Ethnic Concentration and

Extreme Right-Wing Voting Behavior in Germany

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Abstract: Using data from the German Socio-Economic Panel (SOEP) and administrative data from 1996 to 2009, I investigate the question whether or not right-wing extremism of German residents is affected by the ethnic concentration of foreigners living in the same residential area. My results show a positive but insignificant relationship between ethnic concentration at county-level and the probability of right-wing voting behavior for West Germany. However, due to potential endogeneity issues, I additionally instrument the share of foreigners in a county with the share of foreigners in each federal state (following an approach of Dustmann/Preston 2001). I find evidence for the interethnic contact theory, predicting a negative relationship between foreigners' share and right-wing voting. Moreover, I analyze the moderating role of education and the influence of cultural traits on this relationship.

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1. Introduction

Tendencies of right-wing extremism in society have been always a serious concern, especially in Germany. Nowadays the public debate has reached a new point of intensity since in November 2011 it has been discovered that a number of eleven murders committed over the past ten years are linked to a right-wing extremist group.[1] Due to these incidents and the associated investigations, politicians, as well as the public in Germany, started again to discuss the causes of right-wing extremism and the extent of hostile behavior by native Germans against foreigners.

One fact about the killings and right-wing extremism in general is quite striking: We observe that in regions with a comparably low share of foreigners a fertile breeding ground exists for right-wing extremist behavior. One may then ask if it is the low share of foreigners that strengthens prejudices and leads to hostile behavior. Or do confounding factors dominate this relationship? And to what extent does self-selection play a role in determining the effect of foreigner share on hostile attitudes?

From a theoretical point, we can differentiate between two approaches that seek to explain hostile attitudes towards foreigners with respect to ethnic concentration: one is the group threat theory and the second is known as the interethnic contact theory. The group threat theory hypothesizes that individuals belonging to the majority group feel discarded as the relative number of minority group members increases and their perceived economic conditions deteriorate. A feeling of fear due to social and economic decline creates prejudice and hostile attitudes towards the minority group. Hence, a positive effect of ethnic concentration on hostile attitudes is expected (Sherif and Sherif 1953, Quillian 1995). In contrast to the group threat theory, the interethnic contact theory is based on the idea that a higher relative number of minority group members can help to overcome prejudices because of a higher frequency of contacts between the minority and majority group. If the interethnic contact theory explains

hostile attitudes of native Germans correctly then we would observe that negative attitudes are more likely in areas with fewer foreigners (Pettigrew 1986, Rothbart and John 1993).

In this paper, I seek to gain new insights into the causes of hostile attitudes expressed as extreme right-wing voting behavior in Germany. My paper contributes to a better understanding of these mechanisms in four ways. The first is methodological: Like some previous studies, I find that cross-sectional analyses point out a positive but insignificant relationship between the share of foreigners in a county and voting for a right-wing extremist party. But in comparison to studies that investigate this question using German data, I additionally take endogeneity of the effect of foreigner share on right-wing voting behavior explicitly into account following an approach of Dustmann and Preston (2001). Second, based on the rich information of the data used, I investigate the moderating role of education. Whether or not ethnic concentration has a uniform effect across the entire society is not clear at first sight. It can be assumed that especially low educated individuals tend to have xenophobic attitudes and therefore react differently to a certain ethnic concentration at the county level. Therefore, I run regressions using subsamples based on the individual educational attainment of the respondents. Third, I analyze culture as an omitted variable that might influence the relationship between ethnic concentration and extreme right-wing voting behavior. It will be shown that, indeed, historical regional voting patterns are positively correlated with the regional distribution of hostile attitudes towards foreigners but that this cultural trait does not play a role as a mediating factor[2]. The fourth contribution is the analysis of socio-economic and locational variables that affect an individual's decision to vote for an extreme right-wing party in the recent years (from 1996 to 2009) using a large, representative data set for West Germany.

The main results of the paper are as follows. Using data from the German Socio-Economic Panel (GSOEP), I find that simple probit estimates for West Germany show only

insignificant results between ethnic concentration –measured as the share of foreigners at county level– and leaning towards an extreme right-wing party. In a second step, I instrument the share of foreigners at county level with the share of foreigners at federal state level to address a endogeneity bias that is based on self-sorting of Germans and foreigners. If self-sorting can be attributed to preferences for e.g. specific ethnic concentrations, the previous findings obtained by simple probit estimations would be biased. The results of instrumental variable estimations show that the existence of a simultaneity bias cannot be rejected. Most interestingly for West Germany, estimates are now highly significant and point out that the relationship is negative: A higher ethnic concentration is related to a lower probability of leaning towards a right-wing party. In contrast to the simple probit estimation results, applying an instrumental variable approach provides support for the interethnic contact theory. Moreover, the hypothesis of a moderating role of education is supported for the group of individuals with an intermediate or a high educational attainment: For these groups I find that ethnic concentration affects extreme right-wing voting behavior negatively. Though, ethnic concentration does not play a role in predicting extreme right-wing views for individuals with a low education which might be due to two countervailing effects of the moderating role of education. On the one hand, Germans with a low education have a higher probability of leaning towards extreme right-wing parties because they are more likely to compete with foreigners for jobs. On the other hand, the higher frequency of interactions between low-skilled Germans and low-skilled foreigners might help to overcome prejudices.

In the last step of my analysis I find that cultural traits (operationalized as historical voting results during the Nazi-era) explain today's right-wing extremist attitudes but do not influence the relationship of ethnic concentration on extreme right-wing voting.

The rest of the paper is structured as follows. In section 2.1 the political system in Germany and its extreme right-wing parties is introduced briefly. Section 2.2 gives an overview

of the existing empirical literature on hostile attitudes of majority group members towards minorities. In Section 2.3 a moderating role of education is motivated. The question why it might be important to take the regional distribution of cultural traits into account when estimating the relationship between ethnic concentration and extreme right-wing voting is addressed in section 2.4. In Section 3 I present the data set and explain the two econometric models used in this paper as well as its identification strategies (section 3.2). Results are discussed in Section 4. Section 5 sums up the main findings and concludes.

2. Background Discussion

2.1 Institutional Setting

The political system in Germany is organized as a federal parliamentary republic. The federal legislative power is vested in the Bundestag (the parliament of Germany) and the Bundesrat (the representative body of the federal states of Germany). The Bundestag is directly elected by the German people every four years; the Bundesrat by state elections every five years. For the elections of 2009 for the Bundestag, the German citizens were able to choose from a range of 31 parties[3].

Based on the party's platform and its programmatic points, it is possible to locate parties on a continuum. Its two poles are the extreme left-wing and the extreme right-wing political attitudes. For instance, the German Communist Party (Deutsche Kommunistische Partei "DKP") is located on the extreme left pole and parties like the German People's Union (Deutsche Volksunion "DVU"), the National Democratic Party of Germany (Nationaldemokratische Partei Deutschlands "NPD") and the Republican Party ("Republikaner") are known to hold an extreme right-wing political view. Table 1 shows the results of the state elections of 2008/2009. The extreme right-wing parties reached a minimum of votes in Schleswig-Holstein and Hamburg

(0.9%) and a maximum of 6.1% in Mecklenburg-West Pomerania.

In this paper, hostile attitudes towards foreigners are measured as a binary variable that takes the value of one if a respondent states to lean toward DVU, Republikaner or NPD, and zero otherwise. All of the extreme right-wing parties are known for their ethnocentric, anti-constitutional and xenophobic party platforms that promote hostile attitudes towards foreigners (Rotte and Steininger 2008). Here the approach is to measure hostile attitudes of natives as leaning towards extreme right-wing parties which can be located as an intermediate expression of hostility against foreigners.[4]

2.2 Related Literature

From a methodical point of view, the existing literature on the relationship between ethnic concentration and attitudes towards foreigners can be divided into two different strands: The first group of studies uses ethnic concentration on a narrow level (e. g. perceived share of foreigners in the neighborhood or at county level) and treats it as an exogenous variable to examine the determinants of negative attitudes or crime against foreigners. The results of these studies are mixed and differ by country, data set, and outcome variable used. Basically, the empirical evidence here is that ethnic concentration increases the probability of prejudice or hostile attitudes towards foreigners (Fossett and Kiecolt 1989, Glaser 1994, Taylor 1998, Gang et al. 2002).

For Germany previous research shows also mixed results ranging from a significant positive effect of ethnic concentration on hostile attitudes to no effect. Lubbers and Scheepers (2001) investigate the reasons for extreme right-wing voting in Germany using an individual-based data set and show that ethnic concentration measured at federal state level explains this particular voting behavior positively. But this effect seems to be weak since it is significant only

in one of their multi-level models. Another study that seeks to answer the question of how attitudes towards foreigners are formed by Fertig and Schmidt (2011) uses the ALLBUS 2006 which is a representative survey for Germany that covers a large set of questions regarding the perceptions of immigrants by Germans. They provide evidence that mainly education can explain the variation of perceptions of foreigners and Jews by native Germans. Still, a higher share of foreigners increases significantly negative perceptions toward foreigners in some of their models.

A different but closely-related approach is pursued by Krueger and Pischke (1997): Instead of analyzing attitudes or perceptions towards foreigners, they go one step further and try to reveal the factors that can explain right-wing motivated crime against foreigners in Germany. Among other results, they show that the relative number of foreigners does not influence the number of ethnic crimes in West Germany, but in the East they provide evidence for a positive effect on the number of crimes per resident. In the same vein of providing evidence on the causes of right-wing extremist crime, Falk et al. (2011) use a data set from the German Federal Criminal Police Office (Bundeskriminalamt) and show that ethnic concentration at federal state level does not explain incidents of right-wing crime.

In contrast, Gang and Rivera-Batiz (1994) use data from the 1988 Eurobarometer and show that perceived high ethnic concentration of minorities in the neighborhood is related to more hostile attitudes of Germans. Finally, Weins (2011) aims at explaining the extent of prejudices by native Germans using the share of foreigners from 15 non-EU-states at county level. Her results suggest a hump-shaped relationship between ethnic concentration and prejudice against foreigners as long as no controls for interethnic contacts are included.

One of the main caveats of the studies mentioned here is that they do not take into account that the share of foreigners or the variables measuring the frequency and intensity of direct contact to foreigners might be endogenous. Individuals may choose the place where to live for a

variety of reasons: Proximity to family and friends, distance to their work place, or employment prospects. Besides, another possibility is that individuals base their choice on the share of foreigners in a neighborhood. Especially individuals who have hostile attitudes towards foreigners may prefer to live in neighborhoods with comparably less foreigners. In this case, the share of foreigners measured on a narrow level would not be exogenous with respect to one's attitudes towards foreigners. Thus, one of the main assumptions, namely that the error term is not related to the explanatory variables would be violated, which leads to inconsistent and biased estimates of the effect of ethnic concentration on attitudes.

Based on this argumentation, the second strand of literature addresses explicitly the issue of endogeneity. To my best knowledge the first study that exploits an instrumental variable approach to reduce a bias due to self-sorting is that of Dustmann and Preston (2001). Using several waves from the 1980s of the British Social Attitudes Survey, they investigate whether or not attitudes towards foreigners are driven by the ethnic concentration of a community. The crucial assumption Dustmann and Preston make use of is that self-sorting is likely to be limited to smaller areas. Natives may decide to live in a community with a low share of foreigners because they have prejudices against foreigners, but probably they will not adjust their location choices based on these attitudes on a larger spatial area (e. g. federal states). That is why they presume that instrumenting county level ethnic concentration with federal state ethnic concentration should reduce a bias that is due to self-sorting of natives. The results of their analysis suggest that self-sorting is an issue that diminishes the estimated effects of ethnic concentration on attitudes using simple probit estimation and that they can provide evidence for a positive relationship between these two variables.

In the light of these findings, a handful studies emerged that also use an instrumental variable approach to reduce endogeneity issues. Bell et al. (2010) examine the relationship

between the share of foreigners in a county and number of incidents of crime for Great Britain and find that the relative numbers of immigrants and property crimes are positively related even if they model endogeneity. Again for Great Britain, Lennox (2012) analyzes the determinants of British National Party (BNP) membership. He shows that the nonwhite population density is negatively associated with BNP-recruitment. He suggests that interethnic contact reduces prejudice and hence negative attitudes towards foreigners. In that sense, his study contradicts Dustmann and Preston (2001). But "one should not necessarily expect consistency across studies using responses to different questions and data from different countries" (Dustmann and Preston 2001).

However, as far as Germany is concerned, the question to what extent ethnic concentration may explain right-wing voting behavior has not yet been investigated using an instrumental variable approach. This is the main contribution of the present paper because it would be of high interest for policy interventions that aim to reduce right-wing extremism to fully understand what causes right-wing extremism in Germany.

2.3 The Moderating Role of Education

Previous studies find that highly educated individuals are by far less likely to report xenophobic sentiments or hostile attitudes towards foreigners (Fertig and Schmidt 2011). Thus, it must be questioned if ethnic concentration triggers individual attitudes uniformly with respect to their educational attainment (Cornelißen and Jirjahn 2012). For example, it could be true that the share of foreigners in particular affects hostile attitudes of low-educated Germans positively since it can be assumed that this group of Germans is more likely to compete for jobs in the low-skilled segment of the labor market with foreigners. [5] In that sense, their attitudes might reflect to some extent their exposure to competition on the labor market. But, contrary to this, the higher contact

frequency between low-skilled Germans and low-skilled foreigners could also help to overcome anti-foreigner sentiments which points to a negative interaction effect of ethnic concentration and education. At the higher end of the education distribution, education might have a liberalizing effect which could exert a moderating influence on the relationship between ethnic concentration and hostile attitudes: Specifically, higher secondary or tertiary education aims at developing an analytical and flexible thinking that helps to see through populist campaigns of the extreme right-wing parties and to value the advantages of living in areas with an ethnically mixed population (Schüller 2012). This is why I expect to find a negative effect of ethnic concentration on voting for extreme right-wing parties for the subsample highly educated individuals.

To investigate the moderating role of education I run probit estimations using subsamples of the German population based on low, medium and high educational attainment. I hypothesize that ethnic concentration has a different influence on the attitudes of Germans towards foreigners based on their educational level. Again, in a second step I will instrument the county level share of foreigners with the federal level share to get rid of a potential self-selection bias.

2.4 Culture as a Mediating Variable

One further question which is substantially motivated by a recent article and a discussion paper of Vogtländer and Voth (2012a, 2012b) is: Does the regional distribution of cultural traits, precisely the distribution of hostile attitudes towards foreigners, mediate the relationship of ethnic concentration on extreme right-wing voting behavior? Vogtländer and Voth (2012a) use hand-collected regional data on violence against Jews from medieval times and show that so-called "cultural traits" can predict extreme right-wing tendencies and violence against Jews even in the 1920s and 1930s in Germany. They conclude that anti-Semitic sentiments against Jews can persist for hundreds of years. Moreover, based on two waves (1996 and 2006) of the German

General Social Survey they find that historical regional voting patterns for extreme right-wing parties between 1890 and 1933 are powerful predictors for anti-Jewish attitudes today.

Based on these findings, I hypothesize that historical anti-Semitic views could be seen as part of a broader concept of intolerance and hostile attitudes towards foreigners. These traits may have been perpetuated from generation to generation and thus can mediate the effect of ethnic concentration on foreigners even today. To examine whether or not cultural traits affect the relationship between ethnic concentration and extreme right-wing attitudes, I include different variables that measure violence against Jews in medieval times and extreme right-wing voting behavior in the 1920s/30s (both at the county level).

3. Data, Econometric Modeling and Descriptive Statistics

3.1 The German Socio-Economic Panel

The data I use for investigating the question to what extent ethnic concentration may explain right-wing voting behavior of German natives are drawn from the German Socio-Economic Panel (GSOEP). The GSOEP is a large representative longitudinal survey of randomly selected private households in Germany. It contains a broad range of questions which are asked every year (socio-economic indicators like education, age, income) as well as questions that appear only at intervals. Every household member above the age of 17 can participate in the survey. The respondents are asked to which political party they lean. A variety of parties are suggested in the questionnaire (SPD, CDU, CSU, FDP, Bündnis '90/Grüne, Die Linke, or DVU/ Republikaner/ NPD)[6]. Additionally, respondents are given the possibility to insert another party. Based on this question I created a binary variable that takes the value one if a respondent chooses DVU, Republikaner or NPD to be the party he is leaning the most toward, otherwise the variable is zero.

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Among other details, the GSOEP provides information about the federal state, the regional policy region, and the county of residence. I use the latter to merge the socio-economic information provided by the GSOEP with that from second data set. The data are provided by the Statistical Office of Rhineland-Palatinate and contains information on the quantities of the native and foreign population on the level of official district codes (Kreiskennziffer "KKZ"). To generate the key explanatory variable (share of foreigners at county level) I merge the GSOEP data set with the administrative data based on the recoded KKZ.[7] Due to data privacy protection of the respondents, data at county level are only accessible via remote data processing ("soepremote")[8]. The share of foreigners at federal state level is based on the share at county level and thus a simple aggregation.

The purpose of this paper is to investigate political right-wing attitudes of native Germans. Hence, the sample is restricted to respondents who have the German citizenship and do not have any migration background.[9]

3.2 Econometric Modeling

First, basic probit estimations fitting a maximum likelihood function will be performed to investigate the relationship between ethnic concentration at county level and leaning towards an extreme right-wing party.

Let y_{1i}^* be the latent dependent variable that measures if a respondent i has hostile attitudes towards foreigners. Whether or not a person is hostile towards foreigners is affected by personal characteristics like education, income and age as well as by local features and economic conditions. The latent model can be written as

$$y_{1i}^* = \beta y_{2i} + x_{2i}' \gamma + u_i \qquad\qquad (1)$$

where y_{2i} is share of foreigners at the county level and x_2 is a $1 \times k_2$ vector of exogenous

variables. β is the coefficient and γ the coefficient vector of the latent model. The latent variable y_{1i}^* is unobserved. Rather, what can be observed is if a respondent i leans toward a right-wing extremist party (namely DVU, NPD or Republikaner). Consequently, the dependent variable takes the value 1 if a person leans toward a right-wing party and 0 otherwise:

$$y_{1i} = \begin{cases} 0 & y_{1i}^* < 0 \\ 1 & y_{1i}^* \geq 0 \end{cases} \tag{2}$$

The log likelihood function for the sample is given by

$$\ln L = \sum_{i=1}^{N} y_{1i}\ln \Phi \left(\beta y_{2i} + x_{2i}'\gamma\right) + \sum_{i=1}^{N}(1 - y_{1i})\ln(1 - \Phi(\beta y_{2i} + x_{2i}'\gamma)) \tag{3}$$

As discussed before, potential endogeneity problems arise because individuals who lean toward a right-wing party may prefer to reside in spatial areas with a lower share of foreigners. If locational choices are partly driven by political attitudes, the variable that measures the share of foreigners at county level y_{2i} should not be treated as exogenous.

To overcome this bias I follow an approach suggested by Dustmann and Preston (2001). Note that the direction of the bias does not depend on the dominant hypothesis that explains hostile attitudes towards foreigners, even though group threat theory predicts a positive effect of ethnic concentration on right-wing voting whereas interethnic contact theory suggests a negative coefficient. To start with the group threat theory: If political attitudes influence location choices a negative correlation between y_{2i} and u_i will be the result. The reason for this is that individuals who lean towards right-wing parties will probably choose a spatial area with a lower share of foreigners in comparison to individuals with more positive attitudes. Thus, the share of foreigners measured at the county level is not exogenous with respect to hostile attitudes towards foreigners y_{1i}^*. In this case, estimating a simple probit model would yield inconsistent and downward biased estimates. In contrast, if interethnic contact theory is the appropriate explanation for right-wing voting behavior of Germans, individuals that live in spatial areas with a low share of immigrants

lack contact with ethnic minorities. This lacking interethnic contact creates prejudice against foreigners and a higher probability of voting for a right-wing extremist party. In comparison to individuals who were assigned randomly to areas they probably will have a higher probability of leaning towards a right-wing party. In this case, using share of foreigners on a narrow level as exogenous variable would bias the estimates also downward in absolute terms.

Instead of estimating simple probit models, consistent estimates can be obtained using an instrumental variable approach (Amemiya 1978, Rivers and Vuong 1988). The reduced form equation for y_{2i} is then given by

$$y_{2i} = x_{1i}\Pi_1 + \mathbf{x}'_{2i}\Pi_2 + \varepsilon_i \qquad (4)$$

where y_{2i} is the endogenous variable, $\mathbf{x}_2$ is a $1\times k_2$ vector of exogenous variables, x_1 is an instrument that affects y_{2i} but can be excluded from (1). x_1 is assumed not to influence y_{1i} directly. Π_1 and Π_2 are matrices of reduced-form parameters and ε_i an unobservable random error term. By assumption, the error terms of the two equations (1) and (4) are normally distributed with mean zero and variance Σ: $(u_i, \varepsilon_i) \sim N(0; \Sigma)$. Since y_{2i} appears in the equation for y_{1i}^*, (1), but y_{1i}^* does not appear in the equation for y_{2i}, (4), it is a recursive model. The likelihood function is derived using the joint density $f(y_{1i}, y_{2i}|\mathbf{x}_i)$ as $f(y_{1i}|y_{2i}, \mathbf{x}_i) f(y_{2i}|\mathbf{x}_i)$. When there is an endogenous regressor, the log likelihood for observation i is

$$\ln L_i = y_{1i}\ln\Phi(m_i) + (1 - y_{1i})\ln\{1 - \Phi(m_i)\} + \ln\phi\left(\frac{y_{2i} - x_{1i}\Pi_1 - \mathbf{x}'_{2i}\Pi_2}{\sigma}\right) - \ln\sigma \qquad (5)$$

where

$$m_i = \frac{(\beta y_{2i} + \mathbf{x}'_{2i}\gamma) + \rho(y_{2i} - x_{1i}\Pi_1 - \mathbf{x}'_{2i}\Pi_2)/\sigma}{(1 - \rho^2)^{1/2}} \qquad (6)$$

$\Phi(\cdot)$ and $\phi(\cdot)$ are the standard normal distribution and density functions, respectively; σ is the standard deviation of ε_i; ρ is the correlation coefficient between u_i and ε_i. If self-sorting based on political attitudes drives locational choices, ρ can be either negative or positive.

3.3 Key Variables

Table 2 and 3 give an overview of the socio-economic characteristics of the respondents as well as descriptive statistics for the average share of foreigners at county level. The mean value for voting DVU, Republikaner or NPD is equal to 0.0072, meaning that 0.72% of the respondents stated that they lean to an extreme right-wing party. The average share of foreigners at county level is 9.89%. The county with the highest foreign population is "Rastatt" (Baden-Wuerttemberg). In Rastatt the share of foreigners equals 28.9%. The county with the lowest share of foreigners is "Freyung-Grafenau" (Bavaria, 2.3% foreigners).

To get a grip on the distribution of the dependent variable and the key explanatory variable, Fig. 1 (left hand side) shows the mean of voting for an extreme right-wing party averaged at county level for the years from 2005 to 2009 (400 out of 403 counties could be used which makes up to 81.37 observations for each county on average). The distribution of right-wing voting behavior does not show a clear pattern for West Germany.

If one compares the distribution of right-wing voting to the share of foreigners at county level averaged for the years from 2005 to 2009 (right hand side of Fig. 1), it is noticeable that in regions with a lower share of foreigners individuals lean slightly more towards right-wing parties on average. This is especially striking for East Germany. For West Germany, a pattern can hardly be identified. Based on this graphical presentation of the dependent and the key explanatory variable, a negative relationship between share of foreigners at county level and right-wing voting behavior could be assumed. For the years 1996 to 2004 the distribution is similar but not displayed here.

3.4 Control Variables

Furthermore, I include several control variables in my estimations. Satisfaction with income is a subjective measure of the respondent's income on a scale ranging from 1 to 10. I use this categorical variable rather than a household income variable because I assume that negative attitudes towards foreigners are mainly driven by the perceived distributional income position and less by absolute income. The average satisfaction with one's income is 6.981.

Related to factors that might affect attitudes because of a feeling of economic deprivation, I have added the county level unemployment rate to separate the effects of the key explanatory variable from other locational economic factors. Since immigrants tend to be highly concentrated in growing areas with good possibilities to work, not controlling for these effects might lead to a biased estimation of the variable representing the share of foreigners. In the sample, Eichstaett (Bavaria) has the lowest unemployment rate (1.9%).

Previous literature finds that education and ability are quite influential in explaining attitudes towards minorities (Fertig and Schmidt 2011). To control for this, I use the person's highest educational level (coded in three categories) and parental highest educational attainments (coded as a dummy that equals one if mother or father have a university degree). In my sample, roughly 14% have a low educational attainment, 54% an intermediate, and 32% can be classified as highly educated. Furthermore, 5.28% of the respondents have a mother with high education, 13.5% a highly educated father. Both, a person's education and their parental education are expected to affect right-wing voting behavior negatively (Brenner 2007, Fertig and Schmidt 2011).

To investigate the mediating role of cultural traits, I use the historical voting results provided by Voigtländer and Voth (2012). The descriptive statistics in Table 3 show the rise of the Nazi-parties during the 1920s to the 1930s in Germany.[10] For example, in 1928 on average

only 3.2% voted for the NSDAP; in 1933 this number increased by a factor of almost 13 (40.7% of the German population cast their vote to the NSDAP).

I have generated also dummy variables for the occupational status of the respondent. Different types of jobs might be affected differently by a high share of foreigners. For example, the influx of immigrants coming to Germany in the late 1960s consisted mostly of low skilled workers. Most of them were employed as semi-skilled or manual workers. Hence, Germans that have similar jobs are likely to face a higher labor market competition. If labor market competition or fear of unemployment influences right-wing voting behavior, I expect individuals belonging to relevant occupational categories to have a higher probability of voting for a right-wing party (Mayda 2006, Ortega and Polavieja 2012). The reason is that these parties mount regularly campaigns that stress job protection policies for natives (Rotte and Steininger 2008, Falk et al. 2011). Since especially unemployed respondents (2.45% of the sample) may perceive their labor market status as a result of crowding out by foreigners, I hypothesize that they also have a higher probability of voting for a right-wing party compared to the other occupational categories.

Moreover, I control for one's religion: I include a dummy variable that takes the value of one if a person is a Christian und zero if he/she is undenominational. 83% of the sample represent Catholics and Protestants. Being Christian is expected to affect right-wing voting behavior negatively. The Church in Germany is engaged in a whole variety of activities that aim to help people in the rest of the world (e. g. "Bread for the world" – "Brot für die Welt" is one of the biggest programs initiated by the Protestant Church in Germany) and is involved in several projects that take a stand against right-wing extremism (e. g. "Church against right-wing extremism" – "Kirche gegen rechts"). That is why it can be concluded that a respondent that states to be a Christian (Catholic or Protestant) has a lower probability of voting for a right-wing party.

73% of the respondents in the sample are married, 15% are single, 4% are divorced, and 8% are widowed. Marital status is also part of the control variable set on individual level since married respondents regularly share their income. Sharing income between household members is a way to lower volatility and uncertainty of income over time. Thus attitudes of married respondents may not be influenced by economic threats as much as those of singles. That is why married individuals are expected to report less hostile attitudes.

Furthermore, I include gender and the respondent's age in the set of control variables. Age is included as a continuous variable as well as its squared term divided by 100. Age is suspected to influence one's attitudes because "it maps the position of the individual in the economic cycle" especially with respect to employment (Dustmann and Preston 2001). That is why a humped-shaped relationship between age and voting for an extreme right-wing party can be expected. Besides this, being part of the German history during the years 1933 to 1945 is captured by this variable as well.

Being constantly exposed to many different ways of everyday living, requires more tolerance towards different cultures compared to people living in sparsely populated areas (Fossett and Kiecolt 1989, Dustmann and Preston 2001). To control for effects of urbanization on the dependent variable I include a set of 6 different categories that stem from the GSOEP data.

4. Results

This section presents the estimates of the simple probit model, the instrumental variable estimations, as well as estimations with a lagged independent variable. All models include a set of basic individual controls, the type of settlement, and year dummies.

4.1 Basic Estimates

The first step of my analysis is the estimation of simple probit models. I am interested in the effect of ethnic concentration on individual attitudes towards foreigners. The dependent variable is measured as a binary variable that equals 1 if a person states to lean toward an extreme right-wing party (DVU, NPD or Republikaner) and 0 otherwise. Ethnic concentration is the share of foreigners at county level. Table 4 reports the coefficients for a full sample of observations. The number of covariates is ascending from column (1) to (4). In all of the specifications it is shown that respondents who are more satisfied with their income are less likely to lean toward a right-wing extremist party. Women report a lower probability of voting for a right-wing party which is a standard finding in this strand of literature. As expected, the relationship between age and right-wing attitudes is hump-shaped. Hence, the variables on age can be interpreted as capturing the life cycle of a person with special reference to employment prospects. In that sense, younger respondents show a lower probability of leaning towards right-wing parties. At a certain point in life this probability reaches a maximum but it declines as the person gets older. The marital status turns out to be insignificant in all specifications.

Another very typical hypothesis which has been investigated in the previous literature also holds true for this analysis: Column (2) shows that respondents with a low or intermediate educational attainment are significantly more likely to lean toward right-wing parties compared to respondents with a university degree.

Moreover, the results show that being unemployed (reference group) is associated with a significant positive probability of voting for the right-wing compared to officers, white collar workers and persons in formal education (column (3)).

In column (4) variables capturing the religious view of a respondent as well as the education level of the respondent's parents are included. Christians appear to have less prejudice

against foreigners which seems to support the above reasoning that the German churches engage effectively against right-wing extremism. The dummy variables on father's and mother's education show evidence that has been reported in other studies before (e. g. Siedler 2011): High parental education lowers the probability of leaning toward a right-wing party.

Besides these individual controls, one variable is included that describe a locational feature: The unemployment rate at county level is included in all regressions and turns out to be negatively significant. Germans living in areas with a higher unemployment rate are less likely to vote for the extreme right. Even though the magnitude of the coefficient is rather small compared to the others, this finding is somewhat counterintuitive and should be investigated further.

In the probit estimations, presented as a first step, ethnic concentration on county level is treated as an exogenous regressor. The coefficient of the variable is positive but not significant (table 4). A higher concentration of foreigners at county level increases the probability of right-wing voting behavior. Including different sets of control variables does not change the effect.

4.2 Instrumental Variable Estimations

In a second step, the instrumental variable approach suggested by Dustmann and Preston (2001) is used to explicitly take into account that the share of foreigners measured at county level may be endogenous due to self-sorting.

To instrument the variable that measures ethnic concentration on a narrow level, I aggregated the share of foreigners at federal state level. Since individuals may exercise their location choices on a smaller spatial area, it is assumed that self-sorting based on attitudes towards foreigners at federal state level seems unlikely. From a theoretical point of view, I expect that the correlation with the endogenous variable and the share of foreigners at federal state level should be substantial. In order to provide evidence on the plausibility of the instrument, table 5

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reports the F statistic of the excluded instrument. The instrument is highly correlated with the endogenous explanatory variable with an F statistic of 123. As suggested by Bound et al. (1995) an F statistic of 10 is the thumb-rule for a sufficient strong correlation with the endogenous explanatory variable.

Table 5 reports the results of the instrumental variable estimations (ivprobit). Independent from the set of control variables used (columns (1) to (4)), the results reveal a significantly negative relationship between the share of foreigners and right-wing voting behavior. The correlation between the error term on locational choice and right-wing voting (Rho) is positive and significant which points to the fact that the simple probit estimates involve a simultaneity bias. The effect is robust with reference to the assumed distribution since two-stage-least-squares yield similar results (not reported). Based on these findings it can be concluded that interethnic contact might be the source for right-wing voting behavior in West Germany. To get a sense of the economic significance of the effect I computed projections that provide information about the probability of voting for an extreme right-wing party for different values of ethnic concentration (table 6). The projections show that the share of foreigners exerts quite a sizeable effect: For example, compared to a region with a share of foreigners equal to the mean (9.9%), a region with a one standard deviation higher share of foreigners has a 20 percentage point higher probability in leaning towards a right-wing party.

Table 7 shows the results for low, intermediate and high educated Germans respectively. For the subsamples of intermediate and highly educated individuals the effect of ethnic concentration is negative and significant which is in line with the interethnic contact hypothesis (columns (2) and (3)). The results for the subsamples suggest that the negative effect for the full sample of observation is driven by educated persons which points to the fact that education is the main factor that triggers positive attitudes towards foreigners. Moreover, it can be concluded that

education helps to appreciate the advantages of ethnically diverse society. For the group of low educated the effect is positive but insignificant (column (1)).

One might ask if there is another confounding factor that mediates the relationship between ethnic concentration and right-wing attitudes or should be seen as an omitted variable. One confounding factor could be the regional distribution of cultural traits. Voigtländer and Voth (2012a) have shown that the distribution of pogroms in 1349 is a strong predictor for historical election results during the Nazi era. In the last step of my analysis I include a dummy variable that indicates whether or not a pogrom between 1348 and 1350 has happened in a county. A pogrom is defined as systematical killing of Jewish inhabitants. Moreover, using the Social Value Survey for Germany Voigtländer and Voth (2012b) provide evidence that historical election results from the 1930s can explain xenophobic tendencies in Germany today.

Table 8 shows the probit estimates including historical election results for the Nazi-Party as well as a dummy variable indicating a pogrom in 1349. Note that the historical data are only available for a subsample of West Germany. First of all, historical voting data affect right-wing voting behavior positively. In most of the cases this effect is quite substantial and significant (table 8, columns (4) to (8)) which supports the evidence provided by Voigtländer and Voth (2012b) that not only for xenophobic but also for right-wing attitudes in general cultural traits persist over a significant amount of time. Second, ethnic concentration still does not explain leaning toward an extreme right-wing party significantly using the probit estimation technique. Moreover the sign is not reversed suggesting that cultural traits are not an omitted variable when estimating the relationship between ethnic concentration and extreme right-wing voting behavior.

5. Summary and Conclusions

In this paper, I investigate to what extent ethnic concentration influences hostile attitudes of

German natives. Two theories can be applied to this question: On the one hand, group threat theory hypothesizes that a higher share of foreigners leads to a higher level of hostile attitudes. On the other hand, if interethnic theory predicts the relationship between ethnic concentration and hostile attitudes correctly, I expect that with an increasing share of foreigners the frequency of interethnic contacts will be higher and helps to overcome prejudice.

To address this question, I use data from the German Socio-Economic Panel (GSOEP, waves from 1996 to 2009). The GSOEP is a large, representative survey for Germany that contains also a question about the political attitudes of the respondents. To be more precise, I generate a binary variable that takes the value of 1 if a respondent states to lean toward a right-wing extremist party (DVU, NPD or Republikaner) and 0 otherwise. The GSOEP consists also of information on the locality the respondent lives in. Based on this regional information, I merge the data of the GSOEP with administrative data. The latter data set enables me to measure the ethnic concentration for each county in Germany.

The empirical analysis is fourfold: First, I estimate simple probit models to examine the relationship between ethnic concentration measured at county level and right-wing voting behavior. I find that ethnic concentration and right-wing voting behavior are positively but insignificantly associated. However, results based on simple probit models should be viewed with caution. The reason is that locational choices and political attitudes are likely to be interdependent. Thus, simple probit estimations may suffer from a simultaneity bias.

To overcome this bias, I follow an approach suggested by Dustmann and Preston (2001) and instrument the ethnic concentration at county level with an aggregated measure. The spatial level used to instrument ethnic concentration at county level is the ethnic concentration at federal state level. Using an instrumental variable procedure, I show that self-sorting based on political attitudes is important and that taking into account this endogeneity leads to a significant effect of
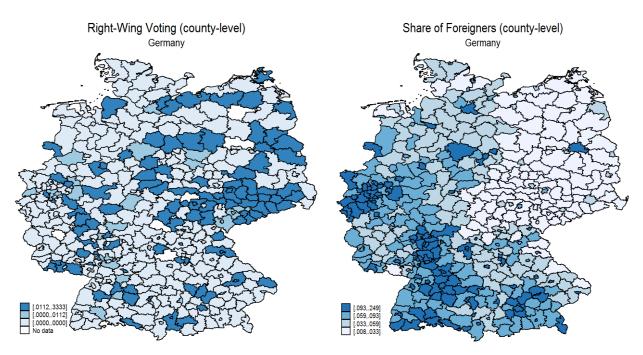
ethnic concentration on right-wing voting behavior. The effect of ethnic concentration on foreigners is negative and thus provides evidence for the interethnic contact theory.

Thirdly, I assess whether or not a moderating role of education exists. My instrumental variables estimates show that for the subsample of intermediate and highly educated Germans ethnic concentration is negatively associated with leaning towards an extreme right-wing party which points to a moderating role of education. For this subsample the results again support the interethnic contact theory. In contrast, the coefficient for the subsample of Germans with a low educational attainment is positive and insignificant. Here the two countervailing effects of a low educational attainment might compensate each other leading to an insignificant result.

In a forth step of the analysis, I estimate probit models including historical voting results during the Nazi-era as well as a dummy variable on county level indicating whether a pogrom has taken place in the period between 1348 and 1350. With this last step I want to examine if cultural traits mediate the relationship between ethnic concentration and leaning toward a right-wing extremist party. I find that most of the historical voting variables affect right-wing attitudes positively but are not a mediating factor.

In conclusion, my results show that endogeneity issues should be taken seriously when examining the relationship between ethnic concentration and right-wing voting behavior. With respect to the interethnic contact theory, for West Germany the results may suggest that policies which aim at reducing segregation and increasing interethnic contact should be undertaken.

Figure 1: Share of Foreigners at County Level and Right-Wing Voting Behavior

Source: GSOEP (waves 2005-2009) and data provided by the Statistical Office of Rhineland-Palatinate, own calculations.

Table 1: Results of State Elections for Extreme Right-Wing Parties 2008/2009

Federal state	Total percent of voting for right-wing parties	Federal state	Total percent of voting for right-wing parties
Baden-Wuerttemberg	2.1%	Lower Saxony	1.5%
Bavaria	2.6%	North Rhine-Westphalia	1.0%
Berlin	2.1%	Rhineland-Palatinate	1.9%
Brandenburg	2.8%	Saarland	1.2%
Bremen	1.6%	Saxony	5.8%
Hamburg	0.9%	Saxony-Anhalt	4.6%
Hesse	1.5%	Schleswig-Holstein	0.9%
Mecklenburg-West Pomerania	6.1%	Thuringia	4.7%

Note: Total percent of voting for right-wing parties is the sum of votes for NPD, DVU and Republikaner, respectively.
Source: Ministry of the Interior of the Federal States.

Table 2: Variable Description

Variable	Description
Right-wing voting	Dummy = 1 if respondent leans toward DVU, NPD or Republikaner.
Share of foreigners at county level	Share of foreigners in a county in year t.
Share of foreigners at federal state level	Share of foreigners in a federal state in year t.
Pogrom 1349	Dummy = 1 if a pogrom occurred in the years 1348–50 (Voigtländer/Voth 2012a).
DVFP vote, May 1924	City-level DVFP vote, May 1924 (Voigtländer/Voth 2012a).
DNVP vote, May 1924	City-level DNVP vote, May 1924 (Voigtländer/Voth 2012a).
NSDAP vote, May 1928	City-level NSDAP vote, May 1928 (Voigtländer/Voth 2012a).
NSDAP vote, September 1930	City-level NSDAP vote, Sept 1930 (Voigtländer/Voth 2012a).
NSDAP vote, July 1932	City-level NSDAP vote, July 1932 (Voigtländer/Voth 2012a).
NSDAP vote, November 1932	City-level NSDAP vote, Nov 1932 (Voigtländer/Voth 2012a).
NSDAP vote, March 1933	City-level NSDAP vote, March 1933 (Voigtländer/Voth 2012a).
Unemployment rate at county level	Unemployment rate at county level in percent.
Satisfaction with income	Satisfaction with household income coded from 0 lowest to 10 highest.
Female	Dummy = 1 if respondent is a woman.
Age	Age in years of respondent.
$Age^2/100$	Age in years of respondent squared and divided by 100.
Married	Dummy = 1 if respondent is married.
Divorced	Dummy = 1 if respondent is divorced.
Single (reference category)	Dummy = 1 if respondent is single.
Widowed	Dummy = 1 if respondent is widowed.
Low education	Dummy = 1 if respondent's highest educational attainment is secondary education first stage.
Intermediate education	Dummy = 1 if respondent's highest educational attainment is secondary education second stage or a completed apprenticeship training.
High education (reference category)	Dummy = 1 if respondent's highest educational attainment is first or second stage of tertiary education.
Not working	Dummy = 1 if respondent is not working.
In formal education	Dummy = 1 if respondent is in formal education/training.
Unemployed (reference category)	Dummy = 1 if respondent is unemployed.
Retired	Dummy = 1 if respondent is retired.
Civilian servant	Dummy = 1 if respondent is a civilian servant.
In training	Dummy = 1 if respondent is a trainee/intern.
Manual worker	Dummy = 1 if respondent is a manual worker.
Farmer	Dummy = 1 if respondent is a self-employed farmer.
Self-employed	Dummy = 1 if respondent is a self-employed person.
White collar worker	Dummy = 1 if respondent is a white collar worker.
Officer	Dummy = 1 if respondent is an officer.
Christian	Dummy = 1 if respondent is protestant or catholic.
Undenominational or other religion (reference category)	Dummy = 1 if respondent is undenominational or has other religion.
Mother high education	Dummy = 1 if respondent's mother achieved first or second stage of tertiary education.
Father high education	Dummy = 1 if respondent's father achieved first or second stage of tertiary education.
Year dummies	Dummy variables for the years 1996 to 2009.
Federal state dummies	Dummy variables for the federal states of Germany.

Source: GSOEP (waves 1996-2009) and data provided by the Statistical Office of Rhineland-Palatinate.

Table 3: Summary Statistics – Full Sample (N=47,509)

Variable	Mean	Minimum	Maximum	Std.-Dev.
Right-wing voting	.0072	0	1	.0844
Share of foreigners at county level	.0989	.0233	.2892	.0498
Share of foreigners at federal state level	.0963	.0511	.1526	.0301
Pogrom 1349[+]	.6191	0	1	.4856
DNVP vote, May 1924[+]	.1261	.0086	.5202	.0907
DVFP vote, May 1924[+]	.0687	.0010	.4193	.0738
NSDAP vote, May 1928[+]	.0324	.0025	.2651	.0354
NSDAP vote, September 1930[+]	.1761	.0254	.4703	.0779
NSDAP vote, July 1932[+]	.3240	.0985	.6930	.1030
NSDAP vote, November 1932[+]	.2797	.0692	.6083	.0896
NSDAP vote, March 1933[+]	.4064	.1557	.7683	.1046
Unemployment rate at county level	9.084	1.9	25.2	3.168
Satisfaction with income	6.981	0	10	2.071
Female	.4887	0	1	.4999
Age	52.34	17	99	15.86
$Age^2/100$	29.91	2.89	98.01	16.83
Married	.7302	0	1	.4439
Divorced	.0401	0	1	.1963
Single	.1523	0	1	.3593
Widowed	.0774	0	1	.2672
Low education	.1449	0	1	.3520
Intermediate education	.5378	0	1	.4986
High education	.3173	0	1	.4654
Not working	.0891	0	1	.2849
In formal education	.0198	0	1	.1393
Unemployed	.0245	0	1	.1547
Retired	.2950	0	1	.4560
Civilian servant	.0022	0	1	.0467
In training	.0094	0	1	.0963
Manual worker	.0994	0	1	.2992
Farmer	.0032	0	1	.0561
Self-employed	.0506	0	1	.2191
White collar worker	.3233	0	1	.4678
Officer	.0778	0	1	.2679
Christian	.8314	0	1	.3744
Undenominational or other religion	.1582	0	1	.3650
Other religion	.0104	0	1	.1012
Mother high education	.1356	0	1	.3424
Father high education	.0528	0	1	.2237

Note: Variables with the superscript "+" are only available for a subsample. For the size of the subsample please see table 8.
Source: GSOEP (waves 1996-2009) and data provided by the Statistical Office of Rhineland-Palatinate.

Table 4: Probit Estimates – Step-by-Step inclusion of Variables

	(1) West Germany excl. city-states	(2) West Germany excl. city-states	(3) West Germany excl. city-states	(4) West Germany excl. city-states
Share of foreigners at county level	.5336	.7801	.9724	.8440
	(1.329)	(1.372)	(1.410)	(1.438)
Satisfaction income	-.1311***	-.1229***	-.1151***	-.1143***
	(.0175)	(.0184)	(.0191)	(.0186)
Female	-.2958***	-.3481***	-.2528***	-.2186***
	(.0891)	(.0832)	(.0847)	(.0889)
Age	-.0686***	-.0514***	-.0664***	-.0768***
	(.0153)	(.0171)	(.0167)	(.0172)
Age²/100	.0500***	.0320***	.0490***	.0599***
	(.0137)	(.0159)	(.0152)	(.0154)
Married	.0395	.0392	.0024	-.0249
	(.1471)	(.1603)	(.1560)	(.1504)
Divorced	.1625	.1360	.0787	-.0054
	(.1824)	(.1930)	(.1905)	(.1858)
Widowed	-.2184	-.2682	-.3794	-.4334
	(.3010)	(.3126)	(.3125)	(.3173)
Unemployment rate	-.0381**	-.0421**	-.0416**	-.0413**
	(.0165)	(.0170)	(.0169)	(.0167)
Low education	---	.8246***	.7565***	.7237***
		(.1450)	(.1667)	(.1719)
Intermediate education	---	.5846***	.4914***	.4728***
		(.1094)	(.1102)	(.1159)
Not working	---	---	-.4200	-.3959**
			(.1890)	(.1980)
In formal education	---	---	-1.102***	-1.021***
			(.2483)	(.2547)
Retired	---	---	-.2806	-.2839
			(.2098)	(.2194)
Civilian Servant	---	---	-.3129	-.2579
			(.3066)	(.3088)
In training	---	---	-.0822	-.0301
			(.1621)	(.1670)
Manual worker	---	---	.1634	.1631
			(.1299)	(.1345)
Farmer	---	---	.2693	.4052
			(.3867)	(.3907)
Self-employed	---	---	-.2766	-.2548
			(.1938)	(.1967)
White collar worker	---	---	-.2561*	-.2713**
			(.1312)	(.1346)
Officer	---	---	-.7865***	-.8272***
			(.2470)	(.2515)

Table 4: Probit Estimates – Step-by-Step inclusion of Variables (continued)

	(1) West Germany excl. city-states	(2) West Germany excl. city-states	(3) West Germany excl. city-states	(4) West Germany excl. city-states
Christian	---	---	---	-.4804***
				(.1349)
Father high education	---	---	---	-.3530*
				(.1884)
Mother high education	---	---	---	-.4924*
				(.2854)
Constant	.5875	-.2844	.1817	.8967*
	(.4637)	(.4971)	(.4884)	(.5325)
Log pseudolikelihood	-1690.48	-1633.56	-1565.47	-1512.18
Observations	47509	47509	47509	47509

Note: All regressions include controls for type of settlement (17 types aggregated to 6 categories) and years (1996-2009). Reference category of qualitative variables: single, high education, unemployed, father has intermediate/low education, mother has intermediate/low education, undenominational/other religion. The table shows the estimated coefficients. Huber-White standard errors clustered at household level are in parentheses. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level. Source: GSOEP (waves 1996-2009) and data provided by the Statistical Office of Rhineland-Palatinate, own calculations.

Table 5: IV-Probit Estimates – Step-by-Step inclusion of Variables

	(1) West Germany excl. city-states	(2) West Germany excl. city-states	(3) West Germany excl. city-states	(4) West Germany excl. city-states
Share of foreigners at county level instrumented	-12.57** (5.143)	-12.72** (5.199)	-12.56** (5.381)	-10.56* (5.687)
Satisfaction income	-.1164*** (.0170)	-.1088*** (.0175)	-.1019*** (.0177)	-.1048*** (.0171)
Female	-.2606*** (.0843)	-.3033*** (.0810)	-.2123*** (.0815)	-.1887*** (.0867)
Age	-.0576*** (.0147)	-.0421*** (.0160)	-.0553*** (.0161)	-.0673*** (.0168)
Age²/100	.0420*** (.0130)	.0260* (.0147)	.0409*** (.0148)	.0529*** (.0151)
Married	-.0575 (.1381)	-.0590 (.1498)	-.0842 (.1446)	-.0965 (.1461)
Divorced	.0628 (.1682)	.0368 (.1772)	-.0156 (.1742)	-.0850 (.1764)
Widowed	-.3312 (.2793)	-.3752 (.2880)	-.4726 (-.4726)	-.5126 (.3004)
Unemployment rate	-.0728*** (.0204)	-.0773*** (.0204)	-.0770*** (.0206)	-.0724*** (.0213)
Low education	---	.7162*** (.1589)	.6638*** (.1709)	.6641*** (.1775)
Intermediate education	---	.5238*** (.1122)	.4417*** (.1105)	.4445*** (.1163)
Not working	---	---	-.4046** (.1796)	-.3868** (.1912)
In formal education	---	---	-.9597*** (.2504)	-.9232*** (.2550)
Retired	---	---	-.2337 (.2030)	-.2470 (.2154)
Civilian Servant	---	---	-.2990 (.3034)	-.2616 (.3061)
In training	---	---	-.0519 (.1552)	-.0099 (.1622)
Manual worker	---	---	.1526 (.1203)	.1604 (.1276)
Farmer	---	---	.3150 (.3564)	.4431 (.3685)
Self-employed	---	---	-.2399 (.1836)	-.2325 (.1894)
White collar worker	---	---	-.2002 (.1327)	-.2263 (.1374)

Table 5: IV-Probit Estimates – Step-by-Step inclusion of Variables (continued)

	(1) West Germany excl. city-states	(2) West Germany excl. city-states	(3) West Germany excl. city-states	(4) West Germany excl. city-states
Officer	---	---	-.7225*** (.2341)	-.7745*** (.2426)
Christian	---	---	---	-.4791*** (.1238)
Father high education	---	---	---	-.2921* (.1743)
Mother high education	---	---	---	-.4451* (.2676)
Constant	1.383** (.5713)	.6344** (.6434)	1.019* (.5997)	1.570** (.6539)
Rho	.4016** (.1493)	.4137** (.1505)	.4139** (.1555)	.3501* (.1653)
F-Value	122.73***	121.87***	121.81***	124.03***
Log pseudolikelihood	98349.20	98424.95	98531.67	98659.50
Observations	47509	47509	47509	47509

Note: All regressions include controls for type of settlement (17 types aggregated to 6 categories) and years (1996-2009). Reference category of qualitative variables: single, high education, unemployed, father has intermediate/low education, mother has intermediate/low education, undenominational/other religion. The table shows the estimated coefficients. Huber-White standard errors clustered at household level are in parentheses. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level. F-Value obtained from first-stage regression. Source: GSOEP (waves 1996-2009) and data provided by the Statistical Office of Rhineland-Palatinate, own calculations.

Table 6: Projected Influence of Ethnic Concentration on Voting for Extreme Right-Wing Parties

	Share of foreigners equals the sample's minimum	Share of foreigners equals the sample's mean	Share of foreigners equals the sample's mean plus one standard deviation
Probability of voting extreme right-wing parties	2.19	0.24	0.04

The projections are based on estimation (4) in table 5. Source: GSOEP (waves 1996-2009) and data provided by the Statistical Office of Rhineland-Palatinate, own calculations.

Table 7: Probit- and IV-Estimates – By Subsamples based on Education

	Probit		
	(1) West Germany excl. city-states *Low Education*	**(2) West Germany excl. city-states** *Intermediate Education*	**(3) West Germany excl. city-states** *High Education*
Share of foreigners at county level	.5153 (2.065)	.0204 (1.809)	5.418 (3.473)
Log pseudolikelihood	-330.03	-992.10	-118.23
Observations	6885	25549	15075

	IV		
	(1) West Germany excl. city-states *Low Education*	**(2) West Germany excl. city-states** *Intermediate Education*	**(3) West Germany excl. city-states** *High Education*
Share of foreigners at county level	1.804 (9.657)	-13.37** (6.774)	-16.80** (7.723)
Rho	-.0371549 (.2840797)	.4136* (.1878)	.6482** (.2238)
F-Value	46.57***	80.82***	60.91***
Log pseudolikelihood	14647.98	52946.05	31290.29
Observations	6885	25549	15075

Note: All regressions include controls for type of settlement (17 types aggregated to 6 categories) and years (1996-2009). Reference category of qualitative variables: single, unemployed, father has intermediate/low education, mother has intermediate/low education, undenominational/other religion. The table shows the estimated coefficients. Huber-White standard errors clustered at household level are in parentheses. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level. F-Value obtained from first-stage regression. Source: GSOEP (waves 1996-2009) and data provided by the Statistical Office of Rhineland-Palatinate, own calculations.

Table 8: Cultural Traits

	(1) West Germany excl. city-states	(2) West Germany excl. city-states	(3) West Germany excl. city-states	(4) West Germany excl. city-states	(5) West Germany excl. city-states	(6) West Germany excl. city-states	(7) West Germany excl. city-states	(8) West Germany excl. city-states
Share of foreigners at county level	1.314 (1.646)	1.508 (1.648)	1.498 (1.643)	1.229 (1.618)	1.691929 (1.633934)	.7632594 (2.045234)	.668865 (2.016)	1.565059 (1.616305)
Pogrom 1349	.0596 (.1227)	---	---	---	---	---	---	---
DVFP vote, May 1924	---	.0355 (.5597)	---	---	---	---	---	---
DNVP vote, May 1924	---	---	.3722 (.8788)	---	---	---	---	---
NSDAP vote, May 1928	---	---	---	3.365*** (1.170)	---	---	---	---
NSDAP vote, Sept 1930	---	---	---	---	1.438** (.6832)	---	---	---
NSDAP vote, July 1932	---	---	---	---	---	2.120* (1.116)	---	---
NSDAP vote, Nov 1932	---	---	---	---	---	---	2.308* (1.183)	---
NSDAP vote, March 1933	---	---	---	---	---	---	---	1.869*** (.5921)
Full set of covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Log pseudolikelihood	-1141.56	-1160.47	-1159.95	-1148.31	-1151.85	-545.32	-546.43	-1139.62
Observations	37425	37942	37942	37942	37942	18876	18913	37942

Note: All regressions include a full set of controls. See table 5 for a list of all covariates. The table shows the estimated coefficients. Huber-White standard errors clustered at household level are in parentheses. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level. Source: GSOEP (waves 1996-2009) and data provided by the Statistical Office of Rhineland-Palatinate, own calculations.

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Endnotes

[1] For more information about the series of killings of small-business people in Germany see, for example, "The True Threat to Integration in Germany", Judy Dempsey, The New York Times, August 2012, http://www.nytimes.com/2012/08/07/world/europe/07iht-letter07.html.

[2] Using the German General Social Value Survey, Voigtländer and Voth (2012b) find in a recent published working paper that historical voting patterns from the 1920s/30s are good predictors of current xenophobic attitudes.

[3] The list of parties that are nominated for the 2009 Bundestag election is published by the Federal Returning Officer of Germany.

[4] For example, Dustmann and Preston (2001) use prejudice against minorities and attitudes to certain issues (interethnic marriage, ethnic minority superiors at work, race discrimination legislation) as dependent variables, whereas Krueger and Pischke (1997) use right-wing motivated crime. The tendency to vote for an extreme right-wing party considered in this paper is located in between subtle measures and violent outbreaks of hostility. However, results based on a specific measure of hostility may not be applied to other measures of hostility (Dustmann et al. 2010).

[5] Foreigners have a lower educational level on average and are overrepresented in the low-skilled segment of the labor market. Moreover, it can be shown that foreigners are more likely to have a job mismatch since their educational degrees obtained abroad are valued less on the German labor market and thus foreigners tend to work more frequently in the unskilled or semi-skilled segment than comparable German citizens (Aldashev et al. 2012).