

# Refugee Migration and Electoral Outcomes

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To estimate the *causal* effect of refugee migration on voting outcomes in parliamentary and municipal elections in Denmark, our study is the first that addresses the key problem of immigrant sorting by exploiting a policy that assigned refugee immigrants to municipalities on a quasi-random basis. We find that in all but the most urban municipalities, allocation of larger refugee shares between electoral cycles leads to an increase in the vote share for right-leaning parties with an anti-immigration agenda, and we show large differences in voters' responses to refugee allocation according to pre-policy municipal characteristics. However, in the largest and urban municipalities, refugee allocation has—if anything—the opposite effect on vote shares for anti-immigration parties. This coincides with a sharp divide in attitudes to refugees between urban and rural populations, which may be partly explained by distinctive interactions between natives and those with different background in cities and rural areas. Refugee allocation also has a large impact on the anti-immigration parties' choice of where to stand for municipal election, and we provide some evidence that it influences voter turnout.

*Key words:* Immigration, Political preferences, Re-distribution, Welfare, Quasi-random allocation.

*JEL Codes:* H53, I38

## 1. INTRODUCTION

Over recent years, an unprecedented number of individuals seeking refuge from war and political persecution have migrated to Northern Europe, with 1.26 (0.71) million refugees seeking asylum in the EU in 2016 (2017).<sup>1</sup> These events have caused considerable concern among centrist politicians, who fear they may play into the hands of populist parties. There are two key questions

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1. Eurostat database\migr\_asyappctza. UNCHR estimates that in 2015 alone, more than 800,000 migrants crossed from Turkey to Greece, along only one of several migration routes to Northern Europe (see [http://rmrp-europe.unhcr.org/2016\\_RMRP\\_Europe.pdf](http://rmrp-europe.unhcr.org/2016_RMRP_Europe.pdf)). The EU commission estimates 1.5 million refugees for 2016 and 0.5 million

in this debate. First, whether and to which extent refugee migrations of the type witnessed over the past years favour populist right-wing parties, and which parties along the political spectrum will lose votes. Second, is there heterogeneity in voting responses across regions, and are immigration-induced changes in voting behaviour mediated or exacerbated by particular regional factors such as economic conditions, crime, or past immigration. For instance, are citizens more likely to respond to immigration by voting for radical parties in constituencies with historically high immigration or crime?

One way to answer these questions empirically is to relate variation in voting outcomes to variation in immigrant settlement. This strategy, however, is problematic because immigrants sort into areas in which they want to live and work and such location choices may be related to the same factors that affect voting behaviour and/or are directly caused by the political preferences of populations in the receiving regions. In this paper, therefore, we take advantage of a policy that allocated refugees across all 275 Danish municipalities over a 13-year period (1986–98).<sup>2</sup> Exploiting the quasi-random variation in the timing of immigrant allocation to municipalities this allows us to estimate the causal impact of refugee allocation on voting outcomes.<sup>3</sup> The guiding principle of this allocation was to distribute refugees proportionally to pre-existing municipal populations. Importantly, municipalities could not influence the allocation process. Neither could they choose the timing of allocation or the number of refugees allocated to them, nor did they have any influence on the characteristics of the allocated refugees such as their socio-economic backgrounds. Hence, we can provide evidence that refugee allocations were not associated with past election outcomes. Our paper is thus the first that uses a quasi-random allocation design to pinpoint the *causal* impacts of refugee allocation on voting. Moreover, we can assess how these effects were influenced by pre-policy municipality-specific characteristics, using the variation among a large number of municipalities to which refugees were allocated and election results from three distinct electoral cycles.

We find that refugee allocation has a considerable effect on voting outcomes. Looking at municipalities with a population below the 95th percentile (which, for simplicity, we will refer to as “rural” municipalities throughout the paper), we find that a one percentage point increase in the refugee share of the municipal population between electoral cycles increases the vote share for anti-immigration parties by 1.34 in parliamentary and 2.32 percentage points in municipal elections. These are sizeable responses considering these parties’ overall vote shares of 7.60% (5.58%) in parliamentary (municipal) elections. However, the far right parties are not the only ones to gain. The centre-right parties similarly increase their vote share in response to refugee allocation, although to a lesser extent, while parties on the left side of the political spectrum lose. Overall, refugee allocation leads to a clear shift in the vote distribution towards the right of the political spectrum. On the other hand, voter responses to refugee allocation in the municipalities above the 95th size percentile (which, for simplicity, we will refer to as “urban” municipalities throughout the paper), are markedly different. Here, increased refugee allocation causes—if anything—a *decrease* in the vote share for anti-immigration parties. This signals a divide in the political responses of urban and rural populations to refugee allocation.

To shed more light on why the anti-immigration parties gained support following local settlement of refugees, we analyse the heterogeneity in responses across municipalities based on observable pre-policy characteristics. In particular, we look at municipality characteristics

for 2017 (see p. 51 of [http://ec.europa.eu/economy\\_finance/publications/eeip/pdf/ip011\\_en.pdf](http://ec.europa.eu/economy_finance/publications/eeip/pdf/ip011_en.pdf)). See [Dustmann et al. \(2007\)](#) for details of recent refugee movements.

2. In 1986, the medium municipality population size was 9,730 with a mean of 18,604.

3. Following the usual convention, we use the term “asylum seeker” for a person seeking asylum and the term “refugee” for a person whose asylum status has been approved.

that capture factors that may shape how individuals form opinions on refugee immigration. These factors include previous exposure to immigrants, crime, unemployment, the share of rich individuals, and the share of residents who actively support the church. Focusing first on the smaller and less urban municipalities, we find that the larger the share of previous immigrants in the municipality, the greater the effect on votes for anti-immigration parties given a specific increase in the refugee share. We further show that the effect of refugee allocation on voting for the extreme right is exacerbated by pre-policy crime in a municipality, and is stronger in areas with larger shares of more affluent individuals. On the other hand, the higher the share of the municipality population that pays church taxes (which we interpret as a measure of altruistic beliefs in the area), the lower the shift in votes to anti-immigration parties in response to refugee allocation.<sup>4</sup> We also find evidence that voters respond to the degree to which existing immigrant populations are welfare dependent, meaning that refugee allocation leads to a stronger shift of votes to the anti-immigration parties in municipalities where dependency rates of immigrants are higher.

Our findings for large and urban municipalities are quite different. The overall effect of refugee allocation on the vote shares of anti-immigration parties is negative or insignificantly different from zero in both parliamentary and municipal elections. Furthermore, we find that the effect is unaffected by most other pre-policy municipal characteristics including for example the share of previous immigrants. Decomposition analysis shows that differences in pre-policy municipal characteristics cannot explain the difference in vote share responses to refugee allocation between large and urban municipalities and small and more rural municipalities. Altogether, therefore, while we find considerable heterogeneity in municipal populations' voting responses to refugee allocation depending on their pre-policy characteristics, these pre-policy characteristics cannot explain the differences in voting responses between rural and urban municipalities.

We explore the possible reasons for the rural–urban divide in more detail in the last part of the paper. Using data both from several electoral surveys collected at the time the elections took place and from the European Social Survey (ESS), we show that attitudes reflecting concern about refugees and immigrants are strongly related to the likelihood to vote for an anti-immigration party. At the same time, these attitudes differ substantially between rural and urban municipalities, which is only partly explained by differences in age, gender, and educational composition. We show that those living in urban areas are more likely to have immigrants as friends or work colleagues and that this is associated with more positive attitudes towards refugees—in line with contact theory (Allport, 1954). On the other hand, those in rural municipalities are more exposed to refugees in their immediate neighbourhood. Such exposure, most likely perceived as involuntary, may enhance perceived threat from these communities and steer hostility, in line with group threat theory (see *e.g.*, Campbell, 1965; Sidanius and Pratto, 1999). Based on administrative data that allow us to measure the precise settlement of refugees within municipalities, we provide evidence that increased exposure is indeed associated with more negative attitudes towards refugees. Thus, those in rural and urban areas both encounter individuals with different background, but in different ways, which may shape their attitudes differently, and partly explain the urban–rural divide in attitudes and vote share responses.

Our paper is not the first to explore the effect of immigrant population density on attitudes or voting behaviour. For example, Dustmann and Preston (2007) examine the effect of resident

4. "Church tax", which like income tax is deducted from all taxable income, varies across municipalities and in 1985 amounted to between 0.4% and 1.6% of income. Paid on a voluntary basis by members of the Danish National (Lutheran) Church, the money is used to fund the church and its activities (renovation of churches and graveyards, education for children and youth, social assistance for the needy, and cultural events). In 2007, 83% of the Danish population were church members.

immigrant share on xenophobic attitudes, hypothesizing that it could either intensify negative attitudes as predicted by context theory (see *e.g.*, [Levine and Campbell, 1972](#)) or alleviate them as suggested by the contact hypothesis. As regards voting behaviour, although a number of earlier studies<sup>5</sup> investigate the more direct effect of immigrant share on voting for populist and anti-immigration parties, most fail to address the sorting problem. More recent papers, on the other hand, use IV-type strategies to investigate the link between immigration and voting for radical parties. For example, [Barone \*et al.\* \(2016\)](#), [Halla \*et al.\* \(2017\)](#), [Mendez and Cutillas \(2014\)](#), and [Otto and Steinhardt \(2014\)](#) examine voting outcomes in Italy, Austria, Spain, and Hamburg (Germany), respectively. They use an IV estimator similar to that employed by [Altonji and Card \(1991\)](#) to predict current immigrant stocks based on historical settlement.<sup>6</sup> [Harmon \(2017\)](#) and [Steinmayr \(2017\)](#) investigate voting behaviour among Danes and Austrians, respectively, based on an IV strategy that uses availability of living space as a predictor of immigrant settlement.<sup>7</sup> Our paper is also somewhat related to recent work by [Dahlberg \*et al.\* \(2012\)](#) on the impact of refugee placement in Sweden on popular support for redistribution, although these authors focus not on political outcomes but on whether Swedish residents are willing to preserve the existing social benefit level.

We contribute to this literature in several ways. While most of the before mentioned literature investigates economic migrants, our focus is on refugees—the group that has so dramatically affected the political debate in Europe and beyond. One major innovative advantage of our study is that instead of the IV approach used in previous work, we employ a design that exploits the quasi-random variation in refugee allocation to different municipalities over a sustained period that encompasses three electoral cycles. We also focus on *changes* in voting outcomes between two electoral cycles as a response to *changes* in refugee allocation, which allows eliminating municipal-constant factors and tighten our design even further. The large variation due to random assignment enables further exploration of channels that mediate the possible effect(s) of immigration on voting behaviour by interacting changes in refugee shares with municipal characteristics measured in the year preceding policy implementation. Rather than focusing on right-wing populist parties like most papers, we examine the entire spectrum of electoral outcomes.<sup>8</sup> By showing that not only anti-immigration but also centre-right parties gain from immigration-induced changes in voter behaviour while centre-left parties lose, we contribute important evidence to the debate on political radicalization through immigration and refugee allocation. We also contribute new evidence on two other aspects: voter turnout in response to immigration and how past refugee allocations affect the decisions of anti-immigration parties on whether to run in municipal elections. Our results indicate that refugee allocation increases voter turnout in municipality elections. We further find that anti-immigration parties respond strongly to refugee allocations when deciding in which municipality to stand. Further, we illustrate stark heterogeneity in vote share responses to refugee allocation according to pre-policy municipal

5. See, for example, [Lubbers \*et al.\* \(2002\)](#), [Campbell \*et al.\* \(2006\)](#), [Gerdes and Wadensjö \(2010\)](#), and [Jensen and Thomsen \(2013\)](#). For additional factors that contribute to the growth of anti-immigration parties unrelated to their stance on immigration, see [Andersen and Bjørklund \(1990\)](#), [Betz and Johnson \(2004\)](#), [Norris \(2005\)](#), [Simonsen \(2007\)](#), [Rydgren \(2010\)](#), and [Givens \(2012\)](#).

6. See [Ruist \*et al.\* \(2017\)](#) for a critical review of this methodology.

7. By focusing on how immigration affects voting on immigration issues in Switzerland and instrumenting the share of immigrants in a community with the share of foreigners in the local labour market, [Brunner and Kuhn \(2014\)](#) further show that anti-immigration votes are larger in communities with more culturally different immigrants.

8. [Gerdes and Wadensjö \(2010\)](#) investigate the association of immigration and vote shares for all parties separately, while [Harmon \(2017\)](#) considers anti-immigration and left wing parties, [Otto and Steinhardt \(2014\)](#) consider votes for the green party, [Mendez and Cutillas \(2014\)](#) focus on the ratio between vote shares for the two major parties, and [Steinmayr \(2017\)](#) considers anti-immigration votes as well as the aggregate vote share for all other parties.

characteristics, a result that puts into question random assignment policies. Finally, we show a rift in vote share responses between urban and rural municipalities. To explain this divide, we show that there are differences between rural and urban populations in attitudes towards refugees that are strongly associated with the likelihood to vote for anti-immigrant parties. We illustrate that such attitudinal differences are related, with opposite sign, to more voluntary contact of urban populations with immigrants, and more involuntary exposure to refugees by rural populations in their immediate neighbourhood.

We develop the remaining discussion as follows: Section 2 describes Denmark's voting system, its political parties, and the data used in the analysis; Section 3 outlines the conceptual framework and empirical methodology; Section 4 reports our findings, Section 5 investigates explanations for the rural–urban divide in vote share responses, and Section 6 concludes the paper.

## 2. BACKGROUND

### 2.1. *Political parties in Denmark*

Denmark is a representative democracy with parliamentary elections typically held once every 4 years and a multi-party political system comprising two large mainstream groups: the centre-left wing and the centre-right wing. Whereas the former is typically led by Social Democrats and the Social Liberal Party, the latter is led by Denmark's Liberal Party and the Conservative People's Party. In parliamentary elections, the electoral threshold (*i.e.*, the total votes a party must receive to enter parliament) is 2% (Folketinget, 2009).<sup>9</sup> Two other parties are positioned to the right of the centre-right: the Progress Party (PP, *Fremskridtspartiet*) and the Danish People's Party (DPP). The first, founded in 1972 on a libertarian platform, advocates the abolishment of income tax and large cuts in government spending. In the mid-1980s, the PP, capitalizing on growing anti-immigration sentiments that coincided with a stark increase in the number of asylum seekers, developed an anti-immigration agenda and established itself as the first Danish anti-immigration party (Rasmussen, 2004). In 1995, the party split, leading to the foundation of the DPP (Rydgren, 2010), which like the PP positioned itself as an anti-immigration party, but one closer to the political centre. In addition to advocating lower income taxes without progressive redistributive elements in the tax system and the reform of the public sector, the DPP supported publicly provided health care, care for the elderly, publicly financed education, and an increase in the tax-free earnings threshold (Dansk Folkeparti, 1997; Simonsen, 2007). It also maintained a strong economic program and used less extremist rhetoric to appeal to more central voters (Rydgren, 2004). The DPP gained an increasing share of votes partly at the expense of the PP, and also earned support among working-class voters. In 2001, the PP's share of votes fell below the electoral threshold of 2% and it has been unable to return to parliament since, whereas by 2015 the DPP had become the second largest party in the Danish parliament with stronger support in rural than in urban areas.<sup>10</sup>

Like parliamentary elections, municipal elections are held every 4 years, but the dates do not usually overlap with national elections. Moreover, whereas the right to vote in parliamentary elections is reserved for Danish citizens, European citizens and immigrants who have resided in Denmark for at least 3 years are eligible to vote in municipal elections. The same parties that are represented in parliamentary elections usually also run in municipal elections, although not

9. Furthermore, a party which is not represented in parliament must collect 1/175 of the total number of valid votes cast at the previous election as signatures in order to stand for the next parliament election (<http://valg.sim.dk/partier-og-kandidater.aspx>). Usually, these are around 20,000 signatures.

10. See <https://www.information.dk/indland/2015/06/valget-delte-danmark>.

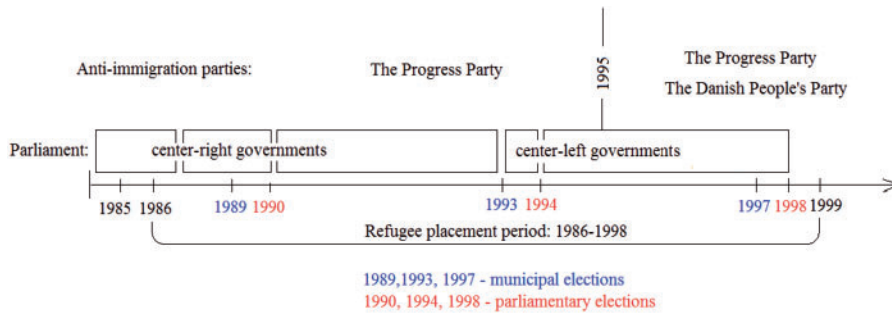


FIGURE 1

Danish elections, governments, and anti-immigration parties in 1986–98

necessarily in every municipality. In municipal elections, also local parties stand that focus on issues of particular concern for a certain municipality. Although there is no official electoral threshold for municipal elections, the party must receive enough votes to put at least one mandate on the municipal board.<sup>11</sup>

Our analysis focuses on the 1989–98 period, which includes three parliamentary and three municipal elections and covers most of the 1986–98 Danish Spatial Dispersal Policy. Figure 1 gives the dates of these elections and shows which parties were in government. From 1989 to 94, only the PP was running as an anti-immigration party but in the last year covered by the data (1997/1998) the DPP also participated in both parliamentary and municipal elections for the first time.<sup>12</sup> The growing concern during this period about refugees and immigrants was reflected by an increased public debate about asylum issues. Figure A1 therefore graphs the number of articles in which the term “refugee(s)” appeared in the Danish national print media between 1991 and 1998. As the figure shows, usage peaked in the municipal election years of 1993 and 1997 whereas no such peaks are evident in the parliamentary election years of 1994 and 1998.

Table 1 then lists the vote shares of all parties in the parliamentary and municipal elections taking place during our 1986–98 observation period, which are also broken down by election year in Table A1. Row 1 of Table 1 reports the sums of the vote shares for the two anti-immigration parties, the DPP and PP, which average 7.6% and 5.6% in parliamentary and municipal elections, respectively. Over the study period, the centre-left parties received an average of 51% (48%) of the overall votes at parliamentary (municipal) elections compared with the 34% (36%) received by the two major centre-right parties. Row 5 summarizes the votes received by a number of smaller parties that either support right or left or stay centrist.

## 2.2. Refugee migration and the Danish spatial dispersal policy

In 1956, following its 1952 ratification of the 1951 United Nations Convention on the Status of Refugees Denmark established the Danish Refugee Council (DRC), tasked with supporting asylum seekers in their application for refugee status and residence permits. In response to a large inflow of refugees in the early 1980s, the Danish Government implemented a policy in 1986

11. See [http://denstoredanske.dk/Samfund,\\_jura\\_og\\_politik/Samfund/Valgteorier\\_og\\_valgmetoder/kommunalvalg](http://denstoredanske.dk/Samfund,_jura_og_politik/Samfund/Valgteorier_og_valgmetoder/kommunalvalg).

12. The voting statistics for all the political parties in parliamentary elections are from the Danish Ministry of Social Affairs and the Interior (<http://sim.dk/arbejdsomraader/kommuner-og-regioners-styrelse/publikationer.aspx>), while those for municipal elections are from Statistics Denmark's municipal voting database (<http://www.statbank.dk/statbank5a/default.asp?w=1920>).



TABLE 1  
*Voting outcomes*

	Parliament elections		Municipality elections	
	Mean	Standard deviation	Mean	Standard deviation
Vote share for: anti-immigration parties (PP and DPP)	7.60	2.84	5.58	3.29
The PP	5.12	3.11	3.85	3.14
Centre-left parties	51.19	9.61	48.36	13.10
Centre-right parties	34.28	8.45	35.64	12.23
Other (centre small) parties	6.93	2.38	10.42	9.75
Turnout	84.28	2.68	69.71	5.64
Election cycle change in turnout	1.54	0.88	1.25	2.98

*Notes:* Danish Parliament elections 1990–8. Danish municipal elections 1989–97. Voting statistics from the Danish Ministry of the Interior, Statistics Denmark's Database, Statistical Yearbooks for municipal elections, and the “Municipal elections in municipalities and counties on the 21 November, 1989” statistical book. See Tables A1 and A4 in the Appendix for vote shares broken down by election year and for a detailed description of data construction. Means are weighted by municipality population size in 1986.

through the DRC whose guiding principle was equal distribution of refugees across counties and municipalities according to pre-existing populations. This allocation was implemented as a two-stage process. In the first stage, individuals who received asylum (*i.e.*, obtained “refugee status” and became “refugees”) were allocated to one of the fifteen counties of Denmark proportional to the counties’ populations.<sup>13</sup> In the second stage, refugees were allocated to municipalities within counties, again relative to the population size in these municipalities. The equal allocation across municipalities within a county was aimed to be achieved over a 3–5 years period.<sup>14</sup> For that purpose, the DRC established regional offices in the counties, which changed location regularly to ensure equal distribution of refugees across municipalities within counties over a longer term. According to the Ministry of Interior, “The distribution [across municipalities] is sought to be obtained over a period of 3–5 years moving integration offices regularly from some municipalities to others within the county” (Ministry of the Interior, 1993, p. 44).<sup>15</sup> This creates variation across municipalities in the short term that we utilize for identification. We illustrate this in Appendix Figure A2, which shows that municipalities receiving the largest refugee share between the first two electoral cycles tend to receive fewer refugees between the second and third electoral cycle, and *v.v.*

Importantly, municipalities had no influence on the allocation process. This is a key prerequisite for our identification strategy as it excludes that past election results can influence future refugee allocations. Municipalities could neither choose the timing of allocation or the

13. “Since 1985 the Danish Refugee Council’s geographical distribution of refugees has aimed at distributing refugees relatively equally relative to the population in each county [...]”. (Danish Refugee Council, 1988, p. 8).

14. Letter from the Minister of Social Affairs to municipalities and counties (copies to the DRC received on the 26 March 1987): “If the integration policy shall succeed, it is essential that all municipalities participate in the task. [...] A completely equal distribution each month or year would not be appropriate to practice. [...] Over a longer period the possibility for a more equal distribution will be greater. [...] The distribution will aim at municipalities receiving an equal number of refugees relative to the population size. [...]”

15. “To obtain a reasonable distribution of the burden between municipalities, the committee recommends a kind of rotation scheme where integration offices move from one town to another.” (Danish Refugee Council, 1988, p. 5). “During 1985 and 1986 one center in each county [...] was established and sub-centers of these centers were established in 35–47 towns spread across the country. [...] Sub-centers were closed and opened in other towns within the county when [...] the goal of a balanced average number of refugees relative to the population size had been reached in the given area (Note to the Public Accountants in relation to inspection of the refugee administration on 25–26 August 1988, p. 1).

number of refugees allocated to them, nor did they have any influence on the socio-economic background or other characteristics of refugees. This type of information was also not available to the refugee council. The DRC only informed municipal authorities that they had assisted a refugee to find housing in the area after that individual had settled in the municipality. Since over time the composition of refugees arriving in Denmark changed, the within-county rotation scheme will have led to some clustering of individuals from the same origin in some municipalities.<sup>16</sup> Also, while the overriding principle was equal allocation, the DRC took account of “the need of refugees for social interaction with their fellow countrymen” which suggests that groups of individuals from the same origin may have been allocated together. We show below that neither skill composition nor origin composition of allocated refugees is associated with past election results.

During the assignment process, the DRC did not take refugees’ location preferences into account. While reassignment requests were considered, this happened only *after* the individual had moved into the assigned municipality. Our identification strategy therefore relies on the original share of refugees *assigned* to each municipality.

The equal allocation policy was subject to municipalities having the necessary resources to accommodate refugees, in particular rental housing units. We account for this in our estimation strategy. Further, the policy took into account the number of existing immigrants before the start of the policy in 1985. This only has consequences for the two municipalities Copenhagen and Frederiksberg that constitute the capital, and that had large non-European immigrant populations before the start of the allocation policy.<sup>17</sup>

The policy was in place from 1986 until 1998. In 1998, a new spatial dispersal policy on refugees was voted by the Danish Government as part of the Danish Integration Act. It was implemented on the 1 January 1999 and is still in place today. This new policy allows municipalities in each county to negotiate the municipal quota with the Danish Immigration Service. Further, municipalities can affect the number of assigned refugees, and the Danish Immigration Service takes into account individual wishes about location of assignment. As the features of the after-1998 policy invalidate our design, we focus our analysis on the period up to 1998.

### 2.3. *Population size and refugee assignment*

Over the 1986–98 period, 76,673 individuals were granted refugee status and allocated across municipalities (Statistics Denmark 1992, 1997, 2000) in accordance with the allocation policy.<sup>18</sup> We display the allocated refugees as a share of the Danish population in 1986 in Figure A3. As the figure shows, this share approaches 0.8% in 1998.<sup>19</sup>

Two years after the introduction of this allocation policy, refugees had been assigned to 243 out of 275 Danish municipalities (Danish Refugee Council, 1987, pp. 30–31) and their geographical distribution closely resembled that of the overall population. Figure 2a, which plots the 1986 population size against the number of refugees allocated in 1986–98, reveals that counties with

16. For instance, from 1989 to 93, 68% of all allocated refugees were from the Middle-East, roughly 11% were from Africa and 22% from Asia. Over the period 1993–7 the share of middle-eastern refugees fell to 47%, while the share of African refugees increased to 40%, and the share of Asian refugees fell to 13%.

17. In robustness checks, we illustrate that exclusion of these municipalities does not affect our estimates much.

18. The average total population of Denmark over the 1986–98 period was 5.2 million.

19. We exclude refugees from the former Yugoslavian countries who arrived in Denmark during the Balkan wars. These refugees were subject to a special refugee dispersal policy implemented in 1993, which did not fulfil the requirements of our design. We show in Table A2 that the allocation of these refugees is orthogonal to the allocation of refugees dispersed under the dispersal policy.



larger populations received larger numbers of refugees. Figure 2b then plots the same numbers for municipalities, revealing reciprocity between municipality size and refugee allocation on this level. The figure also illustrates municipal size heterogeneity, with the urban centres of Copenhagen, Aarhus, Odense, Aalborg, and Frederiksberg being the largest. Finally, Figure 2c illustrates the relation between the 1986 population size and refugee allocation over the time of the policy for these 95% smaller municipalities. The slope of the regression line is 0.008, which corresponds to 0.8% overall share of refugees allocated under the policy between 1986 and 1998 (Figure A3). Although the strong relation between allocated refugees and pre-policy population size is again apparent, there is also much variation in allocation numbers between similarly sized municipalities. This variation is a result of the fact that this particular dispersal policy was only in place for a limited period of time and the regional office rotation scheme in conjunction with a large variation in yearly inflows. Together, this left some municipalities with a lower proportion of refugees at the end of the policy period.

It is not this variation in refugee allocation between municipalities, however, that we use for identification in our analysis. Rather, we employ the within-municipality variation *between two electoral cycles* as illustrated in Table A3. As the table shows, although the mean share of refugees allocated from 1986 up to each parliamentary election year is about 0.38%, there is substantial variation not only between but also within municipalities. Substantial within-municipality variation is also observable in the *changes* in refugee shares between the two electoral periods (row 2).

#### 2.4. Data

We derive our data from two primary sources: Statistics Denmark's micro-level registers and its publicly available databases of municipal-level variables. To identify refugees over the 1986–98 period, we use micro-level data from the Danish population register. Specifically, we first identify the municipality of initial placement and then calculate the share of refugees *allocated* to each separate municipality from 1986 until the year preceding each election year. To avoid possible correlation between the refugees' re-allocation decisions and factors that influence voting behaviour, we use the cumulative share of *allocated* refugees rather than the number of refugees residing in the municipality.<sup>20</sup> Likewise, when computing the share of allocated refugees in municipal populations, we use the local population size at the beginning of 1986 rather than population sizes for each respective year.<sup>21</sup>

We then use information from population, education, income, labour, and socio-economic registers to construct variables that characterize the municipality in 1985, the year before refugee dispersal began. These municipality characteristics include the share of immigrants, mean log gross earnings per capita, the share of rich,<sup>22</sup> the share of immigrants, crime rates, the share of those who pay church taxes, the local unemployment rate, the share of individuals with tertiary education, and the welfare dependency of immigrants. To create these variables, we first compile demographic information such as age, personal, and family income; employment data; and education level for each individual residing in a municipality in 1985. We then aggregate these data to municipality level and construct the shares corresponding to each municipality's

20. Since family reunified refugees were not subject to the dispersal policy unless they immigrated shortly after their spouse, we exclude spouses and children of refugees who immigrated to Denmark more than 12 months later.

21. We show below that there is no evidence of natives leaving municipalities as a response to refugee allocations.

22. We define a rich individual as an adult whose disposable income as a household member is above 50% of the Danish median.

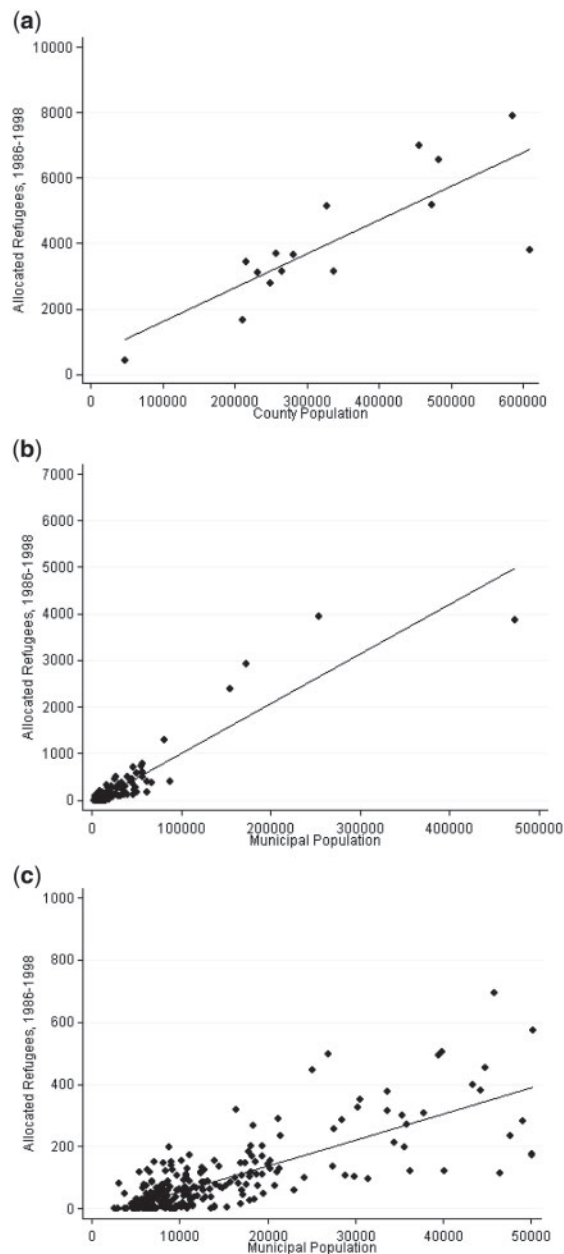


FIGURE 2

- (a) Allocated refugees versus Danish county population. (b) Allocated refugees versus Danish municipal population.  
 (c) Allocated refugees versus municipal population, 95% smallest municipalities

*Notes:* (a) Vertical axis: Number of refugees allocated between 1986 and 1998. Horizontal axis: local county population in 1986. Slope of the regression line: 0.0103. (b) Vertical axis: Number of refugees allocated between 1986 and 1998. Horizontal axis: local municipal population in 1986. Slope of the regression line: 0.0107. (c) Vertical axis: Number of refugees allocated between 1986 and 1998. Horizontal axis: local municipal population in 1986. Slope of the regression line: 0.0083.

*Source:* Own calculations based on Statistics Denmark register data.

population. Lastly, we standardize these variables to have a mean of 0 and a standard deviation of 1 (see Table A4 for detailed variable definitions and data sources).

## 2.5. *Descriptive statistics*

Our analysis focuses on the overall pool of refugees received over the 1986–98 random allocation period who initially received a permanent residence permit. The origin countries of these refugees are Lebanon, Iran, Iraq, Somalia, Sri Lanka, Vietnam, Afghanistan, Ethiopia, along with refugees without a citizenship—similar to those of the recent refugee movements to Europe. We profile the refugees and the municipalities to which they were allocated in Table A5 and Table 2. About 61% of the refugees were male, and one in two arrived with family. They also tended to be young, twenty-five on average, but also rather poorly educated with only 25% having at least one professional qualification compared with 45% of native Danes in the same period. Perhaps not surprisingly, therefore, they experienced remarkably high initial non-employment rates with 96% remaining unemployed 2 years after approval of their asylum application,<sup>23</sup> although this number decreased to about 68% after 10 years.

## 3. THEORETICAL CONSIDERATIONS, EMPIRICAL METHODOLOGY, AND INTERPRETATION

### 3.1. *Conceptual considerations*

According to contact theory (Allport, 1954), interaction between ethnic groups can lead to more understanding and reduction of prejudice under four conditions: equal group status, common goals, intergroup cooperation, and authority support. Pettigrew (1998) stresses that—unless these circumstances are met—intergroup interaction may negatively affect prejudice, a hypothesis that finds support in empirical research by, *e.g.*, Brooks (1975) and Bradburn *et al.* (1971).

Other hypotheses in the social sciences emphasize negative responses to inflows of identifiable newcomers. Economists, for example, usually point out that individual attitudes towards and opinions on immigrants are driven by concerns of economic self-interest, affecting labor market opportunities, neighbourhood, and quality of life (see *e.g.*, Downs, 1957; Scheve and Slaughter, 2001; Dustmann and Preston, 2007; Facchini and Mayda, 2009). Attitudes towards minority groups may also be determined by a wider sense of collective threat from groups competing against the majority's economic, social, and cultural dominance (see the seminal work by Key (1949); see also Blumer (1958); Blalock (1967); Bobo (1983)). Campbell (1965) categorizes a variety of theories that link inter-group relations to inter-group competition for real resources under the rubric “realistic group conflict theories” (RGCT). Modern versions of this framework posit that competition between groups engenders the belief in a “group threat,” which in turn leads to prejudice and negative stereotyping by members of one group against the other while simultaneously bolstering within-group cohesion (Sidanius and Pratto, 1999). In line with this perspective, Quillian (1995) and Lahav (2004) argue that the larger the fraction of immigrants already in the country, the larger the threat natives perceive from additional immigrants. Similarly, Taylor (1998) suggests that increased exposure to the group posing the threat increases the threat's salience, implying that natives living in high-immigrant areas will be more opposed to refugee allocation. A further RGCT prediction is that “resource stress” (Esses *et al.*, 2001) or “economic vulnerability” (Citrin *et al.*, 1997) will enhance perceptions of the threat posed by competing

23. Non-employment is defined as being unemployed or not in the labour force at ages 18–65 years. In Denmark, both groups are entitled to some type of benefit.

TABLE 2  
Summary statistics

	All municipalities		Smallest 95% municipalities		Largest 5% municipalities	
	Mean	SD	Mean	SD	Mean	SD
Panel A: Municipal population size per 1 January 1986	18,604.19	36,199.89	13,282.26	10,243.69	125,861.62	120,656.61
Population	Mean	SD	Mean	SD	Mean	SD
Panel B: Municipal characteristics 1985. Weighted by municipal population size per 1 January 1986	Mean	SD	Mean	SD	Mean	SD
Mean log gross income per capita	11.44	0.12	11.43	0.13	11.45	0.12
Mean age	45.68	2.24	45.48	2.29	46.09	2.14
Share of rich (50% above Danish median income) in local population (%)	14.48	6.19	15.26	6.50	12.84	5.29
Share of immigrants (first and second generation) (%)	3.27	2.55	2.40	1.86	5.12	2.91
Reported crime rate (%)	9.36	3.97	7.73	2.19	12.83	4.80
Share of native population paying voluntary church tax (%)	83.22	3.90	84.70	2.66	80.07	4.38
Share of unemployed in labour force (%)	7.43	2.30	6.81	2.16	8.77	2.06
Share of welfare dependent among immigrants (%)	48.98	7.26	46.58	7.41	54.10	3.16
Share with a tertiary education among those younger than 65 (%)	10.49	3.78	9.62	3.57	12.33	3.57
Share of vacant rental housing (%)	0.96	0.40	0.80	0.33	1.30	0.30
Panel C: Refugee characteristics the year of immigration. Weighted by municipal population size per 1 January 1986	Mean	SD	Mean	SD	Mean	SD
Upper secondary or primary school education	0.17	0.10	0.16	0.12	0.18	0.03
Primary school	0.11	0.08	0.11	0.10	0.11	0.03
Upper secondary education	0.06	0.06	0.05	0.07	0.07	0.02
Qualifying education	0.09	0.10	0.09	0.13	0.09	0.02
Tertiary education	0.10	0.09	0.09	0.11	0.11	0.02
Missing education	0.64	0.16	0.65	0.19	0.62	0.06
Municipality received 0 refugees (0/1)	0.13	0.33	0.18	0.39	0.00	0.00

Notes: Municipality variables measured in 1985. Municipal characteristics are constructed from Population, Income, Education, Labour force, and Socioeconomic registers owned by Statistics Denmark. Please see Table A4 for the detailed description of data construction. Means are weighted by municipality population size in 1986.

groups, an assumption that is highly relevant when areas experiencing economic difficulty are exposed to refugee allocation.

Thus, these theories suggest that the presence or allocation of individuals of different backgrounds in one's immediate neighbourhood may trigger prejudice (and ultimately affect voting behaviour), by generating a sense of collective threat or individual disadvantage, unless such interaction is taking place under particular conditions, as suggested by the contact hypothesis. Making use of the heterogeneity across municipalities in pre-policy characteristics, we investigate below how the effect of inter-cycle changes in refugee allocation on voting outcomes for anti-immigrant parties is exacerbated or mitigated by the receiving municipality's characteristics. Using attitudinal data from various surveys and detailed information on the settlement pattern of refugees within municipalities, we will further explore the channels that may lead to heterogeneous vote share responses to refugee allocation across municipalities.

### 3.2. Estimation and identification

To identify the effect of refugee allocation on voting outcomes, we regress the *change* in the vote shares of political party  $p$  in municipality  $i$  between election year  $t-1$  and  $t$ ,  $\Delta VS_{it}^p$ , on the *change* in the share of refugees relative to the municipality's total population at the beginning of 1986 allocated to that municipality between the same two election years,  $\Delta RS_{it}$ :

$$\Delta VS_{it}^p = \alpha_1^p \Delta RS_{it} + \Delta \tau_t^p + \Delta \varepsilon_{it}^p \quad (3.1)$$

where  $\Delta \tau_t$  are time-fixed effects. This difference equation eliminates any municipality-specific characteristics that may affect voting outcomes and refugee allocation alike such as the stock of available housing at the beginning of the assignment policy.<sup>24</sup> Our parameter of interest is  $\alpha_1^p$ , the effect of the share of allocated refugees on the voting share for party group  $p$ . As  $\Delta RS_{it}$  measures the change in the share of *allocated* refugees this parameter has an intention-to-treat (ITT) interpretation. Because  $\sum_{p=1}^4 \Delta VS_{it}^p = 0$ , the  $\alpha_1^p$  sum to zero and can therefore be interpreted as the percentage point change in vote shares from election year  $t-1$  to election year  $t$  for party  $p$  induced by a one percentage point change in refugee allocation over the same period.

Consistency of the estimate of  $\alpha_1^p$  requires that  $RS_{it}$  is strictly exogenous in Equation (3.1), i.e.,  $E(\Delta \varepsilon_{it}^p | RS_{is}) = 0 \forall s$ , which excludes that past election outcomes affect future refugee allocations. This is ensured by the assignment policy in place over the study period, which precludes any possibility that a policy shock that increases the anti-immigration parties' vote share in the past electoral cycle will lead to a lower share of allocated refugees in period  $t$  (see Section 2.2). We will nevertheless test this assumption below.

We allow for different responses of smaller, rural municipalities, and larger, urban municipalities, by estimating

$$\Delta VS_{it}^p = b_1^p \Delta RS_{it} + b_2^p \Delta RS_{it} D_{ix} + \Delta \tau_t^p D_{ix} + \Delta u_{it}^p, \quad (1-a)$$

where the dummy variable  $D_{ix}$  indicates whether municipality  $i$ 's size is above the  $x$ th percentile of the municipality size distribution.<sup>25</sup>

We are also interested in whether municipal characteristics in the pre-policy year of 1985,  $Z_{i0}$ , mitigate or exacerbate the effect of refugee allocations on vote shares for anti-immigrant parties.

24. The underlying level equation is  $VS_{it}^p = \alpha_0^p + \alpha_1^p RS_{it} + \gamma_i + \tau_t^p + \varepsilon_{it}^p$ , where the  $\gamma_i$  denote municipality fixed effects.

25. In most specifications, we will distinguish between the 5% largest and urban and the 95% smallest and more rural municipalities.

We therefore extend Equation (3.1) by adding interaction terms between these municipality characteristics and the share of allocated refugees to estimate<sup>26</sup>

$$\Delta VS_{it}^p = \beta_1^p \Delta RS_{it} + \beta_2^p \Delta RS_{it} \times Z_{i0} + \Delta \tau_t^p + \Delta e_{it}^p. \quad (3.2)$$

The variables  $Z_{i0}$  are normalized to have a mean of 0 and a standard deviation of 1 based on the 1985 distribution across 275 municipalities. Again, because the  $\beta_1^p$  sum up to zero over all parties  $p$ , the estimated parameters for  $\Delta RS_{it} \times Z_{i0}$  also sum to zero over all parties. We estimate the two specifications separately for parliamentary and municipal elections using interactions.

#### 4. EMPIRICAL ANALYSIS

##### 4.1. Testing the identifying assumptions

To verify that past election results do not affect present refugee allocations, an intuitive test is whether past changes in the municipal council's seat (or vote) composition (*i.e.*, between election years  $t-2$  and year  $t-1$ ),  $\Delta YS_{it-1}^p$ , affect current changes in the share of allocated refugees to that municipality (*i.e.*, between  $t-1$  and  $t$ ),  $\Delta RS_{it}$ . In addition to vote shares, we compute seat shares after each municipal election for all election years. Seat and vote shares are highly correlated in municipal elections—with correlation coefficients being 0.98 for centre-left and small centre parties, 0.97 for centre-right parties and 0.88% for anti-immigration parties (based on 1989/1993 data). We then estimate the following regression model:

$$\Delta RS_{it} = d_1 \Delta YS_{it-1}^p + \tau_t^p + e_{it}^p. \quad (4.3)$$

Results are reported in Table 3.<sup>27</sup> The estimates in Panels A and B suggest that there is no systematic impact of changes in vote or seat shares over the past election cycle on the allocated share of refugees over the current election cycle. Changes in the lagged seat (vote) share of anti-immigration parties are—if anything—positively related to the allocation of refugees.

We also estimate models where we regress the allocation of refugees on changes in the vote shares for anti-immigrant parties, lagged by one, two, and three periods (first two columns of Panel C). As the design of the allocation policy to rotate allocation across municipalities over time may create a mechanical correlation between current and past refugee allocations, we also estimate these specifications conditioning on past refugee allocations (last two columns of Panel C). Estimates show no systematic relation between lagged changes in vote shares and current refugee allocations, neither conditional nor unconditional on past refugee allocations.<sup>28</sup>

A more general test for the validity of our design is the strict exogeneity test suggested by Wooldridge (2010), which corresponds in our case to testing whether  $\gamma$  is significant in the regression:

$$\Delta VS_{it}^p = b_1^p \Delta RS_{it} + \gamma^p RS_{it} + \Delta \tau_t^p + \Delta e_{it}^p, \quad (4.4)$$

A test for strict exogeneity is then a test of the null hypothesis  $H_0: \gamma = 0$  against the alternative  $H_1: \gamma \neq 0$ . We have implemented this test for the main specifications we estimate below and report results in Table A7. In none of the cases, the null hypothesis can be rejected.

26. It should be noted that the levels of the variables in  $Z_{i0}$  are eliminated through differencing.

27. We focus on municipal elections, as the national parliament is unlikely to implement a policy that addresses the concerns of a particular municipality. Results for parliamentary elections are in line with those reported here. For instance, for anti-immigrant parties, we estimate  $d_1$  to be 0.0069, with standard error 0.0102.

28. We have also regressed the allocation of refugees over the current election cycle on lagged change in turnout. Again, there is no systematic relation between these variables, see Table A6.



TABLE 3  
*Balancing tests*

Dependent variable Explanatory variable	$\Delta$ Share of allocated refugees in % of local population, 4 years after election			
	Centre-left	Other (centre small)	Centre-right	Anti-immigration
Panel A: Lagged vote shares				
$\Delta$ Share of votes, lagged	0.0012 (0.0030)	−0.0048** (0.0022)	0.0026 (0.0023)	0.0078 (0.0051)
Time FE			No	
Number of municipalities			275	
N			275	
Panel B: Lagged share of seats				
$\Delta$ Share of seats, lagged	−0.0038 (0.0025)	0.0015 (0.0023)	0.0008 (0.0014)	0.0058* (0.0031)
Time FE			Yes	
Number of municipalities			275	
N			550	
Panel C: Multiple lagged vote shares for anti-immigration parties				
$\Delta$ Share of votes for anti-immigration parties, lagged	0.0090* (0.0054)	0.0074 (0.0057)	0.0005 (0.0049)	−0.0002 (0.0049)
$\Delta$ Share of votes for anti-immigration parties, lagged 2	0.0033 (0.0049)	0.0041 (0.0050)	−0.0039 (0.0042)	−0.0033 (0.0042)
$\Delta$ Share of votes for anti-immigration parties, lagged 3		0.0105** (0.0048)		0.0061 (0.0037)
F-test of voting shares joint significance	1.390	2.559	0.619	1.254
Prob > F	0.251	0.0554	0.539	0.291
Conditional on lagged refugee shares		No		Yes
Time FE			No	
Number of municipalities			275	
N			275	

Notes: Danish municipal elections 1989–7. Estimates are weighted by municipal population size. Share of allocated refugees is calculated as the cumulative number of refugees allocated since 1986 until the year prior to election year as percent of local population in 1986. Mean of the election cycle change in share of allocated refugees is 0.13% in Panel A and Panel C and 0.14% in Panel B. Panel A and Panel C relate only to 1993–7, and Panel B relates only to 1989–7. In Panel C, we condition on lagged refugee shares and twice lagged refugee shares in Columns (3) and (4). Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

#### 4.2. Additional balancing tests and native out-migration

The design of the allocation policy suggests that educational composition and composition according to origin groups of allocated refugees is uncorrelated with past election outcomes. To investigate this, we report in Table A8 estimates where we regress the share of refugees in different educational categories allocated to a municipality between two electoral cycles on the lagged share of votes for anti-immigration parties (Columns 1–6). All these estimates are small and insignificant, as is the relation between the municipality having received no refugees over the past electoral cycle and the lagged share of votes for anti-immigration parties (Column 7).

We then run similar regressions, where the dependent variable is now the share of allocated refugees from three different origin groups which are Middle-Eastern (Iraq, Iran, Lebanon, Afghanistan), African (Somalia, Ethiopia), and Asian (Vietnam, Sri Lanka) (see Table A9 in the Appendix). Again, the estimates suggest no systematic relation between the lagged change in the share of votes or seats for anti-immigration parties and the current allocation share of refugees from any of these three groups. This confirms our conjecture based on the policy design that municipalities were not able to influence the socio-economic composition or origin of refugees allocated to them.

As we point out above, estimation of Equation (3.1) is robust to pre-policy municipal characteristics  $Z_{i0}$  affecting refugee allocation. However, interpretation of Equation (3.2) assumes that  $E(\Delta e_{it}^p | \Delta RS_{it} \times Z_{i0}) = 0$ . This assumption may be violated if differencing does not eliminate all components in the error term that are correlated with pre-policy municipal characteristics. To check whether refugee allocation is balanced with respect to pre-policy municipal characteristics, we regress the municipal allocation of refugees over the sample period on the variables in  $Z_{i0}$ . As we distinguish below between urban and rural municipalities (*i.e.*, between the 5% largest and 95% smallest municipalities), we do the same here. Further, as housing considerations may have affected the allocation policy of the council, we present these balancing tests conditional and unconditional on the available rental housing stock in the base period.

The estimates in Columns 1 and 2 of Table A10 show that refugee allocations are not correlated with municipality characteristics in the base period for the 95% more rural municipalities, both conditional and unconditional on the stock of available housing. For the 5% urban municipalities, some of the pre-policy municipal characteristics turn out significant such as the share of immigrants and log gross income. This may be driven by the capital municipalities Copenhagen and Frederiksberg that received many non-Western immigrants already before the policy was implemented and that were therefore treated slightly differently during the allocation phase (see our discussion in Section 2.2). When we exclude these two municipalities, none of the pre-policy characteristics is significant, conditional on the initial housing stock (see Column 6). Below, we therefore report robustness checks where Copenhagen and Frederiksberg are excluded.

One additional concern may be that natives leave areas as a response to the allocation of refugees. To investigate this possibility, we compute the mobility of natives across municipalities based on data from the Danish Population registers and construct a variable of the net share of native adults who leave a municipality between election cycles. We then regress this variable on refugee allocation following Card (2001). The estimates show no significant relation between refugee allocation and native net outflows.<sup>29</sup>

#### 4.3. Main results

Table 4(a) summarizes the Equations (3.1) and (1-a) (for  $x=95\%$ ) results for parliamentary elections, separately listing estimates for centre-left, other (centre-small), centre-right, and anti-immigration parties. Panels A and B, respectively, report the results with each municipality given either equal weight or weighted by population size.

Estimates in Panel A suggest a considerable positive effect of refugee allocation on vote shares not only for the anti-immigration parties but also for centre-right parties, while vote shares for the centre-left parties and small centre parties decline. Weighting the municipalities by population size (Panel B) greatly reduces both the magnitude and the precision of the results. Given that the large urban municipalities are weighted more, the difference in findings across panels must be the result of different voter responses to changes in the allocated refugee shares in urban municipalities.

To investigate this supposition further, we allow the voting response to differ between the 5% largest municipalities and all other municipalities (see Panel C). The estimates for all municipalities, except the largest, are now similar to the unweighted results in Panel A. For the 95% smaller municipalities, a one percentage point (one standard deviation) increase in allocation share increases the anti-immigration party vote share by 1.3 (0.2) percentage points or, relative to their average 7.6% vote share, by 17.6% (3.2%). The centre-right parties also gain 0.8

29. The effect of refugee allocation on native net outflow is 0.149 with a standard error of 0.363.

TABLE 4  
Allocation of refugees and voting behaviour, (a) parliament elections and (b) municipal elections

(a)	ΔShare of votes for			
	(1)	(2)	(3)	(4)
Dependent variable	Centre-left	Other (centre small)	Centre-right	Anti-immigration
Panel A: Unweighted				
ΔShare of allocated refugees in % of local population	-1.311*** (0.477)	-1.296** (0.502)	1.053*** (0.393)	1.554*** (0.300)
Panel B: Weighted				
ΔShare of allocated refugees in % of local population	-0.702 (0.985)	-0.481 (1.375)	0.451 (0.738)	0.732 (0.487)
Panel C: Weighted, indicator for five pct. largest				
ΔShare of allocated refugees in % of local population	-1.365** (0.538)	-0.799 (0.489)	0.821** (0.386)	1.343*** (0.392)
ΔShare of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	5.124* (2.794)	0.264 (3.428)	-0.258 (1.880)	-5.130*** (1.556)
ΔShare of allocated refugees in % of local population for the 5% largest municipalities (sum of the two estimates from Panel C)	3.759 (2.742)	-0.535 (3.393)	0.563 (1.840)	-3.787** (1.506)
Time FE				
N			Yes	
			550	
Number of municipalities			275	
(b)				
Panel A: Unweighted				
ΔShare of allocated refugees in % of local population	-1.548 (1.356)	-3.465** (1.690)	2.407* (1.385)	2.606*** (0.742)
Panel B: Weighted				
ΔShare of allocated refugees in % of local population	0.815 (1.998)	-3.767*** (1.274)	0.531 (1.495)	2.422*** (0.921)
Panel C: Weighted, indicator for five pct. largest				
ΔShare of allocated refugees in % of local population	-3.327** (1.486)	-0.421 (1.574)	1.433 (1.446)	2.315*** (0.808)
ΔShare of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	14.940*** (5.239)	-4.097 (2.899)	-6.792* (4.065)	-4.044** (1.913)
ΔShare of allocated refugees in % of local population for the 5% largest municipalities (sum of the two estimates from Panel C)	11.613** (5.024)	-4.518* (2.434)	-5.359 (3.799)	-1.729 (1.734)
Time FE			Yes	
N			550	
Number of municipalities			275	

Notes: Danish Parliament elections 1990–8 and Danish municipal elections 1989–97. Share of allocated refugees are calculated as the total cumulative number of refugees allocated from 1986 to the year prior to the election year as percent of local population in 1986. Mean of the election cycle change in share of allocated refugees: (a) 0.14% and (b) 0.13%. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

percentage point in vote share for each percentage point increase in refugee allocation over the previous 4 years, although their vote share is so large that this increase translates into a smaller percentage change. On the other hand, left-leaning centrist parties lose votes, as does the centre left. In contrast, voters in the 5% largest municipalities respond to refugee allocation by *reducing* their votes for far right-leaning parties and increasing their vote share for centre-left parties. A one-percentage point increase in refugee allocation *decreases* in these municipalities the vote share for anti-immigrant parties by 3.8 (5.1–1.3) percentage points. Our estimates therefore point to sharply different voter responses in rural and urban areas.

Table 4(b) reports the same estimates for municipal elections, which, like those for parliamentary elections, show refugee allocation increasing vote shares for anti-immigrant parties. Although this pattern is visible in both unweighted and weighted regressions, voting share responses to refugee inflows are again different in the largest municipalities with a voter tendency to reduce the vote share for anti-immigration parties and increase it for left-centre parties. The overall effect of refugee allocation on vote shares for anti-immigration parties for large municipalities of  $-1.7$  (last row of Panel C) is not significantly different from zero ( $\text{StdE} = 1.7$ ) but coefficient estimates for the more rural municipalities are larger than for parliamentary elections.

Our sample consists of 275 municipalities, and the 5% largest municipality constitute thirteen municipalities or twenty-six observations, so that estimates could be sensitive to outliers. To investigate the sensitivity of these results and the different response between small and large municipalities, we estimate Equation (1-a) allowing  $x$  (the percentile at which the dummy variable  $D_{ix}$  switches to 1) to vary from the 100th to the 20th percentile. We display, for the anti-immigration parties, estimates of  $b_1$  and  $b_1 + b_2$  together with the 95% confidence intervals (vertical lines) in Panels A and B of Figure 3 for parliamentary and municipal elections, respectively. Each dot in the graphs is based on a separate regression along the percentile distribution, where the upper series refers to the  $(100-x)\%$  of the smallest municipalities, and the lower series to the  $x\%$  largest municipalities. As a reference point, estimates at the vertical 5% line refer to those in Panel C, Column (4) in Table 4(a) and (b).

Panel A of the figure shows that the  $b_1$  estimates for the  $100-x\%$  smaller municipalities are insignificant and small for  $x < 2\%$ , but then stabilize around the estimate obtained for  $x = 5\%$ , and remain remarkably stable when reducing the sample that identifies  $b_1$  to smaller and smaller municipalities. The confidence interval includes the estimate at  $x = 5\%$  (1.34) over the entire distribution. The lower series displays estimates for large municipalities, along the size percentiles  $x$ . Again, the vertical line at  $x = 5\%$  corresponds to estimates in Panel C, Table 4(a) and 4(b). While estimates are very similar to those in Panel C between the 5th and 15th percentiles, they converge to the upper series, as smaller and smaller municipalities are added to identify  $b_1 + b_2$ . Estimates for municipal elections in Panel B are similar, with the estimates for the  $(100-x\%)$  smaller and more rural municipalities being very stable over the entire range from the first to the 80th percentile, and negative (but not significantly different from zero) for large and more urban municipalities. Based on these figures, we present all our estimates for the 95% more rural and the 5% more urban municipalities.

#### 4.4. Robustness checks and IV estimates

In Table 5 we report estimates for a number of robustness checks. We focus on vote shares for anti-immigration parties and report full sets of estimates in Appendix Table A11(a) and (b). Columns 1 and 2 in Table 5 report estimates for parliamentary and municipal elections, respectively.

Panel A excludes Frederiksberg and Copenhagen (the two municipalities that constitute the capital) when computing the 5% largest municipalities, which were treated slightly differently in

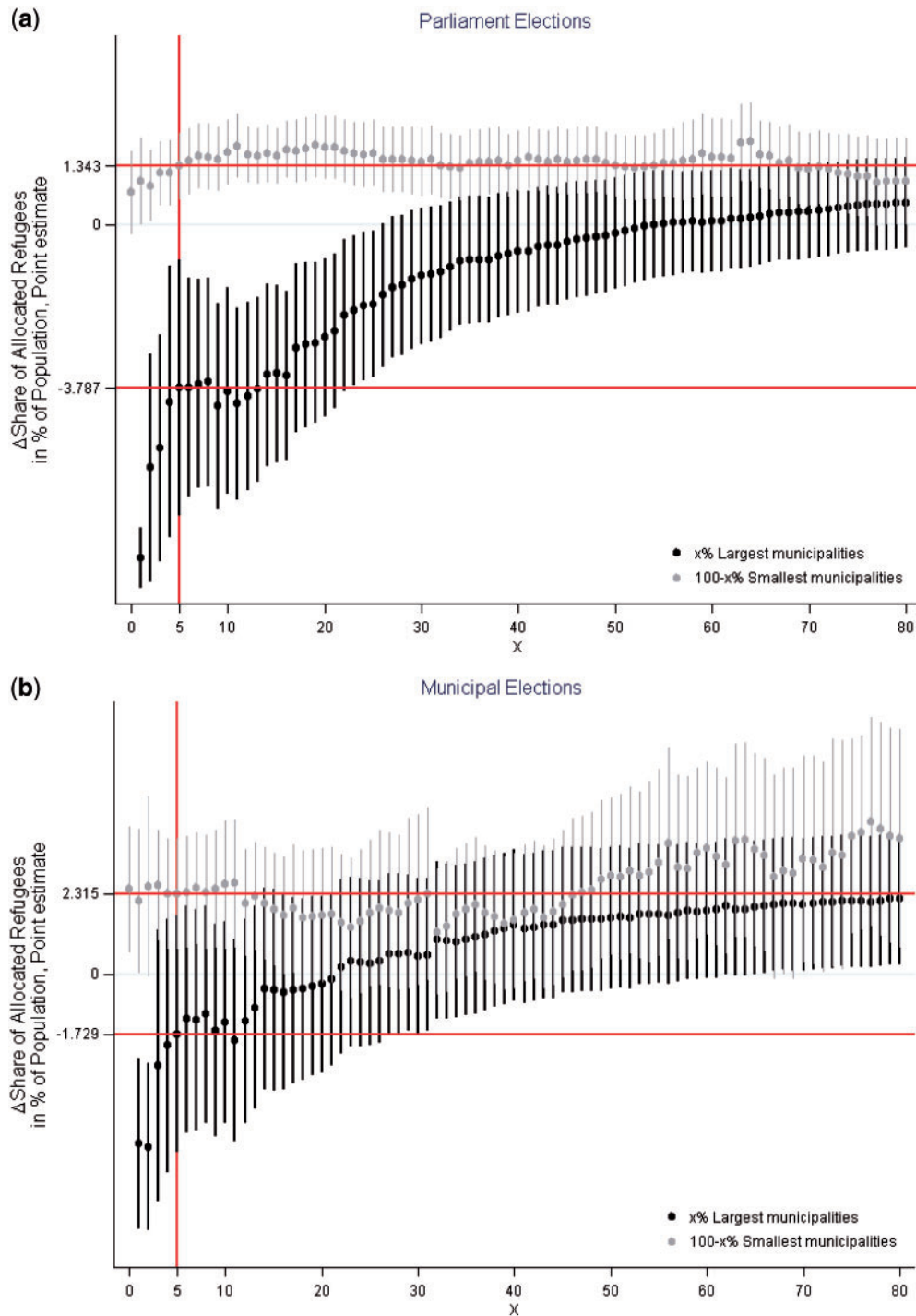


FIGURE 3

Allocation of refugees and voting for anti-immigration parties along the distribution of municipality size

*Note:* Parliament elections 1990-1998 in Panel A, municipal elections 1989-1997 in Panel B. Share of allocated refugees is in percent of local population in 1986. The figures display parameter estimates of the change in the share of allocated refugees regressed on the change in share of votes for anti-immigration parties for the 100-x% smallest municipalities (grey dots) and for the x% largest municipalities (black dots). The intersections between the horizontal lines and the vertical line corresponds to the estimates in the main regressions in Tables 4a and 4b. The vertical black and grey lines at each parameter estimate indicate the 95% confidence interval.

TABLE 5  
Allocation of refugees and voting behaviour, robustness checks

Dependent variable	(1)	(2)
	Parliament elections	Municipal elections
Panel A: Excluding Copenhagen and Frederiksberg		
$\Delta$ Share of allocated refugees in % of local population	1.430*** (0.388)	2.349*** (0.818)
$\Delta$ Share of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	-4.019*** (1.372)	-1.784 (1.821)
Panel B: Conditional on share of vacant rental housing in base period		
$\Delta$ Share of allocated refugees in % of local population	1.091*** (0.409)	1.905** (0.852)
$\Delta$ Share of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	-4.841*** (1.350)	-3.826** (1.838)
Panel C: Conditional on change in share of vacant rental housing between election cycles		
$\Delta$ Share of allocated refugees in % of local population	1.246*** (0.358)	2.336*** (0.807)
$\Delta$ Share of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	-3.447*** (1.302)	-4.296** (2.074)
Panel D: Conditional on change in gross income per capita		
$\Delta$ Share of allocated refugees in % of local population	1.317*** (0.396)	2.172*** (0.800)
$\Delta$ Share of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	-4.986*** (1.390)	-3.914** (1.954)
Panel E: Conditional on change in gross income per capita and change in share of vacant rental housing		
$\Delta$ Share of allocated refugees in % of local population	1.249*** (0.359)	2.193*** (0.799)
$\Delta$ Share of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	-3.460*** (1.312)	-4.154** (2.111)
Time FE	Yes	
N	550 (546 in Panel A)	
Number of municipalities	275 (273 in Panel A)	

Notes: Danish Parliament elections 1990–8 in (1) and Danish municipal elections 1989–97 in (2). Share of allocated refugees are in percent of local population in 1986. Mean of the election cycle change in share of allocated refugees: 0.14% in (1) and 0.13% in (2). Estimates are weighted by municipality size in 1986. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

terms of allocation numbers due to their already large populations of non-Western immigrants. Their exclusion does not change the estimated coefficients much. In Panels B and C, we condition on available rental housing in the base period and on the change in the share of rental housing between election cycles. Again, estimates are similar to those in our base specification. Another concern may be that current economic shocks to the municipality lead to some spurious correlation between allocation shares of refugees and changes in vote shares. Our test for strict exogeneity in Section 4.1 re-assures us that this is not the case. Nevertheless, we report in Panels D and E estimates that condition on changes in gross income per capita, and on this variable and changes in available housing between electoral cycles. In both regressions, estimates are very similar to those in our base specification.

The estimates we report in Table 4(a) and (b) are ITT estimates, measuring the effect of allocated refugees on vote shares. These causal estimates are important policy parameters, allowing direct assessment of the impact of allocation policies on voting outcomes. One may also be interested, however, in the effect of changes in the share of *resident* refugees on voting outcomes. This parameter can be computed as a simple Wald estimator by dividing the ITT



TABLE 6  
*Refugees and voting behaviour: IV strategy*

	(1)	(2)	(3)	(4)	(5)
Dependent variable	$\Delta$ Share of refugees in % of local population size	$\Delta$ Share of votes for			
		Centre-left	Other (centre small)	Centre-right	Anti-immigration
Panel A: Parliament election, weighted, indicator for 5% largest					
	First stage	2SLS			
$\Delta$ Share of refugees in % of local population size	0.851*** (0.076)	−1.604** (0.633)	−0.939* (0.565)	0.965** (0.467)	1.578*** (0.424)
$\Delta$ Share of refugees in % of local population size for 5% largest municipalities	1.484*** (0.354)	2.534 (2.135)	−0.361 (2.323)	0.380 (1.282)	−2.552** (1.203)
Panel B: Municipal elections, weighted, indicator for 5% largest					
	First stage	2SLS			
$\Delta$ Share of refugees in % of local population size	0.866*** (0.097)	−3.844** (1.772)	−0.487 (1.802)	1.656 (1.697)	2.675*** (0.825)
$\Delta$ Share of refugees in % of local population size* indicator for being among the 5% largest municipalities	1.324*** (0.230)	8.771** (3.999)	−3.412* (1.889)	−4.048 (2.869)	−1.306 (1.358)
Time FE			Yes		
N			550		
Number of municipalities			275		

*Notes:* Parliament elections 1990–8 in Panel A and municipal elections 1989–97 in Panel B. Share of refugees residing in each municipality is calculated as the number of refugees residing in the municipality the year prior to election as percent of local population in 1986. Share of allocated refugees are in percent of local population in 1986. The number of refugees residing in each municipality is instrumented by the share of allocated refugees. Mean of the election cycle change in the share of refugees residing in the municipalities is 0.10% in Panel A and 0.09% in Panel B. Mean of the election cycle change in the share of allocated refugees is 0.14% in Panel A and 0.13% in Panel B. Column (1) shows the first-stage estimates from the 2SLS estimation. Estimates are weighted by municipality size in 1986. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

estimate through the first-stage estimate when regressing changes in the share of resident refugees on changes in the share of allocated refugees. The IV estimator is causal if one is willing to make the additional exclusion assumption that the change in the share of allocated refugees affects voting outcomes only through the change in the share of resident refugees, and it can be interpreted as a local average treatment effect (LATE). We report estimates in Table 6, for parliamentary (Panel A) and municipal (Panel B) elections where we now present the net effect for the large municipalities (*i.e.*,  $b_1 + b_2$ ). The first column reports the first stage, which is slightly below 1 for the more rural areas and above 1 in the urban areas. This reflects that—after allocation—refugees tend to move from rural municipalities to urban municipalities. As a result, the IV estimates are slightly larger than the ITT estimates in the rural and numerically smaller in the urban municipalities. We further compute Wald estimates on voting outcomes of changes in the share of non-western immigrants, instrumented with the share of allocated refugees (these results are available at request). First-stage estimates are slightly above 1 for both urban and rural municipalities, which translates into a slightly smaller effect on voting outcomes.

#### 4.5. Electoral outcomes and municipality characteristics

In Table 7, we investigate whether municipal characteristics affect electoral outcomes by interacting changes in allocation share with pre-policy (1985) municipal characteristics for

parliament (Columns 1–3) and municipal (Columns 4–6) elections, based on estimates of Equation (3.2). In addition to the share of immigrants, log gross income per capita, and the share of rich in the local population (Panels B–D), these characteristics include crime rates, measured as the number of reported crimes divided by the number of inhabitants (Panel E). They also include support for the Christian church, measured as the percentage of inhabitants who paid church taxes (Panel F), municipal unemployment rate (Panel G), the share of welfare dependent among immigrants (Panel H), and the share of tertiary educated (Panel I). We demean these variables and normalize them by their standard deviation, so that the coefficient in the second row of each panel can be interpreted as the additional effect of a one-percentage point increase in refugee allocation on the vote share of anti-immigrant parties in municipalities with a one standard deviation higher realization of the respective municipal characteristic. Panel A repeats as a reference the base estimates from Tables 4, Panel C. Columns (1) and (4) present results for the 95% more rural municipalities, Columns (2) and (5) for the 5% more urban ones, and Columns (3) and (6) compute the 5% more urban municipalities omitting Copenhagen and Frederiksberg.

Focusing first on Column (1), estimates in panel B suggest that electoral outcome responses to the refugee allocation vary strongly with the 1985 share of immigrants. If that share increases by one standard deviation at the mean, then the effect of a one-percentage point increase in the refugee allocation share increases from 1.3 to 3.6 percentage points. Thus, the presence of immigrants in the municipality greatly exacerbates the impact of refugee allocation on the anti-immigration party vote share, a finding in line with group threat theories (see Section 3.1).

Furthermore, the effect of refugee allocation on anti-immigration party vote shares increases with log income per capita and the percentage of rich in the population (Panels C and D). This is in line with the economic hypothesis of self-interest, which posits that individuals respond to immigration based on their own economic concerns. The high welfare dependency of immigrants illustrated in Table 2 may lead the more affluent to believe that it is they who are mainly financing refugees. In line with this, the share of welfare dependents among immigrants increases the impact of refugee allocation on the vote share for anti-immigrant parties (see Panel H). These results echo Dustmann and Preston's (2005) analysis of the effect of labour market and fiscal burden concerns on attitudes towards immigration, which emphasizes that fiscal concerns are clearly dominant. Estimates with respect to crime suggest substantially increased sensitivity to refugee allocation in municipalities that were more exposed to crime before policy implementation. If the number of reported crimes is one standard deviation higher in the pre-allocation year, the same increase in refugee share leads to a tripling (from 1.2 to 3.4) in the percentage point increase in vote shares for anti-immigration parties relative to the mean of crime rates. Panel F then reports the results of interacting these same estimates with the share of church taxpayers. They suggest that an increased allocation share leads to weaker effects on the vote shares of anti-immigration parties when the share of church taxpayers is higher. One way to interpret these findings is a more emphatically altruistic attitude towards refugee allocation in municipalities where support for Christianity is greater, making voters less responsive to anti-immigration party rhetoric. This is in line with Card *et al.*'s (2012) suggestion that altruistic attitudes lead to a more liberal voter position towards immigration. Interacting refugee allocation with unemployment rate (panel G) or the share of tertiary educated (panel I) reveals no significant vote share response. Estimates for municipal elections (Column 4) are largely similar, although sometimes estimated with less precision.

Considering the vote share responses of other parties (results are reported in Table A12(a) and (b)) shows that the exacerbation in vote share gains for anti-immigrant parties induced by particular pre-policy characteristics such as the share of immigrants is mirrored by losses for centre-left parties. For instance, a one standard deviation increase in the share of immigrants living in the municipality before implementation of the policy increases the percentage point gain

TABLE 7  
*Response to refugee allocation, municipal characteristics*

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
	ΔShare of votes for anti-immigration parties					
	Parliament elections			Municipal elections		
	95% Smallest municipalities	5% Largest municipalities	5% Largest municipalities	95% Smallest municipalities	5% Largest municipalities	5% Largest municipalities
Panel A: Baseline						
ΔShare of allocated refugees in % of local population	1.343*** (0.392)	-3.787** (1.506)	-2.589** (1.315)	2.315*** (0.808)	-1.729 (1.734)	0.566 (1.627)
Panel B: Immigrants						
ΔShare of allocated refugees in % of local population	1.332*** (0.387)	-3.330*** (1.204)	-2.274 (1.541)	1.966*** (0.751)	-0.648 (1.438)	0.211 (2.398)
ΔShare of allocated refugees in % of local population * share of immigrants	2.305*** (0.417)	0.700 (0.647)	-0.649 (1.093)	2.626*** (0.709)	2.255** (1.057)	0.618 (1.902)
Panel C: Log gross income pc						
ΔShare of allocated refugees in % of local population	1.263*** (0.386)	-4.168*** (1.525)	-2.778** (1.348)	2.168*** (0.778)	-2.303 (1.786)	0.215 (1.628)
ΔShare of allocated refugees in % of local population * log gross income pc	1.768*** (0.620)	-1.224* (0.729)	-0.587 (0.512)	1.327 (0.818)	-2.400*** (0.911)	-1.279 (0.784)
Panel D: Share of rich						
ΔShare of allocated refugees in % of local population	1.464*** (0.413)	-4.608*** (1.483)	-3.209** (1.433)	2.318*** (0.811)	-3.194 (2.167)	-0.354 (2.121)
ΔShare of allocated refugees in % of local population * share of rich in % of population	1.059** (0.438)	-1.837** (0.826)	-0.960 (0.707)	0.056 (0.617)	-3.520** (1.569)	-1.477 (1.424)
Panel E: Crime rate						
ΔShare of allocated refugees in % of local population	1.205*** (0.401)	-3.951*** (1.497)	-1.132 (2.050)	2.230*** (0.761)	-2.610* (1.334)	-0.746 (3.956)
ΔShare of allocated refugees in % of local population * reported crime rate	2.151*** (0.470)	0.370 (0.441)	-0.785 (0.699)	2.052*** (0.760)	1.591*** (0.562)	0.696 (2.160)

TABLE 7  
Continued

Dependent variable	ΔShare of votes for anti-immigration parties					
	(1)	(2)	(3)	(4)	(5)	(6)
	Parliament elections			Municipal elections		
	95% Smallest municipalities	5% Largest municipalities	5% Largest municipalities	95% Smallest municipalities	5% Largest municipalities	5% Largest municipalities
Panel F: Share of Church tax payers						
ΔShare of allocated refugees in % of local population	1.361*** (0.387)	-3.497*** (1.259)	-2.605 (1.625)	2.316*** (0.819)	-1.316 (1.516)	0.344 (3.707)
ΔShare of allocated refugees in % of local population *	-1.214** (0.473)	-0.970* (0.588)	-0.021 (0.939)	-1.491* (0.874)	-2.279 (1.502)	-0.272 (3.233)
Panel G: Unemployment						
ΔShare of allocated refugees in % of local population	1.321*** (0.400)	-6.363*** (1.520)	-5.186*** (1.866)	2.369*** (0.811)	-3.908** (1.757)	0.181 (2.227)
ΔShare of allocated refugees in % of local population *	0.152 (0.329)	2.392*** (0.696)	1.803** (0.913)	-0.351 (0.595)	2.164* (1.233)	0.283 (1.639)
Panel H: Share of welfare dependent immigrants						
ΔShare of allocated refugees in % of local population	1.305*** (0.385)	-4.321 (3.499)	-1.430 (3.309)	2.168*** (0.810)	-7.208 (5.599)	-2.047 (4.976)
ΔShare of allocated refugees in % of local population *	0.623** (0.309)	0.439 (2.060)	-0.849 (1.961)	1.450** (0.648)	4.423 (3.620)	1.898 (2.992)
Panel I: Share younger than 65 with a tertiary education						
ΔShare of allocated refugees in % of local population	1.363*** (0.389)	-3.558** (1.578)	-2.315 (1.434)	2.378*** (0.838)	-1.510 (2.554)	0.914 (2.466)
ΔShare of allocated refugees in % of local population *	-0.203 (0.257)	-0.355 (0.512)	-0.314 (0.483)	-0.477 (0.712)	-0.312 (1.566)	-0.384 (1.459)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
N	550	550	546	550	546	546
Municipalities	275	275	273	275	273	273

Notes: Danish Parliament elections 1990–8 in Columns (1)–(3) and Danish municipal elections 1989–97 in Columns (4)–(6). Share of allocated refugees are in percent of the local population size in 1986. Estimates are weighted by municipal population size in 1986. Mean of the election cycle change in share of allocated refugees is: 0.14% in (1)–(3) and 0.13% in (4)–(6). All predictors are standardized with mean 0 and standard deviation 1. In Columns (3) and (6), the municipalities Copenhagen and Frederiksberg are excluded. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

of vote shares of anti-immigrant parties of a one-percentage point increase in refugee allocation by 2.3. At the same time, however, it decreases the vote share for centre-left parties by 2.1 for parliament elections.

Columns (2) and (3) as well as Columns (5) and (6) of Table 7 display results using the same set of municipal characteristics for only the 5% largest Danish municipalities calculated (in Columns (3) and (6)) by excluding Copenhagen and Frederiksberg. If anything, these estimates indicate that immigrant pre-policy welfare dependency and share of immigrants in the population play little role in how urban voters react to refugee allocation, much in contrast to more rural municipalities. Likewise, the share of more affluent and the share of rich, rather than augmenting the allocation effect on anti-immigration party vote shares, points to the opposite. The one variable that seems to result in an allocation-induced increase in the far right vote share is municipal unemployment rate, which increases support for anti-immigration parties as refugee immigration increases.

Overall, estimates in Table 7 indicate (in particular for the 95% more rural municipalities) a remarkable and often large heterogeneity in vote share responses to refugee allocations, according to pre-policy municipal characteristics.

Can these differences in vote share responses to refugee allocation explain the rural–urban divide we discuss in Section 4.3? Casual inspection of Tables 2 and 7 suggests that this is unlikely: Differences between rural and urban municipalities in many of the pre-municipal characteristics are quite small, and where they are large (such as the pre-policy share of immigrants), they likely exacerbate the vote share gap between rural and urban municipalities. We show this more formally in Table A13, where we compute for each of the pre-policy municipal characteristics the response of rural (urban) municipalities to refugee allocation if they were characterized by the mean of urban (rural) pre-policy characteristics. For instance, if rural municipalities had the same pre-policy share of immigrants as urban municipalities, their vote share response for anti-immigrant parties to a one-percentage point increase of allocated refugees would increase from 1.3 to 4.2 percentage points in parliament elections. Thus, the difference between rural and urban municipalities is due to differences in response behaviour, something we investigate in more detail below.

#### 4.6. *Refugee allocation and voter turnout*

The results above suggest that the anti-immigration party vote share is indeed sensitive to inter-cycle allocation of refugees. This could be because voters respond to allocation by casting their votes for anti-immigration parties, or because voter composition itself changes through the activation of those who would otherwise not vote. Therefore, although we cannot directly test such an effect on voter *composition* (because we have no individual data on voting behaviour), we explore whether refugee allocation activates additional voter participation by investigating whether it affects voter turnout. As shown in Table 1, over the three parliamentary (municipal) electoral cycles considered here, on average 84% (70%) of eligible voters participated in the elections, respectively. The average change in turnout between two parliamentary (municipal) electoral cycles is 1.54 (1.25) percentage points. In Table 8, we regress this turnout on the refugee share allocated to a specific municipality, showing the fixed effects estimates in Panel A and the difference estimates (change in voter turnout regressed on change in refugee allocation between previous and current electoral cycles) in Panel B. We report both weighted and unweighted estimates.

These findings lend little support for the hypothesis that refugee allocation has a noticeable impact on voter turnout in *parliamentary* elections: the estimates in Columns (1) and (2) are small and never statistically significant. For municipal elections, however, Columns (3) and (4) show evidence that a higher share of allocated refugees leads to a higher share of individuals voting.

TABLE 8  
*Allocation of refugees and voter turnout*

	(1)	(2)	(3)	(4)
Dependent variable	Turnout % at			
	Parliamentary elections		Municipal elections	
Panel A: Estimates with municipality FE	Unweighted	Weighted	Unweighted	Weighted
ΔShare of allocated refugees in % of local population	0.162	−0.258	0.864*	2.023*
<i>N</i>	(0.195)	(0.230)	(0.457)	(1.107)
	850			
Panel B: First-difference estimates	Unweighted	Weighted	Unweighted	Weighted
ΔShare of allocated refugees in % of local population	−0.008	−0.334	0.573	1.493*
<i>N</i>	(0.227)	(0.301)	(0.475)	(0.824)
Time FE			550	
Number of municipalities			Yes	
			275	

Notes: Danish parliament elections 1990–8. Danish municipal elections 1989–97. Share of allocated refugees are in percent of local population in 1986. Mean of the election cycle change in the share of allocated refugees: 0.14% for parliament elections, 0.13% for municipal elections. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

TABLE 9  
*Allocation of refugees and anti-immigration parties standing in municipal elections*

Dependent variable	(1)	(2)	(3)
	At least one party running, both periods	At least one party running in 1997	Both Parties running in 1997
$\Delta$ Share of allocated refugees	0.322*** (0.088)	0.412*** (0.106)	0.661*** (0.185)
Mean of dependent variable	[0.767]	[0.807]	[0.422]
Time FE	Yes	No	No
<i>N</i>	550	275	275
Number of municipalities		275	

Notes: Danish municipal elections 1989–97. Share of allocated refugees are in percent of local population in 1986. Voting statistics from the Statistics Denmark Database for municipal elections. The estimates are obtained from linear probability models. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

More specifically, a one-percentage point increase in the refugee allocation share increases voter participation by between 0.6 and 2.0 percentage points. Thus, there is some evidence that voter turnout is affected by refugee allocation but this effect is restricted to municipal elections.

#### 4.7. The decision to run in municipal elections

Because not every party stands for municipal election in every municipality, anti-immigration parties are often absent from such contests (see Table A14). Moreover, as previously explained, prior to the foundation of the DPP in 1995, the PP was the only party running with a strong anti-immigration agenda. In the 1997 municipal elections, the DPP ran alongside the PP in 116 municipalities. Of the two parties, only the PP ran in eighty municipalities and only the DPP ran in twenty-six municipalities and neither of the two parties ran in fifty-three municipalities. The decision where to run is thus an interesting outcome variable in itself which we now investigate.



In Table 9, we perform an initial assessment of how anti-immigration parties may decide whether and where to stand for municipal elections in response to inter-cycle allocation shares. Specifically, this table reports linear probability models with the first column listing the effect of refugee allocation on the probability that either of the two parties stands in a given municipality in either the 1993 or 1997 municipal election.<sup>30</sup> The average share of municipalities in which at least one anti-immigration party is running for election is 77%. The results in the table therefore suggest that a one standard deviation (0.18) increase in the change in refugee allocation increases the probability of an anti-immigration party running by 5.8 percentage points or 7.5%. The next two columns report the results of running the same regression for the 1997 election only (when both anti-immigration parties were present) with the probability of at least one party or both parties running in a municipality as the dependent variable. The effects for that year are even larger: A one standard deviation increase in the allocation share increases the probability of at least one anti-immigration party running by 7 percentage points and that of both parties running by 12 percentage points. Refugee allocation thus seems to be a powerful predictor of anti-immigration parties running in local elections.

## 5. EXPLAINING DIFFERENCES BETWEEN URBAN AND RURAL MUNICIPALITIES

A striking finding of our analysis is the difference in how voters respond to refugee allocation in rural and urban municipalities. We show in Section 4.5 that these differences cannot be explained by differences in municipal characteristics. We now explore this further by investigating whether attitudes towards refugees and immigrants differ between urban and rural populations and whether any such differences are due to differences in the composition of populations in terms of education and demographic structure. We also investigate whether exposure to refugee and immigrant populations differs between urban and rural areas as a possible channel that explains the differences in voting responses we illustrate above.

### 5.1. *Voting and attitudes towards refugees and immigrants*

Our analysis is based on various waves of the Danish National Election Survey (DNES) contemporary to our elections, and the first (2002) wave of the ESS for Denmark, which contains a special module on immigrants and refugees (see Card *et al.*, 2005). We describe both surveys and questions used in Appendix B. Below we first investigate whether views about refugees are associated (on an individual basis) with voting for an anti-immigrant party. We then explore whether attitudes towards refugees differ in rural versus urban areas and to what extent this can be explained by differences in demographic composition.

In the DNES, 5.5% of interviewees respond that they voted for an anti-immigration party (see Appendix Table A15). In Panel A of Table 10, we report regressions of an indicator variable if the individual voted for an anti-immigration party on responses to questions that reflect views on refugees or immigrants. These attitudes are measured on a five-point scale, and we normalize them between 0 and 1, where 1 reflects the most “pro” category. In the table, unequal column numbers report unconditional regressions, and equal column numbers present regressions that condition on education, age, and gender. The estimates show a strong association between sympathetic views towards immigrants and refugees, and reduced probabilities to vote for an anti-immigration party. Views that more money should be spent on refugee support, that immigrants constitute no threat

30. The marginal effects from probit models (evaluated at the mean) are almost identical.

TABLE 10  
*Attitudes towards immigrants and refugees*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Attitudes towards refugees and immigrants and voting behaviour								
Dependent variable	Voted for an anti-immigration party							
Explanatory variable	Opinion on amount spend on refugee support		Immigrants constitute threat to Danish culture		Allow immigrants and refugees access to social benefit		How many more refugees can Denmark take	
Mean of dependent variable	-0.1361*** (0.014)	-0.1181*** (0.014)	-0.1623*** (0.016)	-0.1544*** (0.017)	-0.1176*** (0.014)	-0.0992*** (0.014)	-0.2417*** (0.023)	-0.2226*** (0.023)
Panel B: Residing in an Urban area and attitudes towards refugees and immigrants								
Dependent variable	Opinion on amount spend on refugee support		Immigrants constitute threat to Danish culture		Allow immigrants and refugees access to social benefit		How many more refugees can Denmark take	
Explanatory variable: Dummy equal to 1 if the respondent is from one of the 5% largest municipalities	0.0540*** (0.013)	0.0280** (0.014)	0.1071*** (0.019)	0.0473*** (0.017)	0.0654*** (0.018)	0.0372** (0.018)	0.0622*** (0.013)	0.0330*** (0.013)
Mean of dependent variable	0.320 (0.316)	0.550 (0.401)	0.354 (0.357)	0.358 (0.269)				
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Election survey FE								
N		4,362		3,597		3,536		3,560

*Notes:* Parliament elections 1990–8 in (1) and (2), parliament elections 1994 and 1998 in (3)–(8). Data are from the DNES 1990–8. See Table A15 and Appendix B for descriptives and more detailed information about the survey. All attitude questions are normalized to range between 0 and 1 from an original scale of 1–5 (1–3 in Columns (1) and (2)) where the highest value is most in favor of refugees and immigrants. The included controls are a gender dummy (male is reference), age group dummies (younger than 30 (reference), 30–44, 45–54, 55–64, 65–74, and 75+), and education dummies (No education (reference), professional education: basic, advanced with degree, advanced short, advanced medium, advanced long). Estimates are weighted by full municipal population size divided by survey municipal population size. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

to the Danish culture, that refugees should have the same access to social benefits than Danes, and that Denmark could receive more refugees are all strongly and negatively associated with voting for an anti-immigration party. Moving from the most hostile (0) to the most sympathetic (1) category on the scale of attitudes decreases the probability to vote for an anti-immigration party by between 11 and 24 percentage points which is a large response, given the mean vote share of 5.5% for such parties.

Estimates presented in Panel B of Table 10 illustrate a sharp divide in attitudes between urban and rural areas. While for instance the mean of the normalized response of how many additional refugees Denmark can receive (bound between the extremes 0 and 1) is 0.36, it is 0.06 points (or 17%) higher in urban than in rural areas. Rural–Urban differences in other attitudes are of similar magnitude. Differences in composition can partly explain this, as suggested by the smaller estimates when conditioning on demographic characteristics, which decrease by between 43% and 58%.<sup>31</sup> Thus, respondents from urban areas hold more sympathetic views about refugees and immigrants, which in turn are strongly associated with probabilities to vote for anti-immigration parties.

## 5.2. *Contact with immigrants and segregation*

One reason for the observed differences in attitudes could be differential exposure of native residents to those of different background. In which direction such exposure moves attitudes may be related to whether any such contact is deliberate and fulfils Allport's (1954) four conditions (see Section 3.1), or is felt as being imposed, triggering perceptions of threat to indigenous culture and identity and negative prejudice, as suggested by group threat theories. Using information in the ESS, we find that those living in cities are 14 and 16 percentage points (30% and 31%) more likely to have an immigrant as friend or work colleague, respectively. Moreover, having an immigrant friend or colleague is associated with far more positive attitudes towards refugees (we report estimates in Table A18). Such friendship and workplace contact fulfils Allport's (1954) criteria of equal group status, common goals, intergroup cooperation, and authority support, and thus may reduce prejudice in cities.

However, exposure to refugees in one's neighbourhood that is felt as a result of imposed settlement policies may trigger opposite responses. We next investigate whether such exposure is higher in rural than in urban areas by computing an index of residential segregation for refugees and non-western immigrants and their descendants, which measures the degree to which natives are exposed to refugees in their neighbourhood (the "interaction index"; see Lieberman, 1981). To achieve that, we follow Damm and Schultz-Nielsen (2008) and split Denmark's entire area into 9,400 neighbourhoods (computed by aggregating 431,000 geo-referenced hectare cells, obtaining compact neighbourhood clusters), each containing around 200 households with an average population of about 500. In samples of different sizes, random allocation generates substantial unevenness (and hence segregation) sensitive to sample size. We follow Carrington and Troske (1997) and modify the index normalizing it by the unevenness generated through random

31. In Table A17, we present additional analysis based on a more extensive set of questions regarding refugees from the 2002 ESS. These include whether asylum seekers' applications should be looked at more generously, whether they should receive financial support, whether they should be allowed to work, or bring their families, whether Denmark receives more than its fair share of refugees, whether refugees are indeed persecuted, and whether asylum seekers should be detained while their cases are considered. While the ESS data does not provide us with a municipal identifier, we do observe whether the respondent lives in a big city. We find that individuals living in big cities respond far more sympathetic to each of these questions and that only part of this difference is explained by composition.

TABLE 11  
*Segregation of natives, refugee, and non-western immigrants within municipalities*

	Parliament elections			Municipal elections		
	All municipalities	95% smallest municipalities	5%largest municipalities	All municipalities	95% smallest municipalities	5% largest municipalities
Interaction index, allocated refugees	−0.1548	−0.1003	−0.2051	−0.1441	−0.0913	−0.1946
Interaction index, non-western immigrants	−0.1257	−0.1088	−0.1413	−0.1171	−0.1018	−0.1313
<i>N</i>	810					

*Notes:* Parliament elections 1990–8, municipal elections 1989–97. There is no neighborhood data on the municipalities on Bornholm, which is why these are left out. We compute the indices averaging across the three elections 1990, 1994, and 1998 for parliament elections and 1989, 1993, and 1997 for municipal elections. Estimates are weighted by municipal population size in 1985. The systematic interaction indices are adjusted to be measured relative to exposure under randomness.

allocation alone.<sup>32</sup> The resulting adjusted index measures the extent to which segregation is larger (or smaller) than what we would expect from random allocation.

Table 11 displays the adjusted indices for allocated refugees (row 1) and non-Western immigrants (row 2). They suggest that exposure of residents to refugees and non-Western immigrants is higher across neighbourhoods in rural than it is in urban municipalities. The degree to which natives are exposed to refugees in urban areas is about 20% lower than what random allocation would suggest, while it is only 10% lower in rural municipalities. Overall therefore, exposure to refugees and non-Western immigrants that is likely to be involuntary tends to be larger in rural areas.

To investigate whether segregation may contribute to shaping attitudes towards refugees, we next regress the four attitudes measures in the DNES on the municipality-specific interaction index. We find a strong association between exposure to refugees in one’s immediate neighbourhood and negativity of attitudes towards refugees (Table 12). We also find a positive (but insignificant) relation between our exposure measure, and the probability that the responded reports to have voted for an anti-immigration party. Thus, and in line with group threat theories, differences in exposure to refugees in one’s neighbourhood may be one channel that leads to prejudice and ultimately different sensitivity of voting behaviour to additional refugee allocations in urban and rural municipalities.

6. DISCUSSION AND CONCLUSIONS

By exploiting data covering the 13 years of Denmark’s random refugee dispersal policy, which encompass three parliamentary and municipal electoral cycles, we show that an exogenous increase in refugee allocation strongly affects anti-immigration parties’ vote shares in both parliamentary and municipal elections in all but the most urban municipalities. Although anti-immigration parties gain most from refugee allocation, we also find an increase in the vote shares of centre-right parties but a clear reduction in those of left-leaning parties. Interestingly, this response is not evident in Denmark’s urban areas in which the impact of refugee allocation points, if anything, in the opposite direction.

32. We randomly assign the population residing in each municipality to neighbourhoods keeping neighbourhood size constant and compute indices based on the mean of 500 repetitions for each municipality. We then adjust the index to be measured relative to segregation under randomness by computing the measure of systematic interaction as  $\frac{I - I_r}{I_r}$ , where  $I$  is the standard interaction index and  $I_r$  is the same index corresponding to random allocation. See Carrington and Troske (1997) for details.

We also find strong evidence for heterogeneity in anti-immigration party voting responses across municipalities to refugee allocation. In the smaller and rural municipalities, pre-policy characteristics such as the share of immigrants, gross income, the share of rich, the crime rate, and the share of welfare dependent immigrants all exacerbate the effect of the same allocation of refugees on vote shares for anti-immigration parties with large effect sizes. This is strong evidence that municipalities with different characteristics respond differently to refugee allocation in the sense that they turn their votes to anti-immigration parties. We further establish that refugee allocation is strongly related to anti-immigration parties' decisions on where to stand in municipal elections.

One intriguing result of our analysis is that the effect of refugee allocation on vote shares for anti-immigration parties is largely absent in urban municipalities, a response difference that cannot be explained by differences in pre-policy municipal characteristics. This revelation underscores Barone *et al.*'s (2016) findings for Italy and reconciles the majority research conclusion that immigrant shares unanimously strengthen the vote share of the extreme right with Steinmayr's (2017) finding of the opposite.<sup>33</sup> Investigating possible reasons for such differential responses, we show that individuals who live in cities have more positive attitudes towards refugees and immigrants than those living in rural areas, and that these attitudes are strongly related to voting behaviour. We also find that those in urban areas are more likely to have immigrants among their colleagues or friends, which is in turn strongly associated with more positive attitudes towards refugees. Thus, contact with foreign born in a workplace or leisure environment as friends or colleagues likely meets Allport's (1954) conditions for contact as a means of prejudice reduction. On the other hand, we also show that those in rural areas are more likely to be exposed to refugees and non-Western migrants in their immediate neighbourhood. This involuntary exposure may enhance the perceived threat from these communities, exacerbate negative attitudes, and ultimately influence the sensitivity of voting behaviour to further allocations. Indeed, we provide evidence that larger exposure is associated with negativity of attitudes towards refugees.

Our paper contributes to a better understanding for the rise of populist parties and politicians and of the reasons for different voter responses. Our study is the first that uses an assignment experiment to provide causal evidence that refugee migration leads not only to an increase in the share of votes for anti-immigrant parties, but may be the main factor for the emergence of these parties in elections. Our strong evidence of response heterogeneity based on municipal characteristics, and the evidence that refugee allocation may lead to very different responses in urban versus rural areas has important implications for the current debate on refugee allocation in Europe. It suggests that allocation practices that take municipal characteristics into account, rather than random allocation based on equalizing the share relative to the resident population, may be preferable as they mitigate the emergence of radical parties. We also provide novel evidence that may explain the divide between rural and urban populations in attitudes and ultimately voting patterns. These findings have immediate relevance for the policy debate.

33. It also is in line with observational evidence of stark divides between rural and urban elections in recent years, such as between London and the rest of the U.K. in the popular vote for the U.K. Independence Party (UKIP) in the European (2014) and general (2015) elections. Similarly, in the Finnish 2015 parliamentary elections, the anti-immigrant (True) Finns party (*Perussuomalaiset*) had the lowest support in Helsinki, while in the Belgian regional and federal elections of 2014, the anti-immigrant Flemish Interest party (*Vlaams Belang*) had the lowest share of supporters in the region around Brussels.

TABLE 12  
*Segregation of refugees and attitudes towards migration*

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Opinion on amount spend on refugee support		Immigrants constitute threat to Danish culture		Allow immigrants and refugees access to social benefit		How many more refugees can Denmark take		Voted for an anti-immigration party	
Systematic interaction index, allocated refugees	-0.2846*** (0.062)	-0.1854*** (0.062)	-0.3893*** (0.086)	-0.2075*** (0.076)	-0.2297*** (0.080)	-0.1263 (0.081)	-0.2294*** (0.062)	-0.1268** (0.057)	0.0571 (0.054)	0.0258 (0.053)
Individual controls		Yes	No	Yes	No	Yes	No	Yes	No	Yes
Election year FE					Yes					
N	4,362		3,597		3,536		3,560			4,625

*Notes:* Parliament elections 1990–8 in (1), (2), (9), and (10). Parliament elections 1994 and 1998 in (3)–(8). Data are from the DNES 1990–8. See Table A15 and Appendix B for descriptives and more detailed information about the survey. All attitude questions are normalized to range between 0 and 1 from an original scale of 1–5 (1–3 in Columns (1) and (2)) where the highest value is most in favor of refugees and immigrants. The included controls are a gender dummy (male is reference), age group dummies: younger than 30 (reference), 30–44, 45–59, and 60+ and education dummies: No education (reference), professional education: basic, advanced with degree, advanced short, advanced medium, advanced long. Estimates are weighted by full municipal population size divided by survey municipal population size. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .



## Appendix A

TABLE A1

*Summary statistics for voting by year*

Variable	Mean	Standard deviation	Min	Max
Vote share for: anti-immigration parties, %, parliament elections 1990	6.45	2.76	2.96	20.56
The PP, %, parliament elections 1990	6.45	2.76	2.96	20.56
Centre-left parties, %, parliament elections 1990	53.57	10.51	23.66	74.55
Centre-right parties, %, parliament elections 1990	31.72	7.90	16.76	60.00
Other (centre small) parties, %, parliament elections 1990	8.27	2.27	3.34	20.48
Vote share for: anti-immigration parties, %, parliament elections 1994	6.47	1.76	3.51	15.05
The PP, %, parliament elections 1994	6.47	1.76	3.51	15.05
Centre-left parties, %, parliament elections 1994	49.67	8.96	22.45	71.84
Centre-right parties, %, parliament elections 1994	38.22	8.22	20.78	67.15
Other (centre small) parties, %, parliament elections 1994	5.64	2.23	2.08	13.21
Vote share for: anti-immigration parties, %, parliament elections 1998	9.87	2.39	6.12	19.23
The PP, %, parliament elections 1998	2.44	2.74	0.65	15.50
The DPP, %, parliament elections 1998	7.42	2.02	2.61	13.83
Centre-left parties, %, parliament elections 1998	50.34	8.85	24.29	69.83
Centre-right parties, %, parliament elections 1998	32.92	7.81	17.26	59.87
Other (centre small) parties, %, parliament elections 1998	6.87	1.86	3.70	18.71
Vote share for: anti-immigration parties, %, municipal elections 1989	5.57	2.93	0.00	16.06
The PP, %, municipal elections 1989	5.57	2.93	0.00	16.06
Centre-left parties, %, municipal elections 1989	50.85	13.63	12.60	79.88
Centre-right parties, %, municipal elections 1989	32.14	11.76	0.00	65.26
Other (centre small) parties, %, municipal elections 1989	11.43	9.62	0.00	84.70
Vote share for: anti-immigration parties, %, municipal elections 1993	4.38	2.81	0.00	17.49
The PP, %, municipal elections 1993	4.38	2.81	0.00	17.49
Centre-left parties, %, municipal elections 1993	47.49	12.82	13.08	79.73
Centre-right parties, %, municipal elections 1993	38.30	11.81	0.00	73.72
Other (centre small) parties, %, municipal elections 1993	9.83	9.43	0.00	85.35
Vote share for: anti-immigration parties, %, municipal elections 1997	6.78	3.64	0.00	17.09
The PP, %, municipal elections 1997	1.59	2.18	0.00	17.09
The DPP, %, municipal elections 1997	5.19	3.77	0.00	15.43
Centre-left parties, %, municipal elections 1997	46.75	12.52	9.11	74.38
Centre-right parties, %, municipal elections 1997	36.47	12.32	0.00	74.50
Other (centre small) parties, %, municipal elections 1997	10.00	10.15	0.00	84.97

*Notes:* Voting statistics from the Danish Ministry of the Interior for parliament elections and Statistics Denmark Database for municipal elections. 275 Danish municipalities. Parliament elections: 1990, 1994, and 1998. Municipal elections: 1989, 1993, and 1997. Statistics are weighted by municipal population size in 1986. Please see Table A4 for the detailed description of data construction.

TABLE A2

*Correlation between allocation of Balkan refugees and other refugees*

	(1)	(2)
	$\Delta$ Share of allocated refugees in % of local population	
$\Delta$ Share of Balkan refugees in % of local population	-0.012 (0.014)	-0.013 (0.015)
Time FE	No	Yes
Number of municipalities		275
Observations		550

*Notes:* Parliament elections 1990–8. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

TABLE A3  
*Variation in refugees assigned to Danish municipalities, 1986–98*

	Mean (%)	SD (%)	Between (%)	Within (%)	<i>N</i>
Share of allocated refugees	0.38	0.40	0.36	0.17	825
Change in share of allocated refugees	0.14	0.18	0.15	0.11	550

*Notes:* “Share of allocated refugees” is calculated as the total cumulative number of refugees allocated from 1986 until the year prior to the election year as a percent of local population in 1986.

TABLE A4  
Data sources

Variable	Definition	Source
Panel A: Variables describing voting outcomes		
Vote share for anti-immigration parties, %, parliament (municipal) elections	Share of votes in % given for the PP and the DPP at parliament (municipal) elections	The Danish Ministry of the Interior, can be downloaded at <a href="http://www.oim.dk">www.oim.dk</a> ("Folketingsvalget d. 12. December 1990," "Folketingsvalget d. 21. September 1994," and "Folketingsvalget d. 11. Marts 1998"), Statistics Denmark Database, table VALG2, and VALGK3X
Vote share for the PP, %, parliament (municipal) elections	Share of votes in % given for the PP at parliament (municipal) elections	The Danish Ministry of the Interior, can be downloaded at <a href="http://www.oim.dk">www.oim.dk</a> ("Folketingsvalget d. 12. December 1990," "Folketingsvalget d. 21. September 1994," and "Folketingsvalget d. 11. Marts 1998"), Statistics Denmark Database, table VALG2, and VALGK3X
Vote share for the DPP, %, parliament (municipal) elections	Share of votes in % given for the DPP at parliament (municipal) elections	The Danish Ministry of the Interior, can be downloaded at <a href="http://www.oim.dk">www.oim.dk</a> ("Folketingsvalget d. 12. December 1990," "Folketingsvalget d. 21. September 1994," and "Folketingsvalget d. 11. Marts 1998"), Statistics Denmark Database, table VALG2, and VALGK3X
Vote share for centre-left parties, %, parliament (municipal) elections	Share of votes in % given for the Social Democrats, the Danish Social Liberal Party, the Social People's Party, the Democratic Renewal, the Green Party, the Common Course, and the Red-Green Alliance at parliament (municipal) elections	The Danish Ministry of the Interior, can be downloaded at <a href="http://www.oim.dk">www.oim.dk</a> ("Folketingsvalget d. 12. December 1990," "Folketingsvalget d. 21. September 1994," and "Folketingsvalget d. 11. Marts 1998"), Statistics Denmark Database, table VALG2, and VALGK3X
Vote share for centre-right parties, %, parliament (municipal) elections	Share of votes in % given for the Conservative People's Party and the Denmark's Liberal Party at parliament (municipal) elections	The Danish Ministry of the Interior, can be downloaded at <a href="http://www.oim.dk">www.oim.dk</a> ("Folketingsvalget d. 12. December 1990," "Folketingsvalget d. 21. September 1994," and "Folketingsvalget d. 11. Marts 1998"), Statistics Denmark Database, table VALG2, and VALGK3X
Vote share for other (centre small) parties, %, parliament (municipal) elections	Share of votes in % given for the Centre Democratic Party, the Christian People's Party, the Schleswig Party, the Justice Party of Denmark, the Humanist Movement, and other unclassified small parties at parliament (municipal) elections	The Danish Ministry of the Interior, can be downloaded at <a href="http://www.oim.dk">www.oim.dk</a> ("Folketingsvalget d. 12. December 1990," "Folketingsvalget d. 21. September 1994," and "Folketingsvalget d. 11. Marts 1998"), Statistics Denmark Database, table VALG2, and VALGK3X
Turnout for parliament (municipal) elections, %	Turnout in % of all potential voters at parliament (municipal) elections	Turnout statistics from the Danish Ministry of the Interior for parliament elections. Turnout statistics from the "Municipal elections in municipalities and counties on the 21 November 1989" statistical book and Statistics Denmark Statistical Yearbooks for municipal elections.

TABLE A4  
*Continued*

Variable	Definition	Source
Panel B: Allocated refugees Change in share of allocated refugees in % of local population	Change between elections in the cumulative number of refugees originating from Iran, Iraq, Vietnam, Sri Lanka, Afghanistan, Lebanon, Somalia, Ethiopia, and stateless refugees who were assigned to a municipality from 1986 till the year prior to elections divided by the population size of that municipality on 1 January 1986.	Population register, Statistics Denmark, and table FOLK2 from Statistics Denmark Database
Panel C: Municipal characteristics, 1985		
Population	Population per 1 January 1986	Statistics Denmark Database, table BEV1
Share of rich in local population (%)	The share (%) of adults whose disposable income per household member is 50% above Danish median	Population, Income and Educational registers, Statistics Denmark
Mean log gross income per capita	Log of total gross income (in 1,000 DKK) in a municipality divided by the municipality population size (only those liable to pay income tax are observed)	Statistics Denmark Database, table IF2I2, and table BEV1
Mean age	Average age of municipal population	Population register, Statistics Denmark
Local unemployment rate, %, November	The share of unemployed as % of those who are in the labour force in November	Population and Labor force register, Statistics Denmark
Share of immigrants (first and second generation) (%)	Share of individuals born abroad or in Denmark for whom neither of parents is born in Denmark and has Danish citizenship	Population register, Statistics Denmark
Reported crime rate (%)	Number of reported crimes divided by population size (%)	"Statistiske Efterretninger om Social Sikring og Retsvæsen," Statistics Denmark, and Statistics Denmark Database, table BEV1
Share of native population paying voluntary church tax (%)	Share of adults who payed church tax divided by the total number of adults paying income tax	Population and Income registers, Statistics Denmark
Share of welfare dependent among immigrants (%)	Number of immigrants who are not employed divided by the total number of immigrants aged 18–64 years	Populations and Labor force registers, Statistics Denmark
Share with a tertiary education among those younger than 65	Share in the municipal population younger than 65 who have completed a tertiary education	Population and Educational register, Statistics Denmark
Share of vacant rental housing	The share of residential rental housing in the municipality that does not have anyone registered as living there.	Residential register and Population register, Statistics Denmark

TABLE A5  
*Characteristics of allocated refugees*

Number of allocated refugees	Mean year of immigration	Arrive with family (%)	Men (%)	Mean age	Share with at least professional qualification (%)	Welfare dependent, second year since immigration (%)	Unemployment rate, second year since immigration (%)	Welfare dependent, 10th year since immigration (%)	Unemployment rate, 10th year since immigration (%)
40,283	1991	51	61	25.3	24.8	96.3	84.8	67.8	60.5

*Notes:* Refugees allocated in period 1986–98. Definitions: welfare dependent—share of unemployed and out of labour force among 18–64 years old. Unemployment rate—share of unemployed among those in labour force among 18–64 years old. Share with at least professional qualification—share of adults holding at least a professional qualification.

*Source:* Own calculations based on Statistics Denmark register data.

TABLE A6  
*Balancing turnout*

	(1)	(2)
Panel A: $\Delta$ Share of allocated refugees in % of local population, 4 years after		
	Municipal elections	Parliament elections
$\Delta$ Turnout, lagged	0.0059 (0.0053)	0.0079 (0.0132)
Conditional on lagged refugee shares	Yes	
Panel B: $\Delta$ Share of allocated refugees in % of local population, 4 years after parliament elections		
$\Delta$ Turnout, lagged	-0.0079 (0.0147)	0.0049 (0.0124)
$\Delta$ Turnout, lagged 2	-0.0468*** (0.0158)	-0.0156 (0.0156)
$\Delta$ Turnout, lagged 3	-0.0501*** (0.0169)	-0.0121 (0.0152)
Joint significance of turnout estimates	5.201	0.462
Prob > $F$	0.00166	0.709
Conditional on lagged refugee shares	No	Yes
Time FE		No
Number of municipalities		275
$N$		275

Notes: Danish municipal elections 1989–93 and Parliament election 1990–4 in Panel A. Danish Parliament elections 1987–94 in Panel B. Estimates are weighted by municipal population size. Share of allocated refugees are in percent of local population in 1986. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

TABLE A7  
*Strict exogeneity tests*

	(1)	(2)
Dependent variable	$\Delta$ Share of votes for anti-immigration parties at	
	Parliament elections	Municipal elections
Panel A: Weighted		
$\Delta$ Share of allocated refugees in % of local population	1.7518*** (0.5755)	4.6716*** (1.4988)
Share of allocated refugees in % of local population	-0.5682 (0.3785)	-1.3371 (0.8424)
Panel B: Weighted, indicator for 5% largest		
$\Delta$ Share of allocated refugees in % of local population	1.4860*** (0.5447)	3.6929*** (1.2876)
$\Delta$ Share of allocated refugees in % of local population * indicator for being among the 5% largest municipalities	-3.3485 (2.6296)	2.4113 (5.7587)
Share of allocated refugees in % of local population	-0.0958 (0.2518)	-0.9381 (0.6064)
Share of allocated refugees in % of local population * indicator for being among the 5% largest municipalities	-0.7192 (1.1071)	-2.9348 (3.0874)
$F$ : $F$ -test of joint significance of level variable	0.358	2.015
Prob > $F$	0.699	0.134
Time FE		Yes
$N$		550
Number of municipalities		275

Notes: Danish Parliament elections 1990–8 and Danish municipal elections 1989–97. Share of allocated refugees are in percent of local population in 1986. Mean of the election cycle change in share of allocated refugees: 0.14% in Column (1) and 0.13% in Column (2). The  $F$ -test in Panel B tests the joint significance of the “share of allocated refugees” and the “share of allocated refugees” interacted with a dummy indicating if the municipality is among the 5% largest. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

TABLE A8  
Balancing tests, education of allocated refugees, lagged vote shares, and lagged share of seats for anti-immigration parties

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	$\Delta$ Share of refugees allocated to the municipalities 4 years after election with highest completed education being						
	Upper secondary or primary school education	Primary school	Upper secondary education	Qualifying education	Tertiary education	Missing education	Municipality received 0 refugees (0/1)
Panel A: Change in share of votes for anti-immigration parties							
$\Delta$ Share of votes for anti-immigration parties, lagged	-0.0002 (0.0035)	-0.0015 (0.0028)	0.0013 (0.0018)	-0.0006 (0.0024)	0.0022 (0.0025)	-0.0014 (0.0059)	-0.0114 (0.0069)
Mean of dependent variable	[0.2052]	[0.1403]	[0.0649]	[0.0837]	[0.1082]	[0.6028]	[0.2945]
Time FE			No				No
Number of municipalities			194				275
<i>N</i>			194				275
Panel B: Change in the share of seats for anti-immigration parties							
$\Delta$ Share of seats for anti-immigration parties, lagged	0.0015 (0.0018)	0.0009 (0.0016)	0.0006 (0.0010)	-0.0003 (0.0014)	-0.0003 (0.0015)	-0.0009 (0.0029)	-0.0064 (0.0041)
Mean of dependent variable	[0.1783]	[0.1201]	[0.0582]	[0.0886]	[0.1027]	[0.6304]	[0.2964]
Time FE			Yes				Yes
Number of municipalities			222				275
<i>N</i>			387				550

Notes: Danish municipal elections 1989–97. Estimates are weighted by municipal population size in 1986. Only municipalities with more than 0 refugees allocated in the period are included in Columns (1)–(6), therefore eighty-two municipalities are excluded for the election in 1989 and eighty-one municipalities are excluded in the election in 1993. Mean of the change in share of votes for anti-immigration parties is -1.49 in Panel A Columns (1)–(6) and -1.55 in Column (7). The change in share of seats for anti-immigration is 1.06 in Panel B Columns (1)–(6) and 1.01 in Column (7). Panel A relates only to 1993–7. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .



TABLE A9  
Balancing tests by refugee origin country

Explanatory variable	(1)	(2)
	$\Delta$ Share of votes for Anti-immigration parties	$\Delta$ Share of seats for Anti-immigration parties
Dependent variable		
$\Delta$ Share of allocated refugees in % of local population, 4 years after election	0.0078 (0.0051)	0.0058* (0.0031)
$\Delta$ Share of allocated refugees from the Middle-east in % of local population, 4 years after election	0.0031 (0.0032)	0.0016 (0.0019)
$\Delta$ Share of allocated refugees from Africa in % of local population, 4 years after election	0.0047* (0.0027)	0.0023 (0.0016)
$\Delta$ Share of allocated refugees from Asia in % of local population, 4 years after election	-0.0000 (0.0007)	0.0020** (0.0010)
Time FE		Yes
<i>N</i>	275	550
Number of municipalities		275

*Notes:* Danish municipal elections 1989–97. Estimates are weighted by municipal population size in 1986. Mean in the change of the share of allocated refugees is 0.13% in Column (1) and 0.14% in Column (2). From the Middle east: 0.07% in (1) and 0.08 in (2), from Africa: 0.05% in (1) and 0.03% in (2), from Asia: 0.02% in (1) and 0.03% in (2). Middle-eastern countries: Iraq, Iran, Lebanon, and Afghanistan. African countries: Ethiopia and Somalia. Asian countries: Vietnam and Sri Lanka. Specification (2) relates only to the 1993–7 election cycle. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

TABLE A10  
Balancing test, pre allocation municipal characteristics, and refugee allocation

Dependent variable	(1) ΔShare of allocated refugees in % of local population from 1986 to 1998 for Smaller, rural municipalities	(2) Smaller, rural municipalities	(3) Larger, urban municipalities	(4) Larger, urban municipalities	(5) Larger, urban municipalities	(6) Larger, urban municipalities
Share of rich in % of local population	-0.0041 (0.0043)	0.0026 (0.0046)	-0.0193 (0.0218)	-0.0315 (0.0222)	-0.0423*** (0.0122)	-0.0109 (0.0160)
Log gross income pc, standardized	-0.0089 (0.0247)	0.0143 (0.0258)	-0.2002** (0.0840)	-0.2634** (0.1012)	-0.2176*** (0.0635)	-0.0797 (0.0519)
Share of immigrants	-0.0007 (0.0149)	-0.0205 (0.0168)	-0.1021*** (0.0262)	-0.1413*** (0.0344)	-0.1252 (0.0792)	-0.0139 (0.0755)
Reported crime, standardized	-0.0025 (0.0290)	0.0012 (0.0299)	-0.0674 (0.0383)	-0.1952** (0.0796)	0.2107** (0.0843)	0.1011 (0.0995)
Share church tax payers	-0.0018 (0.0106)	0.0164 (0.0116)	0.0631*** (0.0152)	0.1041*** (0.0215)	0.0747 (0.0712)	0.0275 (0.0399)
Local unemployment rate, standardized	0.0640** (0.0303)	-0.0163 (0.0262)	0.1355 (0.1398)	0.4508** (0.1867)	0.3207*** (0.0941)	0.1432 (0.1004)
Share of welfare dependent among immigrants	0.0056 (0.0041)	-0.0058 (0.0043)	0.0403 (0.0430)	0.0725 (0.0560)	0.0776*** (0.0177)	0.0239 (0.0245)
Share with a tertiary education among those younger than 65	0.0055 (0.0092)	0.0057 (0.0087)	-0.0452* (0.0236)	-0.0464 (0.0270)	-0.0339 (0.0258)	-0.0099 (0.0199)
Conditional on share of vacant rental houses in 1985	No	Yes	No	Yes	No	Yes
Observations	262	262	13	13	11	11

Notes: Number of allocated refugees is calculated as the total cumulative number of allocated refugees from 1986 to 98 as a percent of local population in 1986. Estimates are weighted with municipal population size in 1986. The predictors that are standardized are so with mean 0 and standard deviation 1. In (1) and (2), the 5% largest municipalities are excluded, in (3) and (4), the 95% smallest municipalities are excluded, in (5) and (6) Copenhagen, Frederiksberg, and the 95% smallest municipalities are excluded. We condition on the share of all rental housing that are vacant in 1985. These are calculated as the share of rental houses that does not have anyone registered as living there when merging together the population and housing registers. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

TABLE A11

(a) Allocation of refugees and voting behaviour; parliament elections, robustness checks and (b) Allocation of refugees and voting behaviour; municipal elections, and robustness checks

(a)	(1)	(2)	(3)	(4)
Dependent variable	Centre-left	Other (centre small)	Centre-right	Anti- immigration
Panel A: Excluding Copenhagen and Frederiksberg				
ΔShare of allocated refugees in % of local population	-1.417*** (0.535)	-0.815* (0.490)	0.802** (0.386)	1.430*** (0.388)
ΔShare of allocated refugees in % of local population *	3.296 (2.353)	1.570 (3.391)	-0.847 (1.849)	-4.019*** (1.372)
indicator for municipality being one among the 5% largest				
Panel B: Conditional on share of vacant rental housing in base period				
ΔShare of allocated refugees in % of local population	-0.815 (0.556)	-1.192** (0.488)	0.916** (0.370)	1.091*** (0.409)
ΔShare of allocated refugees in % of local population *	4.707* (2.460)	0.717 (3.361)	-0.583 (1.829)	-4.841*** (1.350)
indicator for municipality being one among the 5% largest				
Panel C: Conditional on change in share of vacant rental housing between election cycles				
ΔShare of allocated refugees in % of local population	-1.373** (0.540)	-0.777 (0.496)	0.809** (0.387)	1.341*** (0.392)
ΔShare of allocated refugees in % of local population *	5.217* (2.835)	0.004 (3.255)	-0.120 (1.778)	-5.101*** (1.595)
indicator for municipality being one among the 5% largest				
Panel D: Conditional on change in gross income per capita				
ΔShare of allocated refugees in % of local population	-1.166** (0.511)	-0.675 (0.498)	0.763** (0.386)	1.079*** (0.333)
ΔShare of allocated refugees in % of local population *	5.301* (2.986)	0.373 (3.445)	-0.309 (1.914)	-5.365*** (1.963)
indicator for municipality being one among the 5% largest				
Panel E: Conditional on change in gross income per capita and change in share of vacant rental housing				
ΔShare of allocated refugees in % of local population	-1.173** (0.513)	-0.663 (0.504)	0.756* (0.387)	1.080*** (0.333)
ΔShare of allocated refugees in % of local population *	5.438* (3.013)	0.131 (3.271)	-0.179 (1.812)	-5.391*** (1.982)
indicator for municipality being one among the 5% largest				
Time FE			Yes	
N			550 (546 in Panel A)	
Number of municipalities			275 (273 in Panel A)	

TABLE A11  
Continued

(b)	(1)	(2)	(3)	(4)
Dependent variable	Centre-left	Other (centre small)	Centre-right	Anti- immigration
Panel A: Excluding Copenhagen and Frederiksberg				
$\Delta$ Share of allocated refugees in % of local population	-3.162** (1.498)	-0.500 (1.589)	1.313 (1.459)	2.349*** (0.818)
$\Delta$ Share of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	9.424** (4.641)	-2.386 (2.948)	-5.251 (4.183)	-1.784 (1.821)
Panel B: Conditional on share of vacant rental housing in base period				
$\Delta$ Share of allocated refugees in % of local population	-2.306 (1.491)	-1.313 (1.555)	1.714 (1.473)	1.905** (0.852)
$\Delta$ Share of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	13.736*** (4.767)	-3.130 (2.681)	-6.774* (4.013)	-3.826** (1.838)
Panel C: Conditional on change in share of vacant rental housing between election cycles				
$\Delta$ Share of allocated refugees in % of local population	-3.190** (1.456)	-0.510 (1.577)	1.365 (1.434)	2.336*** (0.807)
$\Delta$ Share of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	13.299*** (5.036)	-3.029 (2.883)	-5.971 (4.128)	-4.296** (2.074)
Panel D: Conditional on change in gross income per capita				
$\Delta$ Share of allocated refugees in % of local population	-2.640* (1.465)	-0.692 (1.585)	1.160 (1.454)	2.172*** (0.800)
$\Delta$ Share of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	14.318*** (5.090)	-3.851 (2.890)	-6.545 (3.988)	-3.914** (1.954)
Panel E: Conditional on change in gross income per capita and change in share of vacant rental housing				
$\Delta$ Share of allocated refugees in % of local population	-2.487* (1.434)	-0.790 (1.589)	1.084 (1.442)	2.193*** (0.799)
$\Delta$ Share of allocated refugees in % of local population * indicator for municipality being one among the 5% largest	12.599** (4.894)	-2.750 (2.889)	-5.692 (4.044)	-4.154** (2.111)
Time FE			Yes	
N			550 (546 in Panel A) 275 (273 in Panel A)	
Number of municipalities				

Notes: Danish Parliament elections 1990–8 and Danish municipal elections 1989–97. Share of allocated refugees are in percent of local population in 1986. Mean of the election cycle change in share of allocated refugees: (a) 0.14% in (1) and (b) 0.13%. Estimates are weighted by municipal population size in 1986. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

TABLE A12  
(a) *Response to refugee allocation, municipal characteristics, and parliament elections and (b) Response to refugee allocation, municipal characteristics, and municipal elections*

Dependent variable	(1) 95% Smallest municipalities	(2) Centre-left parties 5% Largest municipalities	(3) ΔShare of votes for Other (centre small) 95% Smallest municipalities	(4) ΔShare of votes for 5% Largest municipalities	(5) 95% Smallest municipalities	(6) Centre-right 5% Largest municipalities
Panel A: Baseline						
ΔShare of allocated refugees in % of local population	-1.365** (0.538)	3.759 (2.742)	-0.799 (0.489)	-0.535 (3.393)	0.821** (0.386)	0.563 (1.840)
Panel B: Immigrants						
ΔShare of allocated refugees in % of local population	-1.355** (0.536)	2.775 (2.255)	-0.799 (0.490)	0.013 (3.508)	0.822** (0.389)	0.543 (1.946)
ΔShare of allocated refugees in % of local population * share of immigrants	-2.148*** (0.553)	-1.509** (0.725)	0.045 (0.393)	0.840 (0.661)	-0.203 (0.319)	-0.032 (0.479)
Panel C: Log gross income pc						
ΔShare of allocated refugees in % of local population	-1.284** (0.524)	4.354 (2.931)	-0.779 (0.490)	-0.405 (3.644)	0.800** (0.383)	0.219 (1.792)
ΔShare of allocated refugees in % of local population * log gross income pc	-1.794*** (0.627)	1.913 (1.631)	-0.446 (0.401)	0.417 (1.421)	0.472 (0.419)	-1.107* (0.659)
Panel D: Share of rich						
ΔShare of allocated refugees in % of local population	-1.456*** (0.544)	5.099* (3.035)	-0.880* (0.499)	-0.569 (3.853)	0.872** (0.387)	0.079 (1.858)
ΔShare of allocated refugees in % of local population * share of rich in % of population	-0.799** (0.387)	2.997 (1.924)	-0.707* (0.389)	-0.076 (1.606)	0.447 (0.324)	-1.084 (0.660)
Panel E: Crime rate						
ΔShare of allocated refugees in % of local population	-1.232** (0.523)	4.155* (2.479)	-0.768 (0.475)	-0.726 (3.152)	0.795** (0.375)	0.522 (1.825)
ΔShare of allocated refugees in % of local population * reported crime rate	-2.079*** (0.616)	-0.893* (0.538)	-0.486 (0.421)	0.429 (0.461)	0.415 (0.279)	0.094 (0.338)
Panel F: Share of church tax payers						
ΔShare of allocated refugees in % of local population	-1.391*** (0.517)	3.241 (2.254)	-0.786 (0.483)	-0.302 (3.392)	0.816** (0.388)	0.558 (1.906)
ΔShare of allocated refugees in % of local population * share of church tax payers	1.769*** (0.573)	1.733** (0.730)	-0.897** (0.397)	-0.780 (0.765)	0.342 (0.379)	0.017 (0.510)

TABLE A12  
Continued

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
	95% Smallest municipalities	Centre-left parties 5% Largest municipalities	ΔShare of votes for Other (centre small) 95% Smallest municipalities	5% Largest municipalities	95% Smallest municipalities	Centre-right 5% Largest municipalities
Panel G: Unemployment						
ΔShare of allocated refugees in % of local population	-1.302** (0.537)	7.698** (3.342)	-0.916* (0.503)	-1.075 (4.386)	0.897** (0.385)	-0.260 (2.157)
ΔShare of allocated refugees in % of local population * local unemployment rate	-0.429 (0.451)	-3.657*** (1.144)	0.795** (0.345)	0.501 (1.416)	-0.518 (0.443)	0.764 (1.006)
Panel H: Share of welfare dependent immigrants						
ΔShare of allocated refugees in % of local population	-1.313** (0.529)	6.815 (4.475)	-0.833* (0.495)	-1.831 (3.113)	0.841** (0.386)	-0.662 (2.562)
ΔShare of allocated refugees in % of local population * share of welfare dependent among immigrants	-0.862** (0.422)	-2.509 (3.096)	0.567 (0.348)	1.064 (2.603)	-0.328 (0.310)	1.006 (1.848)
Panel I: Share younger than 65 with a tertiary education						
ΔShare of allocated refugees in % of local population	-1.374** (0.537)	3.407 (2.575)	-0.806* (0.484)	-0.863 (2.482)	0.817** (0.384)	1.015 (1.491)
ΔShare of allocated refugees in % of local population * Share younger than 65 with a tertiary education	0.089 (0.402)	0.548 (1.333)	0.069 (0.307)	0.510 (1.787)	0.045 (0.365)	-0.703 (0.817)
Time FE				Yes		
N				550		
Municipalities				275		

TABLE A12  
Continued

(b)	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	95% Smallest municipalities	Centre-left parties 5% Largest municipalities	95% Smallest municipalities	ΔShare of votes for Other (centre small) 5% Largest municipalities	95% Smallest municipalities	Centre-right 5% Largest municipalities
Panel A: Baseline						
ΔShare of allocated refugees in % of local population	-3.327** (1.486)	11.613** (5.024)	-0.421 (1.574)	-4.518* (2.434)	1.433 (1.446)	-5.359 (3.799)
Panel B: Immigrants						
ΔShare of allocated refugees in % of local population	-3.189** (1.500)	11.133** (5.029)	-0.418 (1.602)	-4.683* (2.457)	1.642 (1.420)	-5.792 (3.899)
ΔShare of allocated refugees in % of local population * share of immigrants	-1.034 (1.093)	-1.003 (2.103)	-0.021 (1.023)	-0.344 (1.004)	-1.573* (0.864)	-0.903 (1.787)
Panel C: Log gross income pc						
ΔShare of allocated refugees in % of local population	-3.144** (1.488)	12.409** (5.065)	-0.508 (1.600)	-5.426** (2.176)	1.484 (1.453)	-4.674 (4.143)
ΔShare of allocated refugees in % of local population * log gross income pc	-1.651 (1.129)	3.325 (2.474)	0.786 (1.317)	-3.794** (1.509)	-0.463 (1.254)	2.866 (1.982)
Panel D: Share of rich						
ΔShare of allocated refugees in % of local population	-3.366** (1.477)	12.995** (5.555)	-0.398 (1.562)	-6.000** (2.387)	1.445 (1.452)	-3.797 (4.436)
ΔShare of allocated refugees in % of local population * share of rich in in % of population	-0.758 (1.021)	3.321 (3.075)	0.459 (1.284)	-3.562** (1.744)	0.242 (1.269)	3.754 (2.540)
Panel E: Crime rate						
ΔShare of allocated refugees in % of local population	-3.246** (1.473)	12.564** (5.007)	-0.436 (1.579)	-4.700* (2.417)	1.452 (1.455)	-5.248 (3.866)
ΔShare of allocated refugees in % of local population * reported crime rate	-1.954* (1.131)	-1.716 (1.541)	0.359 (0.953)	0.328 (0.734)	-0.457 (0.830)	-0.201 (1.237)
Panel F: Share of church tax payers						
ΔShare of allocated refugees in % of local population	-3.327** (1.481)	11.364** (5.038)	-0.421 (1.577)	-4.477* (2.438)	1.432 (1.470)	-5.563 (3.781)
ΔShare of allocated refugees in % of local population * share of church tax payers	0.696 (1.256)	1.376 (2.476)	-0.739 (1.700)	-0.226 (1.158)	1.535 (1.313)	1.126 (2.017)
Panel G: Unemployment						
ΔShare of allocated refugees in % of local population	-3.188** (1.450)	18.800*** (6.150)	-0.448 (1.526)	-7.655*** (2.669)	1.267 (1.440)	-7.230 (5.565)
ΔShare of allocated refugees in % of local population * local unemployment rate	-0.903 (1.258)	-7.139** (3.460)	0.172 (1.350)	3.116** (1.466)	1.081 (1.149)	1.859 (3.845)



TABLE A12  
Continued

Dependent variable	(1)		(2)		(3)		(4)		(5)		(6)	
	95% Smallest municipalities		Centre-left parties 5% Largest municipalities		ΔShare of votes for Other (centre small) 95% Smallest municipalities		5% Largest municipalities		95% Smallest municipalities		Centre-right 5% Largest municipalities	
Panel H: Share of welfare dependent immigrants												
ΔShare of allocated refugees in % of local population	-3.231** (1.470)		21.176* (10.989)		-0.440 (1.560)		-7.800 (5.135)		1.503 (1.423)		-6.183 (8.271)	
ΔShare of allocated refugees in % of local population * share of welfare dependent among immigrants	-0.943 (1.150)		-7.718 (7.489)		0.182 (1.085)		2.649 (3.357)		-0.690 (1.137)		0.665 (6.381)	
Panel I: Share younger than 65 with a tertiary education												
ΔShare of allocated refugees in % of local population	-3.438** (1.499)		11.716** (4.859)		-0.567 (1.618)		-3.702 (2.600)		1.627 (1.458)		-6.497 (4.055)	
ΔShare of allocated refugees in % of local population * share younger than 65 with a tertiary education	0.845 (0.998)		-0.146 (2.979)		1.106 (1.308)		-1.162 (1.240)		-1.474 (0.981)		1.620 (2.342)	
Time FE											Yes	
N											550	
Municipalities											275	

Notes: Danish Parliament elections 1990–8 and Danish Municipal elections 1989–97. Share of allocated refugees are in percent of the local population size in 1986. Estimates are weighted by municipal population size in 1986. Mean of the election cycle change in share of allocated refugees is: (a) 0.14% and (b) 0.13%. All predictors are standardized with mean 0 and standard deviation 1. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

TABLE A13  
*Decomposition, change in vote shares for anti-immigration parties, and municipal characteristics*

	Predicted change in vote share for anti-immigration parties due to allocated refugees if			
	Urban municipalities had rural characteristic	Rural municipalities had urban characteristic	Urban municipalities had rural characteristic	Rural municipalities had urban characteristic
	Parliament elections		Municipal elections	
Immigrants share	-3.374** (1.309)	4.197*** (0.721)	-0.787 (1.570)	5.230*** (1.164)
Log gross income pc	-4.122** (1.633)	2.581*** (0.688)	-2.214 (1.914)	3.158*** (1.034)
Share of rich	-4.600*** (1.598)	1.555*** (0.428)	-3.179 (2.333)	2.323*** (0.815)
Crime	-3.975** (1.634)	4.043*** (0.803)	-2.715* (1.431)	4.937*** (1.316)
Church	-3.546** (1.369)	2.597*** (0.664)	-1.431 (1.677)	3.834*** (1.198)
Unemployment	-6.399*** (1.646)	1.367*** (0.386)	-3.940* (1.904)	2.263*** (0.812)
Share of welfare dependent	-4.339 (3.857)	1.798*** (0.486)	-7.382 (6.190)	3.316*** (0.969)
Share with tertiary education	-3.540* (1.713)	1.156** (0.449)	-1.494 (2.828)	1.891** (0.837)
<i>N</i>			550	
Number of municipalities			275	

*Notes:* Danish Parliament elections 1990–8 and Danish municipal elections 1989–97. Refugee share in percent of local population in 1986. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

TABLE A14  
*Anti-immigration parties standing in municipal elections*

	No. (%) of municipalities “DPP” is not running in	No. (%) of municipalities “DPP” is running in
Panel A: Municipal elections 1993		
No. (%) of municipalities the “PP” is not running in	75 (27.3%)	0 (0%)
No. (%) of municipalities the “PP” is running in	200 (72.7%)	0 (0%)
Panel B: Municipal elections 1997		
No. (%) of municipalities the “PP” is not running in	53 (19.3%)	26 (9.5%)
No. (%) of municipalities the “PP” is running in	80 (29.1%)	116 (42.2%)

*Notes:* Danish municipal elections 1993 and 1997. Voting statistics from the Statistics Denmark Database for municipal elections.

TABLE A15  
*Descriptive statistics, DNES*

	Mean	SD	N
Panel A: Questions on attitudes towards refugees and immigrants			
I shall read some public tasks to you, and I ask you for each of these tasks to say whether you think the public uses too much money, a suitable amount, or too little money on these task: Aid to refugees	0.320	0.316	4,362
The parties disagree on how many refugees we can receive. Some think we receive far too many. Others say we can easily take more refugees. Here is a scale. Where about would you place: Yourself	0.550	0.401	3,597
Refugees and immigrants should have the same right as Danes to social security, even though they may not be Danish citizens	0.354	0.357	3,536
Immigrants constitute a threat to our national culture	0.358	0.269	3,560
Voted for an anti-immigration party at last election	0.055	0.228	4,625
Panel B: Individual characteristics			
Male	0.494	0.500	4,625
Female	0.506	0.500	4,625
Age: <30 (years)	0.244	0.430	4,625
Age: 30–44 (years)	0.310	0.463	4,625
Age: 45–59 (years)	0.190	0.392	4,625
Age: >59 (years)	0.256	0.436	4,625
No education	0.289	0.453	4,625
Professional education: basic	0.085	0.278	4,625
Advanced with a degree	0.348	0.477	4,625
Advanced short	0.081	0.274	4,625
Advanced medium	0.118	0.323	4,625
Advanced long	0.079	0.269	4,625

*Notes:* Data are from the Danish Election Survey 1990–8, 1,008 observations in 1990, 2,001 observations in 1994, and 2,021 observations in 1998. All attitude questions are normalized to range between 0 and 1 from an original scale of 1–5 (1–3 in the question regarding money spend on refugee aid) where the highest value is most in favor of refugees and immigrants. Estimates are weighted with full municipal population size divided by survey municipal population size. Individuals failing to answer the respective question or with missing controls are excluded.

TABLE A16  
Descriptive statistics, ESS data

	Mean	SD	N
The government should be generous in judging people's applications for refugee status	0.444	0.261	1,403
While their cases are being considered, the Danish government should give financial support to applicants	0.681	0.198	1,426
While their applications for refugee status are being considered, people should be allowed to work in Denmark	0.663	0.253	1,425
Refugees whose applications are granted should be entitled to bring in their close family members	0.487	0.287	1,420
Denmark has more than its fair share of people applying for refugee status	0.452	0.266	1,305
Most applicants for refugee status aren't in real fear of persecution in their own country	0.472	0.267	1,263
While their cases are being considered, applicants should be kept in detention centres	0.450	0.272	1,403
Most people who come to live here work and pay taxes. They also use health and welfare services. On balance, do you think people who come here take out more than they put in or put in more than they take out?	0.413	0.212	1,370
Average wages and salaries are generally brought down by people coming to live and work here	0.617	0.241	1,342
Would you say that people who come to live here generally take jobs away from workers in Denmark, or generally help to create new jobs?	0.561	0.179	1,383
Do you have any friends who have come to live in Denmark from another country?	0.475	0.500	1,464
Do you have any colleagues at work who have come to live in Denmark from another country?	0.400	0.490	1,462
Individual characteristics			
Male	0.509	0.500	1,473
Female	0.491	0.500	1,473
Age <30 (years)	0.196	0.397	1,473
Age 30–44 (years)	0.282	0.450	1,473
Age 45–59 (years)	0.280	0.449	1,473
Age >59 (years)	0.242	0.428	1,473
Low education (ISCED 0–2)	0.246	0.431	1,473
Mid-level education (ISCED 3–4)	0.466	0.499	1,473
High education (ISCED 5–6)	0.289	0.453	1,473

*Notes:* Data from the ESS round 1 (2002). See “ESS Round 1: ESS (2016): ESS-1 2002 Documentation Report. Edition 6.5. Bergen, ESS Data Archive, NSD—Norwegian Centre for Research Data for ESS ERIC” for full documentation of variables. Post stratification weights are applied. The questions in rows 1–11 are originally on a 5- or 10-level scale. Here we have recoded them to be in the range 0–1 with 1 being the category most in favor of refugees and immigrants. Immigrant friends (colleagues) (row 12–13): 1 if the respondent has some immigrant friends (colleagues).

TABLE A17  
*Determinants of attitudes towards refugees in Denmark (2002/2003)*

Dependent variable	Generous applications	Financial support	Allow to work	Bring family	Fair share	Fear of persecution	Kept in centres						
Big city	0.0402*** (0.0153)	0.0320*** (0.0114)	0.0243*** (0.0116)	0.0238*** (0.0116)	0.0418*** (0.0167)	0.0394*** (0.0148)	0.0418** (0.0167)	0.0551*** (0.0165)	0.0401*** (0.0162)	0.0356*** (0.0161)	0.0250 (0.0162)		
Mean of dependent variable	0.314 (0.464)	0.785 (0.411)	0.748 (0.434)	0.452 (0.498)	0.350 (0.477)	0.355 (0.479)	0.368 (0.482)						
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes		
N	1,403	1,403	1,426	1,426	1,425	1,425	1,420	1,420	1,305	1,305	1,263	1,403	1,403

*Notes:* Data are from the ESS (2002). See Table A16 and Appendix B for descriptives and more detailed information of the survey. All questions are normalized to range between 0 and 1 from an original scale from 1 to 5 and arranged such that the highest value (1) indicates the most refugee and immigration pro answer. Included controls: gender dummy (male is reference), age group dummies: younger than 30 (reference), 30–44, 45–59, and 60+ and education dummies (low education, ISCED 0–2 (reference), mid-level education ISCED 3–4, and high level education ISCED 5–6). Post stratification weights are applied. Individuals failing to answer the respective question or with missing controls are excluded. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

TABLE A18  
*Determinants of attitudes towards immigration in Denmark (2002/2003)*

Dependent variable	Immigrant friend		Immigrant colleague	
Explanatory variable: Big city	0.1358*** (0.028)	0.1123*** (0.028)	0.1186*** (0.028)	0.1029*** (0.027)
Mean of dependent variable	0.471 (0.499)		0.398 (0.490)	
Controls	No	Yes	No	Yes
<i>N</i>	1,464		1,462	
Explanatory variable	Immigrant friend		Immigrant colleague	
Dependent variable: Generous applications	0.0741*** (0.015)	0.0700*** (0.015)	0.0184 (0.015)	0.0161 (0.016)
Mean of dependent variable	0.314 (0.464)	0.314 (0.464)		
<i>N</i>	1,403		1,401	
Dependent variable: financial support	0.0197* (0.011)	0.0272** (0.011)	0.0017 (0.011)	−0.0002 (0.013)
Mean of dependent variable	0.785 (0.411)	0.785 (0.411)		
<i>N</i>	1,426		1,424	
Dependent variable: allow to work	0.0603*** (0.014)	0.0668*** (0.015)	0.0128 (0.014)	0.0193 (0.016)
Mean of dependent variable	0.748 (0.434)	0.748 (0.434)		
<i>N</i>	1,425		1,423	
Dependent variable: bring family	0.0902*** (0.016)	0.0677*** (0.016)	0.0596*** (0.016)	0.0329* (0.017)
Mean of dependent variable	0.452 (0.498)	0.452 (0.498)		
<i>N</i>	1,420		1,418	
Dependent variable: fair share	0.0753*** (0.016)	0.0541*** (0.016)	0.0788*** (0.016)	0.0514*** (0.017)
Mean of dependent variable	0.350 (0.477)	0.350 (0.477)		
<i>N</i>	1,305		1,303	
Dependent variable: fear of persecution	0.0784*** (0.016)	0.0488*** (0.016)	0.0683*** (0.016)	0.0244 (0.017)
Mean of dependent variable	0.355 (0.479)	0.355 (0.479)		
<i>N</i>	1,263		1,261	
Dependent variable: kept in centres	0.0874*** (0.015)	0.0739*** (0.016)	0.0491*** (0.016)	0.0267 (0.016)
Mean of dependent variable	0.368 (0.482)	0.368 (0.482)		
<i>N</i>	1,403		1,401	

Notes: Data are from the ESS (2002). See Table A16 and Appendix B for descriptives and more detailed information of the survey. Questions in Columns (1)–(3) are normalized to range between 0 and 1 from an original scale from 1 to 5 and arranged, such that the highest value (1) indicates the most refugee and immigration pro answer. Immigrant friend (colleague): 1 if the respondent has some immigrant friends (colleagues). Included controls: gender dummy (male is reference), age group dummies: younger than 30 (reference), 30–44, 45–59, and 60+ and education dummies (low education, ISCED 0–2 (reference), mid-level education ISCED 3–4, and high level education ISCED 5–6). Post stratification weights are applied. Individuals failing to answer the respective question or with missing controls are excluded. Heteroscedasticity robust standard errors in parentheses. \*\*\* $p < 0.01$  \*\* $p < 0.05$  \* $p < 0.1$ .

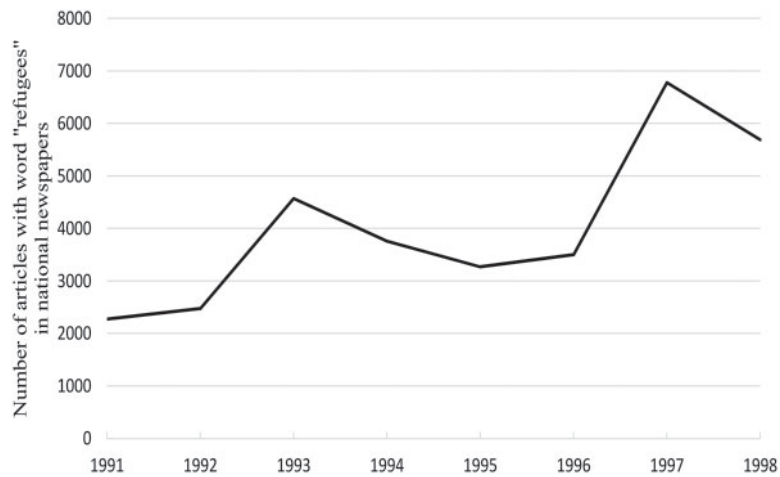


FIGURE A1

Number of articles in Danish National newspapers in which the word "refugee" appears

Source: Infomedia A/S.

Note: Results of search for word "Refugee" in the online archive of Danish national newspapers.

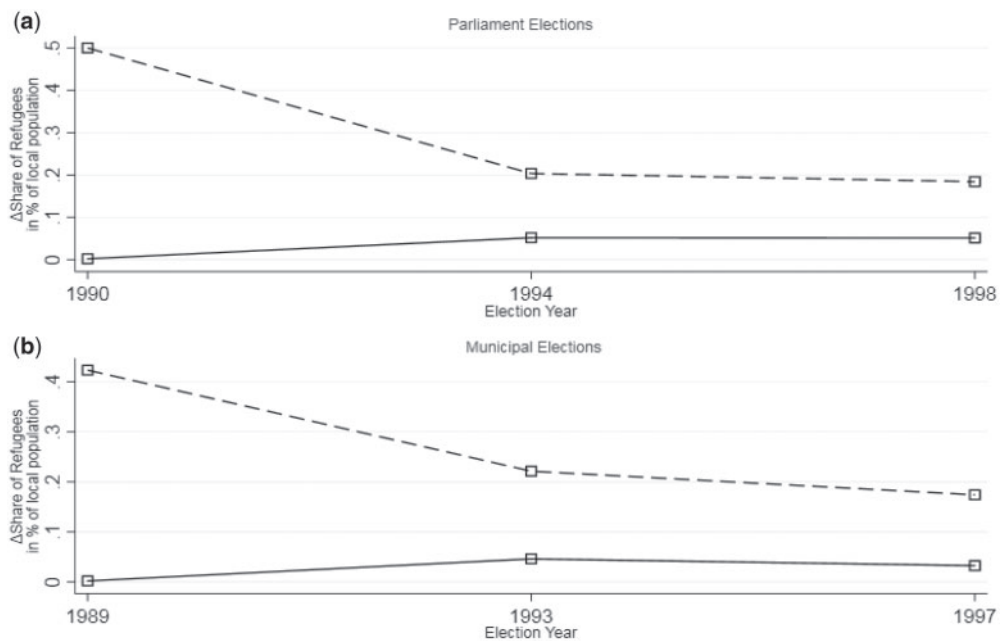


FIGURE A2

Refugee allocation and voting behaviour

Note: Parliament elections 1985-1998 in Panel A and municipal elections 1985-1997 in Panel B. Share of allocated refugees in percent of local population in 1986. The figure displays the change in share of allocated refugees for the 20% municipalities receiving the smallest refugee share (solid lines) and for the 40% municipalities receiving the largest refugee share (dashed lines) during the first election cycle.



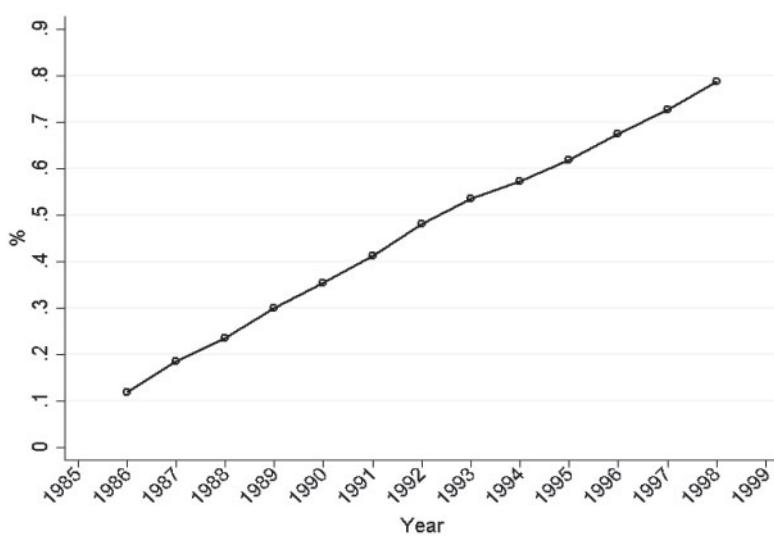


FIGURE A3

Allocated refugees as percent of Danish population, 1986

*Source:* Own calculations based on Statistics Denmark register data.*Note:* Vertical axis: Allocated refugees since 1986 in percent of local population size in 1986. Horizontal axis: year.

Appendix B  
TABLE B1  
*Election surveys*

Survey name midrule Data reference	Danish National Election Survey Election study (1990)	Election study (1994)	Election study (1998)	European Social Survey ESS Round 1: European Social Survey Round 1 Data (2002), Data file edition 6.5. NSD—Norwegian Centre for Research Data, Norway—Data Archive and distributor of ESS data for ESS ERIC
Available	For all Danish Parliament elections from 1971 to 2015	1994	1998	Biannually from 2002 to 14
Survey years used in this article	1990	1994	1998	2002 (Results from Denmark only are used)
Collection method	Face-to-face interviews	Face-to-face interviews	Face-to-face interviews	Face-to-face interviews
Purpose	The purpose of the studies is to contribute to research about elections and voting behaviour. The individual studies concern one specific general election and the political issues, which were important during this election.			To monitor and interpret changing public attitudes and values within Europe and to investigate how they interact with Europe's changing institutions, and to advance and consolidate improved methods of cross-national survey measurement in Europe and beyond.
Fieldwork period	Immediately after any Parliament election since 1971			1–4 months between September and December
Population	Danish citizens aged 18 years and above			All individuals aged 15 years and over in Denmark
Sample size	1008	2021	2001	1506
For further information see		<a href="http://www.valgprojektet.dk/">http://www.valgprojektet.dk/</a>		<a href="http://www.europeansocialsurvey.org/">http://www.europeansocialsurvey.org/</a>

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### Supplementary Materials

Supplementary materials are available at *Review of Economic Studies* online.

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