.019)	(0.019)
Year of Arrival	✓	✓	✓	✓		
Individual Controls		✓		✓		✓
Neighborhood Controls		✓		✓		✓
Family Fixed Effects					✓	✓
N obs	9,354	9,354	9,197	9,197	1,696	1,696

Coefficients on network turnout represent the change in refugee electoral participation following a one standard deviation change. Standard errors are clustered within neighborhoods/networks. Current network members are excluded from the computation of initial network turnout.

Supplemental survey evidence

The following figures draw from refugee samples included within the Norwegian Immigrant Living Conditions Surveys. The survey targets adults from the largest immigrant nationalities in Norway The results suggest that refugees have the means to interact with neighbors. Approximately a third of refugees report "good" language skills in the Norwegian language within the first three years after arrival. They also report interacting with neighbors frequently: recent arrivals are in fact more likely to report weekly contact with neighbors than cohorts that have spent more time within the country. Reported weekly interactions with friends serves as a reference category.

Figure A7: Self-Reported Language Skills and Social Contact



Samples include refugees only. Self-reported language skills: proportion indicating that their Norwegian ability was "good" or "very good" (1996, 2006, and 2016 surveys). Contact with neighbors/friends: proportion reporting at least weekly contact with these groups (1996 and 2006 surveys only). Error bars represent 95% confidence intervals.

The following table examines the degree to which voting is correlated with subjective attachment to Norway, using refugee samples from the 2006 and 2016 Immigrant Living Conditions Surveys. The results suggest that with attachment to Norway is positively correlated with participation in local elections. However, voting is negatively and weakly correlated with attachment to the origin country, as well as other group identities such as religiosity (proxied by weekly religious attendance). As a result, we interpret voting as an indicator of socio-political integration.

Table A25: Determinants of Voting, Immigrant Living Conditions Survey

	(1)	(2)	(3)	(4)	(5)	(6)
Attachment to Norway	0.039					0.031
	(0.006)					(0.009)
Attachment to Norway : 1 (Lowest)		-				
Attachment to Norway : 2		0.023				
		(0.076)				
Attachment to Norway : 3		−0.028				
		(0.060)				
Attachment to Norway : 4		0.056				
		(0.053)				
Attachment to Norway : 5		0.104				
		(0.051)				
Attachment to Norway : 6		0.147				
		(0.052)				
Attachment to Norway : 7 (Highest)		0.183				
		(0.051)				
2016 Survey Dummy	0.023	0.022				
	(0.018)	(0.018)				
Attachment to Origin			−0.007			−0.005
			(0.006)			(0.006)
Attachment to Origin : 1 (Lowest)				-		
Attachment to Origin : 2				0.130		
				(0.061)		
Attachment to Origin : 3				0.147		
				(0.058)		
Attachment to Origin : 4				0.115		
				(0.055)		
Attachment to Origin : 5				0.059		
				(0.052)		
Attachment to Origin : 6				0.008		
				(0.054)		
Attachment to Origin : 7 (Highest)				0.058		
				(0.047)		
Religious Attendance					−0.022	−0.021
					(0.029)	(0.029)
Constant	0.354	0.407	0.593	0.496	0.567	0.438
	(0.026)	(0.048)	(0.027)	(0.043)	(0.013)	(0.052)
Observations	3,335	3,335	1,784	1,784	1,804	1,777

Linear probability model. 2006 and 2016 Immigrant Living Conditions Survey (Models 1-2), 2016 Survey (Models 3-6). Samples include refugees only. The dependent variable is voting in the 2003 and 2015 local elections. Levels of attachment range from 1 (lowest) to 7 (highest). Models 1, 3, and 6 use a continuous indicator, while models 2 and 4 provide separate coefficients for each level of attachment.