Unity in Diversity?
The Spatial Distribution and Integration of Immigrants in West Germany

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Vorbemerkungen

Die vorliegende Dissertation ist gemäß den Vorgaben der Promotionsordnung des Fachbereichs IV „Wirtschafts- und Sozialwissenschaften, Mathematik, Informatik und Wirtschaftsinformatik“ der Universität Trier vom 28. September 2004 angefertigt worden. Kapitel 1 dient der Darstellung der Motivation und der inhaltlichen Zusammenfassung der Kapitel 2 bis 5. Kapitel 6 stellt die wesentlichen Ergebnisse noch einmal dar und beschreibt den zukünftigen Forschungsbedarf. Eine deutsche Zusammenfassung der Ergebnisse gemäß § 5 Abs. 4 der Promotionsordnung findet sich am Ende der Dissertation.

Foreword

This dissertation is dedicated to everyone who has supported me in every possible way during the writing of this piece of research over the past four years – my family, friends, advisors, and colleagues.

First of all, I am indebted to Uwe Jirjahn, who supervised this dissertation. I benefitted greatly from his support and guidance, which he generously provided whenever I needed it. Most importantly, he taught me how to think and talk "economics". Besides him being the best academic mentor I can imagine, I have been very lucky to work with a team of loyal and caring colleagues at the Chair of Labor Economics – including our secretary, Inge, and the student research assistants.

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* This chapter is joint work with Uwe Jirjahn and Georgi Tsertsvadze.
** This chapter is joint work with Uwe Jirjahn.

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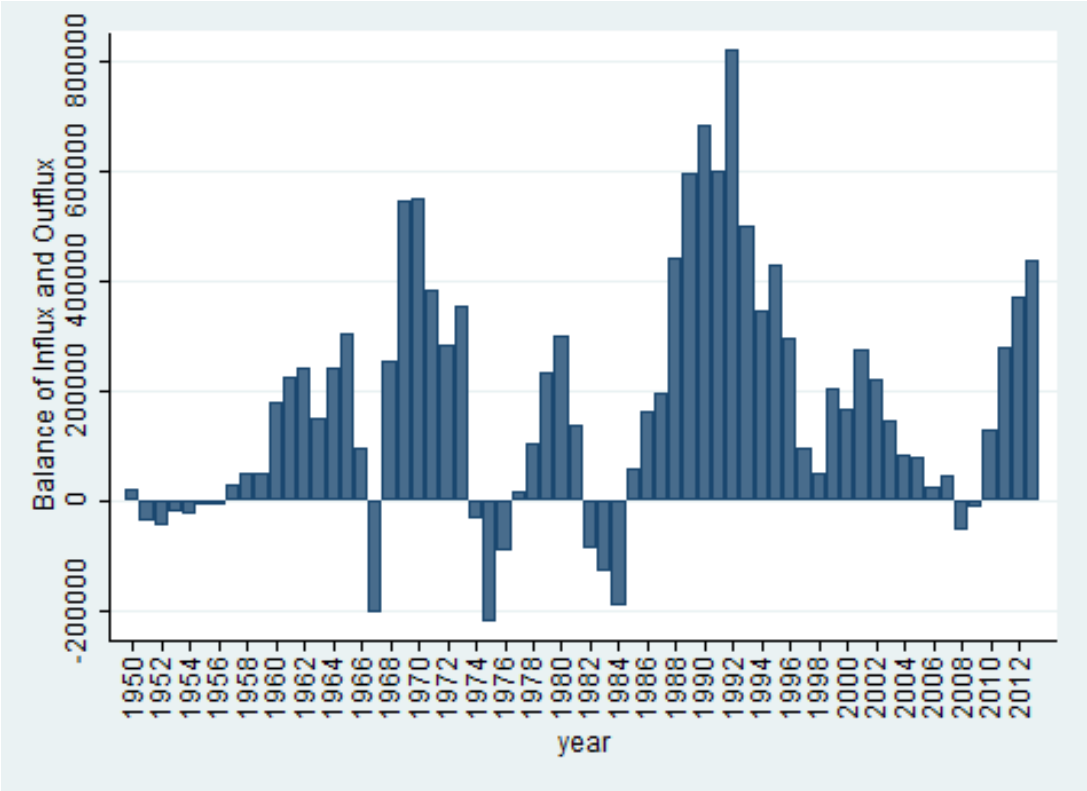
1. Introduction

1.1. Motivation

As a recent OECD study showed, Germany has become one of the top immigration destinations in the world in the past five years (Astheimer 2014). In 2012, 400,000 people decided to permanently move to Germany, representing the second highest influx of foreigners in absolute terms in the world after the US.[1] According to Germany's Federal Statistical Office, the inflow and outflow of people in 2013 exceeded even the 2012 number, resulting a positive net immigration of 437,000 (Figure 1.1, Destatis 2014).

Figure 1.1: Balance of Immigrant Influx and Outflux to Germany (1950 – 2013)



Source: Destatis 2014.

[1] Even though the gap with the US is substantial. In 2012 approx. 1.2 Mio. immigrants came to the US to live there permanently.

The largest group of immigrants is coming from central and eastern European countries, the second largest from southern European countries. One reason for the recent increase in immigration to Germany is the ongoing economic crisis and high unemployment rates in countries like Portugal, Spain, Italy, and Greece. Another is the free movement of people in Europe and the introduction of agreements with the EU/EFTA, enabling people from Norway, Liechtenstein, Switzerland, and Ireland to move to Germany without any legal restrictions (Astheimer 2014).

Despite these recent developments, Germany was a country of emigration at the beginning of the 19th century, followed by large waves of immigration starting in the mid 1950's.[2] The decade between the mid 1950's and the end of the 1960's was a time when the former West German economy recovered and boomed, which resulted in a high demand for workers, especially in industries like manufacturing, mining and heavy industry. The first agreement to recruit workers was signed with Italy in 1955. In the years that followed, the West German government arranged bilateral agreements with other southern and southeastern European countries. The purpose of these agreements was to alleviate labor shortages *temporarily* – not to attract workers to stay here for the rest of their lives. That is why the term "guest worker" was invented to describe the recruited workers. To prevent workers from permanently settling, the so-called "rotation principle" was implemented. Under this principle, a cohort of guest workers was expected to temporarily immigrate without their family members, live in barracks next to their work places, work for about two years, and then move back to their home countries. With a new cohort of guest workers, this sequence could have been repeated until the temporary excess demand for labor decreased.

Indeed, in 1973 the demand for labor decreased as a result of the first oil crisis. A recruitment ban for new guest workers was subsequently passed by the government. Due to the ban, the

[2] The history of immigration which is summarized here only covers the territory of the former Federal Republic of Germany as the analyses of this thesis focus on this part of Germany.

immigration of guest workers to West Germany substantially decreased, but the politicians' expectation of guest workers returning to their home countries proved wrong. As Max Frisch, a Swiss writer, described the eye-opening years in the 1970's: "We wanted workers, but we got people" (Frisch 1965).[3] The quote refers to the fact that while spending a few years working and living in Germany, many guest workers built new social networks with their co-workers, started to get attached to their jobs, and realized that they could make a living here together with their families. Thus, many guest workers decided to stay, and started bringing their families. Family reunification after 1973 mostly compensated for the decrease in the immigration of new guest workers, keeping immigration at a constant level (Figure 1.1). The strategy of recruiting workers temporarily to meet labor shortages in a booming economy turned into a situation where many guest workers became unemployed in the late 1970's. [4]

After a negative immigration balance at the beginning of the 1980's, the second wave of immigration took place. The composition of the immigrants that came to Germany at that time was very heterogeneous: there were refugees from the former Yugoslavia fleeing from ethnical cleansings, genocides, and civil wars; Kurdish refugees from Turkey; ethnic Germans who came in under the Law of Return and were granted German citizenship; and asylum seekers from different parts of the world. After the German unification, immigration reached its peak in 1992, with a positive net immigration balance of more than 800,000 (Figure 1.1). After this peak, it slowed down and reached a new but substantially lower peak in 2001 (approx. 230,000). After a couple of years of low immigration to Germany in 2008/2009, the net immigration balance increased again, and reached a high of 437,000 immigrants in 2013.

[3] To be precise, Max Frisch originally referred to the views and attitudes toward Italian guest workers in Switzerland. But it quickly became a very popular quotation that also described attitudes toward guest workers in other countries.
[4] For more information on the history of immigration to Germany see Münz et al. (1999), Herbert (2001) or Oezcan (2004). An archive of historical documents in English on the history and effects of immigration provides Göktürk et al. (2007).

Even though in the past 60 years Germany has become one of the most important immigration countries, measures aimed at integrating immigrants living in Germany were only introduced at a very late stage due to the expectation that the majority of the guest workers would return to their home countries (Beauftragte der Bundesregierung für Migration, Flüchtlinge und Integration 2012). One indication for a resulting lack of immigrant integration comes from the spatial distribution of immigrants in West Germany: Based on data from the Socio-Economic Panel, we find that 47 percent of immigrants live in a residential area where most or all of the neighbors are foreigners. By contrast, only 14 percent of immigrants live in a residential area where all of the neighbors are German. A possible lack of immigrant integration and assimilation, as well as certain discriminatory tendencies by the German population, have been longstanding concerns in the public discourse. However, systematic research on the long-term effects of immigration and Germany's immigration policy is still far from conclusive. This thesis aims to address this research gap by examining the effects of immigration from two different angles. Firstly, from the perspective of immigrants living in West Germany (Chapters 2 and 3), and secondly, from the perspective of Germans who live in a society that has experienced large changes in its ethnic composition over the past decades (Chapters 4 and 5).

The thesis focuses in particular on the following questions. Do immigrants voluntarily self-select into neighborhoods with a comparably high share of foreigners? Do immigrants who live in segregated neighborhoods feel that they are discriminated against because of their ethnicity? How do Germans respond to a certain ethnic composition in the area they live in? Do we find tendencies of right-wing extremism in regions with a higher or lower share of foreigners? Does self-selection confound the relationship between the share of foreigners and the tendency to lean toward extreme right-wing parties? And lastly, does higher ethnic diversity affect indicators of social capital, such

as participation in organizations and interest in politics negatively confirming hypotheses that claim that in diverse societies people tend to withdraw from society?

1.2. Contribution and Content of this Thesis

The main contribution of this thesis is to provide new answers to these questions, as it may help to better understand the underlying mechanisms leading to discrimination, isolation, and segregation in German society, and to undertake appropriate political action to tackle these issues. A thorough analysis to address the questions raised in the previous paragraph can be found in Chapters 2 to 5 of this thesis. Chapter 6 summarizes the main findings, draws possible policy implications, and identifies areas of future research.

The second chapter, "Residential Segregation and Immigrants' Satisfaction with the Neighborhood in West Germany"[5], is motivated by frequently expressed concerns in the media that secluded ethnic enclaves ("parallel societies") could develop or may even already exist in Germany. The question is whether or not immigrants sort themselves voluntarily into ethnic enclaves because they may consume ethnic goods, speak in their native language, protect each other from hostile attitudes, and create networks with co-ethnics in these areas. To answer this question, information is used from the Socio-Economic Panel Study on residential segregation and neighborhood satisfaction. The sample is restricted to respondents from the former guest worker countries. The idea in this paper is that if the hypothesis that immigrants self-select in segregated areas, they should express a higher level of satisfaction with their neighborhood compared to immigrants living in German-dominated areas. Our results show that, indeed, the opposite is true: immigrants living in segregated areas tend to be less satisfied with their neighborhoods. This result also holds true when an extensive set of household and neighborhood characteristics is controlled for as well as in a

[5] This chapter is joint work with Uwe Jirjahn and Georgi Tsertsvadze.

fixed effects model. Thus, we conclude that the residential segregation of immigrants in West Germany indicates rental market discrimination.

To complement this finding, the question can be raised whether immigrants living in segregated areas have a higher probability of feeling discriminated against because of their ethnicity. In Chapter 3, "Ethnic Residential Segregation and Immigrants' Perceptions of Discrimination in West Germany"[6], this paper analyzes this question using survey information from the German Socio-Economic Panel Study on residential segregation and perceived discrimination. Estimates show that immigrants living in segregated areas are more likely to report discrimination than those living in areas with a higher share of native Germans. This result even holds true when taking into account that the dependent variable may be misclassified and/or residential segregation may be endogenous.

Based on the results of Chapters 2 and 3, we are rather confident to conclude that the segregation observed in West Germany is the result of rental market discrimination rather than self-selection of immigrants. Rental market discrimination could come from different sources. Firstly, landlords may have prejudices against or have had negative experiences with immigrants in terms of their payment history or their compliance with house rules. Secondly, landlords may fear a decline in the demand and prices for their property if they suspect German tenants may be prejudiced against immigrants. Any one of these explanations could then lead to the exclusion of immigrants from native dominated areas, forcing them to live in ethnically segregated neighborhoods. Of course, segregation does not come without consequences. A study by Vervoort (2011) suggests that segregation significantly reduces integration and assimilation into the host country. Thus, in a society where tenant or landlord prejudices and fears lead to discrimination and residential segregation of immigrants, it is more likely that immigrants will reside in segregated neighborhoods.

[6] This chapter is joint work with Uwe Jirjahn.

Hence, according to our results, "parallel societies" are not a social construct chosen by immigrants, but the result of discriminatory attitudes. It could be that a circle of prejudice, little contact, negative attitudes, and discrimination by native Germans leads to segregated residential areas in which immigrants out of necessity build networks with other immigrants, have a lower need to acquire the language skills of the host country, and naturally develop a "parallel society". This again generates prejudices in the native population and the circle starts again. The identification of this circle raises the question whether or not the share of foreigners actually triggers prejudices towards them. Thus in Chapters 4 and 5, this thesis focuses on the question of how the regional distribution of foreigners affects the attitudes of Germans in terms of hostile attitudes towards immigrants and social capital in general.

Observing the causes and trends of hostile attitudes towards immigrants is an important political issue in Germany because hostile attitudes can translate into different forms of behavior. The range starts with mild prejudices against co-workers, tenants, friends of someone's children, marrying a person of a different ethnicity, or voting for extreme right-wing parties, and ends at a point where people commit violent crimes and even murder immigrants on ideological grounds. In June 2014, the Federal Ministry of the Interior published an Annual Report on the Protection of the Constitution for 2013 ("Verfassungsschutzbericht") that reports, counts and classifies criminal activities in Germany as politically (far left or far right) or religiously motivated, and analyzes causes, trends and the need for action. In 2013, it was found that "violent crimes directed at foreigners rose by 20.4% (from 393 to 473)" (Federal Ministry of the Interior 2014) compared to 2012. The number of potentially violent right-wing extremists stayed constant at a high level of 9,600 (on average, every second right-wing extremist). It was concluded that extreme right-wing parties are used as the main political hub to coordinate and develop antidemocratic structures, strategies and violent crimes.

In Chapter 4, “Ethnic Concentration and Extreme Right-Wing Voting Behavior in West Germany”, I investigate which individual and residential characteristics impact the probability of leaning towards an extreme right-wing party. Specifically, I examine the relationship between the regional ethnic concentration of foreigners, and right-wing extremism among German residents. Using data from the German Socio-Economic Panel Study and administrative data from 1996 to 2006, I find a positive but insignificant effect of ethnic concentration on the probability of voting for extreme right-wing parties. However, the key explanatory variable ethnic concentration might be endogenous. Endogeneity may arise because people who vote for extreme right-wing parties may prefer not to live where the share of foreigners is high. Moreover, foreigners probably move to areas where they feel welcomed and appreciated. Both of these reasons bias the relationship between ethnic concentration and a tendency to lean toward an extreme right-wing party. To eliminate endogeneity, I follow an approach by Dustmann and Preston (2001) and instrument the regional share of foreigners with the share of foreigners at the federal state level because I assume that the self-selection of Germans and foreigners only happens on a low spatial level, but not on the federal state level. My results show that, firstly, ethnic concentration is indeed endogenous if measured on a low spatial level, and secondly, the relationship is significantly negative, corroborating the expectations of the interethnic contact theory. In light of this theory, my results suggest that in regions with a low share of foreigners, the frequency of contacts between Germans and foreigners is comparably low, which is likely to provoke prejudices and hostile attitudes towards the minority group (Pettigrew 1998, Rothbart and John 1993).

Chapter 5, “The Effects of Ethnic Diversity on Social Capital in West Germany”, investigates the effects of ethnic concentration on social capital. The concept of social capital covers a broad range of social interactions: E.g. number and contact frequency with friends and neighbors,

membership in associations, or trust between co-workers (Ludewig and Sadowski 2008). Here social capital is captured by three indicators that all can be subsumed under formal civic engagement: political interest, participation in political organizations, and participation in non-political organizations. As in Chapter 4, individual and regional characteristics are taken from the Socio-Economic Panel Study, and the key explanatory variable 'ethnic diversity' is based on information from administrative data. According to different strands of research on social capital, ethnic diversity is likely to have a negative effect on social capital. The primary idea is that people provide a higher level of civic engagement if the probability is high that people who are like them will benefit. Basically, the difference between the approaches explaining this mechanism is the source and definition of similarity between people.[7] Since the empirical literature on the effects of ethnic diversity on social capital for Germany is small (Gundelach and Traunmüller 2013; Schaeffer 2012), the main contribution of this chapter is to investigate the relationship between ethnic diversity and social capital using a large representative German data set. Moreover, this is the first study for Germany that recognizes that ethnic diversity measured on a low spatial level could be endogenous due to residential self-selection. Using data from 1998 to 2009, I find that ethnic diversity significantly inhibits people's political interest and participation in political organizations. The results are robust when using an instrumental variable strategy suggesting that ethnic diversity is not endogenous. People seem to isolate themselves from political participation if exposed to a higher degree of ethnic diversity.

The findings of Chapter 5 are particularly interesting in conjunction with the results of Chapter 4. In this chapter, the results suggested that the tendency to lean toward extreme right-

[7] The main mechanism could be taste-based in-group favoritism (Alesina et al. 1999), language similarity (Crawford 1998, Miguel 1999), a common feeling of group threat that increases as the share of minority group members increases (Sherif and Sherif 1953, Quillian 1995), or common norms of reputation and sanctioning (Habyarimana et al. 2007).

wing parties decreases as ethnic concentration rises. Not taking the results of Chapter 5 into account, it would be reasonable to conclude that the higher the share of foreigners the lower is the probability to lean toward extreme right-wing parties. Thus, society benefits from a higher ethnic diversity. But this interpretation must be taken with caution, because from Chapter 5 we know that ethnic diversity also leads to a lower level of political interest and participation in political organizations in general. One explanation that is consistent with both findings could be that only at the extreme poles does ethnic diversity decrease the tendency to participate in political parties and initiatives. At the same time, people seem to withdraw their political interest and participation. Not voting for right-wing extremist may result in not voting at all. Seen in this light, ethnic diversity may have positive effects in reducing hostile attitudes and extreme right-wing voting, but the negative effect on political interest and participation requires politicians and civil society to take actions against low voter turnout in order to legitimate a democratic system in an immigration country like Germany.

Interestingly, in contrast to political interest and participation in political organizations, Chapter 5 also reveals that participation in non-political organizations is positively affected by ethnic diversity. Participation in non-political organizations could include volunteer work in a retirement home, helping neighbors, or being part of an exclusive club. Thus, the nature of the data makes it difficult to draw a conclusion from these results. Taking into account the results of the other social capital indicators, the positive effect of ethnic diversity on participation in non-political organizations may give an indication that these activities are likely to involve volunteer work in churches and home clubs, which may exclude immigrants. But, of course, the effects on voluntary work should be investigated further using data that describe this form of civic engagement in more detail.

A potential future goal in many immigration countries is to create a society that uses the advantages of ethnic diversity and immigration, while at the same time functioning as a united and civically involved community. This thesis may help in understanding the complex interactions between segregation, discrimination and isolation, and may assist those who develop strategies to create a society that can claim to have reached 'unity in diversity'.[8]

[8] I note that the empirical examinations of this thesis apply to West Germany. If in future detailed information on the regional distribution of foreigners, stable municipal boundaries over long periods and sufficient representative individual-level data would be available it would be of great interest to extend the analysis to East Germany as discriminatory behavior and xenophobic tendencies appear to be particularly high there.

2. Residential Segregation and Immigrants' Satisfaction with the Neighborhood in West Germany*

Abstract: Using data from the German Socio-Economic Panel, this study examines the relationship between immigrant residential segregation and immigrants' satisfaction with the neighborhood. The estimates show that immigrants living in segregated areas are less satisfied with the neighborhood. This is consistent with the hypothesis that housing discrimination rather than self-selection plays an important role in immigrant residential segregation. Our result holds true even when controlling for other influences such as household income and quality of the dwelling. It also holds true in fixed effects estimates that account for unobserved time-invariant influences.

JEL: J15, J61, R23, R30.

Keywords: Immigrant Residential Segregation, Housing Discrimination, Self-Segregation, Neighborhood Satisfaction.

* This chapter is joint work with Uwe Jirjahn and Georgi Tsertsvadze.

2.1. Introduction

Residential segregation of immigrants has been a long-standing concern in many developed countries. This also holds true for Germany where concerns about the lack of immigrant integration and fears of "parallel societies" play an important role in the policy debate. However, our knowledge of the determinants and consequences of immigrant residential segregation is far from being complete. Systematic research on immigrant residential segregation in Germany remains in its infancy while the evidence provided by international studies appears to be inconclusive. There are two largely unrelated strands of studies emphasizing two opposing types of residential sorting. One strand of research suggests that immigrants voluntarily sort themselves into ethnic enclaves as those enclaves provide specific advantages. The enclaves may enable the consumption of ethnic goods or may reduce the need to acquire full proficiency in the host country language. The other strand of research suggests that discrimination plays a role in immigrant concentration. Immigrants live in segregated neighborhoods not because they prefer to live in those areas but because natives restrict immigrant location choices to specific areas.

It is an open question whether self-sorting or discrimination plays the dominant role in immigrant residential segregation. We address this question by examining the relationship between residential segregation and immigrants' satisfaction with the neighborhood. Subjective indicators of satisfaction are increasingly used in econometric studies to examine hypotheses that otherwise are difficult to test (e.g., Alesina et al. 2004, Clark et al. 2009, Cornelissen et al. 2011, Daly et al. 2011, Di Tella et al. 2001, Frey 2008, Green and Heywood 2011, Stutzer and Lalive 2004). As Stutzer and Frey (2010, p. 681) put it: 'research on subjective well-being (…) allows discriminating between models that predict the same patterns of behavior but predict differences in experienced utility.' In our context, using a subjective outcome variable allows gaining insights into the causes

behind immigrant residential segregation as the influence of a segregated neighborhood on immigrants' satisfaction depends on whether self-selection or discrimination dominates.

If immigrants prefer to live in segregated neighborhoods, those who are able to find housing in segregated residential areas should express higher satisfaction with the neighborhood than those who fail to find housing in such areas. Immigrants living in segregated areas may enjoy the consumption of ethnic goods or may save on the cost of acquiring full proficiency in the host country language. By contrast, if discrimination plays the dominant role, immigrants who are more or less forced to live in segregated residential areas should express lower satisfaction with the neighborhood than those who are able to avoid such areas. Residential segregation driven by discriminatory treatment of immigrants can contribute to lower satisfaction through increased social and economic isolation. It may hamper immigrants' assimilation to the host country even if immigrants are willing to bear the cost of assimilation. It may also restrict access to local public services such as good schools.

Using the German Socio-Economic Panel (SOEP), we consider immigrants from former guest worker countries. Our estimates show that immigrants living in segregated areas are less satisfied with their neighborhood. Importantly, the data allow distinguishing between two types of highly segregated residential areas, namely areas where most people are immigrants from the same country of origin as the surveyed person and areas where most people are immigrants from other countries of origin. Both types of concentrated residential areas are associated with lower satisfaction with the neighborhood. This corroborates the interpretation that discrimination rather than self-selection plays an important role in immigrant residential segregation. If self-selection would be the driving force behind immigrant segregation, we should find that specifically neighborhoods with people from the same country of origin result in higher satisfaction. Those areas might be especially attractive as immigrants can share the same language and culture. Yet, even segregated

areas with immigrants from the same country of origin are associated with lower neighborhood satisfaction. Our results hold true even when controlling for other influences such as household income and quality of the dwelling. They also hold true in fixed effects estimates that account for unobserved time-invariant influences.[9]

The rest of the paper is organized as follows. Section 2.2 provides the background discussion. Section 2.3 describes the guest worker immigration to Germany. Section 2.4 discusses the data and variables. Section 2.5 presents the results. Section 2.6 concludes.

2.2. Background Discussion

Previous studies have identified several potential reasons for the residential segregation of immigrants. One reason for a possible self-sorting into segregated areas is that those areas may provide informal information networks on job opportunities and, hence, may improve immigrants' labor market outcomes. Empirical evidence on this hypothesis is mixed. While some studies find a positive influence of immigrant or minority segregation on labor market outcomes (Cutler et al. 2008, Damm 2009, Edin et al. 2003), other studies obtain the opposite result (Bertrand et al. 2000, Chiswick and Miller 2005, Clark and Drinkwater 2002, Collins and Margo 2000, Cutler and Glaeser 1997). Studies directly examining the role of networks provide also no clear answer as to whether or not informal information networks of immigrants are helpful in finding jobs (Battu et al. 2011, Hellerstein et al. 2011, Munshi 2003).

[9] An exploratory examination on residential segregation and immigrants' neighborhood satisfaction in Germany has been carried out by Drever (2004). Drever hypothesizes that a negative relationship between segregation and satisfaction may be due to low-quality housing which is more prevalent in segregated residential areas. Yet, she does not test this hypothesis by including variables for the quality of dwelling in the satisfaction regression. We show that the negative relationship holds true even when controlling for quality of dwelling and satisfaction with dwelling. Moreover, we account for unobserved influences on neighborhood satisfaction and provide evidence that negative relationship holds true for different types of segregated neighborhoods. Both issues have not been addressed by Drever.

Yet, even if segregated neighborhoods do not improve labor market outcomes, immigrants may prefer to live in those neighborhoods. Segregated areas may allow producing and consuming ethnic goods (Chiswick and Miller 2005). Ethnic goods are specifically related to the immigrants' culture and country of origin. If there are fixed cost and economies of scale in the production and distribution of such goods, the costs of ethnic goods are lower in areas with a large community of immigrants sharing the same culture. Furthermore, to the extent immigrants in the neighborhood share the same language, the need to assimilate to the host country is reduced (Lazear 1999). Immigrants can save on the cost of acquiring full proficiency in the host country language. This hypothesis may be supported by the negative link between residential segregation and host language proficiency found in several international studies (Chiswick and Miller 1995, Dustmann 1997, Jirjahn and Tsertsvadze 2004). However, such link would also result if immigrants are more or less forced to live in areas that contribute to social isolation. This brings us to the role of discrimination in the housing market.

Building on theories of statistical or preference-based discrimination (Aigner and Cain 1977, Becker 1957), several approaches have been developed to explain discrimination in the housing market (Galster 1992). Landlords may restrict immigrant location choices to specific areas if they are prejudiced against immigrants or their experience indicates that immigrants are on average tenants with unstable rent payments and less diligent in maintaining the dwelling in appropriate condition. Moreover, landlords may tend to exclude immigrants from native-dominated neighborhoods if the introduction of immigrants enrages native residents.

A series of empirical examinations provides evidence of discrimination in the housing market. Studies for the U.S. show that the growth of a neighborhood's immigrant share is associated with slower housing value appreciation (Saiz and Wachter 2011) and a flight of whites once the minority share in the neighborhood exceeds a critical level (Card et al. 2008). Further evidence

comes from audit studies (Ondrich et al. 1999, Page 1995, Riach and Rich 2002, Yinger 1998, 1999). Testers from two different groups are matched and trained so that they make equivalent enquiries when speaking to prospective landlords. Those studies typically find that ethnic minority groups are shown and offered fewer housing units. Finally, recent field studies use written applications (Ahmed and Hammarstedt 2008 and Ahmed et al. 2010 for Sweden, Bosch et al. 2010, 2011 for Spain, Carpursor and Loges 2006 for the U.S., Planerladen 2009 for Germany). Researchers create fictitious persons with distinctive sounding ethnic names. These persons apply for vacant rental apartments via the Internet. The results of these studies point in the same direction: Persons with foreign sounding names receive substantially fewer call backs, enquiries, and showings than persons with native sounding names.

Altogether, there are two strands of studies. One strand indicates that discrimination in the housing market can play a role in immigrant residential segregation. The other strand provides some (mixed and sometimes ambiguous) evidence that also self-selection may be at work. Little attention has been paid to the question whether self-sorting or discrimination plays the dominant role.[10] Our study addresses this question by examining the relationship between residential segregation and immigrants' satisfaction with the neighborhood. If self-selection is the dominating factor, immigrants who are able to find housing in segregated residential areas should be happier with their neighborhood than those immigrants who fail to find housing in such areas. Immigrants may be attracted to segregated areas because these areas provide informal information networks on job opportunities, enable the consumption of ethnic goods, or reduce the need to adjust to the host

[10] A small number of US studies have tackled this issue with respect to ethnic minorities. Ihlanfeldt and Scafidi (2002) examine if self-selection plays a role in residential segregation of blacks in the US. They use survey data to investigate the link between stated black preferences for segregation and the racial composition of the neighborhood blacks live in. Ihlandfeldt and Scafidi find that self-selection plays only a minor role in explaining residential segregation of blacks. Swaroop and Krysan (2011) examine the link between segregation and neighborhood satisfaction of minority members. They find mixed evidence for blacks and a negative relationship for Latinos.

country. By contrast, if discrimination is the dominating factor, immigrants who are forced to live in segregated residential areas should be less happy with their neighborhood than those immigrants who are able to avoid segregated areas. To the extent discrimination forces immigrants into segregated areas, they cannot choose the neighborhood with the ethnic composition they prefer. Specifically, a segregated neighborhood may contribute to lower satisfaction through social exclusion and isolation. Vervoort (2011) provides Dutch evidence that immigrant residential segregation decreases the chance that immigrants receive advice and support from natives. Such social exclusion may hamper assimilation to the host country even if immigrants are willing to bear the cost of acquiring proficiency in the host country language. Moreover, residential segregation driven by discrimination may restrict immigrants' access to employment opportunities and local public services such as good schools (Burgess et al. 2005).

2.3. Immigration from Guest Worker Countries

As our empirical analysis uses data on immigrants from former guest worker countries, this section provides some background information on guest worker immigration to West Germany. During the latter half of the 1950s the West German government started actively recruiting so-called foreign guest workers in response to a labor shortage prompted by very high economic growth rates. The most important guest worker countries were Italy, Greece, Spain, Turkey and Yugoslavia. The recruitment of guest workers initiated one of the largest immigration waves to Germany. While in 1960 only 1.3 percent of the active labor force in West Germany was foreign-born, in 1973 this number increased to nearly 12 percent). The guest workers were supposed to stay temporarily in Germany. But it turned out that many of them brought other family members to Germany or started a family, and stayed for the rest of their lives. In 1973 the government stopped the recruitment of further guest workers as Germany entered a period of economic recession. In the subsequent years,

the inflow of immigrants from the former guest worker countries consisted mainly of family members of those guest workers who remained in Germany (family reunification).

2.4. Data, Variables and Methodology

Our empirical analysis uses data from the SOEP (Wagner et al. 2007). The SOEP is a large representative longitudinal survey of private households in Germany. The survey is administered by the German Economic Institute (DIW Berlin). Infratest Sozialforschung, a professional survey and opinion institute, conducts the interviews. Based on face-to-face interviews, a nucleus of socio-economic and demographic questions is asked annually. Different 'special' topics are sampled in specific waves. The first wave of interviews started in 1984 with the collection of data in the former West Germany. Most interestingly in our context, immigrants are oversampled in the SOEP. The initial cohort of foreigners in the sample included only households with a household head from the former guest worker countries Italy, Greece, Spain, Turkey, and Yugoslavia. In 1994/95, a sample of immigrants who came to Germany after 1984 was added. Only since then foreign households from countries other than the former guest worker countries are included in the SOEP.

In our empirical analysis, we use the 1986 and the 1994 wave of the SOEP as these waves contain information on both the ethnic composition of the neighborhood and the respondent's neighborhood satisfaction. The analysis is based on the answers of the heads of household. Using panel data for the years 1986 and 1994 implies that we focus on immigrants from the former guest worker countries. Specifically, we consider immigrants from Italy, Greece, Spain and Turkey. Immigrants from the former Yugoslavia are excluded from the analysis because of Yugoslavia's diverse ethnic and religious groups.

Table 2.1 provides definitions of the variables and descriptive statistics. The dependent variable is an ordered variable indicating the respondent's satisfaction with the neighborhood.[11] It ranges from 0 low to 10 high. The key explanatory variables are constructed using two pieces of ordered information. First, interviewees are asked if foreigners live in their neighborhood. Second, those who live in residential areas with foreign neighbors are asked if they share the same country of origin with their foreign neighbors. Combining the two pieces of information yields a classification of five different types of residential areas. The first type is a residential area where most or all of the neighbors are foreigners and most or all of them are from the same country of origin as the respondent. 11 percent of respondents live in such a neighborhood. The second type is a residential area where most or all of the neighbors are foreigners and most or all of them are from other countries of origin as the respondent. 36 percent of respondents live in this type of neighborhood. Considering the two types of residential areas together, 47 percent of immigrants in our sample live in a highly segregated neighborhood.[12] The third and the fourth type are residential areas with some foreign neighbors. In the third type of residential area, most or all of the foreign neighbors are from the same country of origin as the respondent. In the fourth type of residential area, most or all of the foreign neighbors are from other countries of origin as the respondent. The fifth type is the reference category. In this type of residential area, all of the neighbors are German.

[11] The wording of the question in the SOEP questionnaire is "How happy are you with your residential area? Please answer using the following scale, in which 0 means totally unhappy and 10 means totally happy".

[12] While not directly comparable with our data, it may be interesting to provide some information from official German statistics. In the year 1996, the share of foreigners in the neighborhood of an immigrant was on average 33 percent (Janßen and Schroedter 2007). The share of foreigners in the neighborhood of a German was on average only 5 percent. These numbers underline that also official statistics indicate a high degree of ethnic residential segregation. Furthermore, note that measured segregation is typically higher when considering a disaggregated regional level such as the residential area (Cowgill and Cowgill 1951).

Table 2.1: Variable Definitions and Descriptive Statistics (N = 1515)

Variable	Definition (Mean, Std. Dev.)
Neighborhood satisfaction	Satisfaction with neighborhood coded from 0 lowest to 10 highest (7.061, 2.158).
Housing satisfaction	Satisfaction with dwelling coded from 0 lowest to 10 highest (6.496, 2.583).
Foreigners	Dummy = 1 if other foreigners live in the immigrant's neighborhood (.8568, .3504).
Some foreigners	Dummy = 1 if some neighbors are foreigners (.3875, .4873).
High share of foreigners	Dummy = 1 if most or all neighbors are foreigners (.4693, .4992).
High share of foreigners & same country of origin	Dummy = 1 if most or all neighbors are foreigners and most or all of them are from the same country of origin as the immigrant (.1069, .3091).
High share of foreigners & other countries of origin	Dummy = 1 if most or all neighbors are foreigners and most or all of them are from other countries of origin as the immigrant (.3624, .4808).
Some foreigners & same country of origin	Dummy = 1 if some neighbors are foreigners and most or all of them are from the same country of origin as the immigrant (.0548, .2276).
Some foreigners & other countries of origin	Dummy = 1 if some neighbors are foreigners and most or all of them are from other countries of origin as the immigrant (.3327, .4713).
Year of construction 1949-1971	Dummy = 1 if the property was constructed between 1949 and 1971 (.3690, .4827).
Year of construction 1972-1980	Dummy = 1 if the property was constructed between 1972 and 1980 (.1201, .3252).
Year of construction 1981-1990	Dummy = 1 if the property was constructed between 1981 and 1990 (.0205, .1416).
Intermediate education	Dummy = 1 if a completed apprenticeship training is the immigrant's highest educational attainment (.3201, .4667).
Tertiary education	Dummy = 1 if a university degree is the immigrant's highest educational attainment (.0383, .1919).
Greece	Dummy = 1 if the immigrant is from Greece (.1960, .3971).
Italy	Dummy = 1 if the immigrant is from Italy (.2554, .4363).
Turkey	Dummy = 1 if the immigrant is from Turkey (.4238, .4943).
Female	Dummy = 1 if the immigrant is a woman (.2845, .4513).
Blue-collar worker	Dummy = 1 if the immigrant is a blue-collar worker (.6033, .4894).
White-collar worker	Dummy = 1 if the immigrant is a white-collar worker (.0561, .2302).
Self-employed	Dummy = 1 if the immigrant is self-employed (.0317, .1752).
Wave 1994	Dummy = 1 if the observation is from the year 1994 (.5815, .4935).
Equivalence income/100	Real equivalence net income of the household in Euro. Household income is divided by the weighted sum of individuals living in the household (10.55, 4.350).
Size of dwelling	Dwelling area in square meter divided by the number of people living in household (23.05, 12.99).
Urban area	Dummy = 1 if the immigrant lives in an urban area (.1439, .3511).
Federal state dummies	Dummy variables to account for the eleven federal states in West Germany.

As emphasized, if housing discrimination plays the dominant role in immigrant residential segregation, specifically the two types of highly segregated neighborhoods should be negatively associated with immigrants' neighborhood satisfaction. By contrast, if self-segregation plays the dominant role, there should be a positive relationship between segregation and neighborhood satisfaction.[13] This should specifically hold true for residential areas where foreign neighbors are from the same country of origin as the respondent. Respondents living in these areas can share the same language and culture with their neighbors.

In our initial specification, we control for gender, education, and country of origin to take into account that demographic characteristics of the respondent may influence the perception of the neighborhood. Furthermore, we include a dummy variable for living in an urban area. Immigrants are often concentrated in inner-city neighborhoods (Waldorf 1990). Hence, controlling for urban areas helps disentangling the effects of segregated neighborhoods from the effects of urban neighborhoods. Variables for federal states are also included to account for regional influences.

We expand the specification by including the equivalence income of the household. Households with higher levels of income can afford to live in desirable neighborhoods. Hence, there

[13] A further possibility might be that immigrants also sort into segregated areas because they experience harassment and outright hostility in native-dominated neighborhoods. Taking this possibility into account does not change our interpretation of a negative link between segregation and neighborhood satisfaction. A negative link indicates that immigrants prefer to live in native-dominated areas but not in segregated areas. From the immigrants' viewpoint, the advantages of living in a native-dominated area outweigh possible disadvantages such as discriminatory treatment by prejudiced native neighbors or having reduced access to information networks and ethnic goods. Hence, the negative link still indicates that discriminatory restrictions of immigrant location choices are the dominating force of residential segregation. However, the interpretation of a positive link between segregation and neighborhood satisfaction would be more ambiguous. A positive link could mean that immigrants prefer to live in segregated areas because these areas provide access to information networks or ethnic goods. But it could also mean that immigrants prefer to live in those areas in order to shield themselves from harassment and discrimination. A recent study by Dill and Jirjahn (2014) provides no evidence that protection from harassment is the driving force of segregation. If protection from harassment and discrimination would be the driving force of residential segregation, immigrants living in segregated areas should be less likely to report discrimination than immigrants living in native-dominated areas. Dill and Jirjahn's estimates do not indicate that this holds true for Germany. Quite the contrary, they provide robust evidence that immigrants living in segregated areas are more likely to report discrimination.

should be a positive association between income and neighborhood satisfaction (Galster and Hesser 1981, Hipp 2009). Variables are also included for blue-collar and white-collar employees, as well as for self-employed individuals. The reference group consists of individuals who are not employed. Moreover, we account for size of dwelling, year of construction, and the respondent's general satisfaction with the dwelling. Immigrants may be concentrated in residential areas with poor quality housing. As housing satisfaction can influence neighborhood satisfaction (Parkes et al. 2002), it is important to control for the quality of dwelling in order to check whether or not a possible relationship between segregation and neighborhood satisfaction is driven by the quality of the dwelling.

In a final step, we use the panel structure of our data and run a fixed effects regression. Pooled cross-sectional regressions yield unbiased estimates of neighborhood effects if immigrants in our sample are randomly assigned to neighborhoods. Such random assignment can be imagined for both self-segregation and discrimination. In case of self-segregation, each immigrant has an exogenous probability (less than 1) of finding vacant housing in a segregated neighborhood. He or she fails to find vacant housing in such a neighborhood with the complementary probability. In case of discrimination in the housing market, each immigrant is subject to discrimination with some exogenous probability (less than 1). The immigrant can avoid housing discrimination with the complementary probability. However, if there are unobserved factors influencing both the place of residence and the satisfaction with the neighborhood, cross-sectional estimates yield biased estimates of the neighborhood effects. The fixed effects model takes into account such unobserved influences.

2.5. Empirical Analysis

Table 2.2 provides the initial ordered probit estimations on the determinants of neighborhood satisfaction.[14] All of the specifications shown in the table include a set of basic individual controls as well as controls for urban areas and federal states. Living in an urban area is negatively associated with neighborhood satisfaction. Compared to the reference group of Spanish immigrants, persons from Turkey and Italy tend to be less happy with the neighborhood they live in.

Table 2.2: Determinants of Neighborhood Satisfaction; Initial Estimates

	(2.2.1)	**(2.2.2)**	**(2.2.3)**
Foreigners	-0.368 (4.59)***	---	---
High share of foreigners	---	-0.526 (6.05)***	---
Some foreigners	---	-0.204 (2.40)**	---
High share of foreigners & same country of origin	---	---	-0.560 (4.79)***
High share of foreigners & other countries of origin	---	---	-0.514 (5.76)***
Some foreigners & same country of origin	---	---	-0.011 (0.07)
Some foreigners & other countries of origin	---	---	-0.233 (2.71)***
Female	-0.085 (1.30)	-0.078 (1.20)	-0.081 (1.25)
Intermediate education	-0.062 (1.08)	-0.071 (1.25)	-0.068 (1.18)
Tertiary education	-0.075 (0.51)	-0.091 (0.61)	-0.094 (0.63)
Turkey	-0.253 (2.83)***	-0.207 (2.31)**	-0.219 (2.43)**
Italy	-0.225 (2.32)**	-0.223 (2.30)**	-0.226 (2.33)**
Greece	-0.133 (1.33)	-0.109 (1.08)	-0.110 (1.09)
Urban area	-0.425 (5.49)***	-0.394 (5.06)***	-0.392 (5.00)***
Wave 1994	-0.050 (0.82)	-0.060 (0.98)	-0.056 (0.91)
Federal state dummies	Yes	Yes	Yes
Number of observations	1515	1515	1515
Log likelihood	-3075.614	-3060.442	-3058.688

Method: Ordered probit. The table shows the estimated coefficients. Z-statistics are in parentheses. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level.

[14] The ordered probit model takes into account that our dependent variable is an ordinal variable with more than two outcomes. Details on the ordered probit model can be found in Greene (2008: pp. 831–835).

In specification (2.2.1), we include a simple dummy variable indicating whether or not other foreigners live in the immigrant's neighborhood. The regression shows that immigrants living in residential areas with other foreigners are less satisfied than immigrants living in areas with solely native neighbors.

In specification (2.2.2), we distinguish between residential areas where most or all of the neighbors are foreigners and residential areas where some of the neighbors are foreigners. Both types of residential areas are negative covariates of neighborhood satisfaction with the highly segregated area having the strongest negative effect on satisfaction.

In specification (2.2.3), we additionally take into account whether or not the immigrant shares the same country of origin with most of his or her foreign neighbors. The regression confirms that living in a highly segregated residential area with predominantly foreign neighbors has a strong negative influence on the immigrant's neighborhood satisfaction. This applies to both highly segregated areas where most of the foreign neighbors are from the same country of origin as the immigrant and highly segregated areas where most of the foreign neighbors are from other countries of origin. These findings conform to the hypothesis that discrimination rather than self-selection plays an important role in immigrant residential segregation. If self-segregation would be the driving force, we should find that specifically segregated areas with neighbors from the same country of origin should be associated with higher neighborhood satisfaction. These residential areas might be attractive as immigrants can share the same language and culture with their neighbors. Yet, even segregated areas with immigrants from the same country of origin are associated with lower neighborhood satisfaction. Furthermore, the regression suggests that also residential areas with some foreign neighbors who are mostly from other countries of origin play a role in neighborhood satisfaction. We will return to this result when discussing the results of the expanded specification.

Table 2.3 provides the estimation results with the expanded set of control variables. Specification (2.3.1) adds variables for the equivalence income of the household and the employment status of the immigrant. While the variables for employment status do not take significant coefficients, household income emerges with a (weakly) significant and positive coefficient. Most importantly, including the additional controls has little influence on the estimates for our key explanatory variables.

In specification (2.3.2), we additionally include variables for the size of dwelling and the year of construction. While the coefficients on household income and Turkish immigrants lose statistical significance, all of the additional variables take significant coefficients. The size of dwelling and living in a more recently constructed property are positively associated with neighborhood satisfaction. This indicates that neighborhood satisfaction partially reflects satisfaction with the quality of the dwelling. To examine this issue in more detail, specification (2.3.3) adds a variable for the immigrant's housing satisfaction. The estimation confirms that housing satisfaction is a highly significant covariate of neighborhood satisfaction. Including this variable renders the coefficients on size of dwelling and year of construction insignificant. This suggests that housing satisfaction is a very comprehensive indicator of the quality of dwelling which also captures the size of dwelling and year of construction. The inclusion of this indicator also renders the coefficient on living in an area with some foreign neighbors insignificant. Most importantly in our context, the two variables for highly segregated residential areas remain significantly negative determinants of immigrants' neighborhood satisfaction even though the absolute size of the coefficients has decreased to some extent. Altogether, the negative association between residential segregation and neighborhood satisfaction is not simply due to poor quality of dwelling in segregated areas or due to low income of immigrants who cannot afford the desired neighborhood.

Table 2.3: Determinants of Neighborhood Satisfaction; Expanded Specifications

	(2.3.1)	(2.3.2)	(2.3.3)
High share of foreigners & same country of origin	-0.542 (4.65)***	-0.473 (4.02)***	-0.260 (2.18)**
High share of foreigners & other countries of origin	-0.501 (5.60)***	-0.447 (4.92)***	-0.292 (3.22)***
Some foreigners & same country of origin	-0.003 (0.02)	0.044 (0.30)	0.131 (0.90)
Some foreigners & other countries of origin	-0.232 (2.70)***	-0.199 (2.28)**	-0.034 (0.39)
Female	-0.053 (0.78)	-0.055 (0.81)	-0.034 (0.52)
Intermediate education	-0.062 (1.06)	-0.063 (1.09)	-0.065 (1.09)
Tertiary education	-0.070 (0.46)	-0.096 (0.63)	-0.034 (0.23)
Turkey	-0.183 (1.99)**	-0.155 (1.64)	-0.024 (0.25)
Italy	-0.204 (2.08)**	-0.201 (2.04)**	-0.184 (1.88)*
Greece	-0.096 (0.95)	-0.048 (0.47)	-0.026 (0.25)
Urban area	-0.386 (4.91)***	-0.356 (4.43)***	-0.300 (3.59)***
Equivalence income/100	0.012 (1.83)*	0.008 (1.13)	0.000 (0.04)
Blue-collar worker	0.075 (1.14)	0.080 (1.20)	0.079 (1.20)
White-collar worker	-0.089 (0.67)	-0.130 (0.96)	-0.072 (0.54)
Self-employed	0.112 (0.65)	0.078 (0.46)	0.076 (0.44)
Size of dwelling	---	0.005 (2.51)**	-0.001 (0.41)
Year of construction 1949-1971	---	0.156 (2.55)**	0.007 (0.11)
Year of construction 1972-1980	---	0.186 (2.12)**	-0.016 (0.19)
Year of construction 1981-1990	---	0.340 (1.83)*	0.175 (0.88)
Housing satisfaction	---	---	0.234 (14.32)***
Wave 1994	-0.052 (0.82)	-0.072 (1.13)	-0.084 (1.32)
Federal state dummies	Yes	Yes	Yes
Number of observations	1515	1515	1515
Log likelihood	-3055.011	-3047.316	-2847.320

Method: Ordered probit. The table shows the estimated coefficients. Z-statistics are in parentheses.
*** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level.

Finally, we run a fixed effects model to account for unobserved time-invariant influences which might be correlated with both living in a segregated area and neighborhood satisfaction. To avoid the potential inconsistency of nonlinear fixed effects approaches we apply the classical linear

fixed effects model. This implies that neighborhood satisfaction is treated as a continuous variable. Thus, we first check if treating neighborhood satisfaction as a continuous variable substantially changes the estimates. Specification (2.3.3) of Table 2.3 is estimated by using OLS. The results are shown in column (2.4.1) of Table 2.4. Comparing the estimates in (2.4.1) with those in (2.3.3) shows that OLS and the ordered probit model yield qualitatively very similar results.

Next, time-invariant variables are removed from the analysis as time-demeaning the data in the fixed effects model does not allow including such variables. Furthermore we focus on a balanced panel as we have only two waves of observations and persons for whom we have only a single time period play no role in a fixed effects analysis. Column (2.4.2) provides OLS estimates for comparative purposes while the fixed effects estimates are shown in column (2.4.3). The negative relationship between living in a highly segregated residential area and neighborhood satisfaction also holds true when taking unobserved fixed effects into account. This applies to both segregated areas where most of the foreign neighbors are from the same country of origin as the immigrant and segregated areas where most of the foreign neighbors are from other countries. The absolute size of the negative coefficients is even higher in the fixed effects regression than in the OLS estimation. Neighborhood satisfaction decreases by approximately 1 point when the immigrant lives in a highly segregated area where most of the foreign neighbors are from the same country of origin. For an immigrant who would otherwise have the average satisfaction level of 7 this implies a 14 percent decrease in neighborhood satisfaction. Satisfaction with the neighborhood decreases by 0.76 point for an immigrant living in a highly segregated area where most of the foreign neighbors are from other countries of origin. Compared to the average satisfaction level, this implies an 11 percent decrease in neighborhood satisfaction.

Table 2.4: Determinants of Neighborhood Satisfaction; OLS and Fixed Effects Estimates

	(2.4.1) OLS Unbalanced Panel	(2.4.2) OLS Balanced Panel	(2.4.3) Fixed Effects Balanced Panel
High share of foreigners & same country of origin	-0.425 (2.10)**	-0.506 (1.71)*	-1.063 (2.11)**
High share of foreigners & other countries of origin	-0.450 (2.95)***	-0.553 (2.55)**	-0.764 (2.05)**
Some foreigners & same country of origin	0.195 (0.81)	-0.188 (0.56)	-0.775 (1.68)*
Some foreigners & other countries of origin	0.048 (0.33)	0.055 (0.26)	0.104 (0.36)
Female	-0.059 (0.50)	---	---
Intermediate education	-0.100 (0.94)	---	---
Tertiary education	-0.094 (0.36)	---	---
Turkey	0.001 (0.01)	---	---
Italy	-0.337 (2.03)**	---	---
Greece	-0.052 (0.30)	---	---
Urban area	-0.558 (3.64)***	-0.263 (0.95)	0.041 (0.10)
Equivalence income/100	0.006 (0.52)	0.019 (0.96)	-0.012 (0.38)
Blue-collar worker	0.123 (1.05)	0.228 (1.16)	0.381 (1.29)
White-collar worker	-0.110 (0.46)	0.260 (0.81)	-0.135 (0.27)
Self-employed	0.079 (0.26)	-0.434 (1.00)	-0.502 (0.75)
Housing satisfaction	0.414 (16.19)***	0.413 (9.21)***	0.377 (6.24)***
Size of dwelling	-0.002 (0.60)	-0.002 (0.42)	0.004 (0.36)
Year of construction 1949-1971	-0.032 (0.30)	-0.031 (0.20)	-0.261 (0.75)
Year of construction 1972-1980	-0.041 (0.28)	-0.093 (0.44)	0.475 (0.87)
Year of construction 1981-1990	0.244 (0.76)	0.219 (0.47)	0.399 (0.28)
Wave 1994	-0.143 (1.28)	-0.215 (1.30)	-0.206 (1.20)
Constant	4.685 (12.93)***	4.510 (10.58)***	4.972 (8.05)***
Federal state dummies	Yes	No	No
Number of observations	1515	576	576
Number of persons	1227	288	288
R-squared	0.308	0.293	0.227

The table shows the estimated coefficients. T-statistics are in parentheses. Standard errors are clustered at the individual level. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level.

Altogether, the estimates show a robust negative relationship between residential segregation and neighborhood satisfaction which is not only statistically but also quantitatively significant.[15]

2.6. Conclusions

While immigrant residential segregation plays an important role in the policy debate in many developed countries, its causes remain a matter of controversy. On the one hand, self-selection may drive immigrant residential segregation. On the other hand, segregation may be due to discrimination in the housing market. It is an open question whether self-selection or discrimination is the dominating factor. We address this question by examining the association between residential segregation and immigrants' satisfaction with the neighborhood in West Germany. Using data from the SOEP, we find that immigrants living in segregated residential areas report lower neighborhood satisfaction. This finding holds true even when controlling for other factors such as household income or quality of the dwelling. It also holds true in fixed effects estimates that control for unobserved time-invariant influences.

Our result is consistent with the hypothesis that discrimination rather than self-selection plays an important role in immigrant residential segregation. This fits studies which indicate that there are serious xenophobic tendencies in the German society (Cornelissen and Jirjahn 2012, Gang and Rivera-Batiz 1994, Krueger and Pischke 1997). Such tendencies may result in a vicious circle. Negative attitudes toward immigrants result in housing discrimination and, hence, ethnic residential segregation. This hampers immigrants' assimilation. The lack of immigrant assimilation in turn may reinforce negative attitudes toward immigrants. Examining in more detail this vicious circle stands as important future research.

[15] We also performed separate estimates by country of origin. These estimates suggest that the negative link between segregation and neighborhood satisfaction is particularly strong for immigrants from Turkey. However, we view the separate estimates as an explorative step because they imply substantially smaller sample sizes for each regression.

3. Ethnic Residential Segregation and Immigrants' Perceptions of Discrimination in West Germany**

Abstract: Using survey data from the German Socio-Economic Panel, this study shows that immigrants living in segregated residential areas are more likely to report discrimination because of their ethnic background. This applies to both segregated areas where most neighbours are immigrants from the same country of origin as the surveyed person and segregated areas where most neighbours are immigrants from other countries of origin. The results suggest that housing discrimination rather than self-selection plays an important role in immigrant residential segregation.

JEL: J15, J61, R23, R30.

Keywords: Segregation, Immigrants, Housing Discrimination, Self-Selection

** This chapter is joint work with Uwe Jirjahn.

3.1. Introduction

Immigrant residential segregation has been a long-standing concern in many developed countries. This also holds true for Germany where concerns about the lack of immigrant integration and fears of "parallel societies" play an important role. In the policy debate, it is widely assumed that immigrants prefer to live in segregated residential areas (Münch 2009). This view accords with theories suggesting that immigrants sort themselves into ethnic enclaves as those enclaves enable the consumption of ethnic goods and reduce the need to assimilate to the host country. Yet, it is an open question whether or not self-selection is indeed the main driving force of immigrant residential segregation. A contrasting view is that discrimination plays an important role. This view emphasizes that immigrants live in segregated neighborhoods not because they prefer to live there but because natives restrict immigrant location choices to specific areas.

Using survey data from the German Socio-Economic Panel (SOEP), this study examines the association between residential segregation and immigrants' perceptions of ethnic discrimination. Our estimates for West Germany show that immigrants living in segregated residential areas are more likely to report discrimination because of their ethnic background. This indicates that discriminatory treatment is indeed an important factor driving ethnic residential segregation. The positive link between segregation and perceived discrimination applies to both segregated areas where most neighbors are immigrants from the same country of origin as the surveyed person and segregated areas where most neighbors are immigrants from other countries of origin. Particularly, the positive link between the first type of segregated area and perceived discrimination corroborates the interpretation that housing discrimination rather than self-selection plays an important role in immigrant residential segregation. If self-selection would be the driving force behind immigrant segregation, areas with neighbors from the same country of origin should be specifically attractive

as immigrants can share the same culture and language. Yet, even immigrants living in these areas are more likely to report discrimination.

Our key results hold true even when controlling for a series of other potential influences such as household income, rent payment, and quality of the dwelling. They are robust to different specifications of the regression equation. The results also hold true when using an approach by Hausman et al. (1998) in order to account for potential misclassification errors in our dependent variable. Our results could be biased if perceived discrimination only weakly overlaps with actual discrimination. The estimation method by Hausman et al. provides no indication that our findings are driven by misclassification errors. Finally, our key results also hold true in an exploratory instrumental variable estimation that accounts for the potential endogeneity of ethnic residential segregation due to omitted variables bias or reverse causation.

The rest of the paper is organized as follows. Section 3.2 provides the background discussion. Section 3.3 describes data and variables. Section 3.4 presents the results. Section 3.5 concludes.

3.2. Background Discussion

There are several potential reasons for a self-sorting of immigrants. Immigrants may sort themselves into segregated areas if those areas provide informal information networks on job opportunities and, hence, improve immigrants' labor market outcomes (Damm 2009). Moreover, immigrants may prefer to live in segregated areas as these areas allow producing and consuming ethnic goods (Chiswick and Miller 2005). Ethnic goods are specifically related to the immigrants' culture and country of origin. If there are fixed cost and economies of scale in the production and distribu-

tion of such goods, the costs of ethnic goods are lower in areas with a large community of immigrants sharing the same culture. Furthermore, to the extent immigrants in the neighborhood share the same language, the need to assimilate to the host country is reduced (Lazear 1999).

A contrasting view is that discrimination rather than self-sorting is the driving force of ethnic residential segregation. Building on theories of statistical and preference-based discrimination (Aigner and Cain 1977, Becker 1957), several approaches have been developed to explain discrimination in the housing market (Galster 1992, Yinger 1998). Landlords may restrict immigrant location choices to specific areas if they are prejudiced against immigrants or their experience indicates that immigrants are on average tenants with unstable rent payments and less diligence in maintaining the dwelling in appropriate condition. Further, landlords may tend to exclude immigrants from native-dominated neighborhoods if native tenants are prejudiced and the introduction of foreign neighbors reduces native tenants' willingness to pay high rents. Moreover, some native tenants may even show outright hostility against foreign neighbors so that immigrants are squeezed out of native-dominated areas.

To the extent discrimination forces immigrants into segregated areas, they cannot choose the neighborhood with the ethnic composition they prefer. This can result in social exclusion and isolation. Vervoort (2011) provides Dutch evidence that immigrant residential segregation decreases the chance that immigrants receive advice and support from natives. Such social exclusion may hamper assimilation to the host country even if immigrants are willing to assimilate. Moreover, residential segregation driven by discrimination may restrict immigrants' access to employment opportunities and local public services such as good schools (Burgess et al. 2005).

A series of empirical examinations provides evidence of discrimination in the housing market with a large body of the evidence coming from audit studies in the U.S. (Ondrich et al. 1999, Page 1995, Riach and Rich 2002, Yinger 1999). Testers from two different groups are matched and

trained so that they make equivalent enquiries when speaking to prospective landlords. Those studies typically find that ethnic minority groups are shown and offered fewer housing units. Moreover, recent field studies use written applications (Ahmed and Hammarstedt 2008 and Ahmed et al. 2010 for Sweden, Bosch et al. 2010 for Spain, Carpursor and Loges 2006 for the U.S., Planerladen 2009 for Germany). Researchers create fictitious persons with distinctive sounding ethnic names. These persons apply for vacant rental apartments via the Internet. The results of these studies point in the same direction: Persons with foreign sounding names receive substantially fewer call backs, enquiries and showings than persons with native sounding names.

While there is a substantial body of research on discrimination in the housing market, studies examining the link between discrimination and immigrant residential segregation are sparse. Bosch et al. (2011) provide a field study for Spain. They find that persons with foreign sounding names face a much more severe disadvantage in receiving call backs when they apply for vacant rental apartments in areas with a low share of immigrants. There appears to be no differential treatment of applicants with native and foreign sounding names if the share of immigrants in an area is 50 percent or more. Bosch et al. conclude that discrimination in the housing market contributes to perpetuate immigrant residential segregation.[16]

Using German survey data, Dill et al. (2014) examine the link between residential segregation and immigrants' satisfaction with the neighborhood. They find that immigrants living in segregated areas express lower satisfaction with the neighborhood than immigrants not living in such areas. This result does not support the notion that immigrants view segregated areas as desirable and, hence, prefer to live there. It is rather in line with the notion that discrimination forces immigrants into less desirable segregated areas.

[16] For the U.S., there are also some studies relating results of audit studies and proxies for racial attitudes to the residential segregation of African Americans (Galster 1986, 1987, Galster and Keeney 1988). Those studies also suggest that ethnic discrimination is positively associated with residential segregation.

Our study complements Dill et al.'s analysis by using a direct measure of discrimination. We examine the association between residential segregation and immigrants' perceptions of ethnic discrimination. If immigrants voluntarily sort themselves into ethnic enclaves, there should be no association between segregation and perceived discrimination. It is the immigrants' choice to live in these areas. Yet, if discrimination plays a crucial role in residential segregation, there should be a significant association. This association can be positive or negative.

On the one hand, immigrants may experience outright discrimination and hostility from prejudiced native neighbors if they live in native-dominated areas. As a consequence, they tend to settle in areas with other immigrants to escape "everyday" discrimination in their neighborhood. In this case, immigrants living in segregated areas should be less likely to report discrimination than immigrants living in neighborhoods with a high share of natives.[17]

On the other hand, discrimination by landlords rather than outright hostility by native neighbors may drive residential segregation. Natives may, to a greater or lesser extent, tolerate the immigrants living in their neighborhood. In this case, immigrants may prefer to live in native-dominated areas as these areas allow them to participate in the social and cultural life of the host country. Landlords may nonetheless exclude immigrants from native-dominated residential areas if the introduction of immigrants reduces the willingness of native tenants to pay high rents.[18] Moreover, landlords may restrict immigration location choices if they are themselves prejudiced. In this situation, immigrants who are forced to live in segregated areas should be more likely to report discrimination than those who are able to avoid such areas.

[17] Studies by Hunt et al. (2007) and Dailey et al. (2010) suggest that this holds true for African Americans in the US.

[18] Prejudiced natives may try avoiding areas with a high share of immigrant neighbors instead of showing outright hostility. Saiz and Wachter (2011) show that the growth of a neighborhood's immigrant share is associated with slower housing value appreciation. Card et al. (2008) provide evidence of a flight of whites once the minority share exceeds a critical level.

3.3. Data and Variables

3.3.1. The Data Set

Our empirical analysis uses data from the SOEP (Wagner et al. 1993). The SOEP is a large representative longitudinal survey of private households in Germany. The survey is administered by the German Economic Institute (DIW Berlin). Infratest Sozialforschung, a professional survey and opinion institute, conducts the interviews. Based on face-to-face interviews, a nucleus of socio-economic and demographic questions is asked annually. Different 'special' topics are sampled in specific waves. The first wave of interviews started in 1984 with the collection of data in the former West Germany. While the survey has been extended to East Germany after German reunification, the number of immigrants in the East German subsample is too small to allow a separate analysis. Hence, our examination is restricted to West Germany.

Immigrants are oversampled in the SOEP. The initial cohort of immigrants included persons from the former guest worker countries Italy, Greece, Spain, Turkey, and Yugoslavia. During the latter half of the 1950s the German government started actively recruiting guest workers in response to a labor shortage prompted by very high economic growth rates. In 1973 the government stopped the recruitment of further guest workers as Germany entered a period of economic recession. In the subsequent years, the inflow of immigrants from the former guest worker countries consisted mainly of family members of those guest workers who remained in Germany (family reunification). We focus on immigrants from Italy, Greece, Spain and Turkey.[19] Immigrants from

[19] Foreigners from Italy, Greece, Spain and Turkey account for a large share of foreigners in West Germany. In the year 1994, the share amounted to 45 percent. In 2012, it was 36 percent.

the former Yugoslavia are excluded from the analysis because of Yugoslavia's diverse ethnic and religious groups.[20]

The 1996 wave of the SOEP includes information on the immigrants' perceptions of discrimination. Information on the ethnic composition of the neighborhood is available in the 1994 wave. Hence, we regress perceived discrimination in 1996 on factors observed in 1994.[21] Immigrants who changed their place of residence in the period 1994 to 1996 are excluded from the analysis. Our analysis focuses on rental housing.

3.3.2. Key Variables

Table 3.1 provides definitions of the variables and descriptive statistics. The dependent variable is a dummy equal to 1 if the immigrant answers that he or she is very often discriminated against because of his or her ethnic background. The dummy is equal to 0 if the immigrant answers that he or she is never or only sometimes discriminated against. 13 percent of the interviewees answer that they are very often discriminated against.

The key explanatory variables are constructed using two pieces of ordered information. First, interviewees are asked if foreigners live in their neighborhood. Second, those who live in residential areas with foreign neighbors are asked if they share the same country of origin with their foreign neighbors. Combining the two pieces of information yields a classification of five different types of residential areas. The first type is a residential area where most or all of the

[20] In what follows, we will distinguish whether or not foreign neighbors in a residential area are from the same country of origin as the surveyed person. This helps examine the roles of self-selection and discrimination in more detail. However, the distinction is only sensible if immigrants from the same country of origin share, to some extent, the same culture. The severe ethnic tensions, the Yugoslav wars and the subsequent breakdown of Yugoslavia cast doubt that immigrants from the former Yugoslavia meet this condition.

[21] While our data are from the 1990s, Glitz (2012) shows that ethnic residential segregation is still pervasive in recent times.

neighbors are foreigners and most or all of them are from the same country of origin as the respondent. 8 percent of respondents live in such a neighborhood. The second type is a residential area where most or all of the neighbors are foreigners and most or all of them are from other countries of origin as the respondent. 40 percent of respondents live in this type of neighborhood. Considering the two types of residential areas together, 48 percent of immigrants in our sample live in a highly segregated neighborhood. The third and the fourth type are residential areas with some foreign neighbors. In the third type of residential area, most or all of the foreign neighbors are from the same country of origin as the respondent. In the fourth type of residential area, most or all of the foreign neighbors are from other countries of origin as the respondent. The fifth type is the reference category. In this type of residential area, all of the neighbors are Germans.

As emphasized, if self-selection plays the dominant role in immigrant residential segregation, there should be no significant link between living in a segregated residential area and perceived discrimination. It is the immigrant's choice to live in such area. By contrast, if discrimination is the driving force of segregation, we should observe a significant association between living in a segregated area and perceived discrimination. The sign of the association depends on the type of discrimination. On the one hand, outright hostility by native neighbors in native dominated areas may force immigrants to settle in areas with other immigrants to escape "everyday" discrimination. In this case, immigrants living in segregated areas should be less likely to report discrimination than those living in native dominated areas. On the other hand, discrimination by landlords rather than outright hostility by native neighbors may play an important role in residential segregation. If natives, to a greater or lesser extent, tolerate foreign neighbors, immigrants may prefer to live in native-dominated areas as this allows them to integrate into the host country. Yet, landlords may restrict immigrant location choices if they are themselves prejudiced or suspect that the introduction of immigrants reduces the willingness of prejudiced native tenants to pay high rents. In that

case, immigrants who are forced to live in a segregated residential area should be more likely to report discrimination than those who are able to find housing in a native-dominated area.[22]

Table 3.1: Variable Definitions and Descriptive Statistics

Variable	Definition	Mean, Std. dev.
Perceived ethnic discrimination	Dummy = 1 if the person feels very often discriminated against because of his or her ethnic background.	0.126, 0.332
High share of foreigners & same country of origin	Dummy = 1 if most or all neighbors are foreigners and most or all of them are from the same country of origin as the immigrant.	0.078, 0.268
High share of foreigners & other countries of origin	Dummy = 1 if most or all neighbors are foreigners and most or all of them are from other countries of origin as the immigrant.	0.401, 0.490
Some foreigners & same country of origin	Dummy = 1 if some neighbors are foreigners and most or all of them are from the same country of origin as the immigrant.	0.056, 0.230
Some foreigners & other countries of origin	Dummy = 1 if some neighbors are foreigners and most or all of them are from other countries of origin as the immigrant.	0.355, 0.479
High share of foreigners	Dummy = 1 if most or all neighbors are foreigners.	0.479, 0.500
Share of foreigners at county level	Share of foreigners at the county level. Administrative data from official statistics are matched to 104 counties.	0.135, 0.049
Year of construction 1949-1971	Dummy = 1 if the property was constructed between 1949 and 1971.	0.410, 0.492
Year of construction 1972-1980	Dummy = 1 if the property was constructed between 1972 and 1980.	0.108, 0.310
Year of construction 1981-1990	Dummy = 1 if the property was constructed between 1981 and 1990.	0.034, 0.181
Education	Years of schooling ranging from 7 to 18 years.	9.07, 1.83
Greece	Dummy = 1 if the immigrant is from Greece.	0.176, 0.381
Italy	Dummy = 1 if the immigrant is from Italy.	0.218, 0.413
Turkey	Dummy = 1 if the immigrant is from Turkey.	0.525, 0.500
Female	Dummy = 1 if the immigrant is a woman.	0.458, 0.499
Equivalence income/100	Real equivalence net income of the household in Euro. The Household income is divided by the weighted sum of individuals living in the household.	7.39, 2.77
Size of dwelling	Dwelling area in square meter divided by the number of people living in household.	22.70, 11.67
Rent/100	Rent paid for the dwelling in Euro.	3.24, 1.56

[22] Note that finding housing is usually also a stochastic process. This holds true for both housing discrimination and self-segregation. In case of housing discrimination, an immigrant is subject to discrimination with some exogenous probability (less than 1). The immigrant can avoid housing discrimination with the complementary probability. In case of self-segregation, an immigrant has an exogenous probability (less than 1) of finding vacant housing in a preferred segregated neighborhood. He or she fails to find vacant housing in such a neighborhood with the complementary probability.

Urban area	Dummy = 1 if the immigrant lives in an urban area.	0.141, 0.349
Availability of goods and services in neighborhood	Satisfaction with the availability of goods and services in the neighborhood coded from 0 lowest to 10 highest.	7.224, 2.057
Environmental conditions	Satisfaction with the environmental conditions in the neighborhood coded from 0 lowest to 10 highest.	6.545, 1.967
Contacts with neighbors	Ordered variable for the immigrant's contacts with neighbors coded from 1 "almost no contact" to 5 "very close".	2.966, 0.851
Children	Dummy = 1 if children live in the household.	0.546, 0.498
Years since immigration	Years since the person immigrated to Germany.	20.92, 7.384
Immigration after 1973	Dummy = 1 if the person immigrated to Germany after 1973.	0.467, 0.499
Federal state dummies	Dummy variables to account for the eleven federal states in West Germany.	---

N = 771. For the share of foreigners at county level the number of observations is equal to 731.

Table 3.2 provides a first indication that discrimination indeed plays a role in immigrant residential segregation. It shows the share of immigrants reporting discrimination for each of the five residential areas. The share of immigrants reporting discrimination is highest among those living in highly segregated residential areas. At issue is whether this pattern of results remains in the face of controls.

Table 3.2: Relative Frequency of Perceived Ethnic Discrimination by Residential Area

Residential area	Share of immigrants with perceived ethnic discrimination
High share of foreigners & same country of origin	0.233
High share of foreigners & other countries of origin	0.155
Some foreigners & same country of origin	0.139
Some foreigners & other countries of origin	0.088
No foreigners in the neighborhood	0.059

3.3.3. Control Variables

The survey provides a rich set of control variables. In our initial specification, we control for federal states and demographic characteristics of the interviewee. The immigrant's education may play a role in perceived discrimination. On the one hand, negative attitudes toward foreigners are more

prevalent among low-educated Germans (Cornelissen and Jirjahn 2012, Gang and Rivera-Batiz 1994). To the extent higher-educated immigrants are less likely to interact with low-educated Germans, they face a lower risk of discrimination. On the other hand, higher-educated immigrants are likely to have higher expectations and requirements. Hence, they may tend to be more sensitive with respect to discrimination. Similarly, expectations may rise with the years the immigrant lives in Germany. The immigrant's income is also likely to play a role. Immigrants with a higher income have more financial opportunities to avoid discrimination. Furthermore, we account for gender, presence of children and country of origin.

We expand the specification by including variables for neighborhood characteristics. The expanded specification accounts for urban areas, contacts to neighbors, satisfaction with environmental conditions in the neighborhood, and satisfaction with the availability of goods and services in the neighborhood. This allows examining whether or not the ethnic composition of the neighborhood is just a proxy for other neighborhood characteristics (Swaroop and Krysan 2011).

In a final step, we include variables for housing characteristics. Immigrants may be concentrated in residential areas with poor quality housing. As housing satisfaction can influence perceived discrimination, it is important to control for the characteristics of the dwelling in order to check whether or not a possible link between segregation and perceived discrimination is driven by the quality of the dwelling. We account for size of dwelling, year of construction, and rent paid for the dwelling.

3.4. Empirical Analysis

3.4.1. Basic Results

Table 3.3 provides the estimates of the determinants of perceived discrimination. As the dependent variable is a dichotomous variable, we fit the determinants of perceived discrimination to a cumulative normal function using maximum likelihood probit estimation.[23] In regression (3.3.1), several of the variables for demographic characteristics emerge with statistically significant coefficients. Income is a negative covariate of the probability that an immigrant reports being discriminated against. Education, years since immigration and a Turkish origin are positive covariates.

Most importantly, the regression shows that immigrants living in highly segregated areas are more likely to report discrimination. The association between residential segregation and perceived discrimination applies to both highly segregated areas where most of the foreign neighbors are from the same country of origin as the immigrant and highly segregated areas where most of the foreign neighbors are from other countries of origin. The strength of the association is similar for both types of residential areas and a chi-square test cannot reject the null hypothesis of equal coefficients. The results conform to the hypothesis that discrimination plays an important role in ethnic residential segregation. Particularly the association between the first type of segregated area and perceived discrimination corroborates the interpretation that discrimination rather than self-selection is the driving force behind immigrant residential segregation. If self-selection would be the driving force, areas with neighbors from the same country of origin should be most attractive

[23] The logit model stands as an alternative to the probit model. However, both models only differ in their distributional assumptions. While the error term is assumed to have a standard normal distribution in the probit model, it is assumed to have a logistic distribution in the logit model. Both models usually yield similar results which only differ in the scale of the estimated coefficients. The coefficients obtained from the logit model are roughly a factor $(\pi/3)^{0.5}$ larger than the coefficients obtained from the probit model (Verbeek 2012: p. 215). To check the robustness of our results we also estimated the determinants of perceived discrimination using the logit procedure. This exercise confirmed the pattern of results presented in Table 3.3.

as immigrants can share the same culture and language. Immigrants who sort themselves into these areas would not report discrimination. Yet, even immigrants living in these areas have an increased probability of reporting discrimination.[24]

Table 3.3: Determinants of Perceived Ethnic Discrimination; Basic Estimates

	(3.3.1)	**(3.3.2)**	**(3.3.3)**
High share of foreigners & same country of origin	.5985 [.0891] (1.99)**	.6543 [.0952] (2.09)**	.8035 [.1009] (2.56)**
High share of foreigners & other countries of origin	.5199 [.0730] (2.06)**	.5304 [.0702] (2.05)**	.6759 [.0763] (2.57)**
Some foreigners & same country of origin	.4007 [.0513] (1.14)	.3965 [.0471] (1.07)	.5128 [.0501] (1.39)
Some foreigners & other countries of origin	.2740 [.0316] (1.04)	.2718 [.0291] (0.99)	.4243 [.0383] (1.56)
Female	-.1494 [-.0243] (1.09)	-.1360 [-.0210] (0.99)	-.1450 [-.0206] (1.04)
Education	.0577 [.0094] (1.70)*	.0531 [.0082] (1.54)	.0583 [.0083] (1.65)*
Years since immigration	.0180 [.0029] (1.71)*	.0170 [.0026] (1.61)	.0194 [.0028] (1.84)*
Equivalence income/100	-.0914 [-.0149] (3.22)***	-.0954 [-.0147] (3.26)***	-.1000 [-.0143] (3.28)***
Turkey	.6581 [.0765] (1.90)*	.6526 [.0717] (1.89)*	.6610 [.0574] (1.78)*
Italy	.2672 [.0218] (0.74)	.2377 [.0179] (0.65)	.3361 [.0211] (0.86)
Greece	.4341 [.0415] (1.21)	.4534 [.0417] (1.27)	.5349 [.0411] (1.39)
Children	.0796 [.0130] (0.59)	.0705 [.0109] (0.52)	-.0678 [-.0097] (0.41)
Urban area	---	-.3220 [-.0497] (1.72)*	-.2500 [-.0357] (1.35)
Availability of goods and services	---	-.0156 [-.0024] (0.50)	-.0262 [-.0037] (0.84)
Environmental conditions	---	-.0843 [-.0130] (2.31)**	-.0844 [-.0121] (2.25)**
Contacts with neighbors	---	-.1448 [-.0223] (2.02)**	-.1507 [-.0216] (1.97)**

[24] An alternative interpretation of this result might be that individuals with strong group identity prefer to reside with co-ethnics. Those individuals may be also more likely to make attributions to discrimination (Sellers and Shelton 2003). Yet, this interpretation implies that there should be a particularly strong association between perceived discrimination and a segregated area with neighbors from the same country of origin. This is not supported by our estimates. The strength of the association with perceived discrimination is similar for both segregated areas with foreign neighbors from the same country of origin and segregated areas with foreign neighbors from other countries of origin. As already mentioned, a chi-square test cannot reject the null hypothesis that the coefficients on the two types of segregated areas are equal. This casts doubt on the alternative interpretation.

Size of dwelling	---	---	-.0143 [-.0020] (1.83)*
Rent/100	---	---	-.0178 [-.0025] (0.32)
Year of construction 1949-1971	---	---	-.1611 [-.0215] (1.07)
Year of construction 1972-1980	---	---	-.0323 [-.0047] (0.13)
Year of construction 1981-1990	---	---	1.091 [.2981] (3.33)***
Constant	-2.566 (3.52)***	-1.402 (1.79)*	-1.144 (1.41)
Federal state dummies	Yes	Yes	Yes
Observations	771	771	771
Pseudo R^2	0.1295	0.1503	0.1783

Method: Probit. The table shows the estimated coefficients. Robust z-statistics are in parentheses and marginal effects are in square brackets. Marginal effects of dummy variables are evaluated for a discrete change from 0 to 1. Marginal effects of the dummies for neighborhood segregation (dummies for country of origin) are changes in probability compared to the reference group of persons living in a neighborhood without foreigners (reference group of people from Spain). Marginal effects of variables other than the dummy variables are evaluated at the mean values. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level.

In column (3.3.2), we expand the specification by including variables for other neighborhood characteristics. Three of the four neighborhood variables take statistically significant coefficients. Satisfaction with environmental conditions, living in an urban area, and contacts with neighbors are negative covariates of perceived discrimination. Nonetheless, even when including variables for other neighborhood characteristics, we still find that both types of highly segregated areas are positively associated with perceived discrimination. This suggests that the positive link between living in a segregated area and perceived discrimination is not simply due to other neighborhood characteristics such as environmental conditions. The concentration of foreigners itself appears to drive the link.

In column (3.3.3), we additionally include variables for the quality of dwelling. A small size of the dwelling and living in a recently constructed home are positively associated with perceived discrimination. Most importantly, even when accounting for the quality of dwelling, living in a segregated area is a positive covariate of perceived discrimination. This suggests that the link

between segregation and perceived discrimination is not simply driven by poor quality of dwellings in segregated areas.

While the coefficient on segregated areas with foreign neighbors from the same country of origin is now somewhat larger than the coefficient on segregated areas with foreign neighbors from other countries, a chi-squared test still cannot reject the null hypothesis of equal coefficients. Thus, also the regression with the full set of explanatory variables suggests that the strength of the association with perceived discrimination is similar for both types of segregated areas. The coefficients on the segregation variables are not only statistically but also quantitatively significant. The probability of perceived discrimination increases by 10 percentage points if an immigrant lives in a segregated area where most neighbors are from the same country of origin. It increases by 8 percentage points if the immigrant lives in a segregated area where most neighbors are from other countries of origin. Compared to the average of 6 percent in the reference group (all neighbors are German), these number imply more than a doubling in the probability of perceived discrimination.

3.4.2. Separate Estimates

The estimates in Table 3.3 show that Turks are more likely to perceive that they are discriminated against. This may indicate that Turks are less integrated to the German society and gives rise to the question whether the pattern of segregation differs between different groups of immigrants. To answer this question we ran separate regressions for immigrants from Turkey and immigrants from the other guest worker countries. As to our key explanatory variables, we obtained a similar pattern of results for both groups of immigrants: The two types of segregated areas are positively associated with perceived discrimination. The results are available from the authors upon request.

3.4.3. The Issue of Measurement Error

A potential limitation of our dependent variable could be that it is a general indicator which captures all types of experienced ethnic discrimination. This can make it more difficult to identify a significant link between segregation and discrimination. Our estimates reveal such link only to the extent that experienced discrimination in location choice results in an increased propensity to report general discrimination. If experienced discrimination in location choice would have only little or no influence on the general indicator of discrimination, the estimated coefficients on the segregation variables would be biased toward zero. In that case it would be possible that we find no significant link between residential segregation and the general indicator of discrimination even if discrimination in location choice plays an important role. Hence, if we would find no significant link, we would have to be more cautious in drawing strong conclusions from that insignificant finding. Yet, we find significant results despite the potential bias toward zero. Thus, our confidence in these significant results is strengthened.[25]

A further potential limitation of our dependent variable is that it is based on perceived discrimination. The analysis assumes that the surveyed immigrants in general perceive ethnic discrimination correctly. Yet, some interviewees who experience negative outcomes independent of their ethnicity may nonetheless report ethnic discrimination. Or vice versa, there may be immigrants who are discriminated against but do not realize it. Such misclassification errors can cause biased and inconsistent estimates when traditional estimation techniques such as probit or logit are used.

[25] Of course, our dependent variable provides no direct information on the type of discrimination in location choice. However, the evidence provided by audit and field studies suggests that housing discrimination plays a key role in the link between segregation and perceived discrimination. Other types of discrimination such as discrimination in the credit market might play an additional role. Yet, as our analysis is restricted to rental housing, credit market discrimination is not likely to play the dominant role. Credit market discrimination may be potentially more relevant for the residential property market.

In order to account for the potential misclassification of the dependent variable, we apply a modified maximum likelihood approach developed by Hausman et al. (1998). Let y_i denote immigrant i's perception of ethnic discrimination (1 if i feels very often discriminated against because of his or her ethnic background; 0 otherwise). Furthermore, let $\tilde{y}_i$ be a dummy for true ethnic discrimination (1 if i is in fact very often discriminated against because of his or her ethnic background; 0 otherwise). The probability that immigrant i falsely perceives discrimination is defined by:

$$\alpha_0 = \Pr(y_i = 1 | \tilde{y}_i = 0). \tag{1}$$

The probability that immigrant i falsely perceives no discrimination is defined by:

$$\alpha_1 = \Pr(y_i = 0 | \tilde{y}_i = 1). \tag{2}$$

The probability of perceived discrimination is:

$$\Pr(y_i = 1 | \boldsymbol{x}_i) = \alpha_0 + (1 - \alpha_0 - \alpha_1)\Phi(\boldsymbol{\beta}'\boldsymbol{x}_i), \tag{3}$$

where $\Phi(.)$ is the standard normal distribution function, $\boldsymbol{x}_i$ the vector of explanatory variables, and $\boldsymbol{\beta}$ the vector of coefficients. Note that this expression collapses to the usual expression, $\Phi(\boldsymbol{\beta}'\boldsymbol{x}_i)$, of the probit model when there is no misclassification $(\alpha_0 = \alpha_1 = 0)$. The modified log likelihood function is given by:

$$\begin{aligned} \mathrm{L}\ (\alpha_0, \alpha_1, \boldsymbol{\beta}) = N^{-1} \textstyle\sum_{i=1}^{N} \{ & y_i \ln[\alpha_0 + (1 - \alpha_0 - \alpha_1)\Phi(\boldsymbol{\beta}'\boldsymbol{x}_i)] \\ & + (1 - y_i)\ln[1 - \alpha_0 - (1 - \alpha_0 - \alpha_1)\Phi(\boldsymbol{\beta}'\boldsymbol{x}_i)]\} \end{aligned} \tag{4}$$

where N is the number of observation. This function is maximized over $(\alpha_0, \alpha_1, \boldsymbol{\beta})$.

Column (3.4.1) of Table 3.4 provides the results. To save space the table shows only the estimates on our key variables.[26] The regression provides no indication that misclassification plays a role in our analysis. The estimated misclassification probabilities α_0 and α_1 are statistically in-

[26] To improve convergence of the estimation procedure we only include control variables for equivalence income, size of dwelling, year of construction and immigration from Turkey.

significant. Most importantly, the approach by Hausman et al. (1998) corroborates our key findings. Both variables for highly segregated areas are significantly and positively associated with perceived discrimination.

Table 3.4: Determinants of Perceived Ethnic Discrimination; The Issue of Measurement Error

	(3.4.1) Modified Maximum Likelihood	**(3.4.2) Probit**
High share of foreigners & same country of origin	1.842 [.0431] (2.41)**	---
High share of foreigners & other countries of origin	1.627 [.0277] (2.56)**	---
Some foreigners & same country of origin	.9867 [.0057] (1.03)	---
Some foreigners & other countries of origin	.6023 [.0017] (0.82)	---
Share of foreigners at county level	---	4.079 [.4402] (2.73)***
α_0	.2554 (0.69)	---
α_1	.0648 (0.56)	---
Observations	771	731
Pseudo R^2	0.0825	0.1709

The table shows the estimated coefficients. Robust z-statistics are in parentheses and marginal effects are in square brackets. *** Statistically significant at the 1% level; ** at the 5% level. Regression (3.4.1) includes control variables for equivalence income, size of dwelling, year of construction and immigration from Turkey. Regression (3.4.2) includes all control variables listed in Table 3. Results on the control variables are suppressed to save space.

Furthermore, we recognize that also our variables for segregated neighborhoods are based on the interviewees' perceptions and, hence, may suffer from measurement error. As a check of robustness, we use administrative data from official statistics to replace these variables by the share of foreigners at the county level. This allows checking whether we obtain similar results when using an objective indicator of segregation. Column (3.4.2) provides the probit estimate.[27] A higher share of foreigners at the county level is a significantly positive determinant of perceived discrimination.

[27] As information at the county is missing for some interviewees the sample size is somewhat smaller.

Hence, the result obtained from using an objective segregation indicator confirms a positive link between ethnic residential segregation and perceived discrimination.

3.4.4. The Issue of Endogeneity

Finally, we recognize the possibility that our results may suffer from endogeneity. First, there may be the issue of reverse causation. Second, there may be omitted variables associated with both ethnic segregation and perceived discrimination. These two cases would imply that the error term of the regression is correlated with the variables for ethnic residential segregation. As a consequence, the estimated coefficients on those variables would be biased and inconsistent.

We account for the potential endogeneity of ethnic residential segregation by using an instrumental-variable regression method based on a recursive bivariate probit model (Greene 1998, 2008, Kassouf and Hoffmann 2006). To run the recursive bivariate probit we define a new segregation variable by combining the two dummies for highly segregated neighborhoods. The new dummy for a high share of foreigners is equal to 1 if most or all neighbors are foreigners regardless of whether or not the foreign neighbors are from the same country of origin as the immigrant. As the two variables for residential areas with some foreign neighbors did not emerge as significant covariates of perceived discrimination, we drop them from the regressions. Thus, the reference group now consists of immigrants with some or no foreign neighbors.

Let us define the variables for perceived discrimination and segregation as:

$$\text{Perceived discrimination} = y_{1i} = \begin{cases} 1 \text{ if } y_{1i}^* > 0, \\ 0 \text{ otherwise,} \end{cases} \tag{5}$$

$$\text{High share of foreigners} = y_{2i} = \begin{cases} 1 \text{ if } y_{2i}^* > 0, \\ 0 \text{ otherwise,} \end{cases} \tag{6}$$

where y_{1i}^* and y_{2i}^* are latent variables. These variables are given by:

$$y_{1i}^* = \delta y_{2i} + \boldsymbol{\beta}_1' \boldsymbol{x}_{1i} + u_{1i}, \tag{7}$$

$$y_{2i}^{*} = \boldsymbol{\beta}_2' \boldsymbol{x}_{2i} + u_{2i}, \tag{8}$$

where δ is the coefficient on the dummy for a high share of foreigners, $\boldsymbol{x}_{1i}$ and $\boldsymbol{x}_{2i}$ are the vectors of the other explanatory variables, $\boldsymbol{\beta}_1$ and $\boldsymbol{\beta}_2$ the corresponding coefficient vectors, and u_{1i} and u_{2i} the error terms.

In our context, the coefficients in equation (7) are of primary interest. Assuming that u_{1i} has a standard normal distribution, the traditional univariate probit procedure estimates δ and $\boldsymbol{\beta}_1$ by maximum likelihood without taking equation (8) into account. Yet, if the segregation variable y_{2i} and the error term u_{1i} are correlated, the estimate of δ is biased and inconsistent.

Consistent estimates can be obtained by a recursive bivariate probit. Equations (7) and (8) form a simultaneous equations model. This simultaneous model is called recursive as y_{2i} enters equation (7) while y_{1i} does not enter equation (8). Equation (8) can be considered as a reduced form equation and (7) as a structural equation. The bivariate probit assumes that the error terms u_{1i} and u_{2i} have a bivariate normal distribution with E[u_{1i}] = E[u_{2i}] = 0, Var[u_{1i}] = Var[u_{2i}] = 1, and a correlation Corr[u_{1i}, u_{2i}] = ρ. Equations (7) and (8) are estimated jointly by using full information maximum likelihood. A test of the exogeneity of the segregation dummy y_{2i} is based on the correlation ρ. If ρ = 0, the bivariate probit is equivalent to two independent probit models and the null hypothesis of exogeneity is not rejected. If $\rho \neq 0$, the null hypothesis is rejected and the segregation variable can be considered as endogenous. In that case, the bivariate probit has to be preferred as it takes endogeneity into account.

In principle, identification of the recursive bivariate probit model is ensured by the inherent nonlinearity of the model (Wilde 2000). However, to avoid that identification relies solely on the functional form, exclusion restrictions are usually imposed to improve identification. Finding convincing exclusion restrictions is always a matter of debate so that attempts to account for endoge-

neity can be largely viewed as exploratory. Here we use a dummy equal to 1 if the person immigrated to Germany after 1973. Until 1973 guest workers were recruited to overcome labor shortages. They settled in regions with the respective job vacancies at that time. A higher share of immigrants in a region increased the likelihood that segregated neighborhoods evolved (either due to self-selection or to discrimination). After the recruitment ban in 1973, family reunification played the crucial role in immigration from the former guest worker countries. While incoming family members initially settled in the place where the guest workers lived, the children may (to some limited extent) have found housing elsewhere when they became adults. Thus, immigrants who came to Germany after 1973 should have a lower probability of living in a segregated area than those who came before 1973.[28] However, there is no specific reason to anticipate that immigrants who came after 1973 experienced a higher or lower degree of ethnic discrimination than those who came before 1973. Or put differently, we assume that immigration after 1973 influenced perceived discrimination indirectly through residential segregation but not directly and independently of residential segregation. Note that this assumption is made in a multivariate regression framework in which control variables such as gender, education and years since immigration are included.

Table 3.5 provides the estimates. For a matter of comparison, columns (3.5.1) and (3.5.2) show the results of univariate probit regressions on the determinants of perceived discrimination. The specification of regression (3.5.1) includes the new segregation variable and the full set of controls. While the size and significance of individual coefficients wax or wane, the pattern of results is similar to that presented earlier. Most importantly, the estimation confirms a significantly positive link between ethnic residential segregation and perceived residential segregation.

[28] A multivariate analysis by Janßen and Schroedter (2007) provides evidence that the initial guest workers are more likely to live in segregated areas than their adult children (even though the authors' descriptive statistics reveal no differences).

Table 3.5: Determinants of Perceived Ethnic Discrimination; The Issue of Endogeneity

	Probit	Probit	Recursive Bivariate Probit	
	(3.5.1) Perceived ethnic discrimination	**(3.5.2) Perceived ethnic discrimination**	**(3.5.3) Perceived ethnic discrimination**	**(3.5.4) High share of foreigners**
High share of foreigners	.3171 [.0455] (2.23)**	.3426 [.0504] (2.43)**	1.501 [.0656] (4.09)***	---
Female	-.1393 [-.0199] (1.04)	-.1336 [-.0195] (1.00)	-.1575 [-.0192] (1.27)	.0822 [.0327] (0.82)
Education	.0603 [.0087] (1.63)	.0565 [.0083] (1.54)	.0475 [.0087] (1.25)	.0010 [.0004] (0.03)
Years since immigration	.0070 [.0010] (0.47)	.0212 [.0032] (2.02)**	.0133 [.0012] (1.15)	-.0104 [-.0042] (0.97)
Equivalence income/100	-.0708 [-.0102] (3.27)***	-.0684 [-.0101] (3.23)***	-.0496 [-.0110] (2.10)**	-.0174 [-.0069] (1.33)
Children	-.0851 [-.0122] (0.53)	-.0753 [-.0111] (0.47)	-.0606 [-.0094] (0.40)	.0133 [.0053] (0.11)
Urban area	-.2829 [-.0406] (1.41)	-.3030 [-.0446] (1.54)	-.4327 [-.0271] (2.05)**	.4455 [.1755] (2.78)***
Availability of goods and services	-.0240 [-.0034] (0.69)	-.0173 [-.0025] (0.50)	-.0227 [-.0025] (0.59)	.0133 [.0053] (0.50)
Environmental conditions	-.0839 [-.0120] (2.21)**	-.0821 [-.0121] (2.19)**	-.0241 [-.0153] (0.52)	-.0933 [-.0371] (3.19)***
Contacts with neighbors	-.1451 [-.0208] (1.70)*	-.1428 [-.0210] (1.69)*	-.1900 [-.0181] (1.95)*	.1360 [.0541] (2.09)**
Size of dwelling	-.0148 [-.0021] (1.87)*	-.0143 [-.0022] (1.87)*	-.0107 [-.0023] (1.33)	-.0028 [-.0011] (0.62)
Rent/100	-.0092 [-.0013] (0.17)	-.0177 [-.0026] (0.33)	-.0259 [-.0047] (0.53)	-.0001 [-.0000] (0.01)
Year of construction 1949-1971	-.1915 [-.0258] (1.24)	-.2088 [-.0289] (1.37)	-.0953 [-.0267] (0.60)	-.1092 [-.0435] (0.97)
Year of construction 1972-1980	-.0363 [-.0055] (0.14)	-.0467 [-.0072] (0.19)	.1676 [-.0154] (0.63)	-.4698 [-.1822] (2.38)**
Year of construction 1981-1990	.9655 [.2556] (2.93)***	.9000 [.2374] (2.79)***	.8714 [.2292] (2.42)**	-.2396 [-.0951] (0.80)
Turkey	.7580 [.0836] (1.98)**	.3406 [.0498] (2.17)**	.1502 [.0857] (0.73)	.5945 [.2282] (2.90)***
Italy	.3837 [.0299] (0.94)	---	---	.2912 [.1080] (1.31)
Greece	.5369 [.0485] (1.33)	---	---	.4451 [.1686] (2.07)**
Immigration after 1973	-.2606 [-.0374] (1.22)	---	---	-.3275 [-.1297] (2.12)**
Constant	-.4738 (0.56)	-.5014 (0.71)	-.7281 (1.00)	-.3701 (0.63)
Federal state dummies	Yes	Yes	Yes	Yes
Observations	771	771	771	771
Pseudo R^2	0.1758	0.1699	---	---
Rho	---	---	-.7398 (3.36)***	

The table shows the estimated coefficients. Robust z-statistics are in parentheses and marginal effects are in square brackets. Rho is the correlation between the error terms in the bivariate probit model. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level.

Regression (3.5.1) also includes the variable for immigration after 1973 in order to check if it is indeed not associated with perceived discrimination. Including the identifying variable of the bivariate probit in the single-equation model offers a clear sense of the patterns in the data and can provide useful indications (Evans and Schwab 1995). The variable does not emerge with a significant coefficient. This supports our assumption that there is no direct link between immigration after 1973 and perceived discrimination.

In column (3.5.2), the variable for immigration after 1973 is excluded from the discrimination regression. Additionally, the dummies for immigrants from Italy and Greece are dropped as they haven't emerged as significant determinants of perceived discrimination. Comparing the results of regression (3.5.2) with those of regression (3.5.1) shows that excluding the three variables does not change the pattern of results on the other explanatory variables.

Columns (3.5.3) and (3.5.4) provide the results of the bivariate probit model. The determinants of perceived discrimination are jointly estimated with the determinants of ethnic segregation. As expected, immigration after 1973 is a significantly negative determinant of living in a residential area with a high share of foreign neighbors. Furthermore, the negative correlation coefficient ρ between the error terms of the two equations is statistically significant. This suggests that ethnic residential segregation is endogenous. However, taking this endogeneity into account does not change our key result. Living in a residential area with a high share of foreign neighbors is still positively associated with perceived discrimination. Comparing (3.5.3) with (3.5.2), it can be seen that the size of the estimated coefficient on ethnic segregation even increases when accounting for endogeneity. In sum, our exploratory approach of taking the endogeneity of segregation into account corroborates a positive link between segregation and perceived discrimination.

3.5. Conclusions

In the policy debate, it is often believed that a lack of immigrant assimilation is due to self-selection of immigrants into segregated residential areas. The results of this study suggest that discrimination rather than self-selection plays an important role in immigrant residential segregation. Immigrants living in highly segregated areas are much more likely to report high discrimination than those living in non-segregated areas. The positive link between segregation and perceived discrimination also suggests a specific mechanism of discrimination. It indicates that discriminatory restrictions of immigrant location choices rather than outright hostility of native neighbors are the driving force of residential segregation. In the latter case we would have found that immigrants living in segregated areas are less likely to report discrimination as those areas provide protection against "everyday" discrimination by native neighbors. Yet, our estimates suggest the opposite relationship. Of course, our finding does not mean that immigrants living in native-dominated areas experience no discrimination at all in their neighborhood. It rather means that from the immigrants' viewpoint the advantages of living in a native-dominated neighborhood outweigh the disadvantage of discriminatory treatment by prejudiced native neighbors. As a consequence, discriminatory restrictions of location choices which force immigrants to live in segregated areas appear to be the more severe form of discrimination.

Our key findings even hold true when accounting for potential misclassification errors in our subjective indicator of discrimination. Moreover, they also hold true when taking the endogeneity of residential segregation into account. However, in spite of the various robustness checks one may raise the question whether there are alternative interpretations of our findings. One may argue that living in a segregated area activates negative psychological states such as distrust, fear, demoralization and generalized derogation of out-groups. These negative psychological states may in turn lead to the subjective feeling of being discriminated against. Yet, while the activation of

negative psychological states in segregated residential areas is indeed very plausible, it is difficult to reconcile with a self-sorting of immigrants. If segregated areas cause severe disutility and make immigrants feel bad, it is not likely that immigrants voluntarily sort themselves into these areas. The activation of negative psychological states is rather compatible with the hypothesis that immigrants are in fact discriminated against. Discrimination in the housing market forces immigrants into segregated areas. Living in segregated areas can imply that immigrants are excluded from important parts of social life in the host country. This in turn is likely to lead to anxiety, demoralization and less trust in others.

The conclusion that discrimination plays an important role immigrant residential segregation fits studies which indicate xenophobic tendencies in the German society (Cornelissen and Jirjahn 2012, Gang and Rivera-Batiz 1994, Krueger and Pischke 1997). These tendencies may imply a vicious circle. Negative attitudes toward immigrants result in housing discrimination and, hence, ethnic residential segregation. Residential segregation does not only hamper immigrants' assimilation but also reduces the opportunities of natives to learn more about the immigrants. Both lack of immigrant assimilation and little contact between natives and immigrants in turn may reinforce the negative attitudes toward immigrants. Examining in more detail this vicious circle stands as important future research.

Finally, we note that our analysis applies to West Germany. It would be interesting to extend the analysis to East Germany as xenophobic tendencies appear to be particularly high in East Germany. This requires that sufficient information will be available in future waves of the SOEP.

4. Ethnic Concentration and Extreme Right-Wing Voting Behavior in West Germany

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 the county level and the probability of extreme 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.

JEL: D72, R23, J15.

Keywords: Ethnic concentration, extreme right-wing voting, group threat, interethnic contact.

4.1. 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.[29] 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 German residents 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 prejudice and leads to hostile behavior. Or do confounding factors dominate this relationship? And to what extent does self-selection and sorting due to discrimination on the rental market 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 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

[29] 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, 2012.

on the idea that a higher relative number of minority group members can help to overcome prejudice because of a higher frequency of contacts between the minority and majority group. If the interethnic contact theory explains hostile attitudes of German natives correctly then we would observe that negative attitudes are more likely in areas with fewer foreigners (Pettigrew 1998, 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 this behavior 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 in West Germany. But in comparison to existing empirical studies, I additionally take into account that the effect of foreigner share on right-wing voting behavior might be endogenous. One of the reasons why the variable measuring the share of foreigners in a county is likely to be endogenous could be self-sorting of German natives and foreigners based on their voting behavior and/or sorting of foreigners in low-status neighborhoods due to discrimination on the housing market. To eliminate endogeneity I will estimate an instrumental variable equation which uses the share of foreigners at the federal state level as an instrument following an approach of Dustmann and Preston (2001).

An additional source of endogeneity might be that the regional distribution of cultural traits is correlated with both the regional distribution of foreigners and hostile attitudes toward foreigners.[30] If this holds true, variables that capture cultural traits must be included to avoid an omitted variable bias when estimating the effect of ethnic concentration on extreme right-wing voting. Hence, the second contribution of this paper is that it provides evidence whether or not deeply

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

rooted prejudice passed down from generation to generation is the main factor which drives the endogeneity. For this purpose, I use a variety of variables that proxy cultural traits as controls in my regressions. It will be shown that, indeed, deeply rooted prejudices are positively correlated with the regional distribution of hostile attitudes towards foreigners but that these cultural traits are not the primary source of endogeneity.

Third, 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 could 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 compared to respondents with a high educational attainment. To assess if education moderates the relationship between ethnic concentration and extreme right-wing voting, I run probit and instrumental variable estimations using subsamples based on individuals' educational attainment.

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 (SOEP), I find that simple probit estimates for West Germany show only insignificant results between ethnic concentration –measured as the share of foreigners at the county level– and leaning towards an extreme right-wing party. But if the distribution of German residents and foreigners can be attributed to preferences for e.g. specific ethnic concentrations and/or to discrimination, the previous findings obtained by simple probit estimations would be biased. Thus, in a second step, I instrument the share of foreigners at the county level with the share of foreigners at the federal state level to address the endogeneity of this regressor. The results of the instrumental variable estimations show that the existence of a simultaneity bias cannot be rejected. Most interestingly, 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 an extreme right-wing party. In contrast to the simple probit estimation results, applying an instrumental variable approach provides support for the interethnic contact theory.

It stands to question what the driving factor of the endogeneity found in the instrumental variables estimates is. One factor can be analyzed directly from including variables that proxy the regional distribution of cultural traits (operationalized as pogroms in 1349 and as historical voting results during the Nazi-era) in the regressions. The results show that historical cultural traits explain today's right-wing extremist attitudes significantly and should be included as control variables. But I can rule out that these cultural traits are the primary source of endogeneity in this context. I conclude that self-sorting based on political voting behavior and/or discrimination on the housing market that forces foreigners to settle in socio-economic low regions are the main sources of endogeneity.

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 subsamples 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. On the one hand, Germans with a low education have a higher probability of leaning toward extreme right-wing parties because they are more likely to compete with foreigners for jobs, geographical or social welfare resources. On the other hand, the higher frequency of interactions between low-skilled Germans and low-skilled foreigners might help to overcome prejudice.

The rest of the paper is structured as follows. In section 4.2.1 the political system in Germany and its extreme right-wing parties are introduced briefly. Section 4.2.2 gives an overview of

the existing empirical literature on hostile attitudes with particular emphasis on Germany. In Section 4.3.1 the different sources of endogeneity are explained. The possibility of heterogeneous effects with respect to individuals' educational attainment on attitudes towards foreigners is discussed in section 4.3.2. In section 4.4 I present the data sets and explain the two econometric models used. Results are discussed in Section 4.5. Section 4.6 sums up the main findings and concludes.

4.2. Background Discussion

4.2.1. Institutional Setting – Right Wing Tendencies in Germany

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.[31]

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 4.1 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.

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

Table 4.1: 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-West-phalia	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.

Besides these alarming electoral outcomes which are partly a result of a low voter turnout and so-called "protest votes", from the 1990s Germany experienced a number of tragic climaxes of right-wing motivated crimes. Here one has to mention the attacks on refugees and migrant workers homes' in Hoyerswerda, Schwedt, Eberswalde, Eisenhüttenstadt, Elsterwerder in 1991 and Rostock in 1992 (all cities situated in East Germany), attempted murders in Mölln in 1992 and Solingen in 1993 (West Germany) (Funke 1994). In most of these cases the police seemed not to do everything possible to protect those who were attacked which points to structural problems within the police force, the Ministry of the Interior and the Federal Office for the Protection of the Constitution in Germany.

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 three 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.[32]

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 the county level) and treats it as an exogenous variable to examine the determinants of negative attitudes or crime against foreigners. The results of the international studies (with emphasis on the US) 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 the 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

[32] For example, Dustmann and Preston (2001) use prejudice against minorities and attitudes to certain issues (inter-ethnic 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. 2011).

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 German natives. 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 and show that ethnic concentration at the 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 German residents using the share of foreigners from 15 non-EU-states at the county level. Her results show that a relationship between ethnic concentration and prejudice against foreigners exists 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 these, individuals may base their locational 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 correlated with 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 prejudice against foreigners, but probably they will not adjust their location choices based on these attitudes on a larger spatial area. That is why they presume that instrumenting county level ethnic concentration with federal state ethnic concentration should reduce the bias. 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 of studies emerged that also use an instrumental variable approach to reduce endogeneity. 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 negative attitudes towards foreigners. In that sense, his study contradicts Dustmann and Preston (2001). But as Dustmann and Preston (2001, p.354) put it: "One should not necessarily expect consistency across studies using responses to different questions and data from different countries".

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.

4.3. The Relationship between Ethnic Concentration and Extreme Right-Wing Voting

4.3.1. The Issue of Endogeneity

When estimating the relationship between ethnic concentration measured on a narrow spatial level and extreme right-wing voting, the issue of endogeneity due to several mechanisms may arise: First of all, self-sorting of foreigners as well as of German natives could lead to an underestimation of the effect. Germans that have racist sympathies might prefer to live in regions with a lower share of foreigners to minimize contact frequency with them. If, for example, the share of foreigners affects the probability of voting for the extreme right positive, using the share of foreigners at the county level leads to an underestimation of the effect compared to a random sorting of German natives and foreigners. In the same vein, it can be assumed that foreigners decide to live in regions where they find more open-minded citizens with positive attitudes towards them. In this case, the

non-random distribution leads to a downward bias of the estimated coefficient (Dustmann and Preston 2001).

Second, previous research has shown that foreigners in Germany tend to live in neighborhoods that have a lower environmental quality which can be attributed to different types of discrimination on the rental market (Dill and Jirjahn 2014; Dill et al. 2014). At the same time, low-status native German residents are also more likely to live in these neighborhoods. Foreigners as well as low-status Germans may then compete for housing and resources in general provided within the neighborhood. Since low-status individuals are believed to respond to stressful collective circumstances with hostile attitudes toward the minority group, it can be concluded that the effect of foreigner share on right-wing voting behavior would be overestimated (Oliver and Mendelberg 2000; Card et al. 2012).

Third, the distribution of cultural traits may be associated with both the distribution of foreigners and with extreme right-wing voting behavior. Supposing that culture could be an omitted variable in this context is substantially motivated by a recent article and a discussion paper by Voigtländer and Voth (2012a, 2012b). Using hand-collected regional data on violence against Jews from medieval times, they show that the geographical distribution of cultural traits in medieval times can predict extreme right-wing tendencies and violence against Jews even in the 1920s and 1930s in Germany. 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, it could be argued that the regional distribution of historical anti-Semitic views may have been perpetuated from generation to generation and may be positively (or negatively) associated to the distribution of foreigners in Germany. If this would be true, not controlling for the distribution of cultural traits would result in an overestimation (underestimation) of the effect. To analyze whether

or not culture is the source of endogeneity, 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).[33]

4.3.2. 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, Schüller 2012). And furthermore, it can be assumed that the interaction of ethnic concentration and educational attainment affects the probability of voting for the extreme right differently with regard to different educational categories.

For example, it could be true that the share of foreigners in particular affects hostile attitudes of low-educated Germans positively. This psychological response may be the result of competition on the labor market since it is likely that this group of Germans competes for the same jobs in the low-skilled segment of the labor market as foreigners do.[34] Since the right-wing extremist parties explicitly present platforms that aim to defend the economic position of Germans (e.g. "Jobs for Nationals only"), voting for these parties might reflect to some extent the individual's exposure to competition on the labor market. Furthermore, the coincidence of low educated Germans and foreigners in socio-economic low neighborhoods could lead to competition for geographical resources like social services, housing and primary education. Again, voting for xenophobic parties may then

[33] I am very grateful to Nico Voigtländer and Hans-Joachim Voth who kindly shared their data.

[34] 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).

be a response to stressful circumstances that Germans attribute to foreigners and competition for resources within the neighborhood.

Contrary to the previous reasoning which suggests a positive moderating effect between low education and ethnic concentration, one may also find arguments to predict a negative moderating of effect for the low educated: For example, it might be true that the higher contact frequency between low-skilled Germans and low-skilled foreigners helps to overcome anti-foreigner sentiments. As co-workers both groups have a high frequency and intensity of contact with each other at least on a professional level which may lead to a better understanding and mutual respect.

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 (Arzheimer and Carter 2006): Specifically, higher secondary or tertiary education aims to develop 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. Moreover, Weil (1985) finds that not only formal education but ability itself predicts the probability of voting for the extreme right-wing parties very well. Which could also be true is that higher educated Germans consider immigrants on the labor market as complementary providing services to them (e.g. housekeepers) and not as substitutes. That is why they might regard the presence of a higher share of foreigners as economically beneficial. In the light of these arguments, 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 bias.

4.4. Data, Econometric Modeling, and Descriptive Statistics

4.4.1. Data

The data I use are drawn from the German Socio-Economic Panel (SOEP). The SOEP 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 (Wagner et al. 2007). Among others 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).[35] 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.

Among other details, the SOEP 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 SOEP with that from a 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 the county level) I merge the SOEP data set with the

[35] For an overview of the political parties with special reference to right-wing extremism in Germany, see Rotte and Steininger (2008) or Backer (2000).

administrative data based on the recoded KKZ.[36] Due to data privacy protection of the respondents, data at the county level are only accessible via remote data processing ("soepremote")[37]. The share of foreigners at the federal state level is based on the share at the county level and thus a simple aggregation.

The third data source used here is provided by Voigtländer and Voth (2012a) and contains hand-collected regional data on violence against Jews from medieval times (dummy variable equals 1 if pogrom occurred in 1349, zero otherwise) as well as historical election outcomes (vote shares) from 1924 to 1933 for the Nazi parties. I merge this data at the county level based on the information of the respondents' place of residence provided by the SOEP to control for the regional distribution of deep-rooted anti-foreigner sentiments in my regressions.

The purpose of this paper is to investigate political right-wing attitudes of German natives. Hence, the sample is restricted to respondents who have the German citizenship and do not have any migration background.[38] Moreover, I only use observations from West Germany excluding the city-states Hamburg and Bremen. Compared to the other 7 federal states in West Germany, city-states cover only a comparably small, highly populated agglomeration area. With reference to the instrumental variable strategy these states had to be excluded. Using only West Germany is due to the facts that the number of observations for East Germany is comparably small and the variation

[36] In the period from 2005 to 2009 several county property reforms were implemented across Germany enlarging the area of political counties. One of the main purposes of these reforms was to extend the territorial catchment area for institutions in order to increase efficiency.

[37] I am thankful to the staff of the DIW for their support in carrying out this analysis via "soepremote".

[38] The SOEP also covers a large sample of ethnic Germans, sometimes referred to as "resettlers". They are non-German citizens who consider themselves as Germans which is based on the fact that their ancestors were German. After 1990 many ethnic Germans from the Eastern Bloc used the Law of Return to immigrate to Germany. The Law of Return grants the German citizenship to all ethnic Germans who provide evidence of their German ethnic origin. Even though, ethnic Germans are German citizens, this group of respondents experienced a significantly different history until immigrating to Germany compared to German natives. That is why, it was necessary to exclude them from the sample used here.

of the share of foreigners is extremely low which make it impossible to apply the IV strategy to the East German sample.

4.4.2. Econometric Modeling

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

Let y_{1i}^* be the latent dependent variable that measures if 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

$$y_{1i}^* = \beta y_{2i} + \boldsymbol{x}_{2i}'\gamma + u_i \tag{1}$$

where y_{2i} is share of foreigners at the county level and $\boldsymbol{x}_2$ 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 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:

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

The log likelihood function for the sample is given by

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

As discussed before, potential endogeneity problems arise because of locational choices of Germans and foreigners, discrimination on the housing market, and the regional distribution of cultural

traits. If one of these sources of endogeneity occurs, the variable that measures the share of foreigners at the 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. It rather depends on the source of endogeneity that is present.

To start with the locational choices: 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. Vice versa, foreigners may not settle in regions with a high degree of hostile attitudes towards them. 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.

Secondly, discrimination on the rental market may be the driving factor of endogeneity which would result in an overestimation of the effect: It can be argued that foreigners may not choose to live in neighborhoods with a high degree of anti-foreigner sentiments but are forced to live there because of discrimination on the housing market (Dill and Jirjahn 2014; Dill et al. 2014). Rental companies and landlords may restrict foreigners to move into socio-economic high neighborhoods if they fear that an increasing share of foreigners reduces the willingness of tenants to pay high rents. Or it could be true that landlords themselves are prejudiced based on statistical discrimination: The average foreign tenant may have a higher probability of being an unreliable tenant in terms of payments, appropriate housing maintenance and compliance with house rules.

Thus, the share of foreigners measured on a narrow level is not exogenous leading to an upward bias using a naïve estimation strategy.

Another source of endogeneity might be culture. The vast majority of foreigners arrived in Germany in the late 1950ies and during the 1960ies when the demand for workers was increasing substantially due to the booming economy. The German government started to arrange bilateral agreements with southern and south-eastern European countries to recruit so-called guest workers. It is noteworthy that the recruitment of guest workers was supposed to be temporary immigration, most of the guest workers were employed in low-skilled occupations in certain industries and were housed in barracks next to their work places. Even though the regional distribution of foreigners prior to 1973 (recruitment ban) was not driven by either positive or negative attitudes towards them but on labor shortages, one cannot rule out that they were placed in regions in post-war Germany with a high (low) degree of deep-rooted hostile attitudes towards foreigners. If these two distributions coincide positively (negatively) on a regional level given that regional mobility in Germany is rather low the effect of hostile attitudes towards foreigners will be overestimated (underestimated).

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

$$y_{2i} = x_{1i}\Pi_1 + \boldsymbol{x}'_{2i}\Pi_2 + \varepsilon_i \tag{4}$$

where y_{2i} is the endogenous variable, $\boldsymbol{x}_2$ 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: $(u_i, \varepsilon_i) \sim \mathrm{N}(0; \Sigma)$. 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 $f(y_{1i}, y_{2i}|\boldsymbol{x}_i)$ as $f(y_{1i}|y_{2i}, \boldsymbol{x}_i)\, f(y_{2i}|\boldsymbol{x}_i)$. When there is an endogenous regressor, the log likelihood for observation i is

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

where

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

$\Phi(\cdot)$ 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.

4.4.3. Key Variables

Table 4.2 and Table 4.3 give an overview of the socio-economic characteristics of the respondents as well as descriptive statistics for the average share of foreigners at the 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 the 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).

Table 4.2: Variable Description

Variable	Description
Right-wing voting	Dummy = 1 if respondent leans toward DVU, NPD or Republikaner.
Share of foreigners at the county level	Share of foreigners in a county in year t.
Share of foreigners at the 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 the county level	Unemployment rate at the 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: SOEP (waves 1996-2009, version 27, doi:10.5684/soep.v27), data provided by the Statistical Office of Rhineland-Palatinate, and data provided by Voigtländer and Voth (2012a).

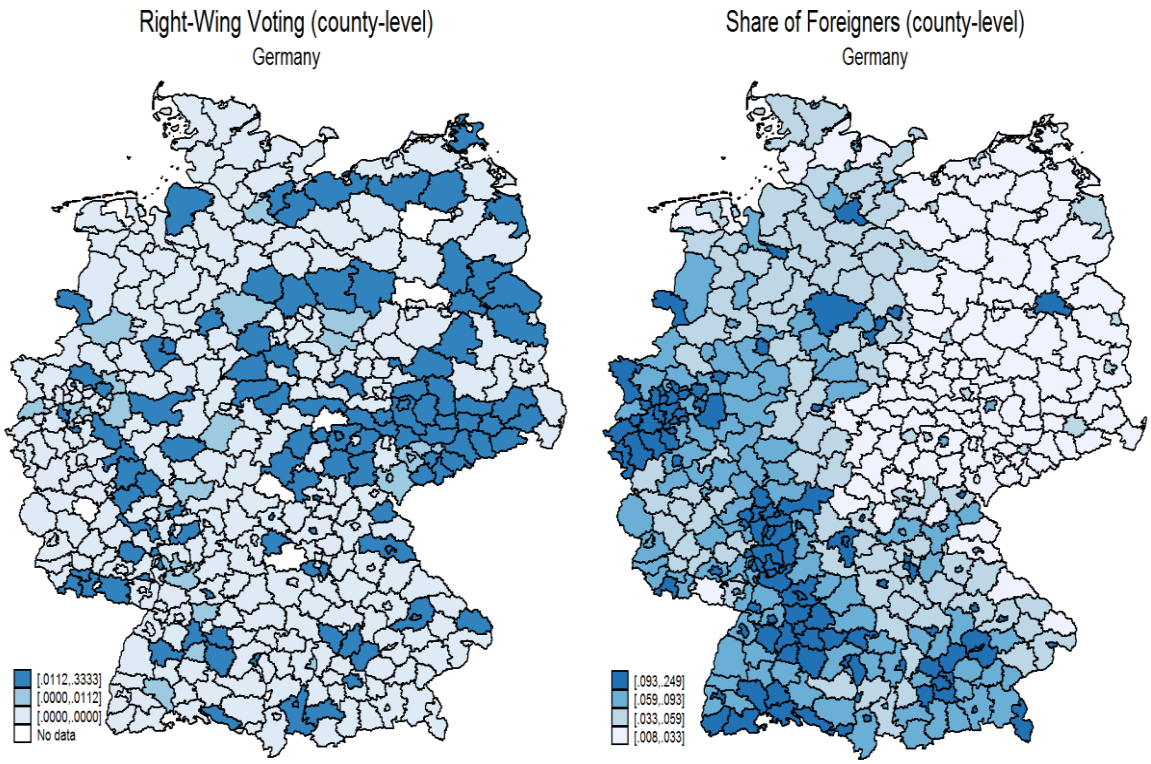
Table 4.3: Summary Statistics – Full Sample (N=47,509)

Variable	Mean	Minimum	Maximum	Std.-Dev.
Right-wing voting	.0072	0	1	.0844
Share of foreigners at the county level	.0989	.0233	.2892	.0498
Share of foreigners at the 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 the 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 4.7.
Source: SOEP (waves 1996-2009, version 27, doi:10.5684/soep.v27), data provided by the Statistical Office of Rhineland-Palatinate, and data provided by Voigtländer and Voth (2012a), own calculations.

To get a grip on the distribution of the dependent variable and the key explanatory variable, Figure 4.1 (left hand side) shows the mean of voting for an extreme right-wing party averaged at the county level for the years from 2005 to 2009. If one compares the distribution of right-wing voting to the share of foreigners at the county level averaged for the years from 2005 to 2009 (right hand side of Figure 4.1), 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 the county level and right-wing voting behavior could be assumed. For the years 1996 to 2004 the distribution is similar but not displayed here.

Figure 4.1: Share of Foreigners at the County Level and Right-Wing Voting Behavior



Source: SOEP (waves 1996-2009, version 27, doi:10.5684/soep.v27) and data provided by the Statistical Office of Rhineland-Palatinate, own calculations.

4.4.4. 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 household income 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%); Gelsenkirchen with a rate of 25.2% the highest.

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 (Weil 1985, Fertig and Schmidt 2011).

To investigate the role of cultural traits, I use the historical voting results provided by Voigtländer and Voth (2012a). The descriptive statistics in Table 4.3 show the rise of the Nazi-parties during the 1920s to the 1930s in Germany. For example, in 1928 on average only 3.2% voted for the Nazi party NSDAP ("Nationalsozialistische Deutsche Arbeiterpartei"); 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 are 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 17 different categories that stem from the SOEP data.

4.5. Results

This section presents the estimates of the simple probit model, the instrumental variable estimations, models that control for the regional distribution of cultural traits and estimations for subsamples based on education. All models include a set of basic individual controls, the type of settlement, and year dummies.

4.5.1. 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 the county level. Table 4.4 reports the coefficients for all regions situated in West Germany except for the city-states Hamburg and Bremen. The number of covariates is ascending from column (4.4.1) to (4.4.4). 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.

Table 4.4: Probit Estimates – Step-by-Step inclusion of Variables

	(4.4.1)	(4.4.2)	(4.4.3)	(4.4.4)
Share of foreigners at the county level	2.429* (1.461)	2.608* (1.521)	2.776* (1.583)	2.369 (1.580)
Satisfaction income	-.1331*** (.0163)	-.1248*** (.0172)	-.1171*** (.0184)	-.1153*** (.0181)
Female	-.3033*** (.0788)	-.3594*** (.0749)	-.2603*** (.0778)	-.2316*** (.0824)
Age	-.0695*** (.0149)	-.0521*** (.0162)	-.0666*** (.0165)	-.0767*** (.0168)
$Age^2/100$	.0513*** (.0133)	.0331*** (.0150)	.0502*** (.0151)	.0609*** (.0153)
Married	.0178 (.1441)	.0135 (.1563)	-.0279 (.1530)	-.0531 (.1470)
Divorced	.1559 (.1829)	.1145 (.1948)	.0496 (.1914)	-.0259 (.1877)
Widowed	-.2400 (.3042)	-.2912 (.3137)	-.4015 (.3147)	-.4428 (.3176)
Unemployment rate	-.0238 (.0166)	-.0291* (.0168)	-.0274 (.0167)	-.0263* (.0158)
Low education	---	.8325*** (.1381)	.7671*** (.1500)	.7313*** (.1530)
Intermediate education	---	.5875*** (.1140)	.4949*** (.1136)	.4763*** (.1167)
Not working	---	---	-.4409** (.1777)	-.4108** (.1858)
In formal education	---	---	-1.100*** (.2510)	-1.018*** (.2574)
Retired	---	---	-.3212* (.1881)	-.3233* (.1960)
Civilian Servant	---	---	-.3341 (.2791)	-.2763 (.2833)
In training	---	---	-.0718 (.1590)	-.0174 (.1613)
Manual worker	---	---	.1521 (.1260)	.1531 (.1300)
Farmer	---	---	.2847 (.4188)	.4189 (.4243)
Self-employed	---	---	-.2771 (.1759)	-.2545 (.1792)
White collar worker	---	---	-.2705** (.1273)	-.2817** (.1322)
Officer	---	---	-.7905*** (.2425)	-.8387*** (.2504)
Christian	---	---	---	-.4792*** (.1115)
Father high education	---	---	---	-.3381* (.1839)
Mother high education	---	---	---	-.4920* (.2515)
Constant	.3717 (.5200)	-.4898 (.5361)	-.0814 (.5510)	.5570 (.5745)
Log pseudolikelihood	-1654.07	-1597.85	-1531.13	-1480.86
Observations	47509	47509	47509	47509

Note: All regressions include controls for type of settlement (17 types) and years (1996-2009). Reference category of qualitative variables: single, high education, unemployed, father has intermediate/low education, mother has intermediate/low education, un-denominational/other religion. The table shows the estimated coefficients. Huber-White standard errors clustered at the county level are in parentheses. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level. Source: SOEP (waves 1996-2009, version 27, doi:10.5684/soep.v27), data provided by the Statistical Office of Rhineland-Palatinate, own calculations.

Another very typical hypothesis which has been investigated in the previous literature also holds true for this analysis: Column (4.4.2) 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, persons in formal education, and non-working persons (column (4.4.3)). In column (4.4.4) variables capturing the religiousness 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 which could capture that children who grow up with highly educated parents benefit from the liberalizing effect of education and/or that parental education proxies the cognitive skills of their children.

Besides these individual controls, one variable is included that describes a locational feature: The unemployment rate at the county level is included in all regressions and turns out to be slightly negatively significant. Germans living in areas with a higher unemployment rate are less likely to vote for the extreme right. Among others, Arzheimer and Carter (2006) also find a similar effect and speculate that voters may prefer to cast their votes to the mainstream parties in times of economic uncertainty because these parties are more experienced and have better political and economic networks than the extreme right-wing parties.

In the probit estimations, presented as a first step, ethnic concentration at the county level is treated as an exogenous regressor. The coefficient of the variable is positive but only slightly significant especially given the high number of observations (Table 4.4). A higher concentration of foreigners at the county level increases the probability of extreme right-wing voting behavior. Including different sets of control variables does not change the effect.

4.5.2. 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 the county level may be endogenous for a variety of reasons.

To instrument the variable that measures ethnic concentration on a narrow level, I aggregate the share of foreigners at the 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 the federal state level seems unlikely. The same holds for sorting due to discrimination: Here, I also assume that foreigners that are discriminated against by landlords may be forced to live in a socio-economic lower neighborhood but are unlikely to move from one federal state to another. Moreover, Voigtländer and Voth (2012a) show that the regional distribution of deeply rooted hostile attitudes proxied by the occurrence of pogroms in 1349 substantially varies at the regional level. Hence, instrumenting the share of foreigners at the federal state level also captures this source of endogeneity. Furthermore, I include different culture proxy variables as controls to rule out that culture is the omitted variable in my estimations.

From a theoretical point of view, I expect that the correlation between share of foreigners at the county level and the share of foreigners at the federal state level should be substantial. In order to provide evidence on the plausibility of the instrument, Table 4.5 reports the F statistic of the excluded instrument. The instrument is highly correlated with the endogenous explanatory variable with an F statistic of 16.5. 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 4.5: IV-Probit Estimates – Step-by-Step inclusion of Variables

	(4.5.1)	(4.5.2)	(4.5.3)	(4.5.4)
Share of foreigners at the county level	-13.65** (5.701)	-13.94** (5.697)	-13.87** (5.722)	-12.01** (5.647)
Satisfaction income	-.1222*** (.0153)	-.1138*** (.0160)	-.1066*** (.0165)	-.1077*** (.0163)
Female	-.2676*** (.0743)	-.3192*** (.0727)	-.2270*** (.0739)	-.2069*** (.0786)
Age	-.0602*** (.0144)	-.0441*** (.0151)	-.0561*** (.0158)	-.0674*** (.0163)
$Age^2/100$	.0444*** (.0127)	.0277*** (.0138)	.0419*** (.0145)	.0533*** (.0148)
Married	-.0399 (.1309)	-.0459 (.1412)	-.0763 (.1372)	-.0953 (.1368)
Divorced	.0987 (.1666)	.0607 (.1766)	.0003 (.1736)	-.0651 (.1755)
Widowed	-.3057 (.2783)	-.3541 (.2840)	-.4490 (.2845)	-.4859 (.2953)
Unemployment rate	-.0907*** (.0334)	-.0976*** (.0330)	-.0962*** (.0329)	-.0871*** (.0312)
Low education	---	.7564*** (.1449)	.7079*** (.1498)	.6918*** (.1537)
Intermediate education	---	.5463*** (.1097)	.4622*** (.1075)	.4600*** (.1120)
Not working	---	---	-.4114** (.1687)	-.3897** (.1783)
In formal education	---	---	-.9559*** (.2473)	-.9088*** (.2515)
Retired	---	---	-.2582 (.1796)	-.2734 (.1892)
Civilian Servant	---	---	-.3271 (.2734)	-.2828 (.2797)
In training	---	---	-.0407 (.1468)	.0057 (.1515)
Manual worker	---	---	.1457 (.1119)	.1527 (.1193)
Farmer	---	---	.4368 (.3600)	.5439 (.3771)
Self-employed	---	---	-.2348 (.1639)	-.2246 (.1697)
White collar worker	---	---	-.2092* (.1237)	-.2308* (.1302)
Officer	---	---	-.7459*** (.2264)	-.7994*** (.2383)
Christian	---	---	---	-.4502*** (.1034)
Father high education	---	---	---	-.2888* (.1702)
Mother high education	---	---	---	-.4460* (.2318)
Constant	1.432** (.6287)	.6748 (.6748)	.9966 (.6500)	1.445** (.6637)
Rho	.4616*** (.1764)	.4769*** (.1784)	.4774*** (.1788)	.4073** (.1688)
F-Value	16.41***	16.46***	16.53***	16.55***
Log pseudolikelihood	105678.24	105740.33	105856.21	105922.60
Observations	47509	47509	47509	47509

Note: All regressions include controls for type of settlement (17 types) 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 the county 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: SOEP (waves 1996-2009, version 27, doi:10.5684/soep.v27), data provided by the Statistical Office of Rhineland-Palatinate, own calculations.

Table 4.5 shows the results of the instrumental variable estimations (ivprobit). Irrespective of the set of control variables used (columns (4.5.1) to (4.5.4)), the results reveal a significantly negative relationship between the share of foreigners and extreme right-wing voting behavior. The correla-

tion 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 extreme 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 4.6). The projections show that the share of foreigners exerts a sizeable effect: For example, compared to a region with a share of foreigners equal to the mean (0.235% probability to lean toward an extreme right-wing party), a region with a one standard deviation higher share of foreigners has a 0.204 percentage point (Difference of (4.6.2) and (4.6.3) in Table 4.6) lower probability to cast their vote to an extreme right-wing party.

Table 4.6: Projected Influence of Ethnic Concentration on Voting for Extreme Right-Wing Parties

	(4.6.1) Share of foreigners equals the sample's mean minus one standard deviation	**(4.6.2) Share of foreigners equals the sample's mean**	**(4.6.3) Share of foreigners equals the sample's mean plus one standard deviation**	**(4.6.4) Share of foreigners equals the sample's mean plus two standard deviation**
Probability of voting for extreme right-wing parties in percentage	1.290	0.235	0.031	0.003

The projections are based on estimation 4.5.4 in Table 4.5. Source: SOEP (waves 1996-2009, version 27, doi:10.5684/soep.v27), data provided by the Statistical Office of Rhineland-Palatinate, own calculations.

4.5.3. Culture as the Primary Source of Endogeneity

Previous literature suggests that the regional distribution of cultural traits is a strong predictor for historical election results during the Nazi era and even for the distribution of current election results of extreme right-wing parties. In the last step of my analysis I include a variety of variables that proxy cultural traits. First, I use 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. Second, historical election results at the county level from 1924 to 1933 measured as percentage of valid votes are included as controls. If culture is the primary source of endogeneity then even if a naïve probit procedure is used I would expect to obtain similar results like the ones I have found using the instrumental variable approach. If this is not the case, I would conclude that one or a combination of the different forms of (self-)sorting by German natives and foreigners into counties are the sources of endogeneity. To explore this possibility further, the cultural traits proxy variables are also included in the instrumental variable estimates.

Table 4.7 shows the probit estimates including a dummy variable indicating a pogrom in 1349 as well as historical election results for the Nazi-Party. Note that the historical data are only available for a subsample of West Germany. Hence, the number of observations is reduced compared to Table 4.4. 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 4.7, columns (4.7.4) to (4.7.8)) which supports the evidence provided by Voigtländer and Voth (2012b): The results show that cultural traits persist over a significant amount of time and can explain extreme right-wing attitudes even today. 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 is not the primary source of endogeneity when estimating the relationship between ethnic concentration and extreme right-wing voting behavior. Furthermore, Table 4.8 shows the instrumental variable probit results with inclusion of variables that capture cultural traits. Again, in most of the cases I find a negative and significant effect of ethnic concentration on extreme right-wing attitudes which supports the conclusion that the other above mentioned sources of endogeneity must be occurring when estimating this relationship.

Table 4.7: Probit Estimates – Controlling for Cultural Traits

	(4.7.1)	(4.7.2)	(4.7.3)	(4.7.4)	(4.7.5)	(4.7.6)	(4.7.7)	(4.7.8)
Share of foreigners at the county level	1.314 (1.646)	1.508 (1.648)	1.498 (1.643)	1.229 (1.618)	1.692 (1.634)	.7633 (2.045)	.6689 (2.016)	1.565 (1.616)
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 4.5 for a list of all covariates. The table shows the estimated coefficients. Huber-White standard errors clustered at the county level are in parentheses. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level. Source: SOEP (waves 1996-2009, version 27, doi:10.5684/soep.v27), data provided by the Statistical Office of Rhineland-Palatinate, and data provided by Voigtländer and Voth (2012a), own calculations.

Table 4.8: IV-Probit Estimates – Controlling for Cultural Traits

	(4.8.1)	(4.8.2)	(4.8.3)	(4.8.4)	(4.8.5)	(4.8.6)	(4.8.7)	(4.8.8)
Share of foreigners at the county level	-19.56*** (7.373)	-15.93** (7.611)	-13.53** (6.606)	-9.586 (6.655)	-11.67 (7.620)	---	---	-13.88** (6.928)
Pogrom 1349	.2342* (.1217)	---	---	---	---	---	---	---
DVFP vote, May 1924	---	-.3442 (.7132)	---	---	---	---	---	---
DNVP vote, May 1924	---	---	.8574 (.8391)	---	---	---	---	---
NSDAP vote, May 1928	---	---	---	4.401*** (1.424)	---	---	---	---
NSDAP vote, Sept 1930	---	---	---	---	1.162 (.7917)	---	---	---
NSDAP vote, July 1932	---	---	---	---	---	---	---	---
NSDAP vote, Nov 1932	---	---	---	---	---	---	---	---
NSDAP vote, March 1933	---	---	---	---	---	---	---	1.737*** (.6022)
Full set of covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Log pseudolikelihood	81959.00	83275.45	83310.09	83487.24	83179.269	Convergence not achieved	Convergence not achieved	83199.287
Observations	37425	37942	37942	37942	37942	18876	18913	37942

Note: All regressions include a full set of controls. See Table 4.5 for a list of all covariates. The table shows the estimated coefficients. Huber-White standard errors clustered at the county level are in parentheses. *** Statistically significant at the 1% level; ** at the 5% level; * at the 10% level. Source: SOEP (waves 1996-2009, version 27, doi:10.5684/soep.v27), data provided by the Statistical Office of Rhineland-Palatinate, and data provided by Voigtländer and Voth (2012a), own calculations.

4.5.4. The Moderating Effect of Education

Table 4.9 shows the results for low-, intermediate- and high-educated individuals respectively. The naïve probit estimates show very similar results compared to the probit estimates of Table 4.4: For all of the three subsamples the coefficient of the share of foreigners measured at the county level is positive and insignificant. The instrumental variable estimates differ substantially for individuals that attained an intermediate or high level of education: For both of the subsamples the effect of ethnic concentration now is negative and significant which is in line with the interethnic contact hypothesis (columns (4.9.2) and (4.9.3)). Moreover, it can be concluded that education helps to appreciate the benefits of an ethnically diverse society. Whether this is the result of either the liberalizing effect of education, cognitive skills or the perception that foreigners are complements on the labor market cannot be isolated with this data.[39]

Table 4.9: Probit- and IV-Estimates – By Subsamples based on Education

		Probit	
	(4.9.1) ***Low Education***	**(4.9.2)** ***Intermediate Education***	**(4.9.3)** ***High Education***
Share of foreigners at the county level	2.045 (2.346)	1.677 (1.893)	6.292 (4.135)
Log pseudolikelihood	-313.064	-967.48	-114.58
Observations	6885	25549	15075
		IV	
	(4.9.1) ***Low Education***	**(4.9.2)** ***Intermediate Education***	**(4.9.3)** ***High Education***
Share of foreigners at the county level instrumented	1.171 (8.833)	-14.87** (6.694)	-13.56* (7.231)
Rho	.0229 (.2174)	.4877** (.2110)	.6427** (.3251)
F-Value	21.82***	14.01***	19.43***
Log pseudolikelihood	15640.66	56424.45	32081.73
Observations	6885	25549	15075

Note: All regressions include a full set of controls. See Table 4.5 for a list of all covariates. The table shows the estimated coefficients. Huber-White standard errors clustered at the county 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: SOEP (waves 1996-2009, version 27, doi:10.5684/soep.v27), data provided by the Statistical Office of Rhineland-Palatinate, own calculations.

[39] Like previous empirical studies that use the SOEP, I cannot rule out that the moderating role of education found here is the result of a perceived social desirability response bias (e.g. Schüller 2012). It has been shown that high educated individuals react more sensitive to survey questions which ask to reveal attitudes toward immigration compared to low-educated (Janus 2010).

For the group of low educated the effect of ethnic concentration is positive but insignificant (column (4.9.1)). I suspect that two effects might compensate each other leading to an insignificant coefficient: On the one hand, Germans with a low education have a higher probability of leaning towards one of the extreme right-wing parties because they are more likely to compete with foreigners for jobs, geographical resources (e.g. social services, housing, primary education) and/or social assistance provided by the state (e.g. unemployment benefits, social housing). Extreme right-wing parties in Germany pick up these economic based fears and promote party platforms that emphasize the prerogative of Germans with regard to these and other aspects. On the other hand, the higher frequency of interactions between low-skilled Germans and low-skilled foreigners at the work place or in neighborhoods might help to overcome prejudice. All in all, the results for the subsamples suggest that the negative effect for the full sample of observations is driven by educated persons which points to the fact that education is the main factor that triggers positive attitudes towards foreigners.

4.6. 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 (SOEP, waves from 1996 to 2009). The SOEP 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 SOEP consists also

of information on the locality the respondent lives in. Based on this regional information, I merge the data of the SOEP with administrative data. The latter data set enables me to measure the ethnic concentration for each county in Germany. Moreover, I use historical data on violence against Jews in medieval times and election outcome during the Nazi-era at the county level.

The empirical analysis is fourfold: First, I estimate simple probit models to examine the relationship between ethnic concentration measured at the county level and extreme right-wing voting behavior. I find that ethnic concentration and extreme 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 ethnic concentration is likely to be endogenous for a variety of reasons. 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 the county level with an aggregated measure. The spatial level used to instrument ethnic concentration at the county level is the ethnic concentration at the federal state level. Using an instrumental variable procedure, I show that an endogeneity bias exists and that taking into account this endogeneity leads to a significant effect of ethnic concentration on extreme right-wing voting behavior. The effect of ethnic concentration on foreigners is now significantly negative and thus provides evidence for the interethnic contact theory.

Thirdly, I estimate probit models including historical voting results during the Nazi-era as well as a dummy variable at the county level indicating whether a pogrom has taken place in medieval times. With this last step I want to examine if culture is the omitted variable causing the endogeneity found in the instrumental variable estimates. I find that most of the historical voting variables affect right-wing attitudes positively but are not the primary source of endogeneity.

In a forth step of the analysis, I assess whether or not a moderating role of education exists. My instrumental variables estimates show that for the subsample of intermediate- and high-educated Germans ethnic concentration is negatively associated with leaning toward 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 sub-sample of Germans with a low educational attainment is positive and insignificant. Here two countervailing effects might compensate each other leading to an insignificant result.

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

5. The Effects of Ethnic Diversity on Social Capital in West Germany

Abstract: Using data from the Socio-Economic Panel from 1998 to 2009 and administrative data on regional ethnic diversity, I show that ethnic diversity inhibits significantly people's political interest and participation in political organizations in West Germany. People seem to isolate themselves from political participation if exposed to more ethnic diversity which is particularly relevant with respect to the ongoing integration process of the European Union and the increasing transfer of legislative power from the national to European level. The results are robust if an instrumental variable strategy suggested by Dustmann and Preston (2001) is used to take into account that ethnic diversity measured on a local spatial level could be endogenous due to residential sorting. Interestingly, participation in non-political organizations is positively affected by ethnic diversity if selection bias is corrected for.

JEL: A13, D71, R23.

Keywords: Ethnic Diversity, Social Capital, Immigration, Germany.

5.1. Introduction

As the process of European integration evolves, journalists and policy-makers have been discussing the effects of a higher influx of immigrants and asylum seekers coming to Germany. Friedrich Merz, a conservative right-of-center party politician, used the term "Leitkultur"[40] ('German core culture', 'leading culture') as part of a debate about diversity, national identity, social cohesion, multiculturalism, and assimilation in Germany held in 2000. He expressed concerns that immigration above a certain level could harm the 'genuine' German culture (Merz 2000). This started a viral and heated debate in the media amongst various political and societal parties for almost six years. The core of this debate leads to a research question that is widely discussed in political and economic science: To what extent does ethnic diversity inhibit social capital in an open-boarder environment like the EU?

Social capital is defined as the sum of social networks, norms of reciprocity, trustworthiness, and participation in society (Putnam 2007). It can be distinguished in formal and informal social capital.[41] Formal social capital captures the actions of an individual, which are part of the formal civil society, e.g. participating in local government, doing voluntary work for an organization, being part of a civic movement, donating to organizations, and voting in elections. Informal social capital refers to the involvement of an individual which is part of his/her private social networks: maintaining friendships, participating in family activities, building relationships with neighbors, helping informally, taking part in neighborhood social activities, and trusting others. Theoretically, a negative relationship between ethnic diversity and social capital can be explained by different mechanisms. The first is what has been termed in-group favoritism, which assumes that people favor groups that resemble them when it comes to questions of

[40] Originally, the term "German Leitkultur" was invented and defined by Bassam Tibi, a German-Arab sociologist. He protested that politicians have been misusing his concept to serve their ideas (Tibi 2001).

[41] Some authors also use the terms structural and cognitive social capital. Despite the fact that they are slightly differently defined, usually they are empirically similarly measured. Throughout this paper, I will use the terms formal and informal social capital.

how many public goods should be provided by the community (Alesina et al. 1999). Closely, related is the approach by Crawford (1998) and Miguel (1999). They argue that language diversity increases the probability that people have very distinct ideas about how a society should be shaped and what kind of goods should be provided. The third mechanism which could explain a negative relationship is described by the group-threat theory. It 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 (Sherif and Sherif 1953, Quillian 1995). The fourth theory posits that people in mixed ethnic networks expect less cooperative behavior from non-co-ethnics because of missing reputation and sanctioning norms which leads to lower public goods provision in a diverse society (Habyarimana et al. 2007).

Internationally, there exists a vast number of studies testing these hypotheses. However, empirical evidence for Germany is scarce and moreover, the majority of the existing literature does not take into account that the key explanatory variable, ethnic diversity, might be endogenous if measured on a low aggregation level. Putnam notes, "In our case, however, a selection bias is prima facie implausible as an explanation for our results" (Putnam 2007, p. 159). Despite this statement, I argue that, indeed, one can think of different reasons for a selection bias: On the one hand, it is plausible that Germans with a lower level of social capital are restricted to live in ethnically more diverse areas. As empirical studies show, foreigners appear to be squeezed into less prestigious, heterogeneous areas due to discrimination on the housing and on the mortgage market (Dill et al. 2014). But on the other hand, some Germans might have a taste for living in more diverse areas if they appreciate cultural exchange. In both of these cases, the association between ethnic diversity and social capital would be biased because of residential (self-)selection.

Using administrative data on regional ethnic diversity as well as individual information from the Socio-Economic Panel, this paper will be the first to examine the relationship between ethnic diversity and social capital for West Germany, acknowledging that ethnic diversity might

be endogenous with respect to social capital. Social Capital is captured by two indicators: participation in political organizations, and participation in non-political organizations. Additionally, the variable political interest is used to examine the foundation of civic engagement: A person will take action, if she is interested in how society is shaped and organized and how it can be changed. That is why I consider political interest to be prior to take political action. Ethnic diversity is measured as Herfindahl-Hirschman-Index subtracted from unity and as the share of foreigners. While the simple share of foreigners can be seen as an index to measure the probability of Germans interacting with foreigners; the Herfindahl-Hirschman-Index measures the probability that two people randomly drawn from a population do not have the same ethnicity. Thus, measuring ethnic diversity by these to indicators helps to gain insights in people's perceptions of diversity and their according reactions.

The main results of this analysis is as follows: Ethnic diversity has a statistically and economically significant negative effect on being interested in politics and on participation in political organizations in Germany. This is an important finding since it shows that both interest in politics which can be seen as fundamental to civic participation as well as political participation are inhibited by ethnic diversity. Interestingly, while it turns out that this negative effect can be found when using the share of foreigners as proxy for ethnic diversity, using the Herfindahl-Hirschman-Index does not yield significant effects. This result points to varying perceptions of diversity in the German society. Put differently: Ethnic diversity may not inhibit political interest and participation in political organizations but the share of foreigners does. Based on this, I suppose that Germans primarily perceive ethnic diversity as the share of foreigners surrounding them and that they do not differentiate whether or not the group of foreigners is very homogeneous or heterogeneous. However, my results also reveal that the effect of ethnic diversity – independent from the index used – on participation in non-political organizations is positive and systematically underestimated if selection processes are not taken into ac-

count. Thus, I conclude that people who are positively triggered by ethnic diversity select themselves into more homogenous areas probably because they can afford to do so. If they were exposed to a higher degree of ethnic diversity, they would participate even more.

The rest of the paper is structured as follows. Section 5.2 provides an overview of existing empirical literature on social capital, categorizing it in international and empirical evidence for Germany. Then Section 5.3 explains Putnam's theory of diversity and social cohesion and addresses his claim that a society with a high ethnic diversity will "hunker down" in the short run. In Section 5.4 I present the data sets and the econometric models used for the empirical analysis. Results are discussed in Section 5.5, and finally, Section 5.6 sums up the main findings and concludes.

5.2. Literature

The international evidence on the effects of ethnic diversity on indicators of social capital can be considered as mixed. There is a number of studies which show that social capital is negatively affected by ethnic diversity (e.g. Alesina and La Ferrara 2000, Andrews 2009, Fieldhouse and Cutts 2010, Kaniovski and Mueller 2006, Laurence 2011, Matsubayashi 2010, Miguel 2004, Oliver 2010, Putnam 2007, Tolsma et al. 2009, Twigg et al. 2010). But at the same time a substantial number of studies does not confirm a negative association (Fieldhouse and Cutts 2008a and 2008b, Gijsberts et al. 2011, Letki 2008). Moreover, depending on the indicator used some studies find both – confirming and confuting evidence (e.g. Costa and Kahn 2003a and 2003b).

For Germany, the number of studies is rather limited. Firstly, Schaeffer (2012) set up the Ethnic Diversity and Collective Action Survey to gather detailed information on social cohesion in Germany. The database samples 55 (out of 402) counties in Germany. The author provides support for a negative ethnic diversity effect on membership in civic organizations.

For voluntary work he finds weak evidence that people in more diverse counties do more voluntary work. Secondly, a recent study by Gundelach and Traunmüller (2013) analyzes whether or not cultural diversity is associated with measures of trust and reciprocity. Using two waves of the Socio-Economic Panel (2003, 2005) they find a negative effect of cultural diversity on social trust but not on norms of reciprocity. They note that norms of reciprocity could serve as alternative forms of social capital in modern diverse societies and argue that these are more fundamental to social cohesion because they are prior to social trust. Thirdly, a study by Stichnoth (2012) examines the somewhat related question of whether or not people's generosity in terms of unemployment benefits paid by the state is affected by the share of unemployed foreigners living in their county. Using a fixed effects estimator, he only finds weak evidence for a negative relationship.

As argued before, the effects of ethnic diversity on social capital might be biased if ethnic diversity is measured on a narrow spatial level. This strand of literature takes the critique on endogeneity into account. One approach to eliminate endogeneity is to construct an experiment in which the degree of ethnic diversity is randomly assigned to the respondents. Habyarimana et al. (2007) conducted such an experiment in Uganda. Their results show support for the hypothesis that reputation and sanctioning norms are critical in public goods games. A second study using experimental data is by Koopmans and Rebers (2009). They follow a similar approach like Habyarimana et al. (2007) and confirm their finding that effects of in-group favoritism can only be found if reputation mechanisms are not controlled for. A natural experiment on public housing allocation in France presents a recent discussion paper by Algan et al. (2013). They find that ethnic diversity has a negative impact on the quality of local public goods.

A second approach to eliminate endogeneity is to employ an instrumental variable strategy. La Ferrara and Mele (2006) use US data to analyze the effect of ethnic diversity on public education expenditures. They instrument ethnic diversity in 1990 with the share of immigrants

in 1940. They find that ethnic diversity increases inequality measured as per pupil expenditure across districts and that ethnic diversity has a positive and significant impact on average per pupil expenditure. A contribution by Leigh (2006) uses the instrumental variable strategy suggested by Dustmann and Preston (2001) to address a bias due to endogenous residential sorting. Most importantly for this study, he finds that measures of generalized trust are indeed endogenous which leads to an overestimation of the effect. In their closely related study, Hou and Wu (2009) show that 'Whites' in Canadian neighborhoods trust their minority neighbors less if ethnic diversity is high. In contrast to Leigh (2006), their results suggest an underestimation.

In light of the existing empirical literature, the main contribution of this paper is that it is the first to use different indicators of social capital to investigate whether or not ethnic diversity is endogenous using large representative German survey data. The instrumental variable strategy used will thus allow me to carry out the empirical analysis under weaker assumptions than the existing literature using German data.

5.3. Putnam's Constrict Theory

Honored with the 2006 Johan Skytte Prize for his research on ethnic diversity, Robert Putnam is one of the researchers that put the question of how social capital, civic participation and engagement in modern societies are constructed and how they will evolve on his research agenda for many years. Following his line of reasoning, he claims that, in the short run, an increasing immigration influx and ethnic diversity will lead to neighborhoods where the residents will "hunker down" (Putnam 2007). That means they will engage less in civic movements, participate less in politics and have less friends. His explanation for a diversity driven social isolation is based on the so-called constrict theory. The constrict theory is basically a synergy of interethnic contact and group-threat theory, meaning that in-group trust and out-group trust can vary independently. This stands in contrast to traditional theories. Summed up, on the one hand, the group-threat theory hypothesizes that individuals belonging to the majority group feel

threatened by a growing number of minority group members. Competition for scarce resources leads to both an increased in-group cohesion, as well as to enhanced out-group distinction and negative attitudes towards the minority group (Sherif and Sherif 1953, Quillian 1995). On the other hand, the interethnic contact theory suggests that a higher relative number of minority group members helps to overcome prejudice, enhances out-group solidarity and lowers in-group cohesion (Pettigrew 1998, Rothbart and John 1993).

Instead, Putnam's constrict theory posits that if, for example, someone lives in a community with residents from many nations he/she might have both a close relationship with people who are from the same country (strong in-group ties) as well as with people with different migration backgrounds (strong out-group solidarity). But the reverse can also be true: people who generally lead a secluded life probably do not participate in activities in their community, no matter if these are people who are like or unlike them. Presenting empirical evidence from the United States, Putnam finds support for his theory. He shows that people in more heterogeneous communities have fewer close friends, vote less often, have lower confidence in their local government and seem to withdraw from social life in general. Hence, according to Putnam diversity triggers social isolation in the short run (Putnam 2007). As shown in the literature review, Putnam's core claim has not yet been tested for Germany using a large representative data set. The hypothesis which I will analyze in this paper is: Do we find evidence in Germany for Putnam's claim that ethnic diversity leads to low levels of social capital?

5.4. Data, Econometric Modeling, and Descriptive Statistics

5.4.1. Data

The data used in the paper stem from two different sources. Firstly, the German Socio-Economic Panel (SOEP): This data set is a large representative longitudinal survey of randomly selected private households in Germany which started in 1984. Approximately 25,000 respond-

ents are interviewed on an annual basis. The SOEP covers a broad range of questions but emphasizes topics concerning the individual's life course and well-being (Wagner et al. 2007). Thus, the SOEP provides answers on various items that capture social cohesion and civic engagement. I will be using these questions as indicators to measure social capital: How often do you participate in public initiatives, political parties, or the local government? How often do you take part in honorary office participation in clubs, associations or social services? Additionally, I will also examine the question: How much are you interested in politics? Being interested in politics may not reflect existing social capital but it does capture what is prior to build up civic participation: psychological engagement in politics and interest in the mechanisms shaping society (Brady et al. 1995). Due to the ordinal nature of the variables and to the instrumental variable strategy applied, I recoded the above mentioned ordinal variables into binary variables. I consider a person as politically interested if he/she states to be very interested in politics; a person to participate in a political organization (public initiative, a political party, or the local government) if he/she states to participate at least on a monthly basis. The same applies to participation in non-political organizations: If the person works in an office of a club/association at least once a month he/she is considered to participate in a non-political organization on a regular basis.

Besides asking respondents questions about their attitudes, the SOEP contains a vast number of socio-economic indicators (e.g. age, educational attainment, legal status). In the latter analysis, all variables measured at the individual level are taken from the SOEP. The SOEP also provides information about the federal state, spatial planning regions, and the county of residence of each respondent.[42] This information will be used to combine the individually-based SOEP data with administrative data which I use to calculate the share of foreigners at county

[42] I standardized the territorial boundaries based on the boundaries of 2010. This is possible since counties have been merged into larger units due to county property reforms.

level and the Herfindahl-Hirschman-Ethnic-Diversity Index (HHEDI) to measure ethnic diversity.

Secondly, the administrative data on the regional distribution of foreigners were provided by the German Federal Statistical Office.[43] The data contain the number of foreigners for each of the 402 counties and county boroughs in Germany for the years 1998 to 2011.[44] Moreover, it is possible to identify the exact number of foreigners for all 206 nationalities in each of the counties. Based on this information, it is possible to calculate the general share of foreigners in a county as well as the Herfindahl-Hirschman-Ethnic-Diversity Index. One drawback of the administrative data is that second generation immigrants who hold German citizenship cannot be identified. Data on the number of second generation immigrants or, in general, on persons with a migration background are only available in the Mikrozensus.[45] Unfortunately, this source is not appropriate for this analysis because the information is only available for a higher aggregation level, due to sample sizes and data protection rules. However in line with Gundelach and Traunmüller (2013) and with Schaeffer (2012), I believe that these concerns can be considered as minor for the purposes of my analysis because until 2000 children of non-German parents were automatically entitled to their parents' citizenship. That is why also second generation immigrants were registered as foreigners by the Federal Office for Migration and Refugees. After 2000 children of non-German parents who were born in Germany were given German citizenship and its parents' citizenship. Thus, the child has two citizenships and has to choose one when it turns 18 years (Bundesregierung 2014).

[43] The data were retrieved from the online tool "genesis-online data base" which is the main data provision tool of the Federal Statistical Office in Germany. The data on the foreign population at county level are collected by the Federal Office for Migration and Refugees' central register of foreign nationals and are passed on to the Federal Statistical Office which organizes the data provision centrally.

[44] For some counties data are not available: These counties all belong to the federal state of Saarland: Saarbruecken, Merzig-Wadern, Neunkirchen, Saarpfalz-Kreis, St. Wendel-Kreisstadt, Saarlouis.

[45] The German Census (*Mikrozensus*) is a representative household survey which collects, amongst other topics, data about the regional distribution of the German and the foreign population. Detailed information about the Census can be found on the homepage of the Federal Office of Statistics.

To calculate the Herfindahl-Hirschman-Ethnic-Diversity Index I use the number of respective foreigners in each of the counties. For some nationalities the number is very small (for example the number of people from Chile living in Eichstatt, Bavaria). That is why I aggregated groups of ethnically and culturally similar nations (cf. Schaeffer 2013a). All together this amounts to 40 different ethnic categories. To minimize the subjective influence when building the ethnic categories, I decided only to aggregate nationalities if their share is below 5%. However, Schaeffer (2012) shows that it does not make a difference whether he used 22 or 193 different ethnic categories.

The sample is restricted to respondents who have German citizenship and do not have any migration background. Moreover, I only use observations from West Germany excluding the city-states Hamburg, Bremen, and Berlin. Note that for the three city-states the instrumental variable strategy cannot be reasonably applied because the county and the federal state share exactly the same territorial area. The reason for not using data from East Germany is that detailed regional data on the foreign population is not available for a large number of years and counties. Furthermore, especially in East Germany, there have been many changes of the municipal boundaries during the time period I am analyzing, which makes it impossible to use consistent territorial definitions for the counties.

5.4.2. Econometric Modeling

To model the relationship between ethnic diversity and social capital, I use probit estimation fitting a maximum likelihood function and the respective instrumental variables procedure, which is based on an article by Dustmann and Preston (2001).[46]

Similar to Dill (2013), I will, in a first step, perform simple probit estimations, not taking a likely endogenous nature of the data into account. Let y_{1it} be the dependent variable which

[46] Even though, the data set is based on a longitudinal survey it is not possible to use fixed-effects-models because of the low time variation of the key explanatory variable.

measures the respondent's *i* social capital. Each respondent *i* chose to live in year *t* in a certain county *J* which can be aggregated to *K* federal states (*J*>*K*). Thus, $j(it)$ denotes the county and $k(it)$ the according federal state. The key explanatory variable is $ED_{j(it)}$ which is the share of foreigners at the county level or the Herfindahl-Hirschman-Index respectively in year *t*. Vector $\boldsymbol{x}_{it}$ captures control variables at the individual level. $\boldsymbol{z}_{j(it)t}$ is a vector of contextual control variables and $\boldsymbol{\lambda}_t$ a vector of time dummies. u_{it} is the idiosyncratic error term. The model can be written as

$$y_{it} = \alpha + \beta ED_{j(it)t} + \boldsymbol{x}'_{it}\boldsymbol{\gamma} + \boldsymbol{z}'_{j(it)t}\boldsymbol{\delta} + \boldsymbol{\lambda}'_t\boldsymbol{\theta} + u_{it} \tag{1}$$

The question is, can we assume that $\mathrm{ED}_{j(it)t}$ is exogenous? As already argued, it could be that ethnic diversity with respect to social capital measured on a narrow spatial level is endogenous. One way to eliminate a bias due to selection is to find an instrument, which correlates highly with ethnic diversity but can be excluded from equation (1). Based on a study by Dustmann and Preston (2001), I use ethnic diversity measured at the federal state level as an instrument for ethnic diversity at the county level. The reason for this is as follows: Even though different forms of endogeneity which are all based on a non-random sorting of foreigners or natives occur on a narrow spatial level, it is rendered unlikely that people move to another federal state to avoid a certain degree of ethnic diversity because of distances from work, as well as proximity to family and friends. Using the instrumental variable approach of Amemiya (1978) and Rivers and Vuong (1988) the reduced form equation is then given by

$$ED_{j(it)t} = \alpha + \varphi ED_{k(it)t} + \boldsymbol{x}'_{2it}\boldsymbol{\Pi} + \boldsymbol{z}'_{j(it)t}\mathbf{T} + \boldsymbol{\lambda}'_t\boldsymbol{\Upsilon} + \varepsilon_{it} \tag{2}$$

where $ED_{j(it)t}$ is the ethnic diversity index at county level at year t, $\boldsymbol{x}_{2it}$ is a vector of exogenous variables, $ED_{k(it)t}$ is the ethnic diversity index measured at the federal state level which is assumed to affect $ED_{j(it)t}$ but can be excluded from (1). $ED_{k(it)t}$ is assumed not to influence y_{it}

directly. $\mathbf{\Pi}$, $\mathbf{T}$, and $\mathbf{\Upsilon}$ are coefficient vectors of reduced-form parameters and ε_{it} is an unobservable random error term. The error terms of the two equations (1) and (2) are normally distributed with mean zero and variance Σ: $(u_i, \varepsilon_i) \sim \mathrm{N}(0; \Sigma)$.

5.4.3. Key Variables

The two main regressors in this study are ethnic diversity and the share of foreigners – each of the two measured at the regional level and at the federal state level. As in most studies that measure ethnic diversity, I use the classical Herfindahl-Hirschman-Ethnic Diversity Index (Hirschman 1964) subtracted from unity which is given by:

$$HHEDI = 1 - \sum_{i=1}^{n} S_i^2 \tag{3}$$

with S_i denoting the respective share of foreigners for each nation and n being the number of ethnic categories in a given county (the aggregation of nations into ethnic categories is listed in Table 5.1).

Because of its construction, the ethnic diversity index can only vary from 0 (a perfectly homogenous county composed only of one group) to 1 (a heterogeneous county). Table 5.2 shows the variable descriptions and their descriptive statistics. For the sample used in the study, the mean ethnic diversity index equals 0.1742 with a minimum of 0.0318 (Freyung-Grafen, Bavaria) and a maximum of 0.5229 (Offenbach am Main, Hessen). The second indicator used as a key explanatory variable is the share of foreigners. It could well be that the pure share of foreigners may have a different effect on social capital compared to ethnic diversity. For example, people may not (correctly) perceive whether or not the area they are living in is ethnically diverse but, indeed, they may perceive if they live in an area with a lower or a higher share of foreigners in general. The share of foreigners is simply the overall share of registered foreigners in a given county. On average, the share of foreigners is 0.0974 with the lowest share in Freyung-Grafen (0.0228) once more and the highest in Offenbach am Main (0.2628) (Table

5.2). Unfortunately, the two indices are highly correlated (.98; p<.001) and thus cannot be directly tested against each other.

Table 5.1: Ethnic Categories

Countries which are used as individual ethnic category	Albania, Belgium, Bosnia and Herzegovina, Bulgaria, Finland, France, Greece, Ireland, Italy, Kosovo, Croatia, Luxembourg, Netherlands, Austria, Poland, Portugal, Russia, Serbia, Slovakia, Slovenia, Spain, Czech Republic, Turkey, Cyprus
Africa	Egypt, Algeria, Libya, Morocco, Mauritania, Tunisia, Ethiopia, Burundi, Djibouti, Eritrea, Kenya, Somalia, Sudan, Uganda, Angola, Botswana, Comoros, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Zambia, Zimbabwe, South Africa, Swaziland, Tanzania, Trinidad and Tobago, Benin, Burkina Faso, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Cameroons, Cape Verde, Liberia, Mali, Niger, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone, Togo, Equatorial Guinea, Gabon, Congo, Democratic Republic of Congo, Republic of Chad, Central African Republic
South and middle America	Antigua and Barbuda, Bahamas, Barbados, Dominica, Grenada, Haiti, Jamaica, Cuba, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Argentina, Bolivia, Brazil, Chile, Ecuador, Guyana, Colombia, Paraguay, Peru, Suriname, Uruguay, Venezuela, Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama
Afghanistan and Pakistan	Afghanistan, Pakistan
Scandinavia	Denmark, Iceland, Norway, Sweden
Baltic countries	Estonia, Latvia, Lithuania
Yugoslavia	Yugoslavia, Macedonia
Switzerland and Liechtenstein	Switzerland and Liechtenstein
North America	US, Canada
Eastern Europe	Armenia, Azerbaijan, Georgia, Moldova, Republic of Montenegro, Romania, Ukraine, Hungary, Belarus
Australia and New Zealand	Australia and New Zealand
Middle East	Bahrain, Iraq, Islamic Republic of Iran, Israel, Yemen, Jordan, Qatar, Kuwait, Lebanon, Oman, Palestinian Territories, Saudi Arabia, Syria, United Arab Emirates
Far East	Bangladesh, Bhutan, China, Hong Kong, India, Japan, Korea, Macau, Maldives, Nepal, Sri Lanka, Taiwan, South Korea
South East Asia	Brunei Darussalam, Indonesia, Cambodia, Lao PDR, Malaysia, Myanmar, Papua New Guinea, Philippines, Singapore, Thailand, Timor-Leste, Vietnam
Oceana	Fiji, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Palau, Solomon Islands, Samoa, Seychelles, Tonga, Tuvalu, Vanuatu
Central Asia	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Mongolia
UK	United Kingdom, British Overseas Territories

The outcome variables all refer more strongly to a formal dimension of social capital as they capture the individual's involvement in civil society or its respective foundation. Taken from the SOEP, I use political interest, regular participation in political organizations, and participation in political organizations which are all coded as binary variables. The variable political interest equals 1 if the respondent claims to be very interested in politics and 0 otherwise. Table 5.2 shows that almost 9% of the people sampled are very interested in politics. The first indicator for formal social capital is whether or not the person participates in public initiatives,

political parties or local government. If this is the case on a daily/weekly/monthly basis the dummy equals 1. The second indicator is participation in non-political organizations: If a person states that he/she works in an office of a club, an association or another non-political organization that provides social services on a daily/weekly/monthly basis the dummy is 1.

Table 5.2: Variable Description and Descriptive Statistics

Variable	Description (Mean, Std.-Dev.)
Dependent Variables	
Political Interest	Dummy=1 if person is generally very interested in politics, 0 otherwise. Available: 1998 to 2009. (.0899, .2861)
Participation in political organizations	Dummy=1 if person participates in public initiatives, political parties or local government daily, weekly, monthly, 0 if he/she participates seldom or never. Available: 1998, 1999, 2001, 2003, 2005, 2007, 2008, 2009. (.0329, .1785)
Participation in non-political organizations	Dummy=1 if person takes part in honorary office participation in clubs, associations or social services daily, weekly, monthly, 0 if he/she participates seldom or never. Available 1998, 1999, 2001, 2003, 2005, 2007, 2008, 2009, 2011. (.2174, .4125)
Contextual Variables	
Share of foreigners at the county level	Share of foreigners in a county in year t. (.0974, .0497)
Share of foreigners at the federal state level	Share of foreigners in a federal state in year t. (.0970, .0198)
HHEDI at the county level	Herfindahl-Hirschman-Ethnic-Diversity Index in a county in year t. (.1742, .0929)
HHEDI at the federal state level	Herfindahl-Hirschman-Ethnic-Diversity Index in a federal state in year t. (.1765, .0401)
Average Income per capita at the county level	Average Income per capital in a county in year t. (1519.62, 190.95)
Unemployment rate at the county level	Unemployment rate at the county level in percent in year t. (8.916, 3.229)
Individual Variables	
Satisfaction with income	Satisfaction with household income coded from 0 lowest to 10 highest. (6.740, 2.145)
Female	Dummy = 1 if respondent is a woman. (.5307, .4991)
Age	Age in years of respondent. (49.77, 16.37)
$Age^2/100$	Age in years of respondent squared and divided by 100. (27.45, 16.93)
Married	Dummy = 1 if respondent is married. (.6589, .4741)
Divorced	Dummy = 1 if respondent is divorced. (.0827, .2754)
Widowed	Dummy = 1 if respondent is widowed. (.0685, .2526)
Single (reference category)	Dummy = 1 if respondent is single. (.1899, .3922)
Low education	Dummy = 1 if respondent's highest educational attainment is secondary education first stage. (.1661, .3722)
Intermediate education	Dummy = 1 if respondent's highest educational attainment is secondary education second stage or a completed apprenticeship training. (.5717, .4948)
High education (reference category)	Dummy = 1 if respondent's highest educational attainment is first or second stage of tertiary education. (.2623, .4399)
Not working	Dummy = 1 if respondent is not working. (.0930, .2904)
In formal education	Dummy = 1 if respondent is in formal education/training. (.0219, .1463)
Retired	Dummy = 1 if respondent is retired. (.2556, .4362)

Person doing community service	Dummy = 1 if respondent is a person doing community service. (.0023, .0482).
In training	Dummy = 1 if respondent is a trainee/intern. (.0170, .1291)
Manual worker	Dummy = 1 if respondent is a manual worker. (.1320, .3385)
Farmer	Dummy = 1 if respondent is a self-employed farmer. (.0031, .0553)
Self-employed	Dummy = 1 if respondent is a self-employed person. (.0455, .2084)
White collar worker	Dummy = 1 if respondent is a white collar worker. (.3307, .4705)
Unemployed (reference category)	Dummy = 1 if respondent is unemployed. (.0324, .1772)
Civil servant	Dummy = 1 if respondent is a civil servant. (.0636, .2440)
Christian	Dummy = 1 if respondent is protestant or catholic. (.8097, .3925)
Undenominational or other religion (reference category)	Dummy = 1 if respondent is undenominational or has other religion. (.1903, .3817)
Mother high education	Dummy = 1 if respondent's mother achieved tertiary education degree. (.0469, .2115)
Father high education	Dummy = 1 if respondent's father achieved tertiary education degree. (.1157, .3198)
Year dummies	Dummy variables for the years 1998 to 2009.

Source: SOEP (waves 1998-2009, version 29, doi: 10.5684/soep.v29), data provided by the Federal Statistical Office (data at the county level are available from 1998 to 2010). Indicated availability of dependent variables always refers to the time period from 1998 to 2009. For the controls no availability is indicated because these variables are available for each year.

5.4.4. Control Variables

In line with the existing literature, I use a rich set of control variables when estimating the relationship between ethnic diversity and social capital. The individual controls are taken from the SOEP as well as the contextual control variables like local unemployment rate and average income per capita in a given county. One of the controls is satisfaction with income, which is a subjective measure of the respondent's income on a scale ranging from 1 to 10. Satisfaction with one's income captures effects of perceived income inequality. It has been found that higher levels of income inequality are associated with a lower probability of giving informal help, to donate, or to participate in a voluntary organization (Gesthuizen et al. 2008). Another reason to control for income satisfaction is that it has been shown that only people who have a sufficiently high income get involved in civil society (e.g. Anderson and Paskeviciute 2006). One explanation could be that people with high incomes are expected to take an active part and social responsibility in society. A second one is referring to a budget constraint motive: If a person has more financial resources, it might be easier to deal with the opportunity cost of foregone income implied by devoting time to non-remunerated activities. Thirdly, in Germany, the tax law allows

the reduction of taxable income if someone is working voluntarily – of course, this is only possible for those who earn above the tax-free allowance.[47] Continuing in this vein, the variable average income per capita at the county level captures effects associated with the financial resources of a county. In Germany, counties are financed in part by income tax revenues. Hence, counties with a high average income per capita tend to have higher financial resources compared to other counties. On the one hand, it could be that the provision of public goods is on average higher and leads to a feeling of a reduced need for engaging in society. On the other hand, a higher per capita income may again reflect a higher individual ability to engage in society. Heilbronn in Baden-Württemberg has the highest average income per capita of 2701.50€ per month; Wittmund (Lower Saxony) has the lowest (1052.80€). The mean of this variable equals 1519.62€. Furthermore, I have added the county level unemployment rate to separate the effects of the key explanatory variable from this locational economic factor as it has been shown that socio-economic disadvantage is positively related to low social capital (Letki 2008). In the sample, Eichstaett (Bavaria) has the lowest unemployment rate (1.9%); Gelsenkirchen, with a rate of 25.2%, the highest.

Previous literature has found that education and ability are important predictors for social capital, also referring to the fact that a person needs to have the necessary capabilities to engage in civic or political movements (Gundelach and Traunmüller 2013, Schaeffer 2012). To control for this, I use the person's highest educational level (coded in three dummies: primary education, secondary, and tertiary graduation) and parental highest educational attainment (coded as a dummy that equals one if mother or father have a tertiary education). In my sample, roughly 16% have a low educational attainment, 57% an intermediate, and 26% can be classi-

[47] Cf. § 3 Nr. 26 EStG (German Income Tax Law).

fied as highly educated. Furthermore, 4.7% of the respondents have a mother with high education, 11.6% a highly educated father. Both a person's education and their parental education are expected to affect the indicators of social capital positively.

Furthermore, I account for the occupational status of a person. Based on the SOEP coding, I generated ten dummy variables, capturing broad job occupations like manual worker, civil servants, etc. Different types of jobs might be affected differently by ethnic diversity or the share of foreigners in a county. When looking, for example, at the outcome variable political interest, it is reasonable to assume that especially people working in low-skilled occupations fear competition from an increasing influx of foreigners who are themselves overrepresented in low-skilled occupations. That is why they may either be more politically interested or withdraw their interest. A similar reasoning also holds true for the other statuses. Being unemployed will be used as reference category. Though unemployed persons have a spare time budget which is similar to retirees or non-working, I suppose that unemployed people may have lower levels of social capital because they have a higher probability to seclude themselves from society (Winkelmann and Winkelmann 1998).

Moreover, I control for one's religion because in Germany the Christian churches engage in voluntary activities and encourage people to raise their voice in civic movements. Moreover, Traunmüller (2011) shows that Catholics and Protestants show higher levels of trust than non-religious people. Thus, I hypothesize that Christian respondents have a higher probability of participating non-political organizations, because of the church being a motivator for such a behavior. 81% of the sample are Catholics and Protestants, the remaining 19% state to have another religious affiliation or none.[48] Living in a rural area probably may also affect social capital. In large cities, typically, the share of people not being raised in the same county (e.g. newcomers who moved there because of better employment prospects) is higher than in rural

[48] Note that Muslims, Buddhists, etc. only make up a very small proportion, since the sample is restricted to native Germans without any migration background.

areas. I argue that the average attachment and identification with the social environment of people living in a village is larger compared to those living in urban areas. Moreover, the literature using historical data finds that in rural regions where collective action and social cohesion have been particularly important for subsistence farmers, higher levels of social cohesion and norms of trust existed and persist until today (Durante 2010). To control for these effects of urbanization on the dependent variable, I include a set of 17 dummies that stem from the SOEP data capturing different urban categories. Finally, I also add a set of standard individual variables (age, gender, marital status) and year dummies.

5.5. Results

In this chapter I will present the results of the simple probit estimations and then, in a second step, discuss the related instrumental variable estimations.

5.5.1. Basic Estimates

Table 5.3 shows the estimation results for the variable political interest and the two variables capturing formal social capital. Starting with political interest, I find that in a given county the share of foreigners affects the variable political interest negatively while the Herfindahl-Hirschman-Ethnic Diversity Index is not significant but negative as well (Table 5.3, columns (5.3.1) and (5.3.2)). People seem to withdraw their interest from political acitvities if exposed to higher ethnic diversity; though this effect is only true for the share of foreigners.

Table 5.3: Probit Estimates

	(5.3.1) Political Interest	**(5.3.2)** Political Interest	**(5.3.3)** Political organizations	**(5.3.4)** Political organizations	**(5.3.5)** Non-political organizations	**(5.3.6)** Non-political organizations
Share of foreigners	-1.489* [-0.009] (.6285)	---	-1.852* [-0.005] (.9338)	---	.7504 [0.011] (.6494)	---
HHEDI	---	-.5301 [-0.006] (.3318)	---	-.9457* [-0.005] (.4770)	---	.3281 [0.009] (.3251)
Satisfaction with income	.0155* (.0063)	.0156* (.0063)	.0329** (.0098)	.0329** (.0098)	.0330** (.0053)	.0330** (.0053)
Female	-.4472** (.0269)	-.4473** (.0269)	-.2734** (.0391)	-.2734** (.0391)	-.2150** (.0257)	-.2149** (.0257)

Individual Age	.0251** (.0058)	.0251** (.0058)	.0494** (.0084)	.0494** (.0084)	.0389** (.0050)	.0389** (.0050)
Individual Age squared	-.0081 (.0056)	-.0081 (.0056)	-.0373** (.0082)	-.0373** (.0082)	-.0398** (.0048)	-.0398** (.0048)
Married	-.1630** (.0455)	-.1618** (.0455)	.0106 (.0546)	.0109 (.0547)	.1514** (.0374)	.1512** (.0374)
Divorced	-.1280* (.0640)	-.1272* (.0639)	-.0681 (.0887)	-.0675 (.0886)	-.0481 (.0554)	-.0484 (.0553)
Widowed	-.1548* (.0723)	-.1525* (.0723)	.0198 (.1080)	.0200 (.1078)	.1120 (.0695)	.1115 (.0695)
Unemployment rate	.0095 (.0081)	.0114 (.0081)	-.0032 (.0118)	-.0027 (.0118)	-.0109 (.0067)	-.0114 (.0068)
Income per capita	.0001 (.0001)	.0001 (.0001)	-.0003 (.0002)	-.0003 (.0002)	-.0002 (.0001)	-.0002 (.0001)
Primary Education	-.3840** (.0497)	-.3840** (.0498)	-.2874** (.0719)	-.2866** (.0721)	-.2546** (.0383)	-.2545** (.0383)
Secondary Education	-.2575** (.0327)	-.2578** (.0328)	-.1510** (.0441)	-.1509** (.0441)	-.0944** (.0259)	-.0947** (.0259)
Not working	-.0922 (.0591)	-.0918 (.0592)	-.0814 (.0954)	-.0822 (.0955)	.1348* (.0543)	.1350** (.0543)
In formal Education	.2538** (.0749)	.2540** (.0747)	.4228** (.1283)	.4224** (.1284)	.4796** (.0714)	.4796** (.0715)
Retired	-.0372 (.0615)	-.0382 (.0616)	-.0780 (.0884)	-.0785 (.0884)	.1543** (.0544)	.1549** (.0544)
In Training	.0616 (.0886)	.0618 (.0886)	.3552* (.1558)	.3563* (.1557)	.4150** (.0803)	.4145** (.0803)
Manual worker	-.2539** (.0572)	-.2541** (.0572)	-.1663* (.0837)	-.1666* (.0838)	.0579 (.0490)	.0583 (.0490)
Self-employed	.0802 (.0683)	.0807 (.0683)	.1002 (.0978)	.1018 (.0978)	.0479 (.0649)	.0476 (.0649)
White-collar	-.0421 (.0506)	-.0427 (.0506)	.0321 (.0777)	.0319 (.0777)	.0960* (.0470)	.0964* (.0469)
Civil servant	.2761** (.0674)	.2760** (.0675)	.3162** (.0969)	.3155** (.0969)	.2992** (.0644)	.2994** (.0643)
Farmer	.0932 (.1999)	.0919 (.1996)	.6087* (.2447)	.6053* (.2440)	.3043 (.1737)	.3056 (.1742)
Person doing community service	.1125 (.1427)	.1126 (.1426)	.5024 (.2889)	.5040 (.2894)	.3751** (.1332)	.3753** (.1332)
Christ	-.1357** (.0380)	-.1360** (.0380)	.0186 (.0624)	.0175 (.0625)	.2357** (.0330)	.2359** (.0330)
Tertiary education of father	.2158** (.0406)	.2152** (.0406)	.0649 (.0668)	.0651 (.0667)	.1005* (.0402)	.1006* (.0402)
Tertiary education of mother	.1268* (.0608)	.1255* (.0608)	.0233 (.0827)	.0220 (.0824)	.1263* (.0580)	.1267* (.0581)
Constant	-2.136** (.2772)	-2.175** (.2779)	-2.789** (.4022)	-2.834** (.4000)	-1.688** (.2296)	-1.670** (.2293)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Dummies for the type of county	Yes	Yes	Yes	Yes	Yes	Yes
Counties	312	312	312	312	312	312
Observations	89896	89896	57448	57448	57544	57544
Log pseudolikelihood	-24637.91	-24648.68	-7790.92	-7791.94	-29023.27	-29025.07

Note: All regressions include controls for type of settlement (17 types) and years (1998-2009). 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. Predictions of increasing ethnic diversity from its mean value by one one-standard deviation are in square brackets (all covariates at means). Huber-White standard errors clustered at the county level are in parentheses. ** Statistically significant at the 1% level; * at the 5% level. Source: SOEP (waves 1998-2009, version 29, doi: 10.5684/soep.v29), data provided by the Federal Statistical Office, own calculations.

The first social capital indicator is whether or not a person regularly participates in political organizations (columns (5.3.3) and (5.3.4)). For both of the key explanatory variables the effect is negative and significant at the 5%-level. The result suggests that people living in more diverse counties are less likely to be regularly participating in political organization. In conjecture with the result from the variable, political interest, and with the existing literature on political participation, it seems to be reasonable that political interest functions as a foundation for other political motivated activities.

Moreover looking at participation in non-political organizations (columns (5.3.5) and (5.3.6)), I do not find any significant effects of either indicator in the simple probit estimates. Based on these results, it can be concluded that political interest and participating in political organizations is negatively affected by ethnic diversity whereas participating in non-political organizations is not. The control variables yield results consistent with the theoretical expectations.

5.5.2. Instrumental Variable Estimations

So far, in the probit estimations, ethnic diversity has been found to affect the probability of being politically interested and participating in political organizations negatively. Instead, participation in non-political organizations seems to be unaffected by ethnic diversity. However, it is worth asking if these results hold true in an instrumental variable setting which takes into account that ethnic diversity measured at the county level might be endogenous. Table 5.4 shows the results of the instrumental variable estimations.[49] Results for the control variables are not displayed in the table due to spatial constraints. However, the results for these variables do not change much with respect to the previous empirical specification.

[49] The effects are robust with reference to the assumed distribution since two-stage-least-squares yield similar results. F statistics of the excluded instrument yield sufficiently high results to be confident that the instrument is highly correlated with the endogenous explanatory variable.

The instrumented probit estimations in Table 5.4 show that for the outcome variable, political interest, the coefficient of the key explanatory variable, share of foreigners, remains negatively significant at the 5%-level (column (5.4.1)). If the share of foreigners is one standard deviation higher than the average, the probability to be politically interested is 3.7 percentage points lower. Taking into account, that the correlation between the error terms from equations (1) and (2), Rho, is insignificant, it can be concluded that endogeneity caused by residential (self-)sorting does not bias the results of a simple probit procedure. Measuring ethnic diversity using the Herfindahl-Hirschman-Ethnic Diversity Index leads again to an insignificant effect which is also in line with the probit estimates (5.4.2).

Table 5.4: Instrumental Variable Estimations

	(5.4.1) Political Interest	**(5.4.2)** Political Interest	**(5.4.3)** Political organizations	**(5.4.4)** Political organizations	**(5.4.5)** Non-political organizations	**(5.4.6)** Non-political organizations
Share of foreigners	-6.882* [-0.037] (3.094)	---	-7.908* [-0.017] (3.761)	---	7.821** [0.1279] (2.980)	---
HHEDI	---	-2.394 [-0.026] (1.441)	---	-2.993 [-0.013] (1.805)	---	3.131* [0.093] (1.218)
Constant	-1.981** (.3328)	-2.170** (.2978)	-2.587** (.4347)	-2.806** (.4032)	-1.835** (.3037)	-1.654** (.2629)
Rho	.1441 (.0810)	.0930 (.0673)	.1646 (.0970)	.1032 (.0854)	-.1905* (.0756)	-.1403* (.0563)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Dummies of the type of county	Yes	Yes	Yes	Yes	Yes	Yes
Counties	312	312	312	312	312	312
Observations	89896	89896	57448	57448	57544	57544
Log pseudo-likelihood	179594.35	125084.89	122868.46	88281.28	101886.79	67232.4

Note: All regressions include controls for type of settlement (17 types) and years (1998-2009). 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. Predictions of increasing ethnic diversity from its mean value by one one-standard deviation are in square brackets (all covariates at means). Huber-White standard errors clustered at the county level are in parentheses. ** Statistically significant at the 1% level; * at the 5% level. Source: SOEP (waves 1998-2009, version 29, doi: 10.5684/soep.v29), data provided by the Federal Statistical Office, own calculations.

Similarly, the results for participation in political organizations are robust using the instrumental variable strategy. I find a negative effect of the share of foreigners but no effect if the Herfindahl-Hirschman-Ethnic-Diversity Index is used (columns (5.4.3) and (5.4.4)). A one stand-

ard deviation increase from the mean of the share of foreigners leads to a decrease in the probability of participation in political organizations of 1.7 percentage points. With reference to Putnam's "hunkering down" hypothesis, it can be concluded that, indeed, people withdraw from political activities. This may be on the level of their community, on the federal state level, or on the national level. Unfortunately, the data do not allow to differentiate the level of participation. However, if people are willing to shape their everyday's life concerning the provision of public goods, regional development, and decision-making processes in civil society in general, they can only have influence on these parameters by actively (stand for election) or passively (vote at an election) participate in the political process. Instead, the results of my estimations show that people are less interested in politics and participate less if ethnic diversity increases. Thus, for certain reasons in ethnically diverse areas they seem to perceive that their influence is too small to enforce their ideas.

In contrast to the probit results, columns (5.4.5) and (5.4.6) of Table 5.4 show that participation in non-political organizations is now significantly positive affected by either index of ethnic diversity: In regions with a higher ethnic diversity, people are significantly more likely to work voluntarily. Furthermore, it appears that people who are willing to participate in non-political organizations choose to live in less diverse counties (underestimation of the ethnic diversity effect). Not taking this into account leads to a statistical type II error. Based on the estimation in Table 5.4 (5.4.5) living in an area with a one standard deviation higher share of foreigners yields an increase in the probability of participation in non-political organizations of 12.8 percentage points. Similar results are obtained measuring ethnic diversity as Herfindahl-Hirschman-Index. Unfortunately, the SOEP summarizes as non-political organizations different kinds of clubs and associations without specifying what exactly the organization's purpose is. Thus, it is difficult to explain this finding, which at first seems to contradict the results regarding the other forms of social capital. However, this finding is in line with a study by Schaeffer (2012) who also finds weak evidence that ethnic diversity affects participation in non-

political organizations positively. He supposes that in counties with a higher diversity people are more intensively seeking for people that resemble them. To take his argument further, it could well be that this positive coefficient indicates that people are segregating more if they feel that ethnic diversity is higher in areas surrounding them. Clubs and associations are inclusive to their members and encourage them to participate, but at the same time they are exclusive to non-members. For future research, it would be of great interest to investigate this factor more in depth.

Table 5.5: Projections – Share of foreigners

	(5.5.1) Share of foreigners equals the sample's mean minus one standard deviation	**(5.5.2)** Share of foreigners equals the sample's mean	**(5.5.3)** Share of foreigners equals the sample's mean plus one standard deviation	**(5.5.4)** Share of foreigners equals the sample's mean plus two standard deviation
Political Interest	13.28	7.28	3.62	1.62
Political organizations	6.31	2.74	1.04	0.34
Non-political organizations	11.79	21.22	34.01	48.99

The projections are predicted probabilities in percent based on the estimations in Table 4.5 (all covariates at means). Source: SOEP (waves 1998-2009, version 29, doi: 10.5684/soep.v29), data provided by the Federal Statistical Office, own calculations.

Table 5.6: Projections – Herfindahl-Hirschman-Ethnic-Diversity Index

	(5.6.1) HHEDI equals the sample's mean minus one standard deviation	**(5.6.2)** HHEDI equals the sample's mean	**(5.6.3)** HHEDI equals the sample's mean plus one standard deviation	**(5.6.4)** HHEDI equals the sample's mean plus two standard deviation
Political Interest	10.74	7.18	4.60	2.82
Political organizations	4.86	2.65	1.35	0.64
Non-political organizations	13.69	21.04	30.30	41.04

The projections are predicted probabilities in percent based on the estimations in Table 4.5 (all covariates at means). Source: SOEP (waves 1998-2009, version 29, doi: 10.5684/soep.v29), data provided by the Federal Statistical Office, own calculations.

To get a sense of the effect for different values of ethnic diversity on social capital I computed projections. The calculations are based on the models using the instrumental variable estimation results. Table 5.5 and Table 5.6 show the projections, which indicate the probability of participating in the different forms of social capital for different values of ethnic diversity.

From the results in Table 5.5, it is apparent that ethnic diversity has an economically significant effect on political interest: For example, compared to a region with a share of foreigners equal to the mean minus one standard deviation (13.28 percent probability to be politically interested), a person living in a region with an average share of foreigners has a 6 percentage points lower probability to be interested in politics (first line, columns (5.5.1) and (5.5.2)). Similar is the effect for participation in political organizations: Here the same increase of ethnic diversity yields a decrease of 3.57 percentage points (second line, columns (5.5.1) and (5.5.2)). The effect of ethnic diversity on participation in non-political organizations is the opposite: The probability of participating in non-political organizations is 9.43 percentage points higher in counties with an average share of foreigners compared to a county with a one standard deviation lower share of foreigners. The effect is substantially increasing with higher values of ethnic diversity (third line, columns (5.5.1) and (5.5.2)). Similar results are obtained when using the Herfindahl-Hirschman-Index (Table 5.6).

5.6. Conclusions

In a recent speech the federal president of Germany, Joachim Gauck, discussed the question of how a growing ethnic diversity changed Germany in the past and how it will affect everyone's life in future. According to him, a higher ethnic diversity offers both: challenges in the short run and chances in the long run (Gauck 2014).

This paper examines the short run effects that ethnic diversity has on social capital in the German society. I am using a large-scale representative, individual-based data set which provides two items to measure formal social capital: participation in political organizations and participations in non-political organizations. Moreover, I use the item interest in politics to examine a factor which is prior to develop social capital. These survey data are combined with

administrative data on the regional distribution of foreigners originating from 206 different nations to compute a Herfindahl-Hirschman-Ethnic-Diversity Index. The index is used to regress it on each of the social capital indicators. As a second measure, I calculated the share of foreigners in each county. The purpose of using two different indices is that they allow investigating how people perceive ethnic diversity and whether or not their social capital is triggered by either index or only by one.

By contrast to the existing empirical literature, this study addresses explicitly that ethnic diversity could be endogenous. Measured at the county level ethnic diversity is endogenous if respondents select themselves into areas with more or less foreigners according to their preferences for a higher or lower ethnic diversity. In general, there are two approaches to deal with an endogenous regressor caused by residential self-selection: Gather data in a (natural) experiment where respondents are randomly assigned to regions or instrumenting the endogenous regressor. In this paper, I instrument ethnic diversity measured on a narrow level with the ethnic diversity at the federal state level because it is reasonable to assume that locational choices are restricted on smaller spatial areas (Dustmann and Preston 2001).

Using survey data from the Socio-Economic Panel I find that the indicator, political interest, is negatively affected by the share of foreigners. This finding even holds in an instrumental variable setting. If ethnic diversity is measured using the Herfindahl-Hirschman-Index, the evidence is much weaker suggesting that Germans are triggered by a rather rough indicator like the share of foreigners and less by a more elaborated index capturing diversity. Turning to Putnam's theory of a society "hunkering down" due to ethnic diversity, my results on political interest indeed corroborate his idea. Furthermore, very similar effects are observed for participation in political organizations which is one important dimension of formal social capital. Both the probit and the instrumental variable estimations show statistically and economically negative effects using the share of foreigners as indicator of ethnic diversity. From the result that a higher concentration of certain ethnic group in a region is not harming social capital but a high

share of foreigners does, it can be concluded that policy interventions which aim to prevent the formation of enclaves with a high share of foreigners in certain regions should be undertaken.

With respect to participation in non-political organization, my analysis reveals that this indicator of formal social capital turns out to be positively affected by either index of ethnic diversity. Most interestingly, a significant effect can only be found in the instrumental variable estimations accounting for selection processes which indicates an underestimation of ethnic diversity in naïve probit models. Taking into account that participation in non-political organizations may not be necessarily socially beneficial for the whole society, I argue that these activities could also be used by Germans to exclude foreigners and to socially isolate. For example, doing voluntary work for the local church community implicitly means to exclude all foreigners not being affiliated to the Christian churches. That is why, the results for this indicator of social capital may still not contradict Putnam's social isolation theory – but for participation in non-political organizations the relationship may be more complex. Using a special purpose survey, it would be worth investigating motives and predictors of participation in non-political organizations further.

6. Concluding Remarks

The aim and contribution of this thesis is the analysis of the effects of the spatial distribution and integration of foreigners in West Germany. Over the past 60 years, Germany has experienced different waves of immigration with significant positive net balances caused by the recruitment of guest workers in the 1960's/70's, the introduction of the Law of Return for ethnic Germans in 1992, and the free movement of people within the EU that encouraged people from southern and eastern European countries to immigrate to Germany during the economic crisis starting in 2008. In 2013, the total share of foreigners living in Germany was 8.6% (Destatis 2013). Germany is an immigration country – but how does its society deal with a more diverse population, and how can we minimize fear, prejudice and the negative effects that may result from immigration in the short term?

Improving our knowledge about the spatial distribution of foreigners and its effects on the perceptions of Germans and foreigners, and about how to influence these parameters, therefore serves as an important topic not only within academic research, but also for policy debates and discourse in society. When examining the attitudes and perceptions of the native and foreign population, it is reasonable to recognize that the regional distribution of foreigners did not occur randomly, but is in itself partly the product of attitudes and perceptions. This complex interaction is taken into account by explicitly modelling the possible residential self-selection of Germans and foreigners, and by using two different perspectives. On one hand, Chapters 2 and 3 use the immigrants' perspective to investigate the causes and effects of residential segregation in terms of discriminatory behavior. On the other, Chapters 4 and 5 take the perspective of German natives in examining whether or not a given regional distribution of immigrants affects extreme right-wing attitudes and civic engagement.

Chapter 2 uses data from the German Socio-Economic Panel, and examines the relationship between immigrant residential segregation and immigrants' satisfaction with their

neighborhoods.[50] The contribution of this chapter is to bring together two competing strands of existing literature on the causes of residential segregation of immigrants. One strand suggests that immigrants voluntarily select themselves into ethnically segregated areas, and the other strand assumes that immigrants experience discrimination from landlords and tenants which in turn forces them to live in ethnic enclaves. To examine whether self-sorting or discrimination better explains residential immigrant segregation in Germany, we use a subjective indicator of satisfaction with the neighborhood as the dependent variable to gain insights into the utility immigrants derive from living in a certain area. If immigrants have a preference to live in segregated areas, they should express higher levels of satisfaction with their neighborhood than those who live in German-dominated areas. For example, Chiswick and Miller (2005) show that one reason to live in ethnically segregated areas could be the opportunity for immigrants to produce and consume ethnic goods. Moreover, immigrants may not need to bear the cost of acquiring full proficiency in the host country's language (Lazear 1999). But both of these effects may also be the result of ethnic segregation and not the motivation to live there. It could well be that immigrants are forced to live in segregated areas because landlords discriminate against immigrants for statistical or preference-based reasons (Aigner and Cain 1977, Becker 1957). Accordingly, if discrimination is the dominant reason for immigrants living segregated, they should be less satisfied with the area they live in, in comparison to those who are able to live in German-dominated areas.

In our empirical analysis, we use data from the 1986 and the 1994 wave of the Socio-Economic Panel Study for West Germany, as only these waves contain detailed information on the ethnic composition of the neighborhood a respondent is living in and his/her satisfaction with it. Most interestingly for this study, the data allow us to differentiate between two types of areas with a high share of immigrants: firstly, areas where most of the immigrants are from the same country of origin, and secondly, areas where immigrants come from other countries of

[50] This chapter is joint work with Uwe Jirjahn and Georgi Tsertsvadze.

origin than the respondent. The sample is restricted to immigrants from Italy, Greece, Spain, and Turkey. Besides our key variables, we use an extensive set of individual and household characteristics to carefully control for other influences on the relationship between residential segregation and neighborhood satisfaction. Our estimates show that immigrants living in segregated areas are less satisfied with their neighborhoods. This finding corroborates the hypothesis that housing discrimination rather than self-selection plays an important role in explaining residential segregation. Moreover, we observe that immigrants are less satisfied with their neighborhoods in areas with many immigrants who are from the same country of origin, and in areas with many immigrants from different countries. If self-selection were the dominant factor explaining residential segregation, we would have expected to find higher levels of satisfaction, at least in neighborhoods where many immigrants have the same ethnic background. Our results also hold true in fixed effects estimates that account for unobserved time-invariant influences. If immigrants who live in ethnic enclaves are less satisfied with their neighborhood, then it stands to question whether or not they also perceive a higher degree of discrimination compared to their counterparts.

Chapter 3 tackles this question by extending and complementing the results of Chapter 2.[51] Here, we use a direct measure of discrimination: we examine the relationship between residential segregation and perceived discrimination. If immigrants prefer to live in ethnic enclaves, there should be no effect on immigrants' perceptions of discrimination. In contrast, if immigrants are restricted to living in ethnic enclaves, we should see a significant association. A positive association indicates discrimination on the rental market. A negative association suggests that immigrants living in a segregated area may feel more secure in a larger group of immigrants compared to areas that are dominated by Germans. Hence, they lower their individual exposure to discrimination by sorting themselves into ethnic enclaves. Similar to Chapter 2, we use data of respondents coming from Italy, Greece, Spain, and Turkey residing in West

[51] Chapter 3 is joint work with Uwe Jirjahn.

Germany from the German Socio-Economic Panel Study. Our estimates show that immigrants living in segregated residential areas are more likely to report discrimination because of their ethnic background. Again, this is true for areas where most immigrants come from the same country of origin as the respondent, and for areas where most immigrants come from different countries. As our dependent variable measures subjective perceptions of discrimination and may therefore be misclassified, we extend our estimates by applying an approach by Hausman et al. (1998). Our results using this method confirm our key findings that living in ethnic enclaves positively affects perceived discrimination. This finding also holds when capturing residential segregation by an objective indicator, such as the share of foreigners at the county level: Perceived discrimination is significantly positive affected by a higher share of foreigners at the county level. Finally, our results could be biased by reverse causation and/or omitted variables. To address these issues, we use a recursive bivariate probit model. The regression results again confirm our key findings.

Summing up the results of Chapters 2 and 3, I conclude that the discriminatory behavior of landlords and tenants forces immigrants to live in ethnically segregated areas. It would be of great interest to further investigate the reasons for discrimination. Is statistical discrimination the dominant factor for landlords in preferring Germans over immigrants as tenants? Is it preference-based discrimination? Or do landlords expect that with a higher share of foreigners the demand and rents for dwellings in the neighborhood will decrease? A survey asking landlords for their attitudes may provide insights into the causes of discrimination on the rental market, though the drawback of such a survey is that landlords may give socially desirable answers because discrimination is not only socially unacceptable, but also illegal ("Allgemeines Gleichbehandlungsgesetz"). For topics where one expects socially desirable behavior, it is a potentially fruitful opportunity for future research to run a field experiment. Similar to Bosch et al. (2011), who conducted an experiment in Spain using foreign and Spanish sounding names to request an apartment, the extent of discrimination on the rental market in Germany could be

estimated. Comparing call back rates between German and foreign sounding names may then give a good indication how severe discrimination is. Moreover, it would be of great interest to find out in which regions discrimination on the rental market is high, forcing immigrants to live in ethnically segregated areas. Combining this information with data on the attitudes of landlords and tenants toward immigrants could then help to identify patterns of ethnic concentration, segregation and prejudice against immigrants.

One part of this research question is addressed in Chapter 4, as it deals with the question of whether or not hostile attitudes measured in German residents leaning toward extreme right-wing parties are affected by the ethnic concentration of foreigners living in the same residential area. There are two competing theories which could explain both – a negative and a positive association. According to the interethnic contact theory, frequent contact with minority group members helps to overcome prejudices by the majority population, and to appreciate cultural diversity (Pettigrew 1998, Rothbart and John 1993). In contrast, the group threat theory assumes that when economic conditions deteriorate and the minority group size increases, people start developing prejudices and hostile attitudes toward the minority group (Sherif and Sherif 1953, Quillian 1995). It stands to question whether one of the theories can be confirmed by the empirical analysis. In this chapter I merge individual level data from the German Socio-Economic Panel with administrative data from 1996 to 2009 on the regional distribution of foreigners in West Germany. The dependent variable captures whether or not the surveyed person tends to lean toward one of Gemany's extreme right-wing parties, such as the DVU, NPD, or Republikaner. The key independent variable is the share of foreigners in each county. In the first step of the empirical analysis, I regress the share of foreigners at the county level on those leaning toward an extreme right-wing party. I find a positive but insignificant relationship between ethnic concentration at the county level and the probability of extreme right-wing voting behavior. However, the key explanatory variable 'share of foreigners at the county level' may be endogenous. Endogeneity could result from residential self-selection. From assuming extreme

right-wing Germans prefer to live in areas with a low share of foreigners, it follows that the effect in a simple probit procedure would be biased. That is why in a second step, I instrument the share of foreigners in a county with the share of foreigners in each federal state (following an approach by Dustmann and Preston 2001). The underlying assumption is that people may only adjust their choice of residence based on their attitudes toward foreigners on a low spatial level – not on the federal state level. Using an instrumental variable estimation technique, I find evidence for the interethnic contact theory, predicting a negative relationship between foreigners' share and right-wing voting. Moreover, I show that a moderating role for education exists. For intermediate and highly educated Germans, the effect is significantly negative, again confirming the interethnic contact hypothesis. For low educated Germans, the relationship is not significant. It would be worth investigating the reasons for these results in more detail. I suggest that two countervailing effects may play a role here. Firstly, low educated people may have a higher probability of having frequent contact with immigrants because immigrants are overrepresented in low-skill jobs. This may help to overcome prejudices. Secondly, labor market competition is particularly high for this group as they compete for the same jobs, which in turn indicates a mechanism consistent with the group threat theory. In conjunction with the results of Chapters 2 and 3, this chapter corroborates the conjecture that a vicious circle of low contact with foreigners, segregation, low integration and assimilation of foreigners, and prejudices and discrimination by Germans exists.

The last analysis of this thesis focuses on the effects of ethnic diversity on the social capital of German residents. The ongoing integration process of the European Union, the transfer of legislative power to the European level, and an extension of the free movement of people all lead to an increase in ethnic diversity in many European cities and regions. Looking at the low voter turnout in elections at the national or European level, it is an open question if an increase in ethnic and cultural diversity might affect whether or not people are willing to cast their vote, engage in civic society, participate in civic organizations, or do volunteer work.

These activities are subsumed under the concept of social capital. Social capital captures different forms of formal and informal civic participation, trust, and norms of reciprocity. A large body of research that mainly focuses on the US suggests that higher group heterogeneity negatively influences many indicators of social capital. For example, Robert Putnam, one of the pioneers in this field of research, concluded that society "hunkers down" as diversity increases (Putnam 2007). Using data from the Socio-Economic Panel Study from 1998 to 2009 and administrative data on regional ethnic diversity, I examine whether or not three different indicators of social capital are affected by ethnic diversity in West Germany. My results show that ethnic diversity significantly inhibits people's political interest and participation in political organizations. Due to the possibility that the key explanatory variable is endogeneous, an instrumental variable strategy similar to Chapter 4 of this thesis is applied. The results confirm the negative relationship between ethnic diversity and political interest and participation in political organizations. This result may be interpreted as one more detail in the vicious circle of discrimination, segregation, and a lack of integration: Germans seem to actively isolate themselves from decision-making processes in their communities. Thus, it is not only foreigners who develop "parallel societies" out of necessity – it is also Germans who isolate themselves from the community that may accelerate the circle.

One more very interesting result in this chapter is that in contrast to the preceding indicators of social capital, participation in non-political organizations that may be interpreted as doing volunteer work is positively affected by ethnic diversity if the selection bias is corrected for. People who live in more ethnically diverse communities seem to engage more in non-political organizations, though drawing conclusions from this finding is difficult, as this survey question must be considered unspecific, and thus could be perceived differently by respondents. It may include volunteer work in a retirement home, helping neighbors with everyday tasks, participating in a Christian community, or doing volunteer work in a local club ("Heimatver-

ein"). All of these different activities would result in different conclusions concerning the question of whether or not Germans isolate themselves from society in general. For example, doing volunteer work in a local club in which the large majority of members are usually German may be in line with the conclusion that Germans withdraw from an ethnically diverse society and look for opportunities to participate in a more homogeneous environment. In contrast, helping neighbors with everyday tasks suggests engagement in a more informal way of participating in the community. That is why I conclude that future research in the field of volunteer work and participation in non-political organizations is needed in order to draw a final conclusion.

One common drawback of all of the analyses in this thesis is that the results only apply to former West Germany. The reason for excluding East Germany is fourfold. First of all, individual level survey data is only available following unification, which limits the number of observations and usable waves in the Socio-Economic Panel Study. Secondly, detailed data on the distribution of foreigners at the county level is only available from the mid 1990's onward. Thirdly, the territorial boundaries of many municipalities in East Germany were changed in order to enlarge them at the beginning of the 2000's. Thus, it is almost impossible to define consistent regions over time. And lastly, the time variation in the share of foreigners in East Germany is very low, which prevents more advanced empirical estimation models applied in this thesis from converging. Of course, as data sets get larger over time, it will be of great interest to examine the research questions of this thesis for East Germany. In East Germany, the number of violent crimes motivated by an extreme right-wing ideology is particularly high – both in absolute and relative terms to the german and the foreign population. Moreover, we have observed some of the tragic climaxes of right-wing motivated crimes that have taken place in East Germany (attacks on refugees in Hoyerswerda, Schwedt, Eberswalde, Eisenhüttenstadt, Elsterwerda, and Rostock) or had their origins there (murderers of the so-called NSU-killings).

Sadly, the issue of extreme right-wing attitudes remains a problem in many parts of Germany. For example, waves of immigrants coming from Romania and Bulgaria also seem to

trigger certain sentiments in many regions of Germany. People fear that the new immigrants only come to exploit the welfare system. “Armutszuwanderung” which translates to “poverty immigration” has been used frequently in the media to describe this sort of immigration (Hank 2013). It stands to question how society will deal with a possible new wave of immigration from Romania and Bulgaria in the following years. If in future politicians and the people living in Germany want to break out of the vicious circle of discrimination, segregation and isolation, then the conclusion for today’s politics that can be drawn from this thesis is to take action at a very early stage to help immigrants integrate into German society. Then both – German society and immigrants – have a realistic chance of benefitting from immigration. Especially in a context like the European Union, the goal must be that the majority of society perceives immigration as enriching and beneficial. ‘Unity in Diversity’ captures this goal as a simple phrase. A simple phrase, but still a long way for society to go.

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German Summary – Deutsche Zusammenfassung

Deutschland ist ein Einwanderungsland. Über 70 Jahre nach der durch den zweiten Weltkrieg ausgelösten Massenflucht aus den damaligen deutschen Gebieten, hat sich Deutschland zu einem der führenden Einwanderungsländer für Menschen aus aller Welt entwickelt. So wanderten im Jahr 2012 knapp 400.000 Menschen nach Deutschland ein, um hier dauerhaft zu leben (Astheimer 2004, Destatis 2014). Der Hauptanteil der Einwanderer stammt dabei aus ost- und südeuropäischen Ländern, was vorrangig aus der schwierigen ökonomischen Lage der letzten Jahre in diesen Ländern resultiert.

Die erste große Einwanderungswelle in die damalige Bundesrepublik Deutschland fand jedoch bereits Ende der 1950er Jahre statt.[52] In dieser Zeit wuchs die Wirtschaft so stark, dass der Produktionsfaktor Arbeit insbesondere in der Schwer-, Minen- und Fertigungsindustrie zunehmend knapp wurde. Aus diesem Grund schloss die damalige Regierung mit Italien, Portugal, Spanien, Marokko, Griechenland, der Türkei, Tunesien, Jugoslawien und Südkorea Anwerbeabkommen, um für einen begrenzten Zeitraum Arbeitskräfte nach Deutschland zu holen. Die Qualifikationsanforderungen an die Arbeitskräfte waren in der Regel sehr niedrig, da es sich in erster Linie um körperlich stark belastende Tätigkeiten im un- und angelernten Bereich handelte. Die Kenntnis der deutschen Sprache war daher nur in Ansätzen nötig. Basierend auf dem so genannten Rotationsprinzip sollten die Arbeiter ohne ihre Familien temporär einwandern, in nahe den Arbeitsstätten gelegenen Baracken wohnen und nach einer Arbeitsperiode von etwa zwei Jahren wieder in ihre Heimatländer zurückkehren. Die Arbeiter sollten also nur „gastweise“ in Deutschland arbeiten und leben. Schnell etablierte sich daher der Begriff der „Gastarbeiter“. Bis Anfang der 1970er schien dieses System zu funktionieren, wenn sich auch in den Jahren zuvor bereits abzeichnete, dass es für Arbeiter und auch Arbeitgeber Vorteile hätte längerfristige Arbeitsbeziehungen einzugehen.

[52] Im Folgenden wird die Einwanderungsgeschichte in die damalige Bundesrepublik Deutschland skizziert. Aus Gründen der besseren Lesbarkeit wird vereinfachend die Bezeichnung *Deutschland* verwendet.

Die erste Ölkrise läutete jedoch einen wirtschaftlichen Wendepunkt ein, der zu einem Schrumpfen der Wirtschaft und damit zu einem signifikant geringeren Bedarf an Arbeitskräften führte. Das Inkrafttreten eines Anwerbestopps sollte nun dafür sorgen, dass keine weiteren Gastarbeiter mehr nach Deutschland einreisten. Zudem nahm man an, dass mit etwas zeitlicher Verzögerung die Mehrheit der Gastarbeiter Deutschland verlassen und damit der nun vorhandene Arbeitskräfteüberhang abgebaut würde. Diese Annahme hat sich jedoch nicht bewahrheitet. Die in Deutschland tätigen Gastarbeiter bauten während ihres Aufenthaltes Freundschaften zu anderen Gastarbeitern und Arbeitskollegen auf, begannen sich heimisch zu fühlen und konnten sich zunehmend eine Zukunft mit ihren Familien in Deutschland vorstellen. Bereits 1965 umschrieb der Schriftsteller Max Frisch die damalige, ähnliche Situation in der Schweiz mit den Worten „Wir riefen Arbeitskräfte, und es kamen Menschen“ (Frisch 1965). Dies verdeutlichte noch einmal wie simplifizierend und politisch kurzfristigen Zielen dienend die Annahme war, der Produktionsfaktor Arbeit sei beinahe in gleicher Weise mobil und flexibel einsetzbar wie beispielsweise Maschinen, Werkzeuge oder Geldkapital. Zwar kamen nach 1973 aufgrund des Anwerbestopps keine neuen Gastarbeiter nach Deutschland und ein Teil der Gastarbeiter kehrte auch in die jeweiligen Heimatländer zurück, allerdings blieb der Ausländeranteil in Deutschland fast auf dem Niveau von vor 1973, da nun der Familiennachzug die primäre Einwanderungsquelle bildete.[53]

Anschließend bis Anfang der 1980er Jahre flachte die Einwanderung nach Deutschland zunächst ab, erreichte sogar einen negativen Wanderungssaldo bevor eine große Welle Flüchtlinge und Asylbewerber Deutschland erreichte. Diese Zuwanderungswelle zeichnete sich insbesondere durch ihre heterogene Zusammensetzung aus: Unter ihnen waren Flüchtlinge aus dem ehemaligen Jugoslawien, die vor ethnischen Säuberungen flohen; Kurden aus der Türkei; Aussiedler und Spätaussiedler aus den ehemals deutschen Gebieten sowie Asylsuchende aus

[53] Eine ausführliche Darstellung zur Geschichte der Einwanderung nach Deutschland findet sich in Münz et al. (1999) und Herbert (2001).

unterschiedlichen Ländern. Die Zuwanderung nach Deutschland erreichte 1992 mit einem positiven Zuwanderungssaldo von 800.000 einen neuen Höhepunkt (Abb. 1.1, S. 1). In den nachfolgenden Jahren ging die Zuwanderung zunächst wieder zurück und erreichte nach einem weiteren, wenn auch deutlich niedrigen Hoch im Jahr 2001 (Zuwanderungssaldo von ca. 230.000), die aktuelle Wanderungsbilanz von 437.000 Einwanderern im Jahr 2013 (Destatis 2014).

Trotz mehrerer großer, wenngleich auch teils ungesteuerter Zuwanderungswellen seit den 1950er Jahren fehlte es in Deutschland lange an substanziellen Programmen zur Integration von Zuwanderern (Beauftragte der Bundesregierung für Migration, Flüchtlinge und Integration 2012). Obwohl das daraus und durch andere Faktoren bedingte Defizit der Integration und Assimilation von Migranten in Deutschland, die Herausbildung von Parallelgesellschaften, aber auch (Alltags-)Diskriminierung seitens der deutschen Bevölkerung öffentlich seit vielen Jahren diskutiert werden, ist die wissenschaftliche Forschung zu diesen gesellschaftlichen Prozessen noch unvollständig. Die vorliegende Arbeit trägt dazu bei diese Forschungslücken zu schließen, indem sie die Effekte der Immigration nach Deutschland aus zwei unterschiedlichen Blickwinkeln untersucht: Einerseits aus der Perspektive von Migranten, die aktiv nach Deutschland eingewandert sind und hier leben (Kapitel 2 und 3) und andererseits aus der Perspektive von Deutschen, die in den letzten Jahrzehnten passiv die verschiedenen Einwanderungswellen miterlebt haben (Kapitel 4 und 5).

Die Dissertation fokussiert dabei insbesondere auf folgende Fragen: Gibt es Evidenz für die vielfach diskutierte These, dass sich Migranten freiwillig in Gegenden selektieren, die von einem hohen Ausländeranteil gekennzeichnet sind, um eine Parallelgesellschaft mit eigenen Werten und Normen aufzubauen? Fühlen sich Migranten in ethnisch segregierten Wohngegenden aufgrund ihrer Ethnie weniger oder mehr diskriminiert als in von Deutschen dominierten Gegenden? Wie gehen Deutsche mit einem bestimmten Ausländeranteil in ihrer Gegend um: Gibt es Belege dafür, dass rechtsextreme Tendenzen in Gegenden mit niedrigerem oder höhe-

rem Ausländeranteil vermehrt auftreten? Wird eine mögliche Beziehung zwischen Ausländeranteil und Rechtsextremismus durch Selbstselektion verzerrt und wenn ja, inwiefern? Und zuletzt die Frage, welcher Effekt eine höhere ethnische Diversität auf das Sozialkapital von Deutschen hat: Ist ein Rückzug von verschiedenen Aspekten des gesellschaftlichen und politischen Lebens mit einer zunehmenden ethnischen Diversität erklärbar? Der durch diese Arbeit erzeugte Mehrwert liegt daher vor allem darin, besser zu verstehen, warum in Deutschland die Integration von Migranten ein politisches Wirkungsfeld ist, das weiterer Entwicklung und Diskussion bedarf und inwiefern Phänomene wie die Diskriminierung und die räumliche Segregation von Migranten eine negative Wirkungskette auslösen.

Kapitel 2 untersucht die Beziehung zwischen der räumlichen Segregation von Migranten und deren Zufriedenheit mit der Wohngegend in Westdeutschland[54]. Dazu werden wie auch in den anderen drei folgenden Kapiteln repräsentative Daten des Sozio-ökonomischen Panels analysiert. Die Ergebnisse zeigen, dass Migranten in ethnisch segregierten Wohngegenden signifikant weniger zufrieden mit ihrer Wohngegend sind. Dies unterstützt die These, dass Diskriminierung auf dem Wohnungsmarkt und nicht freiwillige Selektion der Grund dafür sind, wenn Migranten in Gegenden mit hohem Ausländeranteil leben. Auch in Schätzmodellen mit zahlreichen Kontrollvariablen wie dem Haushaltseinkommen, der Qualität der Wohnung oder in Modellen mit fixen Effekten, die es erlauben unbeobachtbare, zeitinvariate Einflüsse herauszurechnen, sind die Ergebnisse robust.

Kapitel 3 komplementiert und erweitert diese Ergebnisse.[55] Hier wird gezeigt, dass Migranten in ethnisch segregierten Gegenden nicht nur weniger zufrieden sind, sondern dass auch die Wahrscheinlichkeit, dass sie sich aufgrund ihrer Ethnie diskriminiert fühlen signifikant höher ist als für Migranten in von Deutschen dominierten Gegenden. Interessanterweise findet

[54] Ko-Autoren dieses Kapitels: Uwe Jirjahn und Georgi Tsertsvadze.
[55] Ko-Autor dieses Kapitels: Uwe Jirjahn.

sich dieser Zusammenhang nicht nur in Wohngegenden mit vielen Ausländern aus unterschiedlichen Herkunftsländern, sondern auch in solchen mit vielen Ausländern aus dem gleichen Herkunftsland wie die befragte Person. Die Ergebnisse unterstützen demnach abermals, dass Diskriminierung auf dem Wohnungsmarkt ursächlich für die Segregation von Migranten ist. Die Herausbildung von „Parallelgesellschaften“ erscheint somit vielmehr eine Folge des Verhaltens von Vermietern und Mietern als ein Ausdruck einer Präferenz von Migranten zu sein.

In den folgenden zwei Kapiteln 4 und 5 wechselt nun die Perspektive. Im Fokus steht hier, welche Effekte eine ethnisch diverse Bevölkerungszusammensetzung auf die Einstellung und das Verhalten von Deutschen hat. Mithilfe von administrativen Daten zur Verteilung der ausländischen Bevölkerung auf Kreisebene und Individualinformationen des Sozio-ökonomischen Panels der Jahre 1996 bis 2009 wird in Kapitel 4 die Fragestellung analysiert, ob die Tendenz rechtsextreme Parteien zu wählen von der ethnischen Konzentration in der Gegend des Befragten abhängt. Zunächst wird dieser Zusammenhang mit einem einfachen Probit geschätzt: Der Koeffizient des Ausländeranteils auf Kreisebene hat ein positives Vorzeichen, ist jedoch deutlich insignifikant. Allerdings könnte die Selbstselektion von Deutschen mit rechtsextremer Einstellung in Gebiete mit einem geringeren Ausländeranteil dazu führen, dass der so geschätzte Effekt verzerrt ist. Aus diesem Grund wird in einem zweiten Schritt der Ausländeranteil auf Kreisebene mit dem Ausländeranteil auf Bundeslandebene instrumentiert. Die Intuition dafür ist, dass Menschen ihre Wohnortwahl zwar möglicherweise unter anderem auch auf Basis ihrer politischen Einstellung auf einer kleinräumigen Ebene treffen, aber dass sie bspw. nicht in ein anderes Bundesland ziehen würden, um einem ihrer Meinung nach zu hohen Ausländeranteil aus dem Weg zu gehen (Dustmann und Preston 2001). Die Instrumentenvariablenschätzungen zeigen nun einerseits, dass es durchaus eine Verzerrung in den Probitschätzungen gibt und andererseits, dass der Effekt des Ausländeranteils auf die Tendenz rechtsextreme Parteien zu wählen negativ ist. Das bedeutet, gerade in Gegenden mit einem hohen Ausländeranteil ist die Wahrscheinlich für rechtsextreme Gesinnungen signifikant geringer als in Gegenden mit

niedrigem Ausländeranteil. Dies unterstützt die sog. Kontakttheorie, nach der eine höhere Kontaktfrequenz und -intensität, wie sie in Gegenden mit höherem Ausländeranteil typisch ist, zu einem Abbau von Vorurteilen und zur Anerkennung von kultureller Vielfalt führt (Pettigrew 1998, Rothbart und John 1993).

Im fünften Kapitel wird der Frage nachgegangen, inwiefern das Sozialkapital – insbesondere die gesellschaftspolitische Teilhabe und das freiwillige Engagement – von der ethnischen Vielfalt in der Wohngegend beeinflusst werden. Eine vielfach rezipierte Studie von Putnam (2007) zeigt, dass mit einer steigenden ethnischen Diversität Menschen in den USA dazu neigen, sich von der Gemeinschaft zurückzuziehen. Sie unterhalten signifikant weniger enge Beziehungen zu Nachbarn und Freunden, beteiligen sich weniger bei Wahlen und haben insgesamt weniger Interesse sich in ihrem Umfeld zu engagieren. Zur Operationalisierung des Konstrukts ‚Sozialkapital' werden Daten des Sozio-ökonomischen Panels für die Jahre 1998 bis 2009 für Westdeutschland verwendet. Im Fokus der Analyse stehen drei Indikatoren von Sozialkapital: Das politische Interesse, die Mitgliedschaft in politischen Organisationen sowie das Engagement in nicht-politischen Organisationen. Ethnische Vielfalt wird auf Basis administrativer Daten des Ausländerzentralregisters einerseits als Ausländeranteil und andererseits als Herfindahl-Hirschman-Konzentrations-Index gemessen. Die Probit- und Instrumentenvariablen-Schätzungen zeigen, dass auch in Deutschland Menschen ihr politisches Interesse und die Mitgliedschaft in politischen Organisationen bei steigender ethnischer Vielfalt reduzieren. Vor dem Hintergrund der fortschreitenden europäischen Integration, bei der zunehmend legislative Befugnisse auf EU-Ebene verlagert werden und somit auch Wahlen zum Europaparlament für das alltägliche Leben immer stärker an Bedeutung gewinnen, signalisieren diese Ergebnisse Handlungsbedarf. Letztlich ist die Legitimität eines Parlamentes nur dann gegeben, wenn die Wahlbeteiligung der wahlberechtigten Bevölkerung hinreichend hoch ist. Steigt jedoch die eth-

nische Vielfalt in Europa weiter an, muss davon ausgegangen werden, dass die ohnehin vergleichsweise niedrige Wahlbeteiligung bei Europawahlen weiter sinken wird und damit die Legitimität dieses demokratischen Prozesses in Frage gestellt werden muss.[56]

Werden die Ergebnisse der vier empirischen Kapitel nun abschließend in einen Zusammenhang gestellt, dann wird deutlich, dass offenbar ein Kreislauf aus Diskriminierung gegenüber Minderheiten, erzwungener räumlicher Segregation von Migranten, Rückzug vom gesellschaftlichen Leben und rechtsextremen Tendenzen der deutschen Mehrheitsgesellschaft existiert.[57] Das Fazit dieser Dissertation besteht deshalb darin, dass es Aufgabe der Politik und der Gesellschaft sein muss Wege zu finden, die Fehler der Vergangenheit im Bereich der Integrationspolitik aufzuarbeiten und wett zu machen. Der damalige Irrglaube, die Gastarbeiter würden irgendwann wieder in ihre Heimatländer zurückkehren und es wäre daher nicht nötig, Maßnahmen zu ergreifen, die eine Integration und Assimilation der Migranten erleichtert, wiegt, wie die Analyseergebnisse zeigen, auch heute noch schwer. Es ist deshalb umso wichtiger, zukunftsfähige Konzepte zu entwickeln, da deren Erfolg auch darüber entscheiden wird, welche langfristigen Effekte aktuelle und zukünftige Zuwanderungswellen in Deutschland haben werden. In der öffentlichen Diskussion dominieren derzeit Ängste, es handle sich bei den zurzeit in höherer Anzahl einwandernden Rumänen und Bulgaren um Zuwanderer, die das deutsche Sozialsystem ausnutzen würden, das Meinungsbild (Hank 2013). Eine der Zukunftsfragen wird deshalb sein: Wie geht die deutsche Gesellschaft im Jahr 2014 mit Zuwanderung, den negativen Begleiterscheinungen und mit den damit assoziierten Ängsten um und welche Strategien können eingesetzt werden, damit Zuwanderung für die Gesellschaft als bereichernd und vorteilhaft empfunden wird? Auch Bundespräsident Joachim Gauck wies in seiner Rede zum 65-jährigen

[56] Seit den ersten Europawahlen 1979 sinkt die Wahlbeteiligung kontinuierlich ab. 2014 wurde mit 42.54% ein neuer Tiefstand erreicht (Europäisches Parlament 2014).

[57] Aufgrund der geringen räumlichen und zeitlichen Varianz der Ausländerverteilung, zahlreichen Gemeindegebietsreformen und teilweise geringen Fallzahlen im SOEP für die neuen Bundesländern, beziehen sich die empirischen Untersuchungen auf Westdeutschland. Wenn zukünftig geeignete Daten für die neuen Bundesländer verfügbar sind, wäre es von besonderem Interesse die bearbeiteten Fragestellungen auch für diesen Teil Deutschlands durchzuführen.

Bestehen des Grundgesetzes darauf hin, dass Wandel und Veränderung nicht nur positive Folgen mit sich brächten (Gauck 2014). Die vorliegende Arbeit verdeutlicht, welche Mechanismen ursächlich für die in Teilen nicht geglückte Integration von Migranten in Deutschland sind. Es ist daher eine der Kernaufgaben einer Einwanderungsgesellschaft wie der deutschen, Wege zu finden, damit das Konzept ‚Einheit in Vielfalt' Realität werden kann.

List of Publications

Chapter 2: Residential Segregation and Immigrants' Satisfaction with the Neighborhood in West Germany (with Uwe Jirjahn and Georgi Tsertsvadze).

Other versions:

1. Residential Segregation and Immigrants' Satisfaction with the Neighborhood in Germany (with Uwe Jirjahn and Georgi Tsertsvadze), *Urban Studies*, forthcoming.
2. Residential Segregation and Immigrants' Satisfaction with the Neighborhood in Germany (with Uwe Jirjahn and Georgi Tsertsvadze), Research Papers in Economics No. 8/11.
3. Residential Segregation and Immigrants' Satisfaction with the Neighborhood in Germany (with Uwe Jirjahn and Georgi Tsertsvadze), SOEPpapers No. 410/2011.

Chapter 3: Ethnic Residential Segregation and Immigrants' Perceptions of Discrimination in West Germany (with Uwe Jirjahn).

Other versions:

1. Ethnic Residential Segregation and Immigrants' Perceptions of Discrimination in West Germany (with Uwe Jirjahn), *Social Science Quarterly*, forthcoming.
2. Ethnic Residential Segregation and Immigrants' Perceptions of Discrimination in West Germany (with Uwe Jirjahn), Research Papers in Economics No. 10/11.
3. Ethnic Residential Segregation and Immigrants' Perceptions of Discrimination in West Germany (with Uwe Jirjahn), SOEPpapers No. 416/2011.

Chapter 4: Ethnic Concentration and Extreme Right-Wing Voting Behavior in West Germany, *under review*.

Other versions:

1. Ethnic Concentration and Extreme Right-Wing Voting Behavior in West Germany, Research Papers in Economics No. 2/13.
2. Ethnic Concentration and Extreme Right-Wing Voting Behavior in West Germany, SOEPpapers No. 565/2013.

Chapter 5: The Effects of Ethnic Diversity on Social Capital in West Germany, *unpublished*.