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Working Paper

Does Immigration into Their Neighborhoods Incline Voters Toward the Extreme Right? The Case of the Freedom Party of Austria

NRN Working Paper, NRN: The Austrian Center for Labor Economics and the Analysis of the Welfare State, No. 1204

Provided in Cooperation with:
NRN: The Austrian Center for Labor Economics and the Analysis of the Welfare State, Johannes Kepler University Linz

Suggested Citation: Halla, Martin; Wagner, Alexander F.; Zweimüller, Josef (2012) : Does Immigration into Their Neighborhoods Incline Voters Toward the Extreme Right? The Case of the Freedom Party of Austria, NRN Working Paper, NRN: The Austrian Center for Labor Economics and the Analysis of the Welfare State, No. 1204, Johannes Kepler University Linz, NRN - The Austrian Center for Labor Economics and the Analysis of the Welfare State, Linz

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Does Immigration into Their Neighborhoods Incline Voters Toward the Extreme Right? The Case of the Freedom Party of Austria

by

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May 2012

Supported by the Austrian Science Funds

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Does Immigration Into Their Neighborhoods Incline Voters Toward the Extreme Right? The Case of the Freedom Party of Austria *

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July 3, 2012

Abstract

This paper explores one potentially important channel through which immigration may drive support for extreme-right-wing parties: the presence of immigrants in the voters' neighborhoods. We study the case of the Freedom Party of Austria (FPÖ). Under the leadership of Jörg Haider, this party increased its share of votes from less than 5 percent in the early 1980s to 27 percent by the year 1999. Using past regional settlement patterns as a source of exogenous variation, we find a significantly positive effect on FPÖ votes of the residential proximity of immigrants and citizens, explaining roughly a quarter of the cross-community variance in those votes. It is the proximity of low- and medium-skilled immigrants that drives this result; high-skilled immigrants have no (or even a negative) effect on FPÖ votes.

JEL Classification: P16, J61.
Keywords: Immigration, political economy, voting.

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*We thank Statistics Austria for providing the census data. For helpful discussions and comments we thank Stefan Bauernschuster, David Card, Albrecht Glitz, Michel Habib, Hannes Winner, Helmut Rainer, Andrea Weber, Rudolf Winter-Ebmer, and participants at the Annual Conference 2010 of the ESPE in Essen, at the Workshop Applied Labor Economics of the ifo Institut in Bischofswiesen, and at seminars of the University of Mannheim and the University of Salzburg. This paper was partly written during Martin Halla's visiting scholarship at the Center for Labor Economics at the University of California at Berkeley. He is grateful for the stimulating academic environment and hospitality there. We thank Thomas Schober for excellent research assistance. This research was funded by the Austrian Science Fund (FWF): National Research Network S103, The Austrian Center for Labor Economics and the Analysis of the Welfare State; the NCCR FINRISK and the UHZ RPP Finance and Financial Markets. A previous version of this paper was circulated under the title "On the Political Implications of Immigration."

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1. Introduction

Voters in many European countries — including Austria, Belgium, Denmark, France, Netherlands, Norway, and Switzerland — have recently expressed strong support for extreme-right-wing (ERW) parties. From the 1970s until the mid-1980s, hardly any ERW party had gained more than five percent in a general election. Fifteen years later, some ERW parties in the above-mentioned countries received between ten and twenty-five percent of the votes. 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). Although few political movements today are direct analogues of the *National Socialist German Workers' Party* (NSDAP), it is worth recalling that the Nazis did not come to power through a coup, but through regular elections. Explaining the success of ERW parties is, therefore, clearly an important issue.

While ERW parties are more heterogeneous than other party families, 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 ERW parties. Indeed, Figure 1 suggests a positive relationship between the share of immigrants in a population and the support for ERW parties. Taking country fixed effects into account, the correlation between the immigrant share and the ERW vote share is 0.48. (When considering only countries where ERW parties do, in fact, exist, the correlation is 0.51.)

[Insert Figure 1 here]

This correlation is suggestive. However researchers and policy makers are particularly interested in understanding whether immigration in fact *causes* ERW voting. While a large literature has studied the impact of immigration on labor-market outcomes, surprisingly little work has been done to investigate the possible causal relationship between immigration and election outcomes.

This paper contributes to closing this gap by investigating the role, in Austria, of immigration as a possible driving force behind the success of the *Freedom Party of Austria* (*Freiheitliche Partei Österreichs*, FPÖ). 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 prevailed over its business-friendly, libertarian wing. After this change, the FPÖ steadily increased its vote share; the nationalistic approach has characterized the party's platform ever since. In 1999, the FPÖ became the country's second-largest party, with a vote share of roughly 27 percent. In 2000, the FPÖ joined with the conservative *Austrian People's Party* (ÖVP) to form a coalition government that was in power until 2006.[1] As suggested by Figure 1 for ERW parties in other European countries, support for the FPÖ seems closely related to its hostility towards immigration.

In this paper, we test the hypothesis that voters in Austrian communities with a higher share of immigrants (residents without Austrian citizenship) are more likely to vote for the FPÖ. The hypothesis is that voting behavior based on anti-immigrant sentiments is influenced by the close geographic proximity of immigrants and natives.

To test this hypothesis, we employ complete, detailed census data, allowing us to sidestep problems of measurement error. Our analysis takes into account the fact that the immigrant share in a given community is not exogenous. The decision of an immigrant as to where to settle is likely to be influenced by the extent of cultural or racial prejudices in a community. Immigrants would rarely settle in communities with a high degree of overt anti-immigrant sentiments, since it would be more difficult to find housing and a job there. Thus, unobserved xenophobia is an omitted variable, leading to a downward bias in a naïve estimation of the effect of the immigrant share on FPÖ vote shares.

[1] Internal problems in the FPÖ arose soon after they had become a governing party. These disputes escalated at a special party convention, at which three members of the government resigned. As a result of that a new splinter party, the *Alliance for the Future of Austria*, was established in 2005. Our empirical analysis concerns elections before that date.

Fortunately, the recent history of immigration into Austria offers features that allow us to identify econometrically the effect of the local presence of immigrants on election outcomes. We use historical settlement patterns of immigrants (prior to 1971) as an instrumental variable for the geographic distribution of the immigrant population in later years.[2] This approach is based on the notion that (i) existing social networks are important elements in the settlement choices of current immigrants, and that (ii) the determinants of the historical settlement patterns are arguably uncorrelated with recent (unobserved) factors of voting behavior. We find strong evidence supporting condition (i). Assumption (ii), the identifying assumption, is not testable. However, we argue that historical settlement patterns form a valid instrument in the Austrian case. Settlement patterns prior to 1971 were not driven by anti-immigrant sentiments. In fact, immigrants arriving in the 1960s were greeted enthusiastically because they provided much-needed labor for the rebuilding of Austria's economy after World War II and during the economic boom of the 1960s.

We also consider the possibility that the native population may change residence in response to a high influx of foreigners. We employ various approaches (as suggested by Peri and Sparber, 2011) to address this issue. It turns out that residential relocations by Austrian voters in response to immigration are not a statistically significant phenomenon. This suggests that our results are not biased by any changes in the composition of the voting populations of communities as a result of immigration.[3]

In sum, using historical settlement patterns as an instrument for the geographic distribution of contemporaneous immigration seems to be a useful identification strategy in the Austrian

[2]Other papers have used related identification strategies to investigate the economic effects of immigration (see, for instance, Altonji and Card, 1991; Edin, Fredriksson, and Åslund, 2003; Dustmann, Fabbri, and Preston, 2005; Saiz, 2007; Cortes, 2008). We are not aware of any paper that considers this instrumental variable strategy in the context of political outcomes.

[3]Contrary to the policies of other countries (such as the U.S.), being born in Austria does not automatically confer citizenship; instead, a child born in Austria must have at least one parent who is an Austrian citizen in order to be entitled to citizenship. While naturalizations are a potential confounding influence on our inferences, they are ultimately unlikely to be important for our results, as we explain further below.

context.

We document two main results. *First*, as hypothesized, the presence of immigrants in their neighborhoods has a quantitatively important and statistically significant impact on citizens' voting patterns; our baseline 2SLS-estimate suggests that a one-percentage-point increase in the share of immigrants in a community increases the percentage of FPÖ votes in general elections by about 0.4 percentage points. This implies that a one-standard-deviation increase in the share of immigrants leads to a quarter of a one-standard-deviation increase in the FPÖ vote share. This effect is larger than the effect implied by the OLS estimates, confirming the importance of controlling for the endogeneity of settlement decisions. We also find that the *increase* in the share of immigrants had a positive effect on the *increase* in the vote share of the FPÖ. The increase in immigration helps to explain an important part of the rise over time in the support for the extreme right.

Our *second* main result shows that the skill composition of immigrants affects voting decisions. We find that the proximity of low- and medium-skilled immigrants causes Austrian voters to turn to the far right. By contrast, high-skilled immigration either has an insignificant or a negative effect on FPÖ votes. This is consistent with the hypothesis that voters vote in their economic interest: High-skilled immigrants improve living conditions for the native population; lower-skilled immigrants pose the greatest threat of labor-market competition. This result is also consistent with the idea that Austrians worry about adverse effects of immigration on the compositional amenities that natives derive from their neighborhoods, schools, and workplaces (Card, Dustmann, and Preston, 2012). Such effects can be expected to play a larger role with low- and medium-skilled immigration than with high-skilled immigration.

Four guideposts can be used to put this analysis into the context of the existing literature. *First*, a significant amount of research and public discussion considers the implications of immigration for the receiving economy in terms of employment, wages, prices, public finances, or

racial and cultural features of a society.[4] However, so far, little evidence exists regarding the causal effects of immigration on election outcomes.[5]

Second, our analysis complements the rich literature, typically based on survey data, on political preferences and attitudes towards immigration. For example, in a recent paper, Dahlberg, Edmark, and Lundqvist (2012) document that immigration reduces preferences for redistribution in Sweden.[6] The obvious advantage of surveys is that researchers can directly ask the questions they are interested in. For Austria, too, these surveys yield interesting results. For example, analyzing data from the *European and World Values Survey*, we find 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.[7]

Third, our work is related to the literature that studies the political economy of immigration policies. Even in countries where so far no important ERW parties have emerged, immigra-

[4]Indeed, there are now so many reviews of the pertinent literature that it is difficult even to cite all survey papers. An incomplete list of survey articles includes Borjas (1994), Card (2005), Dustmann, Glitz, and Frattini (2008), and Friedberg and Hunt (1995). Longhi, Nijkamp, and Poot (2005) offer a meta-analysis.

[5]Several studies in the political science literature provide suggestive evidence; see, for instance, Arzheimer and Carter (2006); Arzheimer (2009); Golder (2003); Jackman and Volper (1996); Knigge (1998) and Lubbers, Gijsberts, and Scheepers (2002). This literature concludes that high levels of immigration (as well as of unemployment) are positively related to support for ERW parties. However, these empirical findings do not address the endogeneity of immigration and are therefore not able to establish a causal link between immigration and political outcomes. The only exception we are aware of is a study by Gerdes and Wadensjö (2008), examining potential causal effects of asylum seekers from outside Europe and the OECD on voting in Denmark.

[6]For studies on attitudes towards immigration see Card, Dustmann, and Preston (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, see Citrin, Green, Muste, and Wong (1997); Dülmer and Klein (2005); Knigge (1998); Lubbers and Scheepers (2000).

[7]For 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. Results based on survey data are summarized in the Supplementary Appendix C.

tion policies have been strongly shaped by politico-economic considerations (see, for example, Facchini, Mayda, and Mishra (2011); Facchini and Steinhardt (2011)). 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).

Fourth, this paper adds to more general work showing that economic considerations can help explain voting patterns which otherwise seem extreme. Much as economic concerns led many voters to turn to the Nazis (King, Rosen, Tanner, and Wagner, 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, Eichengreen, and O'Rourke, 2012).

The remainder of this paper is organized as follows. Section 2 discusses the empirical strategy. Section 3 describes the data. Section 4 presents our findings. Section 5 concludes the paper.

2. Empirical model and identification

Our basic approach relates the share of immigrants to the percentage of votes that the FPÖ obtained in national parliamentary elections. The observation unit is the community, indexed by i.[8] We denote by $FP\ddot{O}_{it}$ the percentage of FPÖ votes in community i in election year t; and by IMM_{it} the percentage of immigrants in the resident population in community i at

[8]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. 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 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, we use a slightly modified version of the territorial boundaries of the year 2001, which leaves us with $2,352$ communities (including the 23 municipal districts of Vienna).

that time t. Importantly, a simple OLS regression of $FP\ddot{O}_{it}$ on IMM_{it} suffers from potential endogeneity of IMM_{it}. In particular, immigrants are unlikely to be randomly assigned to communities. Instead, immigrants may self-select into communities with low anti-immigration sentiments where jobs and housing are easier to obtain and neighbors are friendlier. If voters with anti-immigrant sentiments are more likely to vote for the FPÖ, ignoring endogeneity of the immigrant share leads to a downward bias of the estimated immigration effect on ERW voting.

To identify the causal effect of immigration on voting outcomes, we need to compare the voting behavior of Austrian citizens in community i after immigration with the counterfactual outcome that would have been observed had immigration not taken place. In observational data, the causal effect can be identified using an instrumental variable, that is, a variable that significantly affects current immigrant shares, while being unrelated to voting decisions except through its effect on immigrant shares.

2.1 Historical settlement patterns as an instrument for the contemporaneous immigrant presence

Our identification strategy relies on historical settlement patterns prior to 1971 as an instrument for immigrant shares in later years. We then use variation in current immigrant shares generated by variation in historical settlement patterns to identify the causal impact of immigration on ERW voting. The key identifying assumption is that historical settlement patterns are not correlated with current unobserved factors determining voting behavior. In other words, historical settlement affects voting today only through the location choice of immigrants arriving later. Thus, historical settlement patterns can be excluded from the second-stage regression. While this identifying assumption is by definition not testable, we argue that this assumption is highly plausible given the historical context of migration to Austria.

The argument that historical settlement patterns provide a useful instrument for currently observed regional patterns of immigration was originally proposed by Altonji and Card (1991). Similar instrumental variable strategies have been applied by scholars studying the effects of immigration on wages (for example, Card, 2001) and on prices (for example, Cortes, 2008). However, to our knowledge, this empirical strategy has not been used to identify the impact of immigration on ERW voting. The basic idea is that immigrants settle where they find existing social networks and neighbors with the same cultural and linguistic background (Bartel, 1989; Åslund, 2005; Jaeger, 2007). Such networks facilitate the job search and assimilation into the new cultural environment (Munshi, 2003).[9]

Historical settlement of immigrants to Austria. To understand why historical settlement patterns can serve as a valid instrument, it is important to recall the situation of the Austrian economy 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 an influx of Turkish and Yugoslavian workers and their families to Austria began. In 1961, residents with Turkish and Yugoslavian citizenship numbered 271 and $4,565$, respectively. By 1971, the numbers had risen to $16,423$ and $93,337$, respectively. In 1961, the overall number of immigrants was 101,986, equal to 1.4 percent of the overall population. By 1974, mainly as a result of the efforts of the Austrian government to attract guest workers, the number of immigrants had risen to 311,689, equal to 4.1 percent of the overall population. During the 1960s and early 1970s, anti-immigration sentiment was weak. In fact, immigrants were very welcome. The Zeitgeist is well captured by the way the

[9]For the importance of networks in general, see Calvó-Armengol and Jackson (2004), Ioannides and Loury (2004), Lazear (1999), and Montgomery (1991).

first foreign workers arriving from Turkey in 1964 were welcomed in Vienna. Turkish workers were received with cheers of approval and enthusiasm from a large gathering in the Viennese train station. A marching band was playing in their honor and officials handed out flowers to them (*Wiener Zeitung*, 2006/12/30).

In short, settlement decisions of immigrants at that time were not influenced by local cultural or racial prejudices. Immigrant labor was funneled into locations where it brought the greatest marginal benefit.

Further immigration waves and the rise of the FPÖ. The clearly very positive image of immigration of the 1960s and early 1970s started to change in the mid-1970s when the first oil shock pushed Austria into a recession. 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.

A second wave of immigration began with the economic boom in the late 1980s. The immigration wave of the late 1980s coincided with the rise of the FPÖ. (For the joint evolution of immigration and FPÖ vote shares, see Figure A.2 in the Supplementary Appendix A.) 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 neighborhoods and schools. This 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. Under political pressure of increased anti-immigration sentiments, and partly as a reaction to the FPÖs anti-immigration activities, the Austrian government enacted various new tighter immigration rules during the 1990s.

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.[10]

The hypothesis underlying our identification strategy is that the geographic distribution of all these more recent waves of immigrants exhibits strong correlations with the geographic distribution of immigrants from the pre-1971 period. Our first-stage regressions test this hypothesis.

Additional considerations regarding the validity of the identification strategy. To further probe the plausibility of the identifying assumption, we consider three additional points.

First, we discuss possible internal migration effects in Section 4.3; we do not find any significant evidence of such effects.

Second, we note that it is, in principle, conceivable that even the historical settlement patterns prior to 1971 have direct effects on voting behavior today, violating the identifying assumption. This would be the case if, already in 1971, voters in communities where more immigrants had arrived turned to the FPÖ *and* if there exists intergenerational transmission of voting behavior. As for the first part, the arrival of immigrants was, as discussed above, generally greeted with positive sentiments, as it helped the economy grow. There is no evidence that immigration provided a reason to vote for the FPÖ then. As for the second part, we are not aware of a systematic study of the extent to which voting for the FPÖ is persistent across generations. Perhaps the most direct evidence against this idea is that, in fact, several tectonic shifts have taken place in the Austrian political landscape over the last 50 years. This would not be possible if Austrian voters consistently voted as their parents did. To further address potential time-invariant unobserved heterogeneity, we also estimate a model in differences in

[10]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.

Section 4.4.

Third, naturalizations may potentially confound our inferences.[11] However, they are unlikely to be important for our results. We 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 neighborhood. 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, we do not attempt to account for naturalizations in our analysis.

Overall, historical patterns of immigrant settlement provide, arguably, a powerful instrument for contemporaneous immigration in our analysis of ERW voting in Austria. The geographic allocation of immigrants in the 1960s was mainly driven by labor shortages in the various regions of Austria; self-selection by immigrants at that time is, therefore, unlikely to contaminate our empirical evidence. Selective migration responses by natives are later shown to be insignificant in the present context.

2.2 The empirical model

We conduct a standard 2SLS approach. Our main analysis considers pooled panel regressions. In all regressions below, we weight observations by community population size. Standard errors are clustered on the community level and robust to heteroskedasticity of unknown form.

The first-stage regression is

$$IMM_{it} = \alpha_1 + \beta_1 * IMM_{i,1971} + \mathbf{X}'_{it}\Gamma_1 + \theta_{1t} + \varepsilon_{1it}, \tag{1}$$

where IMM_{it} denotes the percentage of immigrants in community i in a given year, X_{it} is a

[11] Austrian-born children of immigrants do not obtain Austrian citizenship automatically.

vector of controls, θ_{1t} is a full set of year dummies, and ε_{1it} is a stochastic error term. $IMM_{i,1971}$ is our instrumental variable.

The second-stage regression then is

$$FP\ddot{O}_{it} = \alpha_2 + \beta_2 * \widehat{IMM}_{it} + \mathbf{X}'_{it}\Gamma_2 + \theta_{2t} + \varepsilon_{2it}, \tag{2}$$

where $FP\ddot{O}_{it}$ is the percentage of FPÖ votes in community i in election year t; and $\widehat{IMM}_{it}$ is the predicted value of the percentage of immigrants from the first-stage regression (1). Similar to equation (1), θ_{2t} is a set of year fixed effects, and ε_{2it} is the error term. By including year dummies in both stages, we exploit cross-sectional variation across communities to identify the impact of immigration on ERW voting.

The coefficient of interest is β_2, which captures the effect of the local presence of immigrants (attracted by existing networks established prior to 1971) on ERW voting. Specifically, β_2 measures the percentage-point change in FPÖ votes that is associated with a one-percentage-point increase in the immigrant share in a community.

3. Data

Disaggregated community-level 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*. Figure A.1 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.

Immigrants are residents without Austrian citizenship. Data on the share of immigrants (on a community level) are available from the decennial censuses since 1971. Data from 1971 provide

the instrumental variable. Since we do not have census data for each possible election year, 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 $t = \{1979, 1983, 1990, 1994, 1999, 2002\}$. We relate the election results of 1979 and 1983 to the 1981 census data. (Consequently, the first stages for 1979 and 1983, when estimated separately for each year, are identical because all the explanatory variables are identical.) Similarly, the election results of 1990 and 1994 are related to the 1991 census data, and the election results of 1999 and 2002 to the 2001 census data.[12]

We also investigate the extent to which ERW voting is driven by the skill composition of immigrants. We calculate immigrant shares within education groups based on residents 25 years of age or older. We sort immigrants into two groups, based on their highest attained education level: *(i) low and medium education* (compulsory schooling, completed apprenticeship training or lower secondary school); and *(ii) high education* (higher secondary school or academic degree).

Our main regressions include a parsimonious set of socio-economic control variables: each community's number of inhabitants (and its square), binary indicators for communities in the states of Vienna and Carinthia (traditionally an FPÖ-stronghold), distribution of marital status (share of inhabitants who are single, married, divorced and widowed), and the population's age-sex-distribution (in five-year age groups). Further robustness checks reported below show that our results are not sensitive to the inclusion of additional controls such as educational attainment and labor-market status.

The immigrant share and all socio-economic control variables are calculated from 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

[12]The elections of 1986 and 1995 are not included in the main analysis as they are relatively far from the census dates. However, our results also hold for these years.

sidestep problems of measurement error, an important concern in the literature that studies labor-market effects (Dustmann, Fabbri, and Preston, 2005, p. F329).

Descriptive statistics are in Table 1. Notably, substantial cross-sectional variation exists across communities in Austria, both in election outcomes and immigration levels.

[Insert Table 1 here]

4. Empirical findings

In this section we present our results. We proceed in four steps. In Section 4.1, we provide results based on pooled community data, taking all election years together. We look at both the impact of overall immigration on FPÖ votes and whether (and how) the skill composition of immigration affects FPÖ votes. In Section 4.2, we analyze the various election years separately to see whether the relationship between immigration and FPÖ votes is stable over time. In Section 4.3, we study a potentially important caveat that may invalidate our instrumental variables strategy: migration responses by the voting population. In Section 4.4, we report results of an analysis of the impact of increases in immigration on increases in FPÖ shares.

4.1 The impact of immigration on FPÖ votes

First-stage evidence. The first stage of our identification strategy claims that historical settlement patterns are an important predictor of the contemporaneous immigrant share in a community. To shed light on this issue we first provide some descriptive graphical evidence. The geographic distribution of immigrants by census year is depicted in Figure 2. Visual inspection strongly suggests that the share of immigrants in later years is higher in communities that had a higher share of immigrants in the year 1971. This is illustrated in the three (population-weighted) scatter plots in Figure 3. The correlations between the immigrant share in 1971 and the corresponding shares in 1981, 1991, and 2001 are 0.82, 0.68, and 0.67, respectively.

[Insert Figures 2 and 3 here]

Panel A of Table 2 shows the first-stage regressions, including an indication of the set of control variables. The specification in the first column concerns all immigrants, the main focus of our analysis. (The second and third column deal with immigrants split into groups by educational attainment; we discuss these results in detail further below.) As expected, the first stage shows a highly statistically significant positive effect of the historical settlement pattern on communities' shares of immigrants in later years.

[Insert Table 2 here]

In sum, the strong correlation between initial settlement patterns and more recent immigrant shares establishes the relevance of the instrument and alleviates weak-instrument concerns.

Second-stage results. Table 3 presents the main results of this paper. The first column shows a pooled OLS regression, suggesting a positive relationship between immigration and the success of the ERW movement.

Our main inference is, however, based on the 2SLS regression, shown in the third column. The high F-statistics on the excluded instrument suggest that our instrument is sufficiently strong.[13]

[13]For 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. In the case of multiple endogenous variables, as in our analysis of the role of skill composition, we report the Angrist-Pischke multivariate F-test of excluded instruments. Again, 10 is a threshold value usually employed in practice. In all cases, 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, as Angrist and Pischke (2009) point out, even F-statistics as low as 2.0 "may not be fatal" (p. 215). In our main analysis, presented in Table 3, the Angrist-Pischke and Kleibergen-Paap statistics are between 68 and 339, far above conventional thresholds.

[Insert Table 3 here]

The central finding is that the immigrant presence is a highly significant determinant of the percentage of FPÖ votes. Notice that the 2SLS estimate is larger than the OLS estimate. This is consistent with the idea that immigrants self-select into communities where anti-immigrant sentiments are less prevalent. Ignoring this selection would lead the researcher to underestimate the causal effect of immigration on ERW voting. Notably, our 2SLS estimates are almost as precise as the OLS estimates, reflecting that the first stage yields a strong prediction of current immigrant shares.

Immigration is not only a statistically significant but also a quantitatively important predictor of FPÖ votes in the cross-section of Austrian communities. The estimates imply that communities with an immigrant share that is one percentage point higher tend to give about 0.4 percentage points more votes to the FPÖ. Thus, a one-standard-deviation increase in the immigrant share drives about a quarter of a one-standard-deviation increase in the ERW vote share. Note that this local average treatment effect refers only to immigrants attracted by existing networks; immigrants who settled in a certain community for other reasons may have a separate effect on FPÖ votes.[14]

In terms of control variables,[15] we find important regional variation in the percentages of FPÖ votes; the FPÖ vote share is higher in Carinthia and lower in Vienna. We also find that the FPÖ vote share is significantly affected by community size, the relationship being

[14]Adding community fixed effects in the OLS-regression shown in the first column of Table 3 allows us to remove time-invariant unobserved heterogeneity. The highly significant relationship between immigration and voting also holds in such a fixed-effects panel estimation (not shown). However, there may be time-variant unobserved heterogeneity, which would not be captured by fixed effects. Moreover, if immigrant levels in community i in a given year (for example, in 1991) are negatively related to vote shares for the FPÖ in past years (for example, in 1983), then a fixed-effects estimate of current vote shares for the FPÖ on current immigrant levels will be positively biased. In the 2SLS regressions, we cannot include community fixed effects because our instrumental variable does not vary over time. This is not a great limitation as we are primarily interested in the cross-sectional relationship between immigration and voting decisions. We return to the time-series dimension when we consider difference regressions in Section 4.4.

[15]The full regression is shown in Table B.1 in the Supplementary Appendix B.

U-shaped. Among the communities with a population of up to 89,000, the larger communities tend to vote less for the FPÖ; among the communities beyond this critical population level, the larger communities tend to vote more for the FPÖ. Moreover, we find that, in communities with a comparably high share of prime-age women and men above the age of 65, the FPÖ is more successful. Finally, marital status affects FPÖ votes. Communities with a higher share of single (relative to married) individuals tend to vote more for the FPÖ.

The skill composition of immigration. 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). In particular, theories of economic interest (Lipset, 1963) explain that wage, price, and employment effects would be key to understanding voting behavior. Recent survey evidence suggests that, indeed, numerous economic factors play a role in individuals' attitudes toward immigration (Dustmann and Preston, 2004; Hainmueller and Hiscox, 2007). We focus on two ideas.

First, basic economic theory suggests that immigration hurts those native individuals who supply production factors that are close substitutes for factors supplied by immigrant workers. In contrast, individuals who supply complementary factors will gain from immigration. ERW parties present anti-immigration platforms. If voters are self-interested, those who lose from immigration should, thus, favor ERW parties in elections. The empirical labor-market impact of immigration is strongly debated; 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).[16] We note that what matters in voting decisions is the perceived impact.

Second, anti-immigration sentiments based on self-interest are related to school quality and neighborhood quality. Card, Dustmann, and Preston (2012), for instance, find that the natives' assessments of "compositional amenities" that they derive from their neighborhoods, schools,

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

and workplaces are an important source of anti-immigration sentiments.

To shed light on this issue, we investigate how the educational levels of immigrants affect voting decisions of natives. Our conjecture is that the natives' voting decisions depend on the skill levels of immigrants either because the intensity of competition for jobs varies across skill levels or because the native population perceives adverse effects on compositional amenities when the immigrants are primarily low- and medium-skilled. We construct two groups of immigrants according to educational attainment, distinguishing between low- and medium-education immigrants on the one hand and high-education immigrants on the other hand.

The OLS regression in the second column of Table 3 suggests that low- and medium-education immigrants are associated with higher support for the FPÖ, whereas highly educated immigrants are associated with lower support. Here, too, we apply our instrumental variables strategy to get closer to an estimate of the causal effect. We now have two endogenous variables, which are jointly instrumented by the shares of low/medium- and high-education immigrants in the year 1971. As can be seen in the first-stage regressions, in columns two and three of Panel A in Table 2, immigrant networks also work powerfully along the skill dimension. In the later census years, the communities tended to attract and house immigrants of the same educational level as they had in 1971.

Second-stage results show that the same pattern as in the OLS results also holds in the 2SLS setting (fourth column of Table 3). It is the proximity of low- and medium-skilled immigrants which influenced Austrian voters to lean more to the far right.[17]

These results provide evidence for anti-immigration sentiments that derive from threats that immigration poses to the labor-market success of natives. High-skilled immigrants bring benefits for the average voter, and they compete for jobs mostly with voters who understand the benefits of the mobility of labor across boundaries and who, therefore, do not find the

[17]The difference between the 2SLS and the OLS estimates suggests that self-selection into tolerant communities is a particular concern for low- and medium-skilled immigrants.

anti-immigrant position of the FPÖ attractive.

The evidence is also consistent with an explanation based on compositional amenities. In communities where immigration is high-skilled, adverse effects on compositional amenities for the native population are unlikely. In contrast, when immigration is predominantly low- and medium-skilled, anti-immigration sentiments may become stronger as natives perceive an undesired composition of their neighborhoods.

In an attempt to distinguish between the explanations based on labor-market competition and compositional amenities, we checked whether immigrants from different skill-groups have heterogenous effects on FPÖ votes depending on the local share of Austrians with low/medium and high skills. For instance, we run 2SLS regressions including the share of high-skilled Austrians (instrumented by its value in 1971) as well as interaction terms of this share with the shares of low/medium- and high-skilled immigrants (each instrumented by corresponding historical interaction terms). In these regressions, the interaction terms with low- and medium-skilled immigrants are insignificant. This tends to refute an explanation based on labor-market competition: If low-skilled and medium-skilled Austrians worried more about equally-skilled immigration, as is the case under the labor-market explanation, their votes for the FPÖ would react more than those of high-skilled Austrians; that is, we would expect significantly negative coefficients on the interaction terms. However, this expanded specification is highly demanding (we now have five endogenous variables and five instruments). Therefore, we do not put much emphasis on these specific results concerning skill composition and note that future research is needed to distinguish more explicitly why we observe such strong differences among the effects of different skill groups of immigrants.

Robustness to inclusion of control variables. We check whether the above estimates are sensitive to the inclusion of additional controls. Our basic model presented above used a parsimonious specification (with community characteristics: the number of residents and its square,

and a dummy of Carinthia and Vienna; the age-sex distribution of the resident population; the distribution of marital status among residents; and election-year fixed effects). We chose this lean specification because many characteristics of the resident population may themselves be influenced by immigration (for instance, via their participation in the local labor market), constituting, therefore, potentially "bad controls" (Angrist and Pischke, 2009). Table B.2 in the Supplementary Appendix B shows that the estimated 2SLS effects of immigration on FPÖ votes vary only very little across specifications where we (i) exclude all control variables, (ii) add the distribution of educational attainment, or (iii) include in addition the distribution of labor-market status.[18] These specifications also reveal that communities with a higher share of medium- and low-skilled residents tend to lean more towards the FPÖ.

Robustness to functional form. 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. Alternatively, we try a flexible specification based on binary variables capturing quartiles of the share of immigrants. While the (adapted) first stage is again very strong in each case, we do not find economically relevant, systematic non-linearities in the second-stage estimation. We conclude that the simple linear model captures the immigration effect quite well.

4.2 Regressions by election years

Has the relationship between immigration and FPÖ votes changed over time, or has it been stable? We consider separate regressions for each election year. These regressions use the same community, family status, and age- and sex-distribution controls as the pooled regressions. The

[18]The Austrian Census does not collect information on income. However, information on educational attainment and labor-market status should proxy well for income.

second-stage results are summarized in Panel A of Table 4.[19]

[Insert Table 4 here]

In each election year we find a significant positive effect of the share of immigrants in a community on the share of votes for the FPÖ. Comparing the estimated effects with those from the OLS regressions, shown in Panel B of Table 4, we can again see that the OLS estimates tend to be downward biased.[20]

The size of the estimated effect of immigration on the share of votes for the FPÖ varies only little across election years. The highest effect occurred in 1979. In most years since then, the FPÖ has received a vote share that is approximately 0.3 percentage points higher per additional percentage point of immigrant share. In sum, the strength of the relationship between immigration and FPÖ votes seems rather stable over time and does not follow any particular trend.[21]

When we perform the analysis that accounts for the skill composition of immigration, this basic conclusion is also confirmed. The second-stage findings are summarized in Table 5. The overall pattern in these results is quite similar to that of the pooled panel regression. In all years, low- and medium-skilled immigration had a significantly positive effect on Austrians' decisions to vote for the FPÖ. For high-skilled immigration, the estimations for the first year, 1979 suggest (albeit insignificantly) that voters may have seen high-skilled immigration as a reason to turn to the FPÖ, whereas in later years more high-skilled immigration did not benefit (and in fact hurt) the ERW movement.

[19]The first stages (not shown in Table 4) remain strong. Note that the first-stage regressions for election year pairs $\{1979, 1983\}$, $\{1990, 1994\}$, and $\{1999, 2002\}$ are identical because we match election year data to the census closest to the respective election years.

[20]We obtain similar results for those election years which were not considered in the main analysis because of their distance from the nearest census.

[21]It is difficult to detect a systematic pattern that could plausibly explain the variation across election years. There seems to be no systematic relationship between the size of the estimated effect and the following possible explanations: (i) the overall share of votes for the FPÖ, (ii) the FPÖ's top candidate, (iii) the major topics in the election campaigns, (iv) any business cycle indicator, or (v) the absolute time lag between the election data and the census year which might give rise to an attenuation bias.

[Insert Table 5 here]

Overall, this analysis shows that the general picture is quite robust and that the same pattern of results that we observed for the pooled sample shows up also in the year-by-year analysis.

4.3 Internal migration of voters

Austrian voters are free in their residential location choices within the country (and the EU). Hence, our results may be contaminated by internal migration responses of Austrians. To the extent that such voter relocations are important, our results are likely to *underestimate* the true effect of immigration on FPÖ voting. This is because the voters whose welfare is negatively affected by the proximity of immigrants (and who would, therefore, more readily gravitate to the FPÖ) are more likely to have moved elsewhere.

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.

Table 6 summarizes the estimation output of three empirical models for our community-level panel data, with i communities over t years, where $i = \{1, \ldots, 2352\}$ and $t = \{1971, 1981, 1991, 2001\}$. Since we are concerned with the whole population (and not only with the labor force), our sample is based on community-year cells and abstracts from the skill dimension. Specification (1), a slightly modified specification of Card (2001, 2007), is the preferred specification of Peri and Sparber (2011). This specification provides no evidence for any internal migration response of Austrians. Even based on specifications (2) and (3)–which Peri and Sparber (2011)

verify to be biased towards an attraction and a displacement effect, respectively–we do not find any statistically significant effect. This evidence is in line with the common stereotype that the Austrian population is very rooted. Overall, these findings support the validity of our identification strategy.

[Insert Table 6 here]

4.4 Estimates based on first differences

Our above analysis aims at explaining the cross-sectional variance across communities to test the hypothesis that immigration increased votes for the extreme right in Austria.

A different, but related, question is whether the rise of the FPÖ can be explained by the increase in immigration. In 1961, only 1.4 percent of the resident Austrian population were foreign citizens; by 1981, this share had almost tripled. From 1981 to 2001, the share of immigrants more than doubled again, from 3.9 to 8.7 percent, with much variation across communities. The development over time of the share of votes for the FPÖ is strikingly similar. Until 1986, the FPÖ had not played a significant role in national elections (despite having been a junior partner in a government coalition). 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 hurdles in 1990 and 1994, respectively, and reaching more than 25 in the late 1990s. Figure A.2 shows these two developments.

Making sense of the aggregate correlation is difficult because the observed correlation may be due to other events of that time.[22] We can make progress by analyzing the consequences of the increased presence of immigrants in any particular community. The question is whether the *rise* in FPÖ votes is concentrated in communities that experienced a disproportionate *increase*

[22]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.

in immigration. 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. Just as in our basic model above, we rely on settlement patterns in 1971 to instrument the increase in immigration since that year. Generally, the first stages in this analysis also perform well, although they are somewhat less strong than in the levels-based regressions.

[Insert Table 7 here]

The estimation results for overall immigrant shares are summarized in Panel A of Table 7. The first column shows the (second-stage) results from the pooled panel, whereas the remaining columns show the results by election year. The 2SLS estimate is mostly significant and quite large, and the implied quantitative effects are substantial. For example, a one-percentage-point increase in immigration from 1971 to 1999 generates 1.41 percentage points of additional FPÖ votes in 1999, compared to 1971. The increase in the immigrant share in that time period was about 6 percentage points, and the increase in the FPÖ vote share was about 21.5 percentage points. Thus, about a two-fifths ($= 6 \times 1.41/21.5$) of the total rise of the FPÖ in this time span can be explained by immigration.[23] In sum, the quantitative implications that are obtained from exploiting cross-community variation in increases of immigrant shares and FPÖ vote shares are similar to the picture we get from exploiting cross-community variation in levels of immigrant shares and FPÖ vote shares.

Panel B of Table 7 summarizes the estimation results by the skill composition of immigrants. In the pooled sample, we find a positive effect of an increase in low- and medium-education immigrants on an increase in FPÖ vote shares, and no significant effect of high-education immigrants. The positive effect of low- and medium-education immigrants is also present (and mostly statistically significant) in the estimations by election year. Although the point estimates

[23]The cross-sectional standard deviations of the increases in immigrant shares and FPÖ vote shares, respectively, were 5.2% and 4.9%. Thus, cross-sectional variation in increases implies essentially a one-to-one variation in FPÖ vote shares. Virtually the same results hold when controlling for the initial level of the FPÖ vote share.

on the increase in high-education immigrants are large, this effect is less precisely estimated in these specifications, suggesting overall no significant effect of the increase of the share of this group of immigrants on the increase in FPÖ vote shares. These results are again consistent with the previous analysis based on levels of immigrant shares and FPÖ vote shares.

5. Conclusions

Political folklore holds that ERW parties attract voters by appealing to anti-immigration sentiments of the voting population. While existing empirical studies in the (predominantly political science) literature provide support for a correlation between immigration and votes for the extreme right, the causal impact of immigration on voting for the extreme right has not yet been established.

This paper contributes to closing this gap. Studying the rise of the right-wing Freedom Party of Austria (FPÖ) that has occurred since the mid-1980s, we establish two main results. *First*, we find that roughly a quarter of the cross-community variation in the percentage of FPÖ votes can be attributed to cross-community variation in the presence of immigrants. We also find that the increase in the local share of immigrants had a positive effect on the increase in the local vote share of the FPÖ. *Second*, the skill composition of immigrants affects voting decisions. It is the proximity of low- and medium-skilled immigrants that causes Austrian voters to turn to the far right. High-skilled immigration either has an insignificant or a negative effect on FPÖ votes.

We obtain these results using an instrumental variables strategy. Specifically, past settlement patterns of immigrants in Austrian communities have great predictive power for the more recent cross-community variation of immigrant shares. Because the historical settlement pattern is unlikely to be related to voting behavior today, it can serve as an instrument for the local presence of immigration in recent election years, allowing identification of the causal effect of

local immigration on local FPÖ votes. Further support for the validity of our identification strategy comes from the finding that immigration did not significantly affect voters' residential choices.

It is a simple fact that immigration is necessary for developed countries, given demographic developments such as a persistently low fertility rate and the aging of society. However, immigration also has potentially critical political implications, including the possible rise of extreme-right-wing parties. Several channels are likely to exist through which immigration may affect voting decisions, and each channel requires different policy responses. What our paper shows is that the geographic proximity of immigrants is one economically and statistically significant causal driver behind the support for the far right. This result has important policy implications. In particular, the evidence suggests that policies at the local level deserve significant attention. For example, it is possible that integration policies in the community may help restrict emerging xenophobia. Future work is needed to understand which specific policies are particularly suitable.

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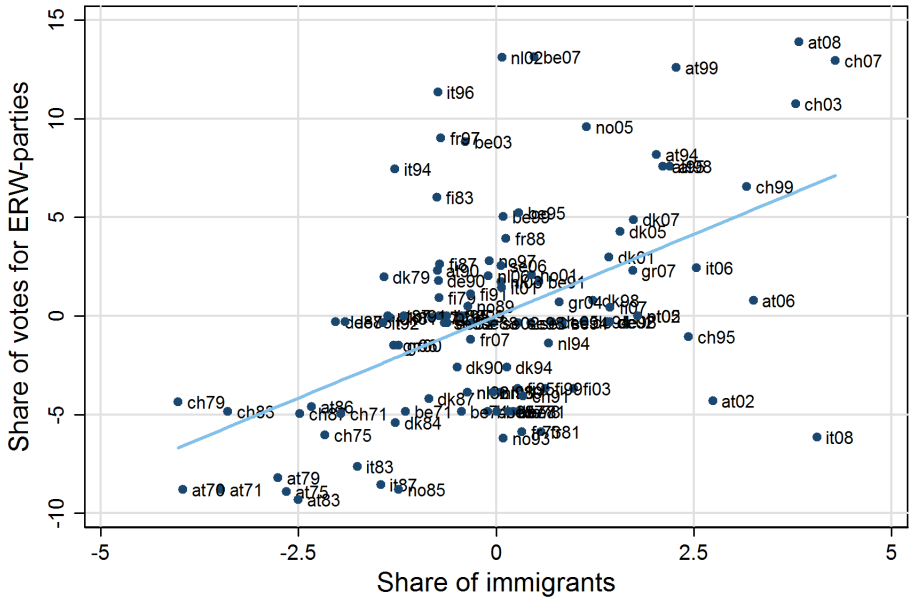
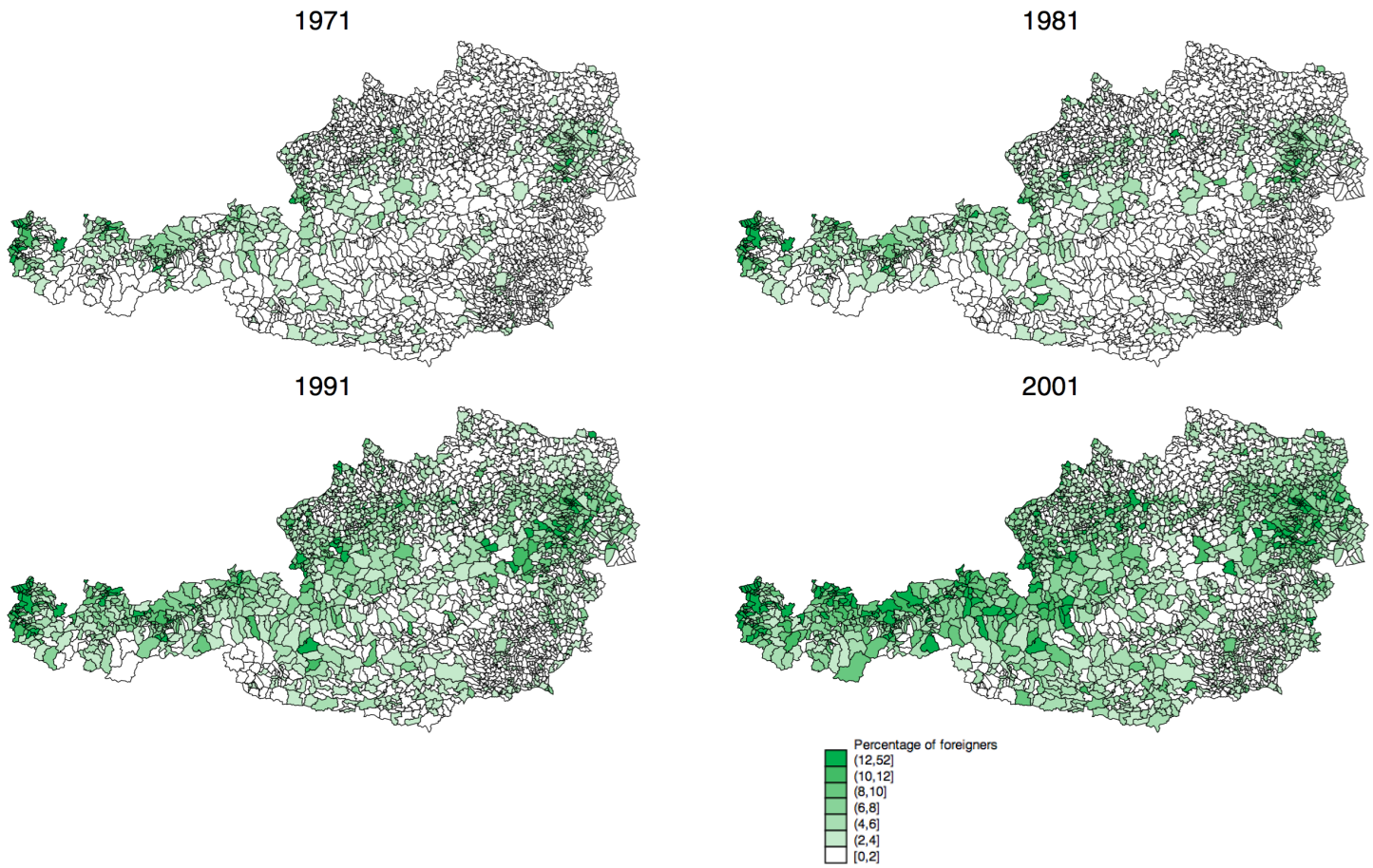
Figure 1. Immigration and ERW-voting in the EU-15 countries, Norway, and Switzerland, 1970–2008



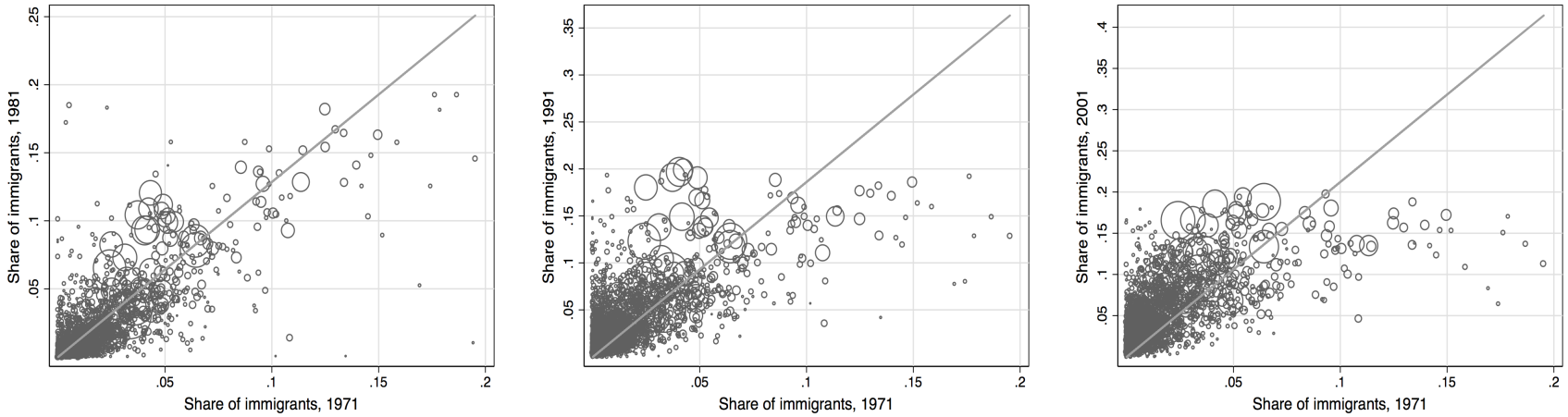
This scatterplot accounts for country fixed effects (i. e., both variables are centered around the respective country-specific mean) and is based on 119 general election years in EU-15 countries, Norway, and Switzerland in the period between 1970 and 2008; only democratic periods are used. 65 elections are not included due to missing information on the absolute number of residents without citizenship. Share of immigrants is defined as the absolute 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 absolute number of residents without citizenship is from various national sources; details are available upon request. Share of votes for extreme-right wing (ERW) parties include the following parties: Austria: sum of the following two parties: (i) *Freiheitliche Partei Österreichs* founded in 1956, (ii) *Bündnis Zukunft Österreich* founded 2005 as a splinter from the *Freiheitliche Partei Österreichs*, 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) *Fremskridtspartiet* founded in 1972, (ii) *Dansk Folkeparti* founded 1995 as a splinter from the *Fremskridtspartiet*, 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) *Laikós Orthódoxos Synagermós* founded in 2000, Greek legislative election; Ireland: no ERW-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 ERW-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 ERW-parties; Sweden: *Sverigedemokraterna* founded in 1988, Swedish general elections; Switzerland: *Schweizerische Volkspartei* founded in 1971, Swiss federal elections; United Kingdom: no ERW-parties. Data on election results are obtained from the *Comparative Political Data Set I (23 OECD Countries)* provided by Klaus Armingeon, Sarah Engler, Panajotis Potolidis, Marléne Gerber and Philipp Leimgruber (see http://www.ipw.unibe.ch/content/team/klaus_armingeon/comparative_political_data_sets/index_ger.html). Information on founding years is from *Wikipedia*.

Figure 2. 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 3. The spatial correlation between historical settlement patterns and the later stock of immigrants



These population-weighted scatter-plots (based on Austrian community-level data from the decennial Austrian census) depict the correlation between the share of immigrants in Austrian communities in the year 1971, and in those in the years 1981, 1991 and 2001. For presentational purposes, the graphs exclude communities with more than 20 percent of immigrants. In case of the first graph there are 3, in the second 9, and in the third 17 of such outliers. These observations are included in the empirical analysis.

Table 1. Descriptive statistics on variables of primary interest

Election year	Pooled	1971	1979	1983	1990	1994	1999	2002
% share of FPÖ-votes	14.84	5.49	6.10	5.03	16.68	22.81	27.39	10.23
	(9.70)	(3.68)	(3.72)	(3.18)	(5.73)	(5.45)	(5.99)	(4.78)
% share of immigrants	6.50	2.83	3.86	3.86	6.64	6.64	8.85	8.85
	(5.67)	(2.56)	(3.75)	(3.75)	(5.42)	(5.42)	(6.30)	(6.30)
with low and medium skills	5.20	2.30	3.21	3.21	5.27	5.27	7.01	7.01
	(4.92)	(2.45)	(3.47)	(3.47)	(4.74)	(4.74)	(5.50)	(5.50)
with high skills	1.14	0.36	0.49	0.49	1.20	1.20	1.68	1.68
	(1.39)	(0.55)	(0.76)	(0.76)	(1.37)	(1.37)	(1.60)	(1.60)

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. Shares by skill are calculated based on residents 25 years of age or older and refer to the highest attained educational degree. Low and medium education 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 only available in the years 1971, 1981, 1991 and 2001 (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, and the data in the years 1999 and 2002 are imputed with information from the year 2001.

Table 2. First stage: Determinants of the share of immigrants (by education)

	(1) Share of immigrants overall		(2) Share of immigrants with low-& medium skills		(3) Share of immigrants with high skills	
Panel A: Pooled sample						
Share of immigrants in 1971	0.873***	(0.047)				
with low and medium skills			0.803***	(0.044)	0.034***	(0.010)
with high skills			0.280	(0.275)	0.678***	(0.080)
Community[a]	Yes		Yes		Yes	
Family status[b]	Yes		Yes		Yes	
Age-sex-distribution[c]	Yes		Yes		Yes	
Year fixed effects[d]	Yes		Yes		Yes	
Panel B1: 1981 sample[e]						
Share of immigrants in 1971	0.910***	(0.033)				
with low and medium skills			0.831***	(0.038)	0.049***	(0.018)
with high skills			0.264*	(0.141)	0.518***	(0.073)
Panel B2: 1991 sample[e]						
Share of immigrants in 1971	0.878***	(0.054)				
with low and medium skills			0.804***	(0.050)	0.041***	(0.015)
with high skills			0.234	(0.262)	0.611***	(0.086)
Panel B3: 2001 sample[e]						
Share of immigrants in 1971	0.849***	(0.064)				
with low and medium skills			0.758***	(0.064)	0.057***	(0.015)
with high skills			0.246	(0.451)	0.701***	(0.096)

This table summarizes estimations of the determinants of the share of immigrants (i. e. residents without Austrian citizenship), the share of immigrants with low and medium education (compulsory schooling, apprenticeship or lower secondary school), and the share of immigrants with high education (higher secondary school or academic degree) in community i in the year t, where $i = \{1, \ldots, 2,352\}$ and $t = \{1981, 1991, 2001\}$ based on Austrian community-level census data. Details on the calculation of the share of immigrants (by educational attainment) are provided in the notes to Table 1. Method of estimation is OLS with community population weights. 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. [a] Community's number of inhabitants, number of inhabitants squared, and binary variables indicating, communities in Vienna, and Carinthia. [b] Distribution of marital status: shares of inhabitants who are single, married, divorced or widowed. [c] 34 variables that capture the share of the total population of sex s and in age-group a, where a is one of sixteen age groups 0-5, 5-10, ..., 70-75, 80+. [d] Base year: 1981. [e] The first stages for the three individual years 1981, 1991, and 2001 include the same control variables as the pooled sample regression (except year fixed effects).

Table 3. The effect of immigration on FPÖ votes: OLS and 2SLS pooled estimations

	(1) OLS		(2) OLS		(3) 2SLS		(4) 2SLS	
Immigration								
Share of immigrants	0.227***	(0.027)			0.386***	(0.045)		
with low and medium skills			0.285***	(0.029)			0.431***	(0.054)
with high skills			−0.286***	(0.077)			−0.244	(0.292)
Community[a]	Yes		Yes		Yes		Yes	
Family status[b]	Yes		Yes		Yes		Yes	
Age-sex-distribution[c]	Yes		Yes		Yes		Yes	
Year fixed effects[d]	Yes		Yes		Yes		Yes	
F-statistics on excl. instrument(s)	-		-		6,983/339[e]		270/68[f]	

This table summarizes the estimated effect of immigration (share of residents without Austrian citizenship) on the share of votes for the FPÖ based on a series of weighted (community population weights) OLS (first two columns) and instrumental variable (third and fourth column) estimations using Austrian community level data. The dependent variable is equal to the share of votes for the FPÖ in the general election in community i in the year t, where $i = \{1, \ldots, 2,352\}$ and $t = \{1979, 1983, 1990, 1994, 1999, 2002\}$. In column (3) the endogenous variable is the share of immigrants in community i in year t, which is instrumented by the share of immigrants in community i in year 1971. In column (4) the endogenous variables are the shares of immigrants with low/medium and high education, which are instrumented by the 1971 shares of immigrants with low/medium and high education. Details on the calculation of the share of immigrants by educational attainment are provided in the notes to Table 1. Robust standard errors (allowing for clustering on the community level and 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] Community's number of inhabitants, number of inhabitants squared, and binary variables indicating, communities in Vienna, and Carinthia. [b] Distribution of marital status: shares of inhabitants who are single, married, divorced or widowed. [c] 34 variables that capture the share of the total population of sex s and in age-group a, where a is one of sixteen age groups 0-5, 5-10, ..., 70-75, 80+. [d] Base year: 1981. [e] Wald F-statistics based on the Cragg-Donald statistic/Kleibergen-Paap rk statistic. [f] Angrist-Pischke multivariate F-test of excluded instruments.

Table 4. The effect of immigration on FPÖ votes: 2SLS and OLS cross-section estimations

Election year	1979	1983	1990	1994	1999	2002
Panel A: 2SLS regressions						
2nd stage:						
$\beta_2^{2\hat{S}LS}$	0.431***	0.230***	0.270***	0.176***	0.338***	0.357***
	(0.063)	(0.040)	(0.065)	(0.059)	(0.063)	(0.042)
F-statistics on excl. instrument[a]	3,277/743	3,277/743	1,202/263	1,202/263	746/175	746/175
Panel B: OLS regressions						
$\beta^{\hat{O}LS}$	0.354***	0.217***	0.244***	0.224***	0.233***	0.191***
	(0.059)	(0.046)	(0.043)	(0.039)	(0.033)	(0.020)

This table summarizes the estimated effect of immigration (share of residents without Austrian citizenship) on the share of votes for the FPÖ based on a series of weighted (community population weights) instrumental variable (panel A) and OLS (panel B) estimations using Austrian community level data. The dependent variable is equal to the share of votes for the FPÖ in the general election in community i in the year t, where $i = \{1, \ldots, 2,352\}$ and $t = \{1979, 1983, 1990, 1994, 1999, 2002\}$. The endogenous variable is the share of immigrants in community i in that year, which is instrumented in the 2SLS estimations by the share of immigrants in community i in the year 1971. The shares of immigrants in community i are available in the years 1981, 1991 and 2001. The share of immigrants in the years 1979 and 1983 is imputed with information form the year 1981, the data in the years 1990 and 1994 are imputed with information form the year 1991, and the data in the years 1999 and 2002 are imputed with information from the year 2001. The same imputation is used for to the other covariates. All regressions control for the community's number of inhabitants, number of inhabitants squared, the distribution of marital status (shares of inhabitants who are single, married, divorced or widowed), the whole age-sex-distribution (34 groups), and binary variables indicating, communities in Vienna, and Carinthia. Robust standard errors (allowing for 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] Wald F-statistics based on the Cragg-Donald statistic/Kleibergen-Paap rk statistic.

Table 5. The effect of immigration by education on FPÖ votes: 2SLS cross-section estimations

Election year	1979	1983	1990	1994	1999	2002
2nd stage:						
$\beta_2^{\hat{S}LS}$: low- & medium skills	0.358***	0.255***	0.375***	0.328***	0.513***	0.411***
	(0.100)	(0.063)	(0.082)	(0.073)	(0.084)	(0.056)
$\beta_2^{\hat{S}LS}$: high skills	1.038	−0.043	−0.897*	−1.457***	−1.153***	−0.217
	(0.744)	(0.494)	(0.525)	(0.421)	(0.404)	(0.247)
F-statistics on excl. instruments[a]	364/47	364/47	213/47	213/47	83/50	83/50

This table summarizes the estimated effect of immigration (share of residents without Austrian citizenship with low, medium and high education) on the share of votes for the FPÖ based on a series of weighted (community population weights) instrumental variable estimations using Austrian community level data. The dependent variable is equal to the share of votes for the FPÖ in the general election in community i in the year t, where $i = \{1, \ldots, 2,352\}$ and $t = \{1979, 1983, 1990, 1994, 1999, 2002\}$. The endogenous variables — for which estimated coefficients and standard errors from the 2nd stage are listed — are the shares of immigrants with low/medium and high education in community i in that year, which are instrumented by the respective shares of immigrants in community i in the year 1971. Details on the calculation of the share of immigrants by educational attainment are provided in the notes to Table 1. All regressions control for the community's number of inhabitants, number of inhabitants squared, the distribution of marital status (shares of inhabitants who are single, married, divorced or widowed), the whole age-sex-distribution (34 groups), and binary variables indicating, communities in Vienna, and Carinthia. Robust standard errors (allowing for 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] Angrist-Pischke multivariate F-test of excluded instruments.

Table 6. Empirical models for identifying the internal migration response

Empirical model	(1) Card (2007)		(2) Cortes (2006)		(3) Borjas (2006)	
Dependent variable	$(N_t - N_{t-1})/(N_{t-1} + F_{t-1})$		$ln(N_t)$		$(N_t - N_{t-1})/\bar{N}$	
Explanatory variable	$(F_t - F_{t-1})/(N_{t-1} + F_{t-1})$		$ln(F_t)$		$F_t/(N_t + F_t)$	
Displacement if	$\beta_{Card} < 0$		$\beta_{Cortes} < 0$		$\beta_{Borjas} < 0$	
Attraction if	$\beta_{Card} > 0$		$\beta_{Cortes} > 0$		$\beta_{Borjas} > 0$	
$\hat{\beta}(s\hat{.}e.)$	0.051	(0.032)	0.003	(0.002)	-0.081	(0.043)
Number of observations	7,056		9,408		7,056	

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 with i communities over t years, where $i = \{1, \ldots, 2,352\}$ and $t = \{1971, 1981, 1991, 2001\}$. The specifications are equivalent to a subset of specifications presented in Table 7 of PS. Each specification controls for community and year fixed effects. Specification (1) is equal to the preferred specification of PS — a slightly modified specification of Card (2001, 2007) — which they describe/recommend on page 90. Specification (2) is denoted by PS as the 'Cortes (2006) alternative', and specification (3) is called the 'Borjas (2006) alternative'. Standard errors are in parentheses. *, ** and *** indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively.

Table 7. The effect of immigration on FPÖ votes: 2SLS estimations in differences

Election year	Pooled	Δ_{79-71}	Δ_{83-71}	Δ_{90-71}	Δ_{94-71}	Δ_{99-71}	Δ_{02-71}
Panel A: Immigration							
2nd stage:							
$\beta_2^{2\hat{S}LS^D}$	1.434**	0.542	2.581**	1.916*	2.592**	1.412**	1.306**
	(0.620)	(0.361)	(1.064)	(1.003)	(1.177)	(0.663)	(0.626)
F-statistics on excl. instrument[a]	149/7	32/7	32/7	23/5	23/5	24/6	24/6
Average change in FPÖ votes	9.28	0.61	−0.47	11.18	17.05	21.46	4.56
Average change in share of immigrants	3.64	1.03	1.03	3.81	3.81	6.02	6.02
Panel B: Immigration by education							
$\beta_2^{\hat{IV}^D}$: with low and medium skills	1.283**	0.294	1.688***	1.551**	2.125**	2.099	1.595
	(0.539)	(0.192)	(0.508)	(0.718)	(0.853)	(1.395)	(1.058)
$\beta_2^{\hat{IV}^D}$: with high skills	3.270	−0.452	1.527*	2.664	3.918*	6.721	4.191
	(2.146)	(0.287)	(0.866)	(1.625)	(2.329)	(5.619)	(4.332)
F-statistics on excl. instruments[b]	12/12	14/28	14/28	10/15	10/15	4/6	4/6

This table summarizes the estimated effect of the change in the share of immigrants (share of residents without Austrian citizenship) on the change in the share of votes for the FPÖ based on a series of weighted 2SLS estimations using Austrian community level data. In the by-year regressions, the dependent variable is equal to the absolute change in the share of votes for the FPÖ in the general election in community i in the year t compared to 1971, where $i = \{1, \ldots, 2,352\}$ and $t = \{1979, 1983, 1990, 1994, 1999, 2002\}$. The pooled regression pools these vote share changes. In Panel A, the endogenous variables — for which estimated coefficients and standard errors from the 2nd stage are listed — are the absolute changes in the share of immigrants in community i in the year t compared to the year 1971, which are instrumented by the shares of immigrants in community i in the year 1971. In Panel B, the endogenous variables are the absolute changes in the shares of immigrants with low/medium and high education in community i in the year t compared to the year 1971, which are instrumented by the respective shares of immigrants in community i in the year 1971. All regressions control for the community's number of inhabitants, number of inhabitants squared, the distribution of marital status (shares of inhabitants who are single, married, divorced or widowed), the whole age-sex-distribution (34 groups), and binary variables indicating, communities in Vienna, and Carinthia. Each estimation is based on $2,352$ observations. 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. [a] Wald F-statistics based on the Cragg-Donald statistic/Kleibergen-Paap rk statistic. [b] Angrist-Pischke multivariate F-test of excluded instruments.