

Immigration and Voting for the Far Right^{*}

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Does the presence of immigrants in one's neighbourhood affect voting for far right-wing parties? We study the case of the Freedom Party of Austria (FPÖ) which, under the leadership of Jörg Haider, increased its vote share from less than 5 percent in the early 1980s to 27 percent by the end of the 1990s and continued to attract more than 20 percent of voters in the 2013 national election. We find that the inflow of immigrants into a community has a significant impact on the increase in the community's voting share for the FPÖ, explaining roughly a tenth of the regional variation in vote changes. Our results suggest that voters worry about adverse labor market effects of immigration, as well as about the quality of their neighbourhood. In fact, we find evidence of a negative impact of immigration on "compositional amenities." In communities with larger immigration influx, Austrian children commute longer distances to school, and fewer daycare resources are provided. We do not find evidence that Austrians move out of communities with increasing immigrant presence.

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1 Introduction

Voters in many European countries—including Austria, Belgium, Denmark, France, Netherlands, Norway, and Switzerland—have expressed strong support for far-right political parties in recent elections. From the 1970s until the mid-1980s, hardly any far-right party had gained more than five percent in a general election. Fifteen years later, far-right parties received between ten and twenty-five percent in these votes. Economic policy is shaped by these parties. Moreover, some of these parties have extreme tendencies. History reminds us that the rise of extreme parties within a democratic environment can put democracy itself at risk (Almond and Verba, 1965; Dahl, 1989). Explaining the success of far-right parties is, therefore, clearly an important issue.

While far-right parties are quite heterogeneous, they share a number of ideological features (Mudde, 1996). In particular, they all have fierce anti-immigration programs, which often become their main focus. Thus, immigration is a natural candidate for explaining the success of these parties. At the time of this writing, an unprecedented inflow of immigrants into Europe is occurring. Casual observation suggests that far-right parties throughout Europe are at least temporarily benefiting from voters' worries regarding this inflow. This casual observation on current events is supported by suggestive historical evidence, presented in Figure 1, which suggests a positive relationship between the share of immigrants in a population and the support for far-right parties. Taking country fixed effects into account, the correlation between the immigrant share and the existing far-right vote share is 0.53. When considering also countries where no far-right parties exist, the correlation is 0.30.

[Insert Figure 1 here]

This paper investigates whether immigration in voters' neighbourhoods is a driving force of the rise of far-right parties. Although the cross-country evidence suggests a positive relationship, it may be that enhanced contact with immigrants improves mutual understanding and fosters an appreciation of different viewpoints. This may lead to a negative relationship between immigration and support for the far right.

We look at the case of the *Freedom Party of Austria* (*Freiheitliche Partei Österreichs*, FPÖ), which generated substantial international attention. Until the early 1980s, the FPÖ was a small party with a vote share (in elections to the national parliament) of around 5 percent. When Jörg Haider became the party leader in 1986, the nationalists within the party, favoring an anti-immigration stance, prevailed over its business-friendly, libertarian wing. A nationalistic and anti-immigration approach has characterized the party's platform ever since. From 1986 onwards, the FPÖ steadily increased its vote share and became the country's second-largest party by the end of the 1990s. In the national elections of 1999 the FPÖ gained almost 27 percent of the votes. In 2000, the FPÖ joined with the conservative *Austrian People's Party* (ÖVP) to form a coalition government that was in power until 2006. In 2002, this coalition enacted a set of more restrictive immigration laws (including, for example, requirements that immigrants study German). While a heavy election defeat occurred for the FPÖ due to internal conflicts in 2002, and while Jörg Haider died in a car accident in 2008, the FPÖ again became a powerful political force in the 2013 elections with more than 20 percent of the votes.

To test whether Austrian voters are more or less likely to vote for the FPÖ when there are more immigrants in their neighbourhood, we use community-level data. Community characteristics are taken from population census data, covering the universe of the Austrian population, thus minimizing measurement problems.

While it is reasonable to think that more immigrants in one's neighbourhood drive anti-immigration sentiments and support for a far-right party, the causality may, in principle, go the other way as immigrants may avoid xenophobic neighbourhoods. We begin by establishing that there is no significant relationship between voting outcomes in a community at the beginning of a decade and the ensuing decadal change in the immigrant share. While this does not eliminate concerns regarding reverse causality, it makes it much less likely that immigrant residential sorting is driven by local support for the FPÖ. Relatedly, we investigate whether initial immigrants' location choices may have been driven by local attitudes towards immigration. We calculate the correlation between the immigrant share in 1971 and a proxy for long-standing anti-immigrant sentiments, namely, the

vote shares for the *Deutsche Nationalsozialistische Arbeiterpartei* (DNSAP, the Austrian counterpart of the German NSDAP) from a 1930 election, the only Austrian election in which the Nazis participated. We do not find a significant relationship, consistent with the idea that local attitudes towards immigration are not prime determinants of immigrants' location choices.

We then use two approaches to investigate the impact of immigration (in the primary analysis: the share of residents without Austrian citizenship) on the FPÖ's vote share in a community. We use panel regressions with community fixed effects to eliminate unobserved time-invariant heterogeneity and thus focus on the impact of the change in immigration on the change in voting outcomes. We also provide complementary evidence using instrumental variables regressions in changes, using immigrants' historical residential patterns as a source of exogenous variation.

Our baseline fixed effects estimate suggests that immigration has an economically important and statistically significant effect on right-wing voting. A one percentage-point increase in the immigrant percentage in a community increases the FPÖ vote share in the community by about 0.16 percentage points. This implies that a one-standard-deviation increase in the local share of immigrants is associated with a 0.11 standard-deviation increase in the FPÖ vote share. These results are obtained controlling for a range of community factors, such as industry structure, labor market conditions and demographic and socio-economic characteristics.

Investigating the channels behind the association of immigration and voting results, we establish the following further results. We document that low- and medium-skilled immigration causes Austrian voters to turn to the far right, while more high-skilled immigration either has an insignificant or a negative effect on FPÖ votes. We also find that the effects of immigration are stronger where unemployment among natives is high; where labor market competition between natives and immigrants is strong; where natives are highly educated; and where there are many immigrant children. Moreover, we provide suggestive evidence that immigration may have negative consequences for the quality of schooling and the availability of childcare. Taken together, the evidence is consistent with

the idea that natives worry both about detrimental labor market outcomes and about negative externalities of immigration on compositional amenities, and that these worries are important drivers of anti-immigrant sentiments and support for the FPÖ.

Finally, we repeat the analysis with an instrumental variables (IV) approach. In particular, we rely on specific features of the history of immigration into Austria and the resulting historical settlement patterns. Historical immigrant settlement patterns have been used as the basis for instrumental variables in various labor economics settings (see, for instance, [Altonji and Card, 1991](#); [Card, 2001](#); [Dustmann, Fabbri and Preston, 2005](#); [Saiz, 2007](#); [Cortes, 2008](#)). In Section 5, we argue that, in the present setting this is a useful approach because, arguably, the allocation of early immigrant cohorts was mainly driven by institutional idiosyncracies. Drawing on different inflows of immigrants into Austria at different points in time, we compute changes in the “supply-push” component of immigration into communities from one census year to the next. The advantage of the IV approach is that it identifies a causal effect of immigration on FPÖ votes by exploiting exogenous variation generated by historical immigrant networks. Overall, the results of the two empirical approaches yield similar inferences. In particular, depending on the specification, a one-standard-deviation increase in the local share of immigrants is associated with a 0.08-0.14 standard-deviation increase in the FPÖ vote share. We also find quite similar results as in the fixed effects OLS regressions in terms of the relevance of the labor market and compositional amenities channels.

Three guideposts can be used to put this analysis into the context of the existing literature. *First*, our analysis is related to a rich literature studying political preferences and attitudes towards immigration.¹ This literature is typically based on survey data, and only little evidence exists which studies attitudes towards immigration as revealed in elections outcomes. Hence our results are complementary to the attitudes-towards-immigration literature by studying to which extent support for the far right is related to

¹For studies on attitudes towards immigration see [Card *et al.* \(2012\)](#); [Dustmann and Preston \(2004, 2007\)](#); [Facchini and Mayda \(2009\)](#); [Hainmueller and Hiscox \(2007, 2010\)](#); [Krishnakumar and Müller \(2012\)](#); [O’Rourke and Sinnott \(2006\)](#); [Scheve and Slaughter \(2001\)](#). For studies related to preferences for political parties and/or policies, see [Citrin *et al.* \(1997\)](#); [Dahlberg *et al.* \(2012\)](#); [Dülmer and Klein \(2005\)](#); [Knigge \(1998\)](#); [Lubbers and Scheepers \(2000\)](#).

the presence of immigrants.²

The first published study on potential causal political consequences of broad-based immigration³ is [Otto and Steinhardt \(2014\)](#), who examine the case of Hamburg. They also first provide evidence of a positive impact of immigration on right-wing voting by conducting fixed effects estimation, and they then rely on lagged immigration shares as an instrument for the future level of foreigner shares. They conclude that labor market effects are unlikely to explain their results and instead argue that voters were concerned about welfare and compositional amenities. More recently, several contemporaneous working papers (presented here in alphabetic order) provide further evidence of the effects of immigration. [Barone *et al.* \(2014\)](#) document a positive impact of immigration into Italian municipalities on centre-right voting.⁴ They also provide evidence that both the labor market channel and the compositional amenities channel may be at work driving Italian voters to centre right. The most immediate difference in our studies is that our focus is on far-right voting. Moreover, we have access to complete time-varying census data and a very large set of control variables. [Brunner and Kuhn \(2014\)](#) look directly at votes on immigration policies, rather than voting outcomes. While our measure of political consequences — the overall vote share of the far right — is necessarily more noisy (which *ex ante* makes it less likely to find effects), our study has the advantage that it sheds light on a source of the overall political power of the far right. Studying the case of Denmark, [Harmon \(2015\)](#) argues that the share of high rise buildings in a municipality in 1970 provides a valid instrument for the increase in ethnic diversity from 1981 to 2001, which is in turn associated with more votes for the extreme right. His analysis is richer than ours in terms of the consideration of vote outcomes also for other parties. On the other hand, because we utilize a much larger number of communities (roughly

²Several studies in the political science literature provide suggestive evidence; see, e.g., [Arzheimer and Carter \(2006\)](#); [Arzheimer \(2009\)](#); [Golder \(2003\)](#); [Jackman and Volper \(1996\)](#); [Knigge \(1998\)](#) and [Lubbers, Gijssberts and Scheepers \(2002\)](#).

³Other studies, for example, [Gerdes and Wadensjö \(2008\)](#), rely on arguably random assignment of refugees in Denmark. They find that both anti-immigration parties and a left-wing pro-immigration party benefit from immigration.

⁴They use a historical settlement pattern instrument and argue that initial settlement patterns in 1991 were unaffected by political considerations because the parties they consider for their dependent variable started appearing only after 1991.

2,000 communities compared to 275 Danish municipalities), we are able to document that it is indeed immigration into one's neighbourhood that matters, and we are able to explore cross-sectional heterogeneity, thus shedding light on the channels of the connection between immigration and far-right voting. Finally, there are some studies that highlight some specific channels that also play a role in our analysis. For example, [Malgouyres \(2014\)](#) identifies in French community-level data a relationship between low-wage country imports competition on the local vote share for the *Front National*. In sum, each study has its unique features. In addition to the substantial differences in the approach of investigating effects on elections, an important distinction of our work relative to all these papers is that we study real effects of immigration on compositional amenities, provide differentiated evidence of internal migration patterns, and consider the possibility that historical attitudes may be associated with immigrant sorting. Collectively, these papers and ours make a strong case that immigration and political outcomes are linked.

Second, our work is related to the literature that studies the political economy of immigration policies. Even in countries where so far no important far-right parties have emerged, immigration policies have been strongly shaped by politico-economic considerations.⁵ Immigration is an issue with a particularly thin line separating pragmatic economic policy from dogmatic political economics. Anti-immigrant politics may have ideological sources, but politicians may also supply xenophobia because they find it instrumental in discrediting political opponents whose policies benefit immigrants ([Glaeser, 2005](#)).

Third, this paper adds to more general work showing that economic and social considerations can help explain voting patterns for parties on the extremes of the political spectrum. Much as economic concerns led many voters to turn to the Nazis ([King et al., 2008](#)), so have overall economic conditions played a role in the rise of extreme parties in many countries at the beginning of the 20th century ([de Bromhead et al., 2012](#)). It is also related to the literature on vote and popularity functions ([Nannestad and Paldam, 1995](#)).

The remainder of this paper is organized as follows. Section 2 describes the political background of Austria and the data used for our analysis. Section 3 investigates whether

⁵See, for example, [Facchini et al. \(2011\)](#); [Facchini and Steinhardt \(2011\)](#).

election outcomes predict the consequent inflow of immigrants into a community and whether immigrant location is determined by long-standing political preferences of a region. Section 4 presents the empirical results for the impact of immigration on voting and the availability of compositional amenities obtained from panel fixed effects regressions. Section 5 presents results from an instrumental variables approach. Section 6 concludes.

2 Background and Data

2.1 Immigration and the FPÖ

We begin with an examination of the aggregate time-series pattern of immigration and FPÖ vote shares; see Figure A.1 in [Supplementary Appendix A](#). In 1961, only 1.4 percent of the resident Austrian population were foreign citizens. Due to the guest-worker programs and the ensuing influx of further immigrants, this share had almost tripled by 1981. In response to emerging problems in the labor market, the Austrian government enacted the Aliens Employment Act (1975), which regulated immigration and reduced the influx of foreign workers. This resulted in a period of return-migration and a temporarily stagnating immigrant share. From 1981 to 2001, the share of immigrants more than doubled again, from 3.9 to 8.7 percent, with much variation across communities. Turkey and (former) Yugoslav are the two most important sending countries. In 2001, 63.2 percent of the total foreign resident population came from former Yugoslavia (45.3 percent) and Turkey (17.9 percent). The majority of immigrants from Turkey are Muslim. Immigrants from (former) Yugoslavia comprise Muslims, Orthodox Christians and Catholics.

The immigration wave of the late 1980s coincided with the rise of the FPÖ.⁶ After Jörg Haider took over leadership of the FPÖ in 1986, the party increasingly invoked the “dangers” to the native population of immigration in terms of crime, unemployment, and decay of neighbourhoods and schools. Until 1986, the FPÖ had not played a significant role in national elections (despite having been a junior partner in a government coalition).

⁶We emphasize that other events also took place in that time period. For example, the Austrian political landscape in the 1990s was also characterized by a general dissatisfaction with the governing parties. The *Social Democratic Party of Austria* and the *Austrian People's Party* had been governing as a grand coalition since 1987. We include time fixed effects in our analysis.

In the national elections of 1986, however, the FPÖ attracted 9.7 percent of the votes. Thereafter, support for the FPÖ grew at a steady rate, passing the 15 percent and 20 percent thresholds in 1990 and 1994, respectively, and reaching more than 25 in the late 1990s. The development was accentuated by an additional immigrant wave during the Yugoslavian political crisis in 1990 and the war in 1992.

In 1993, the FPÖ launched an “Anti-Foreigner Referendum,” and 416,531 Austrian voters (7.35% of the electorate) approved this referendum. The cross-district correlation between the support for this referendum and the share of votes for the FPÖ in the national parliamentary elections in October 1994 is 0.83. More generally, in the election years that we study, the FPÖ is widely recognized as having the most restrictive immigration policy platform, while the main competitors, the *Social Democratic Party of Austria* and the *Austrian People’s Party* had a much softer stance. In short, it is clear that a vote for the FPÖ represents a vote against immigration.⁷ Internal problems in the FPÖ arose soon after they had become a governing party. As a result of these disputes a new splinter party, the *Alliance for the Future of Austria* (BZÖ), was established in 2005. After the internal problems were resolved, the FPÖ re-gained strength and obtained a 20.5 percent vote share again in 2013.⁸ No significant far left-wing party emerged in Austria during this period.

We note that Austria does not automatically confer citizenship to individuals born in Austria. Instead, an Austrian-born child must have at least one parent with Austrian citizenship in order to be considered for naturalization. Naturalizations are unlikely to be important for studying the relationship between immigration and voting in Austria. We

⁷This is not to say that the other parties were completely passive. Under political pressure of increased anti-immigration sentiments, and partly as a reaction to the FPÖs anti-immigration activities, the Austrian government introduced various new tighter immigration rules during the 1990s. While Austria’s entrance into the EU in 1995 opened the borders to immigration from former EU-15 member states, in 2002, the center-right coalition of the *Austrian People’s Party* and the FPÖ enacted a set of more restrictive immigration laws. These laws included requirements that immigrants study German; restrictions on the temporary workers’ ability to obtain permanent residence; and, at the same time, a relaxation of procedures for Austrian firms that were hiring high-skilled immigrants of key importance in certain industries. Further rules were put into place to shield Austria’s labor market from excessive immigration from the poor, neighboring, new EU member states after the EU expansions of 2004 and 2007.

⁸For consistency, we use the FPÖ vote share as the dependent variable throughout. However, very similar results hold when including the BZÖ, which also is on the far-right. This is not surprising as, despite some interim strength, the BZÖ obtained only 3.5 percent of the vote and failed to secure a seat in parliament in 2013.

first note that they imply two countervailing effects. On the one hand, immigrants who receive Austrian citizenship may still be regarded as immigrants by the “original” Austrian population, so that the immigrant share in our data understates the actual perceived immigrant share in a neighbourhood. On the other hand, naturalized immigrants are unlikely to vote for the FPÖ. Second, during the 1970s, 1980s, and 1990s, the annual rate of naturalizations was between 0.1% and 0.3% of the native population in most years. Therefore, disregarding naturalizations is unlikely to be important for our analysis.

Just like in other countries (see the studies cited in the introduction), survey evidence for Austria yields interesting results. For example, analyzing data from the *European and World Values Survey*, we find in [Supplementary Appendix C](#) that those who prefer that scarce jobs be given to native citizens or who even want a complete halt to labor immigration are more likely to be in favor of the FPÖ, as are those who do not care about the living conditions of immigrants or are not willing to do something to improve these conditions. However, surveys also present some problems, sometimes making it difficult to interpret results. In particular, surveys are not anonymous, and survey respondents are unlikely to answer completely truthfully.⁹

2.2 Main variables, data sources, and descriptive statistics

To establish a relationship between immigration and far-right voting, we use community-level data. In Austria, a community is part of a political district, which is in turn part of one of the nine federal states. The community is the lowest administrative level. In 2001, Austria encompassed 2,359 communities in 99 political districts.¹⁰ Vienna is the largest community, with about 1.5 million inhabitants in 2001. For our empirical analysis we divide Vienna into its 23 so-called municipal districts and treat these as separate

⁹For example, according to the *European and World Values Survey*, done shortly before the 1999 general election, the FPÖ could expect to obtain about 20 percent of votes, whereas, in the election, the FPÖ scored about 27 percent.

¹⁰Notice that we study the effects of the local (=community) presence of immigrants. To the extent that voters worry about, for example, labor market competition with immigrants in other communities (which may arise if labor markets span multiple communities), or about broader regional issues, additional effects of immigration on voting behaviour may occur. To allow for such effects we repeated the analysis using the 99 political districts rather than communities as the unit of observation. The overall results in terms of both magnitude and significance are very similar and available on request.

communities. The smallest community, with 60 inhabitants (in 2001), is Gramais in the federal state of Tyrol. The average community (excluding Vienna) had about 2,800 inhabitants. The number of communities and their territorial boundaries have changed over our sample period. In order to have a balanced panel of communities (and due to some limitations of the industry structure data), we use a modified version of the territorial boundaries of the year 2001, which leaves us with 2,106 communities (including the 23 municipal districts of Vienna).¹¹

Data on the percentage of FPÖ votes in elections to the national parliament are available from official statistics issued by the *Austrian Federal Ministry of the Interior*.¹² Figure A.2 in the [Supplementary Appendix A](#) shows the geographic distribution of the share of votes for the FPÖ for six general elections. With the exception of a very strong base of support for the FPÖ in the state of Carinthia (located in the south of Austria where former party leader Jörg Haider was leading the local government) no other particular geographical patterns (over time) are evident.

Our key database for computing the percentage of immigrants and all socio-economic control variables on the community level is the universe of all individual-level observations from the decennial Austrian censuses (on-site at *Statistics Austria*). The completeness of the census data affords the great advantage that we can minimize problems of measurement error, an important concern in the literature that studies labor-market effects ([Dustmann et al., 2005](#), p. F329). Census data are available to us in electronic form for 1971, 1981, 1991, 2001, and 2011, but not for earlier years. The Austrian survey-census was abolished after 2001 and replaced by a registry-based census, also maintained by *Statistics Austria*. For simplicity, we refer to all data as “census” data. The 2011 data have some limitations. For example, they do not contain information on religion. Also, they do not contain information on degrees earned abroad (which introduces measurement error in our skill proxies in that year). However, on balance, the advantages of being able to

¹¹Further merges between communities occurred after 2001. In 2011, there were 1,975 communities. The original version of the paper did not use 2011 community-level data. Because redefining all community boundaries also for prior years would be extremely time-consuming, we retained the structure of 2,106 communities for prior years and merged the data obtained later into this existing structure.

¹²We focus on federal elections as in Austria the most important aspects of economic policy, including immigration policy, are set at the federal level.

use another decade of data (which, at least, for the primary analysis is of the same quality as the data for the other years) seem to outweigh the disadvantages.

We do not have census data for each possible election year, so we need to infer the relevant immigrant share (as well as the socio-economic control variables) in those election years that we wish to analyze. To minimize measurement error, the main analysis focuses on elections that took place at most three years from the time of the nearest census, that is, we consider $t = \{1979, 1983, 1990, 1994, 1999, 2002, 2013\}$.¹³ We relate the election results of 1979 and 1983 to the 1981 census data. Similarly, the election results of 1990 and 1994 are related to the 1991 census data, the election results of 1999 and 2002 to the 2001 census data, and the election results of 2013 to the 2011 census data. A potential concern is that using election data before a census year exacerbates potential endogeneity problems. As we will document, there is no evidence that election outcomes drive immigrant sorting, but we nonetheless also conduct our analysis using strictly only election years 1983, 1994, 2002, and 2013. We pool the data to construct a panel and include year fixed effects in all regressions (though we also conduct year-by-year investigations in the IV analysis).

In our baseline model, *immigrants* are residents without Austrian citizenship. We also investigate the extent to which FPÖ voting is driven by particular kinds of immigrants. First, we calculate immigrant shares within education groups based on residents 15 years of age or older. There are four education levels: (i) compulsory schooling, (ii) completed apprenticeship training or lower secondary school; (iii) higher secondary school, and (iv) academic degree. We sort immigrants into two groups, based on their highest attained education level: (i) *low and medium education* (levels (i) and (ii)); and (ii) *high education* (levels (iii) and (iv)). Second, we distinguish immigrants by their ethnic origin, we estimate separate effects for Muslim, Turkish, and Yugoslav immigrants.

As our *standard set of community covariates* we use the following variables calculated from census data: the community's number of inhabitants, the number of inhabitants squared, the natives' age-sex-distribution (22 groups), the natives' distribution of marital status (i. e., the shares of natives who are single, married, divorced, and widowed), and the

¹³The elections of 1986, 1995, 2006, and 2008 are not included in the main analysis as they are relatively far from the census dates.

natives' distribution of labor market status (i. e., the shares of natives who are employed, unemployed, retirees, children below 15, student, and others). We define these characteristics with respect to the voting population, since this is the natural definition, given that only Austrians citizens have the right to vote. In addition to the census-based covariates just listed, the *standard set of community covariates* also includes industry structure, which is calculated share as employment share in 32 sectors from the *Austrian Social Security Database*. In specifications without community fixed effects, we included further the following time-constant covariates: federal state fixed effects, the unemployment rate in 1961, and the industry structure in 1973.¹⁴

Finally, we obtain data on various dimensions related to neighbourhood quality and compositional amenities (see Section 4.3).

Table 1 reports descriptive statistics on the main voting and census variables used in the empirical analysis below. As the columns for the individual election years show, substantial cross-sectional variation exists across communities in Austria, both in election outcomes and immigration levels. Unreported results show that communities without any immigrants in 1971 (mostly rural areas) had essentially the same average unemployment rate, in both 1961 and 1971, as those that did have immigrants in 1971.

[Insert Table 1 here]

3 Immigrant sorting, past election outcomes, and community preferences

Before we start to study the effect of immigration on FPÖ vote, it is useful to address the reverse chain of causality. Do immigrants choose locations based on prior election out-

¹⁴The unemployment rates for 1961, which are available on a political district level as reported by the regional offices of the *Public Employment Service Austria*. A potential source for unemployment rates on the community level would have been the 1961 Austrian census. However, as confirmed by *Statistics Austria*, the only published source which lists variables on the community level reports only the *sum* of the absolute number of employed and unemployed individuals. We do not have data on the industry structure in the 1960s. Therefore, a potential limitation of our control variable is that it does not eliminate any impacts of elements of the industry structure that were simultaneously non-persistent and correlated with both immigrant allocations in the 1960s and voting decisions in recent years. However, given that we find in the data that the industry structure is very persistent over time, we believe that this is ultimately a minor concern.

comes and/or based on long-standing preferences of certain communities? If immigrants avoid communities with strong anti-immigrant sentiments, the influx of immigrants into communities should be negatively related to FPÖ vote shares in past elections. To the extent such considerations drive immigrants' location choices, there will be a downward bias in an estimate of the effect of immigration inflows on the rise of FPÖ votes.

To investigate this possibility, we test whether voting outcomes in a community at the beginning of a ten-year (or twenty-year) period predict the ensuing decadal or two-decade change in the immigrant share in that community.¹⁵ Figure 2 shows the corresponding scatter plots. There is no indication that such relationship exists, neither in ten-year nor in twenty-year horizon data.

[Insert Table 2 here]

Table 2 presents regression results which control for the standard set of community covariates. These regressions in Panel A (for immigrants generally) confirm the findings suggested by the figures. Panels B and C consider the same issue in the context of immigrants differentiated by skill. Only two estimates are statistically significant, but they are positive, suggesting that, to some extent, high-skilled immigrants enter communities with a high prior FPÖ share. However, the effects are economically very small, implying that a one percentage point increase in the share of the FPÖ leads a one hundredth of a standard deviation increase in high-skilled immigration. All other estimates are insignificant. Thus, again, there is no consistent evidence of sorting based on prior election outcomes.

Our second approach to investigate the role of community preferences for immigrant sorting considers possible long-standing racial prejudices. Several recent papers have argued that there is strong inertia in local beliefs and values (Voigtländer and Voth, 2012; Spolaore and Wacziarg, 2013). To test for the relevance of this idea in the present context, we use voting results from a 1930 election, the only Austrian election in which the *Deutsche Nationalsozialistische Arbeiterpartei* (DNSAP, the Austrian counterpart of

¹⁵In this analysis, to be conservative we use election years *before* a census year. Qualitatively the same results obtain, however, if we use only election years *after* a census year, as we do in the regressions where election outcomes are the dependent variable.

the German NSDAP) participated. In Table 3, we regress the share of immigrants in the year 1971 on vote shares in the year 1930 for the DNSAP. The unit of observation here is a political district (because communities have changed so much across the forty years that a close matching is impossible). While we find a positive correlation between DNSAP voting and FPÖ voting (in line with persistent political preferences), we not find any significant association between DNSAP votes in 1930 and the recent immigration influx. This ameliorates the concern that historical attitudes may drive contemporaneous settlement patterns.¹⁶

[Insert Table 3 here]

In sum, we do not find evidence pointing to a significant relationship between pre-existing political preferences (as measured by past election outcomes) and the ensuing change in the immigrant share at the community level. While this does not eliminate concerns regarding reverse causality, it makes it much less likely that residential sorting of recent immigrant cohorts contaminates our analysis of the role of rising immigrant shares for subsequent electoral support for the FPÖ.

4 Fixed effects estimates

In this section we present panel fixed effects estimates of the relation between immigration, voting outcomes, and compositional amenities effects of immigration. In section 5 we provide evidence based on IV estimation methods.

4.1 Immigration and far-right voting

The dependent variable is $FPÖ_{it}$, the percentage FPÖ votes in community i in election year t . The explanatory variable of primary interest is IMM_{it} , the percentage immigrants (over total resident population) in community i at time t .¹⁷ In all specifications, we include

¹⁶We note that if it were indeed the case that fewer immigrants selected into communities with stronger historical cultural prejudices, this would bias against finding an effect of immigration on FPÖ voting in the later empirical investigation.

¹⁷In all regressions in this paper, we weight observations by community population size. Standard errors are robust to heteroskedasticity of unknown form and are clustered on the community and census year levels.

community fixed effects to control for time-invariant unobserved heterogeneity.

The evidence presented in Table 4 strongly suggests a positive (within-community) relationship between immigration and the support for the far right.¹⁸ These results are based on all national elections in the sample that are at most three years from a census. Some of these elections are before a census and hence the measured covariates may not perfectly capture community characteristics at the election date. To minimize such measurement issues, in analysis on request, we confine the sample to elections after the previous census. It turns out that our results remains unaffected, as point estimates remain essentially unchanged. This is also consistent with the results obtained in Section 3 that immigrant sorting does not appear to be driven by election outcomes.

[Insert Table 4 here]

We also checked whether the estimates of the impact of immigration on FPÖ voting are sensitive to the inclusion of additional (or omission of some) controls. For example, Table B.2 in the [Supplementary Appendix B](#) shows that the estimated effects of immigration on FPÖ votes do not vary strongly when we add educational attainment proxies.¹⁹

Overall, we obtain evidence of a strong association between the share of immigrants and electoral support for the FPÖ within communities, i.e., when controlling for unobserved time-invariant heterogeneity. The relationship is economically relevant: A one percentage-point increase in the share of immigrants is associated with a 0.16 percentage-point increase in the FPÖ vote share in that community. This implies that a one standard

¹⁸The full regression is shown in Table B.1 in the [Supplementary Appendix B](#). While unemployment is univariately positively associated with FPÖ votes, including socioeconomic controls makes this variable insignificant and reverses the sign. The pure OLS estimate (without community fixed effects) for immigration is around 0.1, thus smaller than the fixed effect estimate.

¹⁹While including a large set of controls as in our main specifications clearly has the advantage of mitigating the possibility that an important variable remains omitted, it does have a drawback: Some characteristics of the resident population may themselves be influenced by immigration (for instance, via their participation in the local labor market). We, therefore, also reestimate our models using a more parsimonious specification (controlling for the community's number of inhabitants, the number of inhabitants squared, the natives' age-sex-distribution (22 groups), the natives' distribution of marital status (shares of inhabitants who are single, married, divorced, and widowed)). Table B.2 in the [Supplementary Appendix B](#) shows that the results continue to hold for this minimal specification. We further confirmed the robustness of our results to the exclusion of observations of larger cities (more than 180.000 inhabitants). Finally, we also consider several different functional forms to model the impact of immigration on FPÖ votes. For example, we add a quadratic term of the immigration share to our model. We conclude that the simple linear model captures the immigration effect quite well.

deviation increase in the local share of immigrants is associated with a 0.11 standard deviation increase in the FPÖ vote share.

4.2 What drives the association of immigration and far-right voting?

A natural starting point for understanding voting decisions is the hypothesis that rational and self-interested individuals vote for the party which promises them the greatest utility (Downs, 1957). We focus on two specific channels through which immigration is likely to affect voter welfare: labor market competition and neighbourhood quality.

First, economic theory suggests that immigration hurts natives supplying production factors closely substitutable by those of immigrants. In contrast, individuals who supply complementary factors will gain from immigration. Presenting anti-immigration platforms, far-right parties should appeal to voters who lose from immigration. Specifically, low-skill immigration would be perceived as particularly problematic by Austrian voters. Moreover, we hypothesize that voters in high-unemployment communities and in communities with strong labor market competition among natives and immigrants should be more inclined to the far right in response to immigration.

Second, the natives' assessments of the impact of immigration on "compositional amenities" that they derive from their neighbourhoods, schools, and workplaces can be an important source of anti-immigration sentiments, as documented in Card *et al.* (2012). (See also Hainmueller and Hiscox (2010) and Dustmann and Fabbri (2003).) Education is likely to play a key role. On the one hand, a stronger effect of low-skilled immigration than of high-skilled immigration is also consistent with the compositional amenities argument. On the other hand, we hypothesize that communities with many educated Austrians (who are likely to worry most about the quality of schooling) and communities with a lot of immigrant children would be more likely to lean to the far right when immigration increases.

4.2.1 Heterogeneous effects by immigrant groups

We first investigate how the educational levels of immigrants affect voting decisions of natives. We construct two groups of immigrants according to educational attainment, distinguishing between low- and medium-skilled immigrants on the one hand and high-skilled immigrants on the other hand. Columns (3) and (4) of Table 4 present the results. We find strong evidence that low-skilled immigration is strongly positively associated with far-right voting. By contrast, high-skilled immigration has a negative sign. A one standard deviation increase in the local share of low-skilled (high-skilled) immigrants is associated with a 0.15 (0.13) standard deviation increase (decrease) in the FPÖ vote share.

We also considered the possible role of cultural and ethnic distance relative to the native population as a driver of anti-immigration voting support. Immigrants from Turkey and ex-Yugoslavia have historically been the most important ethnic groups. They are also among those most often exposed to public verbal attacks by right-wing extremists. Since most Turkish immigrants are Muslim, the effects of Turkish immigrants essentially also capture the role of religion.²⁰ Results available on request show a somewhat stronger association of these immigrants with FPÖ voting. However, contrary to the results for the role of the education level of immigrants, these differential results later are not supported in the IV estimations.

4.2.2 Heterogeneous effects across communities

In this subsection, we explore which community characteristics interact with immigration to generate political support for the far right. In Table 5, we consider four sample splits along the following community characteristics: (i) unemployment among natives, (ii) labor market competition between immigrants and natives, (iii) ratio of immigrant kids to native kids, and (iv) average educational attainment of natives.²¹

In Panel A, we find that the impact of immigration varies with the level of unemploy-

²⁰Evidence from the UK suggests that Muslims integrate less and more slowly than non-Muslims (Bisin *et al.*, 2008).

²¹Samples are split according to the distribution of the respective variable observed in 1981. Notice that the sample splits themselves may be subject to endogeneity concerns.

ment of Austrians. In communities where the unemployment rate of Austrians is on the top quartile, the effect of immigrations is nearly twice as big than in communities with unemployment in the bottom quartile. In Panels B we more directly consider the intensity of competition between immigrants and Austrians. We construct an index (following Card (2001)) of skill overlap among immigrants and natives.²² The results imply that the impact of immigration is much stronger where immigrants and Austrians are more likely to be in competition. In results available on request, we compute an alternative index which uses industry information, and we obtain results pointing in the same direction.²³

[Insert Table 5 here]

Panel C shows that the impact of immigration on FPÖ voting is more pronounced where Austrians are highly educated. (We split the sample according to the average educational attainment of natives, based on a four-point scale drawing on the four levels of education described in the data section.) In analysis available on request we find that in communities with a high fraction of highly skilled natives, the effect of low-skilled immigrants is particularly pronounced, supporting the interpretation that high-skilled natives may worry about the quality of schools and other compositional amenities. Another reason for the result of Panel C could be that in communities with more high-skilled natives, political polarization may be stronger, generating stronger FPÖ support among the potential losers. Finally, Panel D documents that proximity of immigrants is especially strongly related to far-right voting where there are many immigrant children compared to Austrian

²²Specifically, we compute the following index C . Let f_j^A and f_j^I denote the fractions of Austrians (A) and immigrants (I) with education level j . For the calculation of this index, we use all six education levels compulsory schooling, completed apprenticeship training, lower secondary school, higher secondary school or academic degree separately. Let f_j denote the fraction of the overall workforce with this education level. Consider an increase in the population of immigrations that generates a 1-percentage-point increase in the total workforce. Assuming that the new immigrants have the same education distribution as the existing immigrants, the percentage increase in the workforce of skill level j is f_j^I/f_j . For Austrians, the weighted average increase in the supply of labor to their education-specific labor markets is given by $C_{A,I} = \sum_j f_j^A f_j^I / f_j$, which is the competition index. This index is 1 if Austrians and immigrants in a particular community have the same distribution of education levels. It can be greater than 1 if they have similar education level distributions, and if both Austrians and immigrants are concentrated in a subset of education levels. The index is 0 if Austrians and immigrants have completely different education levels.

²³More than half of all immigrants are employed in construction, trade, hotel and restaurants, and real estate/entrepreneurial services. While roughly 40% of Austrians are also employed in these sectors on average, there is wide variation across communities in the importance of these industries. We find that where a larger fraction of Austrians is employed in these industries, the effect of immigration is stronger.

children, indicating that Austrians worry about the quality and cultural composition of their schools.²⁴

4.3 The effect of immigration on outcomes that might affect voting behavior

The above findings are consistent with the labor-market competition channel. They are also consistent with the idea that Austrians worry about compositional amenities. Although voting does not have to be fully rational, rationality would have a stronger claim to explaining the results if immigration in fact worsens labor market opportunities for natives or reduces the quality of schooling or the quality of other amenities. Also, we study whether natives respond only through voting decisions, or whether they also use the exit option, migration.

Labor market effects A large (and controversial) literature discusses the actual labor market effects of immigration. Some studies (for example, [Borjas, 2003](#)) find strong negative effects on native wages, while others do not find strong effects (for example, [Card, 2005, 2009](#)).²⁵

There are a few studies analyzing the labor market implications of immigration on the native population in Austria. [Winter-Ebmer and Zweimueller \(1996\)](#) and [Winter-Ebmer and Zweimueller \(1999\)](#) find no significant effects on earnings and employment following the immigration wave of the early 1990s on young Austrian natives. The result of these early studies has been confirmed more recently by [Bock-Schappelwein *et al.* \(2008\)](#) who find no statistically significant impact of immigration on natives in micro wage regressions; and [Horvath \(2011\)](#) who finds that increases in immigration had no significant impact on the lower part of the native wage distribution but a slightly positive and statistically significant impact on the top of the distribution. In sum, the available Austrian evidence does not strongly support the idea that native wages are strongly affected by immigration. However, the evidence is scarce and even if it precisely measures

²⁴In the case of this sample split, a separate calculation below the 25th percentile is not feasible, since in the year 1981 more than 25 percent of the communities had no underage immigrants.

²⁵The impact of immigration on the size of the consumer base plays a critical role, complicating theoretical predictions of labor-market effects ([Borjas, 2009](#)).

the true effect of immigration on the labor market, it is perceived rather than actual threat by immigrants that matters for voting behaviour of natives. *European and World Values Survey* based evidence indeed suggests that Austrians perceive immigrants as a threat for their labor market opportunities (see Table C.3 in [Supplementary Appendix C](#)).

Effects on compositional amenities Voting behavior for the far right may be driven by the impact of immigration by affecting the quality of the local neighbourhoods (schools, workplaces, residential areas, etc.) For instance, [Speciale \(2012\)](#) shows that public education expenditures in EU-15 countries are lower the higher the influx of immigrants was. In order to shed light on this potentially important channel, we consider several proxies for compositional amenities and measure whether they respond to an increase in the local influx of immigrants.²⁶

First, we consider schooling quality in a community. School quality for native children may either be lower due to less funding in high-immigration communities or due to the mere fact that a large fraction classmates with immigration families who are not fluent in German, may have detrimental effect for native children due to a lower quality of teaching. There are no direct measures available in Austria. In particular, a standardized high school test was only introduced in 2014/15. Therefore, we construct a proxy. Specifically, we measure the fraction of school children that are commuting more than 15 minutes for their school, which very often means that they commute to another community. This information is provided in the census until 2001. Such out-commuting reflects the combination of two factors, both of which indicate lower schooling quality than elsewhere: first, there may not be a high school or gymnasium in a community; second, there may be a school, but with many immigrant children. For this variable, data are not available for 2011. One average about 40% of school children out-commute, and this number is slightly decreasing over the years. Columns (1) and (2) of [Table 6](#) show that a one standard de-

²⁶An important literature—which we do not discuss here—considers whether and to which extent immigration causes crime. This large and increasing literature did so far not generate conclusive evidence, however, with some studies finding positive, and other studies finding insignificant effects. However, it seems that the fear of becoming a crime victim is associated with immigration. See, for example, [Bianchi et al. \(2012\)](#) for a discussion of the recent literature. While we think crime (or the perceived fear of crime) may be an important mechanism that drives voting in response to immigration, lack of appropriate regional data does not allow us to study this in this paper.

viation increase in the local share of immigrants is associated with a 0.10-0.14 standard deviation increase in the share of children who out-commute, consistent with the idea that natives worry that immigration may cause disamenities through lower school quality.

[Insert Table 6 here]

Second, we consider to whether immigration affects the probability that a community has one of the following two (public or publicly supported) child-care facilities available: a day-care for children of up to age 3 (“Kinderkrippe”) or after-school child care for school children at ages 6+ (“Hort”).²⁷ Data on the existence of these facilities are available from 1991 onwards. The provision of these facilities has been increasing. For example, while in 1991, 40.5% of the population had access to a day nursery in their community, that share had increase to 51% in 2011. Similarly, while in 1991, there were afternoon care centers in the community of 47% of the population, in 2011, 59% of the population had access to such a facility.

We are primarily interested in whether there are differential trends in public child-care provision between high- and low-immigration communities. The hypothesis is that policy makers may be more strongly focused on the voting population and hence may allocate fewer funds to communities with a stronger increase in immigration. Consequently, the availability of childcare facilities may grow less in high-immigration communities. Columns (3) and (4) provide evidence supporting this hypothesis for after-school care (“Hort”). A one percentage point increase in the local share of immigrants is associated with a 0.9 to 1.2 percentage point decrease in the probability that after-school care is available in a community. For day nurseries (“Kinderkrippen”), we find no significant result.

Overall, our results support the idea that high-immigration communities did benefit to a lesser extent from (the growth of) local amenities related to care for school- and pre-school children. This lower extent of child-related amenities may create worries for insufficient child-support children by native parents for their own children. This, in turn, could

²⁷In most Austrian schools, teaching ends at noon or 2 p.m. Day care for kids aged 3-6 (Kindergarten) is available in almost all communities.

induce them to find anti-immigrant slogans attractive and to support anti-immigration policies by voting for the FPÖ.

Native migration Austrians may respond in two basic ways if increased immigration makes them increasingly dissatisfied with the quality of their neighbourhoods. They may vote for an anti-immigration party (“voice”), or they may move away (“exit”). Although this paper focuses on the voting reaction, the native migration patterns are of interest: If Austrians who worry about immigrants were to move away, the overall impact of immigration on far-right support will be understated by our analysis. The reason is that voters whose welfare is negatively affected by the proximity of immigrants (and who would, therefore, more readily gravitate to the FPÖ) who are more likely to have moved elsewhere, thus weakening the relationship between immigration and FPÖ support observed at the community level.

To test for the importance of native internal migration responses, we follow [Peri and Sparber \(2011\)](#). The question is how many natives (N) respond to the arrival of immigrants (I) by leaving their place of residence i . To estimate the quantitative importance of such migration responses, the following model is estimated: $\Delta N_{i,t} = \alpha + \beta \cdot \Delta I_{i,t} + u_{i,t}$ with β being the interesting parameter. Various scholars have proposed different versions of this model, mainly considering different measurement concepts of dependent and independent variables. We use the slightly modified specification of [Card \(2001, 2007\)](#), which is the preferred specification of [Peri and Sparber \(2011\)](#).

Table 7 summarizes the estimation output of three empirical models for our community-level panel data. Column (1) shows that, overall, there is no evidence for a general internal migration response of Austrians. This evidence is in line with the common stereotype that the Austrian population is very rooted. Frictions in the housing market may also make migration difficult.

Turning to skill groups (columns (2) to (4)), it is interesting to note that we do *not* find evidence of Austrians moving away from (or into) communities with substantial low-skilled immigration. This suggests that the impact low-skilled immigration has on voting outcomes is primarily due to changing preferences of existing voters, not due to

changing composition of the electorate. However, we obtain some suggestive evidence that for Austrians, moving into communities with recent inflows of high-skilled immigration is attractive. To the extent that these moving Austrians do not support the FPÖ, this finding can partly explain why high-skilled immigration is associated with less FPÖ voting.

[Insert Table 7 here]

5 Instrumental variables

In this section we propose an instrumental variables (IV) strategy for identifying the effects of immigration on FPÖ votes. This is of interest because even a fixed effects regression does not necessarily identify the causal effect of local immigration on local FPÖ votes due to time-varying unobserved heterogeneity. Our identification strategy relies on historical settlement patterns (see [Altonji and Card \(1991\)](#)), an instrument which is frequently used in immigration studies. It turns out that this instrument works in many (though not in all) of our regressions. Particularly when we look at certain subgroups, the first-stage runs into statistical problems. Overall, the results of this section provide an important complement to our fixed effects results.

5.1 Background

Historical settlement into Austria is characterized by a sudden, large inflow of immigrants in the 1960s. Until the early 1960s very few non-Austrians lived in Austria (except a base stock of Germans whose overall size remained essentially unchanged for the following 30 years). However, in the 1950s and 1960s, the post-war boom of the Austrian economy led to a growing demand for labor amid increasing labor shortages. In the 1960s, the Austrian government began to forge bilateral agreements with southern and southeastern European states to recruit temporary workers. A 1964 agreement with Turkey and a 1966 agreement with Yugoslavia attracted Turkish and Yugoslavian “guest workers” into the country. Recruitment offices in those countries were established, and a substantial influx of Turkish and Yugoslavian workers to Austria began. Some raw numbers illustrate

the significance of this new regime. In 1961, residents with Turkish and Yugoslavian citizenship numbered 271 and 4,565, respectively. By 1971, the numbers had risen 60-fold and 20-fold to 16,423 and 93,337, respectively. These guest workers were supposed to stay, by way of rotation, only for a short period of time to cover specific demand for labor. However, they usually wanted to stay longer, and Austrian employers wanted to avoid the cost of labor fluctuations. Thus, in effect, most of the guest workers remained in Austria permanently.

Archival information provides interesting insights into how allocations of guest workers were made in the 1960s. Specifically, the actual number of guest workers in a given community arises out of a combination of two factors: First, the maximum number of guest workers a specific industry in a given region was allocated (the quota); and second, the usage of that quota. The quota was the outcome of regional and industry-specific negotiations between representatives of the *Austrian Economic Chambers* and the trade unions. The Austrian Institute of Economic Research (*Wirtschaftsforschungsinstitut, WIFO*) provides an analysis of how this worked for the year 1963 ([WIFO, 1963](#)). They find that there does not appear to be a clear pattern in the extent to which quotas were set and used. They note that this may have to do with the institutional peculiarities of the various labor markets and that “*subjective factors such as negotiation skills*” apparently played a role (p. 413, translation by the authors). Moreover, studying the relationship between industry structure and immigrant quotas, they conclude that “*the quota size was apparently only partially determined based on labor market data. Quotas are neither positively related to the percentage of vacancies, nor are they negatively related with the unemployment rate*” (p. 413). As regards unemployment in 1961, the WIFO analysis (based on regional data) suggests that quotas for immigrants were higher for regions where unemployment was low. To be on the safe side, we do control for the historical unemployment rate in our analysis.

Naturally, immediate family members later joined the predominantly male guest workers. However, in the following decades (for example, during the Yugoslavian political crisis in 1990 and the war in 1992) a massive influx beyond immediate family members took place. A large literature has established that immigrants settle where they find existing

social networks and neighbors with the same cultural and linguistic background (Bartel, 1989; Åslund, 2005; Jaeger, 2007). Therefore, we expect that immigrants today are highly likely located in areas where the first wave of guest workers settled down in the 1960s.²⁸

Following Card (2001), therefore, we use the spatial distribution of immigrants in the census-year 1971 — which reflects the settlement patterns of the first wave of guest workers — to decompose the actual stock/inflow of immigrants into an exogenous so-called supply-push component and into a residual component reflecting any departures from the historical pattern. Put differently, the idea is to exploit the differential location choices of immigrants from different countries in the 1960s to predict the settlement decisions of immigrants from the same country at later points in time. This predicted share of immigrants should be free from local contemporary demand factors and as such serve as a valid source of exogenous variation.

Importantly, to ameliorate endogeneity concerns even further, we adopt a regression-in-changes approach. In other words, rather than exploiting the cross-sectional variation in *levels* of FPÖ votes and immigrant shares, we exploit the cross-sectional variation in *changes* in FPÖ votes and immigrant shares. This is the natural counterpart to the panel regressions with community fixed effects.²⁹

5.2 Empirical implementation

Formally, we wish to explain the change in FPÖ vote share in community i from t_1 to t_2 by the change in the immigrant share in the same time period. We use percent changes in immigrant shares rather than percentage point changes because the former yield a stronger first stage and, therefore, overall more reliable inferences. Therefore, we also use

²⁸Empirical papers show that such networks facilitate the job search and assimilation into the new cultural environment (Munshi, 2003). For the importance of networks in general, see Calvó-Armengol and Jackson (2004), Ioannides and Loury (2004), Lazear (1999), and Montgomery (1991).

²⁹In specific circumstances, related to policies regarding refugees, researchers can arguably get even closer to random assignment and internal validity than we can in our setting (see, for example, Edin, Fredriksson and Åslund (2003), Damm (2009), Glitz (2012), and Dahlberg *et al.* (2012)). Strict exogeneity is not definitely guaranteed even in these settings. In reality, authorities consider at least the location of family members or ethnic clusters. Also, in Austria, for example, communities may deny to provide (or to find) housing for assigned refugees. Moreover, these cases represent a quantitatively less important phenomenon, and it may be more difficult to generalize findings from the refugee assignment approach to a situation where economic migrants decide independently where to settle.

percent changes in FPÖ vote shares as the dependent variable.³⁰ Qualitatively similar results hold, however, when using percentage point changes for both immigrant shares and FPÖ vote shares.

We instrument the percent change in immigration since any given base year t_1 by the percent change in the predicted share of immigrants from t_1 to t_2 . Using “g” to highlight “growth” variables, the first-stage regression then is

$$gIMM_{it_2t_1} = a + b * gIV_{it_2t_1} + \mathbf{X}'_{it_1} \Gamma^1 + d * IMM_{i1971} + \theta_t^1 + \varepsilon_{it}^1, \quad (1)$$

where $gIMM_{it}$ denotes the percent change in the immigrant share in community i from t_1 to t_2 , X_{it_1} is a vector of standard controls, θ_t^1 is a full set of year dummies, and ε_{it}^1 is a stochastic error term.

The instrumental variable, the percent change in the predicted share of immigrants, is

$$gIV_{it_2t_1} = \frac{(\sum_g S_{gi} + M_{gt_2} \cdot \lambda_{gi})/P_{it_2} - (\sum_g S_{gi} + M_{gt_1} \cdot \lambda_{gi})/P_{it_1}}{(\sum_g S_{gi} + M_{gt_1} \cdot \lambda_{gi})/P_{it_1}}. \quad (2)$$

Here S_{gi} is the number of immigrants from source country g residing in community i in the year 1971, M_{gt_j} is the number of immigrants from source country g who enter Austria between 1971 and t_j , λ_{gi} is the fraction of immigrants from the pre-1971 cohort of immigrants from source country g who resided in community i in 1971, and P_{it_j} is the total population (i. e., immigrants plus natives) in community i in the year t_j . The groups g are: immigrants from Ex-Yugoslavia, Turkey and others. We thus calculate time-varying instruments for various combinations of $t_1 = 1981, 1991, 2001$ and $t_2 = 1991, 2001, 2011$ and assign them to election years per the timing convention described in Section 2.

The second-stage regression then is

$$gFP\ddot{O}_{it_2t_1} = \alpha + \beta * \widehat{gIMM}_{it_2t_1} + \mathbf{X}'_{it_1} \Gamma^2 + \delta * IMM_{i1971} + \theta_t^2 + \varepsilon_{it}^2, \quad (3)$$

³⁰We verify that when running the OLS regressions with fixed effects as a log-log specification, we obtain quantitatively similar results to the findings obtained earlier. Naturally, when there are zero immigrants in a community or zero FPÖ voters, a percent change cannot be calculated, and we therefore omit the few communities where this occurs in the IV regressions. We verify that the prior panel fixed effects results are virtually identical on this slightly restricted sample.

where $gFP\ddot{O}_{it_2t_1}$ is the percent change of FPÖ votes in community i t_1 to t_2 ; and $\widehat{gIMM}_{it_2t_1}$ is the predicted percent change in immigration from the first-stage regression (1). Moreover, θ_t^2 is a set of year fixed effects, and ε_{it}^2 is the error term.

The coefficient of interest is β , which captures the effect of the change in the local presence of immigrants (attracted by existing networks established by guest workers prior to 1971) on the change in FPÖ voting. Specifically, β measures the percent change in FPÖ votes that is associated with a one percent increase in the immigrant share in a community. As in the OLS case, we weight observations by community population size. Standard errors are robust to heteroskedasticity of unknown form, and in the case of panel regressions clustered on the community and census year levels.

When our interest is in the effect of immigration of a specific skill-group, we construct an analogous instrument, using the initial skill-level distribution instead of the initial source country distribution for predicting how a given inflow of immigrants would be allocated to the communities.

We have shown earlier that Austrian voters do not appear to internally migrate in response to immigration. Moreover, we have shown that there does not seem to be a relationship between historical Nazi-voting and immigration patterns in 1971. As in the previous panel regressions, we control for a range of controls, including the historical (pre-immigrant inflow) industry structure and unemployment rates.³¹ In addition to the covariates used in the previous section, we also control for the immigrant share in 1971 (though the results do not depend on including this variable). Note that we do not use that historical immigration level as an excluded instrument, but as a control in both stages. In other words, we have to assume only that the initial distribution λ_{gi} of immigrant groups (but not the levels S_{gi}) and the subsequent overall inflows to Austria are exogenous.

³¹In fact, our results do not depend on controlling on these historical variables. Consistent with this observation, unreported results show no significant relation between our instrumental variable and the unemployment rate in the year 1961. Also, because contemporaneous unemployment itself is highly positively correlated with FPÖ vote shares, omitting the control for labor market status would, if anything, tend to introduce a downward bias into our second-stage estimates. Nonetheless, we control for the whole contemporaneous labor market distribution.

5.3 IV results

First-stage results. The geographic distribution of immigrants by census year is depicted in Figure 3. Visual inspection strongly suggests that the share of immigrants in later years is higher in communities with a high immigrant share back in 1971. This is also demonstrated in the top row of Figure 4. Notice, however, that our IV approach relies on changes. The bottom row of Figure 4 shows very clearly that a positive correlation between our instrument, the predicted change in immigrant shares, and actually observed changes in the immigrant share exists, for various relevant time horizons.

[Insert Figures 3 and 4 here]

The bottom panel of Table 8 presents the coefficients on the instrument in the first-stage regressions. As expected, the first stage shows a highly statistically significant positive effect of the increase in the predicted share of immigrants on communities' increases in actual shares of immigrants. An increase in the predicted share by one percent is associated with a 0.89 to 1.01 percent higher actual immigrant share. Result vary only slightly by the corresponding time horizon (<15 years, >20 years).³²

[Insert Table 8 here]

Second-stage: main results. The upper Panel of Table 8 presents the main second-stage results for three different time horizons over which changes in the immigrant share can be measured (around 10 years, 15 years, and 20 years, respectively). The regressions are based on pooled samples. For instance, in the 20-year differences regression we pool vote share changes from 1979 to 1999, from 1979 to 2002, and from 1990 to 2013 (and their corresponding first-stage regressions for immigrant share changes from 1981 to 2001 and from 1991 to 2011). We proceed similarly for the pooled samples underlying the 15- and 10-year-difference regressions.

³²Results available on request show that these effects also hold in a quantitatively very similar form for individual differences (e.g., going from 1981 to 2001, from 1991 to 2001, etc.). There is only one exception: for changes over the period 2001 to 2011, the coefficient falls to 0.31, suggesting that inflows in that decade may have become less determined by prior settlement patterns in recent years. However, even then the effect is highly statistically significant, ensuring a strong first stage even in most recent years.

The second-stage results indicate that there is significantly positive effect of increases in immigration on increases in FPÖ votes. This results holds in all specifications where the change in overall (= skilled plus unskilled) immigration is used as the dependent variable. Moreover, the results do not depend on the particular time horizon over which the immigration change is measured. We report standardized beta coefficients to evaluate the quantitative importance of the estimated effects. The results imply that a one standard deviation increase in the dependent variable causes about a one tenth of a standard deviation increase in FPÖ vote shares. These results, therefore, match well with the estimates from the panel fixed effects approach, and like the prior results, they are robust to the inclusion or exclusion of covariates.³³ Notice also that the F -statistics on the excluded instrument suggest that our instrument is sufficiently strong, at least in the 15-20 year differences and the 20+ year differences.³⁴

Heterogeneous effects by immigrant groups. Table 8 also reports results for low-skilled and high-skilled immigration separately. For low-skilled workers, we find results consistent with the panel fixed effects estimates: Increases in low-skilled immigration are significantly associated with increases in FPÖ votes (in the 20+ year regressions, the effect is positive but not significant). For high-skilled immigration, we find negative point estimates throughout, though the second-stage estimates are not statistically significant. The

³³See Table B.2 in the [Supplementary Appendix B](#). We have also analyzed second-stage results for changes between individual years. All individual differences show a positive relationship between changes in immigration changes in FPÖ voting, and most (though not all) individual differences are statistically significant. The effect of immigration is somewhat bigger when considering changes in the more recent 15 years than in the first 15 years, though the confidence intervals are overlapping. These findings are available on request.

³⁴For the one-instrument case we report Wald F -statistics based on the Cragg-Donald statistic and the Kleibergen-Paap rk statistic. The Cragg-Donald F -statistic is a basic reference point in 2SLS-regressions; [Stock, Wright and Yogo \(2002\)](#) provide critical values for strong instruments (8.96 in the case of one instrument). However, this statistic requires an assumption of i.i.d. errors. In the presence of clustering and heteroskedasticity, the Kleibergen-Paap rk statistic is, therefore, typically considered additionally in practice. No study appears to exist that provides threshold values that the rk statistic should exceed for weak identification not to be considered a problem, but researchers usually use a value of 10 as an indication of a strong instrument in this case, following the general proposal of [Staiger and Stock \(1997\)](#) for a threshold for the first-stage F -statistic. The cutoff values do not provide a mechanical rule. On the one hand, there is no absolute security that an instrument whose F -statistic exceeds 10 is, indeed, strong; on the other hand, [Angrist and Pischke \(2009\)](#) point out that even F -statistics as low as 2.0 “may not be fatal” (p. 215). The Kleibergen-Paap statistics in our analysis are between 10 and 35.

first stages generally perform well for both low- and high-skilled immigration changes.³⁵

Heterogeneous effects across communities. In analogy to Table 5, we present in Table 9 IV-estimates where we split the sample by the same set of variables that potentially interact with immigration in explaining FPÖ votes. We present results for the 15-year changes. (First-stage results were strongest for this time difference, increasing the chance to obtaining useful first stages also in split samples. Indeed, 13 out of 16 first-stage regressions yield Kleibergen-Paap statistics of above 10, despite the much smaller samples.)

Panels A and B of Table 9 show that the strongest impact of immigrant inflows on far-right voting occurs in Austrian communities with high unemployment and in communities where native-immigrant labor market competition is strong. Panel C documents that the effect of immigration is strongest in communities with a large share of highly-educated Austrians. The sample split according to the number of immigrant children does not yield quite the same picture as before (see Panel D). However, the strongest effect does again occur in the highest quartile of immigrant children presence. Overall, these results are in line with the findings from the panel fixed effects estimations, providing further support for the conclusion that voter worries about both labor market effects and compositional amenities may be important in explaining the increase in FPÖ votes.

[Insert Table 9 here]

Effects on compositional amenities. Finally, Table 10 presents IV results on other outcomes (availability of public childcare, school commuting) that might be detrimentally affected by an increase in immigration and hence might partly induce voters to lean towards an anti-immigration far-right political party.

Consistent with the panel fixed effects regressions, we find strong evidence that after-noon care is less likely to be made available in communities with substantial low-skilled

³⁵We separately instrument the two immigration types because we had found some evidence earlier that there is a slight migration response to high-skilled immigration. When we jointly instrument both low/and high-skill immigration by the respective changes in the predicted shares for the respective years, we obtain stronger results. These findings are available on request.

immigration. We also find similar results for day nurseries in the IV regressions. By contrast, using the IV strategy, we do not obtain significant evidence of an effect of immigration on the tendency of Austrian parents sending their children to non-local schools.

[Insert Table 10 here]

Overall, a broadly similar picture as in the fixed effects regression emerges. There is suggestive, but not extremely strong evidence of negative effects of immigration on the compositional amenities. As mentioned earlier, the various amenities considered here are by no means an exhaustive list but should be considered as potentially relevant examples. Immigration may drive political preferences through affecting other amenities such as the housing market, crime, or environmental quality (that we did not consider here due lack of appropriate data). Future work should explore where these additional types of amenities are relevant for far-right voting.

6 Conclusions

Political folklore holds that far-right parties attract voters by appealing to anti-immigration sentiments of the voting native population. Yet, it is also possible that more contact with immigrants could foster better understanding and ultimately a more positive attitude of voters. While existing empirical studies often show a positive correlation between immigration and votes for far-right political parties, empirical evidence establishing a causal link is still scarce.

This paper studies the effect of the increasing presence of immigrants in one's neighbourhood on the change in local election support for the far right. We look at the Freedom Party of Austria (FPÖ) which, under the leadership of Jörg Haider, increased its vote share from less than 5 percent in the early 1980s to 27 percent in the late 1990s. The FPÖ obtained more than 20 percent of the vote in 2013.

We establish the following results. *First*, we find that on average a tenth of the cross-community variation in the increase of (FPÖ) vote shares over time can be attributed to cross-community variation in the inflow of immigrants. Our *second* main result shows

that the composition of immigrants affects voting decisions. We document that low- and medium-skilled immigration causes Austrian voters to turn to the far right, while more high-skilled immigration either has an insignificant or a negative effect on FPÖ votes. We caution that education levels can capture many dimension and that communities with differing skill levels of immigrants may differ along other dimensions. *Third*, the results are likely due to both perceived labor market competition and a concern that immigration imposes negative externalities on the native population by a deterioration of compositional amenities that they derive from composition of their neighbourhoods, workplaces and schools. The effects of immigration are stronger where unemployment among natives is high and where labor market competition between natives and immigrants is strong (consistent with the labor market channel), and they are also stronger where there are many immigrant children and where natives are highly educated (consistent with the compositional amenities channel). *Fourth*, there is some suggestive evidence that immigration, in fact, has negative consequences for the availability of childcare and leads Austrian kids to commute longer distances to school, suggesting that Austrian voters' worries about the impact of immigration on compositional amenities can be supported by empirical evidence. The set of relevant amenities is clearly much broader than that those considered here. Future research should try better understand which amenities drive anti-immigration sentiments and voting for anti-immigration parties.

Immigration is necessary for developed countries, as persistently low fertility rates and increases in life expectancy let societies age. However, immigration is not a smooth process, and it can generate tensions and conflicts. Our paper shows that the geographic proximity of immigrants is an important driver of support for anti-immigration far-right parties. In particular, low-skill immigration is seen as more problematic by voters than high-skill immigration. A policy implication of this result is that fostering high-skilled immigration or the education of currently low-skilled immigrants may be important also from the point of view of political stability. Another conclusion of our analysis is that policies mitigating (perceived or true) negative effects on compositional amenities by fostering the integration of immigrants into local communities may be particularly important.

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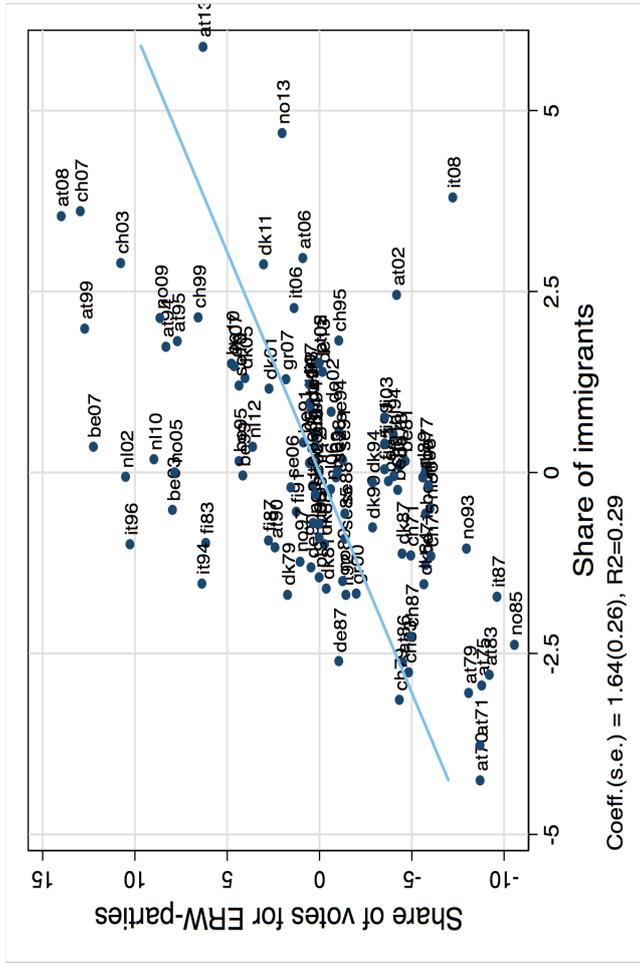
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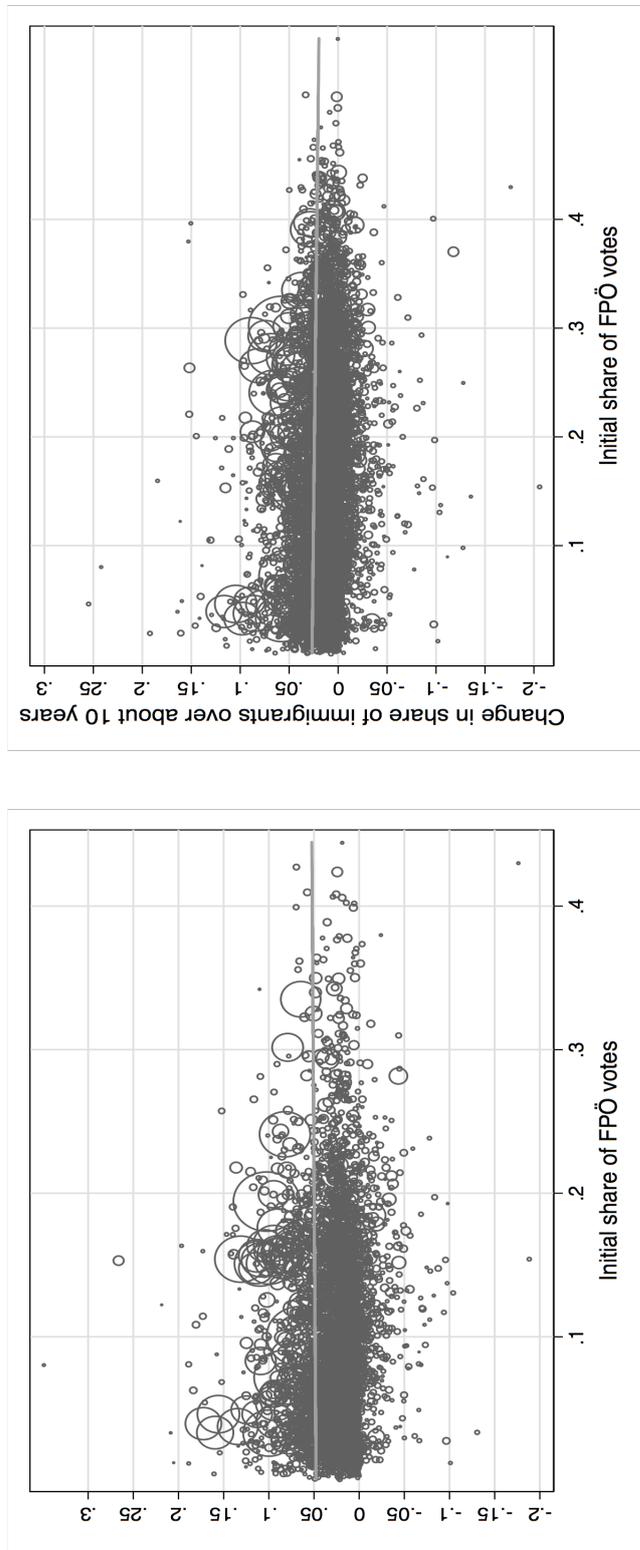
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Figure 1. Immigration and far-right voting in the EU-15 countries, Norway, and Switzerland, 1970–2013



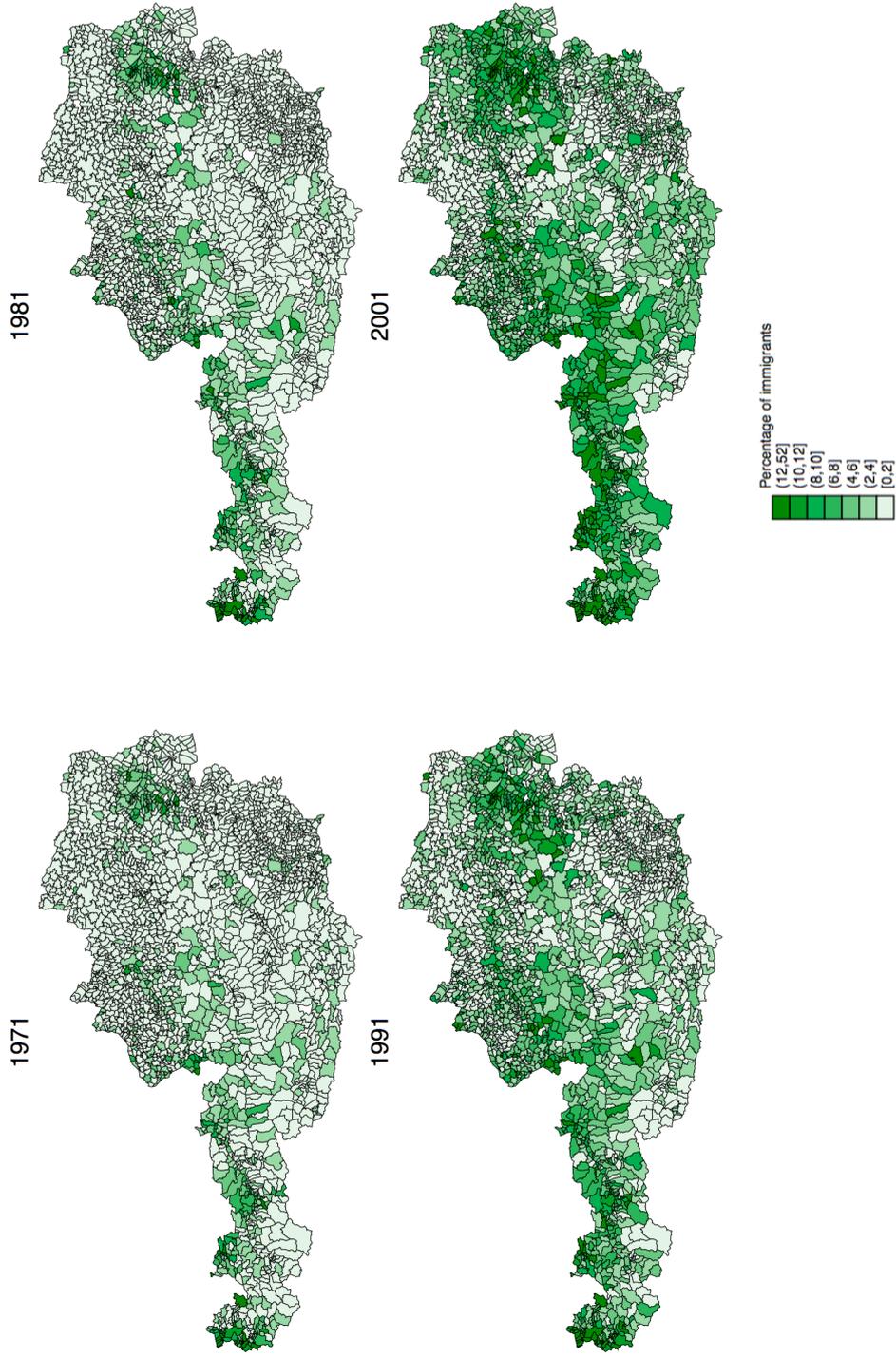
This scatterplot accounts for country fixed effects (i. e., both variables are centered around the respective country-specific mean) and is based on 103 general election years in EU-15 countries, Norway, and Switzerland in the period between 1970 and 2013; only democratic periods are used. Elections from countries, which do not have any far-right party throughout the whole sample period are excluded. The inclusion of these 33 elections would give the following result: $\text{coeff. (s.e.)} = 0.53(0.14)$, $R^2 = 0.09$. 65 elections could not be included due to missing information on the number of residents without citizenship in the particular country-years. Share of immigrants is defined as the number of residents without citizenship relative to all residents. Data on the total number of residents is from the database of *Eurostat*. Information on the number of residents without citizenship is from various national sources; details are available upon request. Share of votes for far-right parties include the following parties: Austria: *Freiheitliche Partei Österreichs* founded in 1956, parliamentary elections (National Council of Austria); Belgium: sum of the following three parties: (i) *Vlaams Blok* founded in 1978 and succeeded by the *Vlaams Belang* in 2004, (ii) *Le Front national* founded in 1985, (iii) *Lijst Dedecker* founded in 2007, general elections (Belgian Chamber of Representatives); Denmark: sum of the following two parties: (i) *Fremstridtspartiet* founded in 1972, (ii) *Dansk Folkeparti* founded 1995 as a splinter from the *Fremstridtspartiet*, parliamentary elections (Danish Parliament); Finland: *Suomen maaseudun puolue* founded in 1959, dissolved *de facto* in 1995 (*de jure* in 2003), and succeeded by *Perussuomaliset* founded in 1995, Finnish parliamentary elections; France: *Front National* founded in 1972, French legislative elections (first round votes); Germany: sum of the following two parties (i) *Nationaldemokratische Partei Deutschlands – Die Volksunion* founded in 1964, (ii) *Die Republikaner* founded in 1983, German federal elections; Greece: sum of the following two parties: (i) *Ethniki Parataxis* founded in the late 1970s, (ii) *Lakós Orthodoxos Synagermós* founded in 2000, Greek legislative election; Ireland: no far-right parties; Italy: sum of the following two parties: (i) *Movimento Sociale Italiano-Destra Nazionale* founded in 1946, dissolved in 1995, and transformed into the *Alleanza Nazionale* (dissolved 2009), (ii) *Lega Nord* founded in 1991, Italian general elections; Luxembourg: no far-right parties; Netherlands: sum of the following three parties: (i) *Centrumpartij* founded in 1980 and dissolved in 1986, (ii) *Lijst Pim Fortuyn* founded in 2002 and dissolved in 2008, (iv) *Partij voor de Vrijheid* founded in 2006, Dutch general elections; Norway: *Framstegspartiet* founded in 1973, Norwegian parliamentary elections; Portugal: *Partido Popular Monárquico* founded in 1974, Portuguese legislative elections; Spain: no far-right parties; Sweden: *Sverigedemokraterna* founded in 1988, Swedish general elections; Switzerland: *Schweizerische Volkspartei* founded in 1971, Swiss federal elections; United Kingdom: no far-right parties. Data on election results are obtained from the *Comparative Political Data Set I (23 OECD Countries)* provided by Klaus Armingeon, Sarah Engler, Panajotis Potosidis, Marlène Gerber and Philipp Leimgruber (see http://www.ipw.unibe.ch/research/datasets/index_eng.html). Information on founding years is from *Wikipedia*.

Figure 2. The effect of initial share of FPÖ votes on the change in share of immigrants: Unconditional correlation



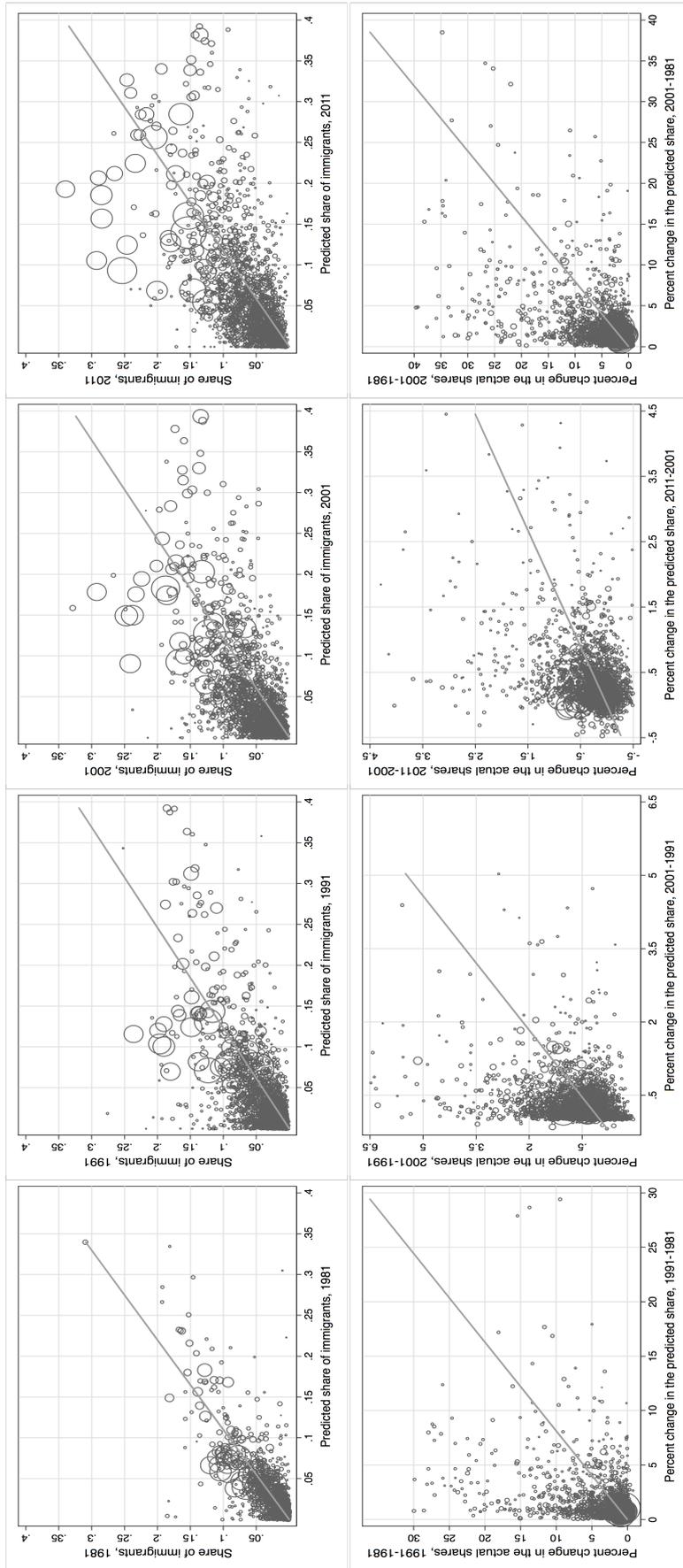
These population-weighted scatter-plots (based on Austrian community-level data from the decennial Austrian census and election data in national elections) depict the correlation between the initial share of FPÖ votes and the change in the share of immigrants in Austrian communities in the following 20 years (left figure) and the following 10 years (right figure). For example, a point in the left figure is the share of FPÖ votes in a community in the year 1979 and the change in the share of immigrants in that community from years 1981 to 2001. The left figure contains information for the immigrant share changes from 1981 to 2001 and from 1991 to 2011 and relates these changes to the FPÖ vote shares in 1979 and 1990, respectively. The right figure contains information for the immigrant share changes from 1981 to 1991, 1991 to 2001, and from 2001 to 2011 and relates these changes to the FPÖ vote shares in 1979, 1990, and 1999, respectively.

Figure 3. The spatial distribution of immigrants by census year^a



These figures depict the share of immigrants (defined as the number of residents without Austrian citizenship as a percent share of all residents) in Austrian communities in the census years 1971, 1981, 1991, and 2001. The number of communities and their territorial boundaries has changed over the sample period. In order to have a balanced panel of communities, a slightly modified version of the territorial boundaries of the year 2001 with 2,352 communities (including the 23 municipal districts of Vienna) is used.

Figure 4. The spatial correlation between predicted and actual shares of immigrants (in levels and percent changes)



These population-weighted scatter-plots (based on Austrian community-level data from the decennial Austrian census) depict the correlation between the predicted and the actual shares of immigrants in Austrian communities in the years 1981, 1991, 2001, and 2011 (first row) and the correlation between the predicted and the actual percent changes of shares of immigrants in Austrian communities for the time differences indicated in each graph (second row). The predictions (and the changes in predictions) are based on the spatial distribution of immigrants from Ex-Yugoslavia, Turkey and other countries across communities in the year 1971 and the subsequent group-specific inflow. For presentational purposes, the graphs in the first row exclude communities with a (predicted) share of immigrants of 40 percent or more. In case of the first graph there are 3, in the second 9, in the third 22, and in the fourth 53 of such outliers. Similarly, the graphs in the second row exclude communities with a (predicted) percent change of the share of immigrants above or below a certain value (graph-specific outliers). In case of the first graph there are 50 observations with values above 30 excluded, in the second graph 35 observations with values above 6.5 are excluded, in the third graph 77 observations with values either below -0.5 or above 4.5 are excluded, and in the fourth graph 66 observations with values above 40 are excluded. These observations are included in the empirical analysis.

Table 1. Descriptive statistics on variables of primary interest

Election year	1971	1979	1983	1990	1994	1999	2002	2013
% share of FPÖ-votes	5.49 (3.68)	6.10 (3.72)	5.03 (3.18)	16.68 (5.73)	22.81 (5.45)	27.39 (5.99)	10.23 (4.78)	21.28 (5.02)
% share of immigrants	2.83 (2.56)	3.86 (3.75)	3.86 (3.75)	6.64 (5.41)	6.64 (5.41)	8.85 (6.30)	8.85 (6.30)	11.48 (7.71)
with low and medium skills	2.72 (2.73)	3.17 (3.12)	3.17 (3.12)	5.32 (4.28)	5.32 (4.28)	6.88 (5.10)	6.88 (5.10)	8.30 (5.47)
with high skills	0.40 (0.51)	0.52 (0.65)	0.52 (0.65)	1.14 (1.12)	1.14 (1.12)	1.55 (1.29)	1.55 (1.29)	3.00 (2.67)

This table summarizes population-weighted means and standard deviations (in parentheses below) for the variables of primary interest based on Austrian community-level data. The share of votes for the FPÖ is from general elections; these figures might differ slightly from official election results due to overseas voters and varying turnout of voters across communities. The share of immigrants (with a certain level of education) is equal to the number of residents without Austrian citizenship (with the respective educational attainment) as a fraction of all residents. Low and medium skills is compulsory schooling, an apprenticeship or a lower secondary school. High education is a higher secondary school or an academic degree. The shares of immigrants on a community-level are available in the years 1971, 1981, 1991, 2001, 2011 (census years). The shares of immigrants in the years 1979 and 1983 are imputed with information from the year 1981, the data in the years 1990 and 1994 are imputed with information from the year 1991, the data in the years 1999 and 2002 are imputed with information from the year 2001, the data in the years 2013 are imputed with information from the year 2011.

Table 2. The effect of initial share of FPÖ votes on the change in share of immigrants

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	10-year difference				20-year difference		
Share of immigrants ($t_2 - t_1$)	Pooled	$\Delta 11-01$	$\Delta 01-91$	$\Delta 91-81$	Pooled	$\Delta 11-91$	$\Delta 01-81$
<i>Panel A: All immigrants</i>							
Initial share of FPÖ votes	-0.013 (0.027)	-0.007 (0.011)	0.013 (0.015)	0.014 (0.020)	-0.007 (0.027)	-0.005 (0.020)	-0.019 (0.026)
Community characteristics ^a in t_1	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unemployment rate 1961 ^b	No	Yes	Yes	Yes	No	Yes	Yes
Industrial structure 1973 ^b	No	Yes	Yes	Yes	No	Yes	Yes
Community fixed effects	Yes	No	No	No	Yes	No	No
Year fixed effects	Yes	No	No	No	Yes	No	No
Number of observations	6,180	1,975	2,103	2,102	4,074	1,972	2,102
Mean of dependent variable	0.025	0.022	0.023	0.028	0.050	0.046	0.052
S.d. of dependent variable	0.025	0.026	0.023	0.026	0.040	0.040	0.039
FPÖ votes measured in year	'79, '90, '99	1999	1990	1979	'79, '90	1990	1979
Mean of FPÖ vote shares	0.165	0.273	0.167	0.062	0.113	0.168	0.062
S.d. of FPÖ vote shares	0.101	0.061	0.058	0.037	0.072	0.058	0.037
<i>Panel B: Low skilled immigrants</i>							
Initial share of FPÖ votes	0.007 (0.019)	-0.005 (0.010)	0.014 (0.012)	0.006 (0.015)	0.003 (0.024)	-0.007 (0.016)	-0.007 (0.023)
Mean of dependent variable	0.017	0.011	0.016	0.022	0.033	0.027	0.039
S.d. of dependent variable	0.020	0.018	0.020	0.020	0.031	0.029	0.032
<i>Panel C: High skilled immigrants</i>							
Initial share of FPÖ votes	-0.009 (0.007)	0.009** (0.004)	0.003 (0.003)	0.005 (0.004)	0.002 (0.006)	0.016*** (0.006)	-0.001 (0.005)
Mean of dependent variable	0.008	0.014	0.004	0.006	0.015	0.019	0.011
S.d. of dependent variable	0.011	0.015	0.006	0.007	0.015	0.018	0.009

This table summarizes the estimated effect of the initial share of FPÖ votes on the change in the share of immigrants in the following 10 or 20 years based on a series of weighted (community population weights) OLS estimations with community fixed effects using Austrian community level data. The column header indicates which immigration share difference is used as the dependent variable, and the row “FPÖ votes measured in year” indicates the election year from which the investigation starts. For example, column (7) presents a regression of the change in the share of immigrants in that community from years 1981 to 2001 on the share of FPÖ votes in a community in the year 1979. Columns (1) and (5) pool the respective 10- and 20-year difference regressions. Panel A considers the share of residents without Austrian citizenship. The share of immigrants with a certain level of education is equal to the number of residents without Austrian citizenship with the respective educational attainment as a fraction of all residents. Low and medium skills is compulsory schooling, an apprenticeship or a lower secondary school. High education is a higher secondary school or an academic degree. The shares of immigrants on a community-level are available in the years 1971, 1981, 1991, 2001, 2011 (census years). Robust standard errors (allowing for clustering on the community and census year levels and/or heteroskedasticity of unknown form) are in parentheses. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. *a* All regressions include as controls our standard set of community covariates: (1) each community’s number of inhabitants (and its square), (2) the distribution of the labor market status (share of inhabitants who are employed, unemployed, retired or a child), (3) the industry structure (31 variables that capture the share of workers employed in a certain industry relative to the sum of all workers in a given community), (4) the distribution of marital status (share of inhabitants who are single, married, divorced or widowed), (5) and the population’s age-sex-distribution. *b* The unemployment rate in 1961 and the industry structure in 1973 are time-invariant and are, therefore, included in year-by-year regressions only.

Table 3. Relationship between votes for DNSAP in 1930 & share of foreigners in 1971

	(1)	(2)
Share of votes for DNSAP	-0.001 (0.068)	-0.034 (0.065)
Vienna	Yes	Yes
Carinthia	Yes	Yes
Inhabitants 1971	No	Yes
No. of observations	111	111
R-squared	0.16	0.26

This table presents regressions of the share of immigrants in 1971 in political district i , where $i = \{1, \dots, 111\}$, on vote shares for the *Deutsche Nationalsozialistische Arbeiterpartei*, the Austrian counterpart of the German NSDAP, in 1930.

Table 4. The effect of the share of immigrants on the share of FPÖ votes: Fixed effects estimation

	(1)	(2)	(3)
	All immigrants	Low skilled immigrants	High skilled immigrants
Share of immigrants	0.159*** (0.039) [0.107]	0.299*** (0.046) [0.154]	-0.757*** (0.111) [-0.134]
Community characteristics ^a	Yes	Yes	Yes
Community fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Number of observations	14,598	14,598	14,598
Mean of dependent variable	0.156	0.156	0.156
S.d. of dependent variable	0.094	0.094	0.094
Mean share of immigrants	0.073	0.057	0.014
S.d. of share of immigrants	0.063	0.048	0.017

This table summarizes the estimated effect of immigration on the share of votes for the FPÖ based on a series of weighted (community population weights) OLS estimations with community fixed effects using Austrian community level data. The dependent variable ($FPÖ_{it}$) is equal to the share of votes for the FPÖ in the general election in community i in the year t , where $t = \{1979, 1983, 1990, 1994, 1999, 2002, 2013\}$. In column (1), the key explanatory variable is the share of residents without Austrian citizenship. Columns (2) and (3) differentiation immigrants by skill levels. The share of immigrants with a certain level of education is equal to the number of residents without Austrian citizenship with the respective educational attainment as a fraction of all residents. Low and medium skills is compulsory schooling, an apprenticeship or a lower secondary school. High education is a higher secondary school or an academic degree. The shares of immigrants on a community-level are available in the years 1971, 1981, 1991, 2001, 2011 (census years). The share of immigrants in the years 1979 and 1983 is imputed with information from the year 1981, the data in the years 1990 and 1994 are imputed with information from the year 1991, the data in the years 1999 and 2002 are imputed with information from the year 2001, and the data in the year 2013 are imputed with information from the year 2011. The same imputation is used for the other covariates. Robust standard errors (allowing for clustering on the community and census year levels and/or heteroskedasticity of unknown form) are in parentheses. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. Standardized (beta) coefficients are in square brackets. ^a The community characteristics are described in the notes to Table 2.

Table 5. The role of labor market concerns and of compositional amenities: Fixed effects estimation

	(1)	(2)	(3)	(4)
	Below	Below	Above	Above
	25th	50th	50th	75th
<i>Sample split criterion</i>	percentile	percentile	percentile	percentile
<i>Panel A: Unemployment rate of natives</i>				
Share of immigrants	0.115*** (0.035) [0.058]	0.149*** (0.029) [0.073]	0.167*** (0.050) [0.116]	0.253*** (0.057) [0.183]
Mean of dependent var	0.148	0.145	0.160	0.162
Mean of split var	0.023	0.027	0.058	0.066
<i>Panel B: Labor market competition</i>				
Share of immigrants	0.013 (0.043) [0.007]	0.047 (0.033) [0.037]	0.191*** (0.050) [0.119]	0.218*** (0.080) [0.097]
Mean of dependent var	0.137	0.151	0.158	0.160
Mean of split var	0.830	0.939	1.005	1.016
<i>Panel C: Educational attainment of natives</i>				
Share of immigrants	-0.041 (0.045) [-0.010]	-0.046 (0.035) [-0.013]	0.211*** (0.043) [0.146]	0.267*** (0.051) [0.190]
Mean of dependent var	0.139	0.144	0.159	0.159
Mean of split var	1.481	1.544	1.878	1.932
<i>Panel D: Ratio of immigrant kids to all kids</i>				
Share of immigrants		-0.045 (0.044) [-0.010]	0.207*** (0.042) [0.142]	0.258*** (0.046) [0.177]
Mean of dependent var		0.143	0.159	0.160
Mean of split var		0.019	0.101	0.121

This table summarizes the estimated effect of immigration on the share of votes for the FPÖ based on a series of weighted (community population weights) OLS estimations with community fixed effects using Austrian community level data. The regressions are equivalent to those presented in Table 4, but are estimated for different sub-samples. In each panel, the split variable is stated at the header. The columns indicate sample splits at the first quartile, the median, and the third quartile of the split variable stated at the header of each column. Splits are conducted according to the distribution of the respective variable observed in 1981. The construction of the labor market competition index (Panel B) follows Card (2001) and is explained in detail in the text. Average educational attainment of natives (Panel C) is based on a four-point scale, drawing on the four levels of education described in the data section. The calculation of immigrant shares is described in the notes to Table 4. All regressions include the same set of controls as the estimations summarized in Table 4. Robust standard errors (allowing for clustering on the community and census year levels and/or heteroskedasticity of unknown form) are in parentheses. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. Standardized (beta) coefficients are in square brackets.

Table 6. The effect of the share of immigrants on the child-care facilities and commuting to school: Fixed effects estimation

	(1)	(2)	(3)	(4)	(5)	(6)
	Proxy for low quality of local schools: Share of out-commuting Austrian students		<i>Hort:</i> Availability of a afternoon care facilities for child- ren over 6 years		<i>Kinderkrippe:</i> Availability of a day nursery for children under 3 years	
Share of immigrants	0.190*** (0.073) [0.101]	0.290*** (0.067) [0.140]	-0.907** (0.411)	-1.191** (0.358)	0.179 (0.254)	0.280 (0.218)
<i>By skill group:</i>						
Low skilled immigrants	0.201** (0.084) [0.085]	0.324** (0.080) [0.125]	-1.212*** (0.457)	-1.53*** (0.430)	0.144 (0.264)	0.318 (0.259)
High skilled immigrants	0.300 (0.285) [0.034]	0.109 (0.312) [0.011]	2.192 (1.424)	1.078 (0.763)	0.748 (1.554)	1.136 (0.738)
Number of observations	4,209	6,311	4,209	6,185	4,209	6,185
Mean of dependent variable	0.398	0.400	0.500	0.531	0.430	0.456
Mean of share of immigrants	0.082	0.066	0.080	0.091	0.080	0.091
low skilled immigrants	0.064	0.053	0.063	0.069	0.063	0.069
high skilled immigrants	0.015	0.011	0.014	0.019	0.014	0.019

This table summarizes the estimated effect of immigration on compositional amenities based on a series of weighted (community population weights) OLS estimations with community fixed effects using Austrian community level data. The dependent variable in columns (1) and (2) is the fraction of school children that are commuting more than 15 minutes for their school. For this variable, data are not available for 2011. Column (1) shows results for 1991 and 2001; column (2) shows results for 1981, 1991 and 2001. In columns (3) and (4), the dependent variable is a binary indicator that is equal to 1 if a community offers an after-school care club, and 0 otherwise. In columns (5) and (6), the dependent variable is a binary indicator that is equal to 1 if a community offers a day nursery. Day nurseries are day care facilities which are appropriate to the needs of babies and toddlers up to the age of three. Data on the existence of day nurseries and after-school care clubs are available from 1991 onwards. Columns (3) and (5) shows results for 1991 and 2001. Columns (4) and (6) show results for 1991, 2001, and 2011. The calculation of immigrant shares is described in the notes to Table 4. All regressions include the same set of controls as the estimations summarized in Table 4. Robust standard errors (allowing for clustering on the community and census year levels and/or heteroskedasticity of unknown form) are in parentheses. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. Where appropriate, standardized (beta) coefficients are in square brackets.

Table 7. Empirical models for identifying the internal migration response by skill-levels of natives and immigrants

	(1)	(2)	(3)	(4)
	Change in share of natives	Change in share of natives	Change in share of high skilled natives	Change in share of low skilled natives
Change in share of immigrants	0.024 (0.034) [0.008]			
<i>By skill group:</i>				
Change in share of low skilled immigrants		0.009 (0.047) [0.003]	0.013 (0.019) [0.012]	-0.027 (0.046) [-0.011]
Change in share of high skilled immigrants		0.558*** (0.150) [0.189]	0.365*** (0.073) [0.343]	0.298** (0.130) [0.119]
Number of observations	6,832	6,832	6,832	6,832
Mean of dependent variable	0.020	0.020	0.045	-0.023
S.d. of dependent variable	0.080	0.080	0.029	0.068
Mean of change in share of immigrants	0.015			
Mean of change in share of low skilled immigrants		0.011	0.011	0.011
Mean of change in share of high skilled immigrants		0.004	0.004	0.004

This table summarizes estimation output of empirical models for identifying the internal migration response as discussed and evaluated by Peri and Sparber (2011) (henceforth PS). The estimations are based on Austrian community-level panel data for the years 1981, 1991, 2001, and 2011. The dependent variable in columns (1) and (2) is defined as $(N_t - N_{t-1}) / (N_{t-1} + I_{t-1})$, where N denotes the absolute number of natives, and I the absolute number of immigrants residing in the respective community in period t . The dependent variable in column (3) is defined as $(N_t^{high} - N_{t-1}^{high}) / (N_{t-1})$, where N^{high} denotes the absolute number of high-skilled natives. The dependent variable in column (4) is defined as $(N_t^{low} - N_{t-1}^{low}) / (N_{t-1})$, where N^{low} denotes the absolute number of low-skilled natives. The explanatory variable in column (1) is defined as $(I_t - I_{t-1}) / (N_{t-1} + I_{t-1})$. The first explanatory variable in column (2) to (4) is defined as $(I_t^{low} - I_{t-1}^{low}) / (N_{t-1} + I_{t-1})$, where I^{low} denotes the absolute number of high-skilled immigrants. The second explanatory variable in column (2) to (4) is defined as $(I_t^{high} - I_{t-1}^{high}) / (N_{t-1} + I_{t-1})$, where I^{high} denotes the absolute number of high-skilled immigrants. Low skills is compulsory schooling, an apprenticeship or a lower secondary school. High education is a higher secondary school or an academic degree. Each specification controls for community and year fixed effects. This specification is analogous to the preferred specification of PS—a slightly modified specification of Card (2001, 2007)—which they describe/recommend on page 90. A statistically significant negative (positive) coefficient indicates displacement (attraction) of natives. Robust standard errors (allowing for clustering on the community level) are in parentheses. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. Standardized (beta) coefficients are in square brackets.

Table 8. The effect of the percent change in the share of immigrants on the percent change in the share of FPÖ votes: IV estimation

	Δ 20-year differences			Δ 15-year differences			Δ 10-year differences		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All immigrants	Low skilled immigrants	High skilled immigrants	All immigrants	Low skilled immigrants	High skilled immigrants	All immigrants	Low skilled immigrants	High skilled immigrants
Percent change in immigrant share	0.035** (0.018) [0.079]	0.029 (0.020) [0.052]	-0.027 (0.023) [-0.042]	0.048** (0.019) [0.100]	0.041** (0.020) [0.067]	-0.025 (0.027) [-0.033]	0.064** (0.027) [0.136]	0.059** (0.030) [0.101]	-0.028 (0.038) [-0.032]
Share of immigrants 1971	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Community characteristics ^a in t_1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unemployment rate 1961	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industrial structure 1973	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	5,669	5,669	5,669	7,594	7,594	7,594	9,523	9,523	9,523
Mean of dependent variable	2.098	2.098	2.098	2.763	2.763	2.763	1.701	1.701	1.701
S.d. of dependent variable	3.211	3.211	3.211	3.572	3.572	3.572	2.384	2.384	2.384
Mean of treatment var	2.729	2.322	3.357	2.639	2.293	3.167	1.242	1.130	1.522
S.d. of treatment var	7.216	5.708	4.864	7.382	5.866	4.620	5.055	4.108	2.709
<i>First stage coefficients (endogenous variable is the percent change in immigrants):</i>									
Predicted percent change in immigrant share	0.898*** (0.169)	0.794*** (0.092)	0.644*** (0.085)	0.910*** (0.154)	0.827*** (0.091)	0.629*** (0.075)	1.003*** (0.312)	1.060*** (0.263)	0.587*** (0.085)
Kleibergen-Paap rk Wald F	28.105	74.883	56.955	34.820	83.259	70.774	10.331	16.274	47.455

This table summarizes the estimated effect of the percent change in the share of immigrants on the percent change in the share of votes for the FPÖ based on a series of weighted 2SLS estimations using Austrian community level data. The dependent variable is equal to the percent change in the share of votes for the FPÖ in the general election in community i between t_2 and t_1 . In each regression, the endogenous variable—for which estimated coefficients and standard errors from the 2nd stage are listed—is the percent change in the share of immigrants in community i between t_2 and t_1 . Columns (1), (4), and (7) use the share of residents without Austrian citizenship. The other columns differentiate effects by immigrant skill levels. The calculation of immigrant shares is described in the notes to Table 4. Immigrant share changes are instrumented by the percent changes in the predicted share of immigrants in community i between t_2 and t_1 . The predictions are based on the spatial distribution of immigrants from Ex-Yugoslavia, Turkey and other countries; or by skill-level, depending on the regression) across communities in the year 1971 and the subsequent group-specific inflows relevant for the two years t_2 and t_1 . At the bottom of the table, the first-stage coefficients are reported. The tables present the results from regressions pooling these combinations of vote share and immigrant share changes. Columns (1) to (3) concern approximately 20-year differences: vote share changes from 1979 to 1999, from 1979 to 2002, and from 1990 to 2013 which are explained by immigrant share changes from 1981 to 2001 (for the first two vote share changes) and from 1991 to 2011. Columns (4) to (6) concern approximately 15-year differences: vote share changes from 1979 to 1994, from 1983 to 1999, from 1983 to 2002, and from 1994 to 2013 are explained by the corresponding immigrant share changes. Finally, columns (7) to (9) concern approximately 10-year differences: vote share changes from 1979 to 1990, from 1983 to 1994, from 1990 to 1999, from 1990 to 2002, and from 2002 to 2013 are explained by the corresponding immigrant share changes. Robust standard errors (allowing for clustering on the community (and, in the case of pooled regressions) census year levels and/or heteroskedasticity of unknown form) are in parentheses. *, **, and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. Standardized (beta) coefficients are in square brackets. ^aThe community characteristics are described in the notes to Table 2.

Table 9. The role of labor market concerns and of compositional amenities: IV estimation

	(1)	(2)	(3)	(4)
	Below 25th	Below 50th	Above 50th	Above 75th
<i>Sample split criterion</i>	percentile	percentile	percentile	percentile
<i>Panel A: Unemployment rate of natives</i>				
15-year percent change in the immigrant share	0.054 (0.049) [0.166]	0.033 (0.029) [0.084]	0.056** (0.025) [0.092]	0.117*** (0.037) [0.148]
Mean of dep var	2.912	3.118	2.626	2.612
Mean of split var	0.032	0.035	0.055	0.065
Kleibergen-Paap rk Wald F	48.824	17.947	15.687	6.950
<i>Panel B: Labor market competition</i>				
15-year percent change in the immigrant share	0.011 (0.017) [0.039]	0.027* (0.017) [0.067]	0.066* (0.040) [0.109]	0.053* (0.034) [0.095]
Mean of dep var	4.153	3.303	2.564	2.548
Mean of split var	0.977	0.989	1.003	1.003
Kleibergen-Paap rk Wald F	10.320	14.937	42.761	25.433
<i>Panel C: Educational attainment of natives</i>				
15-year percent change in the immigrant share	-0.014 (0.040) [-0.031]	0.013 (0.020) [0.035]	0.059* (0.032) [0.092]	0.085*** (0.025) [0.086]
Mean of dep var	4.595	3.944	2.494	2.292
Mean of split var	1.608	1.663	1.876	1.953
Kleibergen-Paap rk Wald F	6.806	13.982	90.227	19.359
<i>Panel D: Ratio of immigrant kids to all kids</i>				
15-year percent change in the immigrant share		0.033* (0.021) [0.094]	0.061 (0.103) [0.030]	0.229 (0.199) [0.074]
Mean of dep var		3.950	2.441	2.298
Mean of split var		0.030	0.071	0.096
Kleibergen-Paap rk Wald F		28.688	60.792	37.130

This table summarizes IV-estimations equivalent to those presented in column (4) of Table 8 for different sub-samples. In each panel, the split variable is stated at the header. The columns indicate sample splits at the first quartile, the median, and the third quartile of the variable stated at the header of each column. Splits are conducted according to the distribution of the respective variable observed in 1981. The construction of the labor market competition index (Panel B) follows Card (2001) and is explained in detail in the text. Average educational attainment of natives (Panel C) is based on a four-point scale, drawing on the four levels of education described in the data section. All regressions include the same set of controls as the estimations summarized in Table 8. Robust standard errors (allowing for clustering on the community level and/or heteroskedasticity of unknown form) are in parentheses. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. Standardized (beta) coefficients are in square brackets.

Table 10. The effect of the share of immigrants on the child-care facilities and commuting to school: IV estimation

	(1)	(2)	(3)	(4)	(5)	(6)
	(Percentage) change in the outcome variable					
	Proxy for low quality of local schools: Share of out-commuting Austrian students		<i>Hort</i> : Availability of a afternoon care facilities for child- ren over 6 years		<i>Kinderkrippe</i> : Availability of a day nursery for children under 3 years	
	$\Delta 01-91$	$\Delta 01-81$	$\Delta 11-01$	$\Delta 11-91$	$\Delta 11-01$	$\Delta 11-91$
Percent change in share of immigrants	0.021 (0.020) [0.059]	-0.003 (0.009) [-0.008]	-0.030 (0.033)	-0.068* (0.037)	-0.038 (0.028)	-0.014 (0.028)
<i>By skill group:</i>						
low skilled immigrants	0.011 (0.019) [0.029]	0.015 (0.015) [0.029]	-0.062** (0.029)	-0.050* (0.029)	-0.051** (0.023)	-0.048** (0.024)
high skilled immigrants	0.027 (0.021) [0.110]	-0.043 (0.034) [-0.069]	0.026 (0.055)	0.026 (0.054)	-0.036 (0.044)	-0.070 (0.055)
Number of observations	1,927	1,925	1,819	1,819	1,819	1,819
Mean of dependent variable	0.106	0.110	0.074	0.099	0.061	0.085
Mean of share of immigrants	0.621	3.939	0.303	0.305	0.303	0.305
low skilled	0.522	3.352	0.258	0.258	0.258	0.258
high skilled	0.824	4.613	0.833	0.840	0.833	0.840
Kleibergen-Paap rk Wald F	28.339	26.450	35.478	35.141	35.728	35.342
low skilled	9.720	72.778	24.074	23.557	24.490	23.920
high skilled	16.135	50.972	10.921	11.166	11.603	11.770

This table summarizes the estimated effect of immigration on compositional amenities based on a series of weighted 2SLS estimations using Austrian community level data. The dependent variable in column (1) is the change, from 1991 to 2001, in the fraction of school children that are commuting more than 15 minutes for their school. For this variable, data are not available for 2011. Column (2) shows results for the change from 1981 to 2001. In columns (3) and (4), the dependent variable is a variable that is equal to 1 if a community offers an after-school care club in the year 2011, but did not offer one in 2001; it is 0 if there was no change; and it is -1 if the community offered an after-school care club in the year 2011, but offered one in 2001. The dependent variables in the other columns are defined similarly. The endogenous variables—for which estimated coefficients and standard errors from the 2nd stage are listed—are the percent changes in the share of immigrants in community i between the two census dates referred to in the column header. This variable is instrumented by the percent changes in the predicted share of immigrants in community i between the two dates. The predictions is based on the spatial distribution of immigrants (from Ex-Yugoslavia, Turkey and other countries) across communities in the year 1971 and the subsequent group-specific inflows relevant for the two years. All regressions include the same set of controls as the estimations summarized in Table 8. Robust standard errors (allowing for clustering on the community (and, in the case of pooled regressions) census year levels and/or heteroskedasticity of unknown form) are in parentheses. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. Where appropriate, standardized (beta) coefficients are in square brackets.