Can Television Reduce Xenophobia? The Case of East Germany*

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Abstract

Can television have a mitigating effect on xenophobia? To examine this question, we exploit the fact that individuals in some areas of East Germany – due to their geographic location – could not receive West German television until 1989. Following intergroup contact theory, we conjecture that individuals who received West German television were exposed more frequently to foreigners and thus have developed less xenophobia. We show that regions that could receive West German television were less likely to vote for extreme right parties during the national elections from 1994 to 2017, had fewer arson attacks against refugee housing and fewer incidents regarding anti-refugee demonstrations. People from these regions showed on average more positive attitudes towards foreigners and more naturalizations were positively decided by government officers. Finally, we find political attitudes of the two regions to diverge more strongly over time.

Keywords: Mass media; Television; Xenophobia; Attitudes towards foreigners; East Germany; Natural experiment

JEL classification: D72, L82, P30

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1 Introduction

In this article we address the following question: Can television have a mitigating influence on xenophobia? In line with intergroup contact theory we conjecture that contact with foreigners reduces racial as well as ethnic prejudice and hence xenophobia. Xenophobia is defined as a negative attitude towards foreigners in general. This negative attitude becomes visible in a democratic system by votes for parties that have such negative attitudes incorporated into their party program, in particular extreme right or general right-wing parties.

Previous academic literature has already identified the effects of television consumption on political attitudes. In an early article, Gentzkow and Shapiro (2004) find evidence that attitudes towards the United States in Muslim countries are correlated with television consumption. Gentzkow (2006) reveals that the introduction of television broadcasting in the United States correlates with a reduced consumption of newspapers and radio as well as a decline in political knowledge. DellaVigna and Kaplan (2007) investigate the effect of Fox News on election outcomes in the United States. They show that the Republican party gained support in regions where Fox News entered the cable market. Furthermore, DellaVigna et al. (2014) show that nationalistic Serbian radio broadcasting triggered hatred towards Serbs in Croatia. They provide further evidence that the election outcome for extremist parties is higher in regions that receive Serbian radio. Enikolopov et al. (2011) provide evidence that access to independent television stations in Russia reduced the election outcome for the government party by 8.9 percentage points and increased the votes for the opposition party by 6.3 percentage points. Finally, Adena et al. (2015) find that the Nazi regime successfully used radio broadcasting to increase the number of members of the Nazi party before the seizure of power.

The majority of these articles, however, focuses mainly on the political impact of news content. Against this background, Durante et al. (2017) find evidence that light entertainment programs can also shape the political attitudes of individuals. They analyze the consequences of the staggered introduction of Berlusconi's commercial television network in Italy and show that regions with earlier access to these television programs exhibited higher voting outcomes for Berlusconi's party *Forca Italia*. The literature investigating the effect of mass media consumption on voting outcomes leads us to the conjecture that media might also reduce xenophobia and thus the election results for right-wing parties. As others before us (e.g. Crabtree et al. (2015), Hennighausen (2015), Bursztyn and Cantoni (2016)), we use the exogenous variation in the geographic features of East Germany that provided differential access to West German television as identification strategy in our empirical analyses.

Over the last decade, economists and political scientists have used the historical division of East and West Germany as a natural experiment to explain, for example, policy preferences for state intervention and redistribution (Alesina and Fuchs-Schündeln, 2007), cheating behavior (Ariely et al., 2019), and individuals' attitudes towards social trust, risk, perceived fairness and cooperativeness (Heineck and Suessmuth, 2013). More recently, scholars have also exploited the variation in the availability of West German television *within* the former German Democratic Republic.[1] In a first article, Kern and Hainmueller (2009) investigate whether West German television broadcasting undermined the authoritarian regime of the GDR. Using a survey that was conducted by the Cen-

[1] Henceforth referred to as GDR.

tral Institute for Youth Research (*Zentralinstitut für Jugendforschung*), they find that West German television increased the life satisfaction of East Germans, who seemed to perceive television broadcasting mostly as a source of personal entertainment. In line with this finding, Hyll and Schneider (2013) find evidence that West German television exposure is positively correlated with material aspirations, which were previously shown to be associated with happiness and personal well-being (Easterlin, 2001).

Hennighausen (2015) has recently demonstrated that West German television exposure affected East Germans' beliefs about what drives success in life. Using data from the German Socio-Economic Panel, she finds a long lasting effect that West German television exposure made East Germans believe that effort rather than luck is a crucial determinant of success in life. Crabtree et al. (2015) investigate whether West German television exposure prompted protest events in 1989, which ultimately led to the collapse of the GDR. Their study finds no evidence that exposure to West Germany broadcasting had an effect on protest events. Furthermore, Bursztyn and Cantoni (2016) find that West German television exposure affected the composition of consumption after the German reunification, with East Germans who were exposed to West German television buying more products that were advertised with a higher intensity.

In this paper, we are interested in the effect West German television exposure had on xenophobia and election outcomes of nationalist parties in East Germany. Although right-wing attitudes are not identical with negative attitudes towards foreigners, the extreme right-wing political agenda is strongly correlated with negative attitudes towards foreigners (Hyll and Schneider, 2018, Frindte et al., 2016). In the following analysis, we utilize the fact that West German channels exposed their audience more frequently to foreigners and foreign countries than East German channels. Intergroup contact theory suggests that intergroup contact typically reduces racial and ethnic intergroup prejudice (see Pettigrew and Tropp (2006) and Pettigrew et al. (2011) for an excellent meta study). Several studies indicate that also indirect contacts, for example via television, are able to mitigate negative attitudes towards members of other groups (Schiappa et al., 2005, Ortiz and Harwood, 2007, Dovidio et al., 2011). Consequently, the exposure to West German television might have reduced the xenophobia of East Germans, since a lack of exposure to foreigners is frequently seen as a source of xenophobia.[2]

This difference in exposure to foreigners should also become visible in the election results of extreme right-wing parties. Given that approximately 98 % of the households in East Germany had a television set by 1989 (Müller, 2000), citizens from the GDR could in principle easily consume West German television if the signal was strong enough. Although West German television reception was generally widespread in the former GDR, there were some areas with poor or no television signal. This is the variation that we exploit in our study. We provide evidence that West German television had a mitigating effect on xenophobia, and that an increasing divergence of both groups' political attitudes occurred over time. Furthermore, the exposure to West German television programs affected the number of arson attacks against refugee housing and the number of incidents related to anti-refugee demonstrations negatively. What is more, the programs positively affected Germans' attitudes towards refugees and naturalizations today. These findings

[2]In this regard, several recent studies find evidence for a mitigating influence of intergroup contacts on xenophobic attitudes (see e.g. Schindler and Westcott (2015) and Steinmayr (2016)). Conversely, Hangartner et al. (2018) and Dinas et al. (2019) arrive at a contrary result by analyzing the impacts of a massive increase in refugee arrivals on xenophobia in Greece.

provide evidence that media can have surprisingly broad effects that are generally seen as beneficial for society.

The remainder of the paper is structured as follows. The following section outlines briefly the history of divided Germany, the role of East and West German television, as well as the role foreigners have played in the respective broadcasting programs. Subsequently, we discuss xenophobia and the nationalist parties in Germany. Thereafter, we present our hypotheses, data and empirical results. The final section provides the conclusion.

2 The Impact of West German Television on East German Election Outcomes

2.1 A brief history of the divided Germany

After World War II, in 1945, the former German Reich was occupied by Allied forces who divided the country for into four occupation zones led by the United States, Great Britain, France and the Soviet Union. The Soviet occupation zone consisted of the Eastern parts, besides the city of Berlin that was divided between all four occupation powers, so that the Western zones of Berlin became an "island" within the Soviet occupation zone. A larger part of the Soviet occupation zone became Polish territory, some part became territory of the Soviet Union itself. In 1949, the remainder formed the "German Democratic Republic" (East Germany), while the parts of Germany occupied by the US, Great Britain and France formed the "Federal Republic of Germany"[3] (West Germany), see Fig. 1.

Figure 1: Division of Germany in occupation zones following World War II. In 1949, the Soviet occupation zone became the GDR (East Germany). The other parts of Germany, including the Western parts of Berlin, formed the FRG (West Germany). Nowadays, Germany consists of both parts. (Source of map: German Historical Institute.)

With the political and economic support from the US and the other Western countries, West Germany developed quickly into a market economy and free democracy. East

[3]Henceforth referred to as FRG.

Germany became a communist state with one-party rule, strict censorship of all media and was under supervision of the Soviet Union. In 1953, an uprising occurred in East Germany that the Soviet Union suppressed militarily.

Since more and more people fled the GDR, its border control increasingly tightened, leading to the construction of a fortified wall along the entire border between the GDR and the FRG (including West Berlin) in 1961 – the "Berlin Wall".

After the onset of political reforms in the Soviet Union in the late 1980s, demonstrations for political freedom begun in many Eastern European countries, including the GDR. They succeeded at the end of 1989 and led to the fall of the Berlin Wall (November 9, 1989), democratic elections in East Germany (March 18, 1990) and ultimately to the reunification of Germany (October 3, 1990).

2.2 The role of West German television in East Germany

For citizens of the GDR, gathering independent information of the world outside of East Germany was challenging. Traveling to the West was practically impossible except for very special cases, but even traveling to other "socialist countries" was restricted and towards the end of the GDR, only one country accepted visitors without visas – former Czechoslovakia. Furthermore, the government of the GDR imposed a tight control on all media. Books and newspapers from the West were not allowed to enter the country, which was enforced strictly with detailed border controls, so that their impact on the flow of information was indeed insubstantial (Kuschel, 2016, p. 144 and p. 266). Since the Internet did not exist yet for the general public[4], the only ways to obtain information from the West were therefore radio and television – both crossing the border easily via airwaves. West German television in particular was considered to be the only "window to the West" by many East Germans (see, e.g., Hömberg (2002), p. 12) and simply more informative and attractive than the East German television programs (Wolff, 2002, p. 123). It has even been argued that West German television was a main reason for "preserving the cultural unity of the German nation during the 45 years of separation" (Wolle, 1998).

While initially, the government of the GDR tried to enforce a ban on watching West German television, this turned out to be too difficult in the long run. In the 1970s, the majority of East Germans was already following West German programs and in 1987, 85 % of the population were using West German radio or television regularly.[5]

In fact, in the 1970s and 1980s, the only limitation for watching West German television was physics, that is the limited reach of television signals. Close to the border, watching West German television programs was easily possible, but as the distance to aerial masts increased, this would become more and more difficult or even impossible. Since the programs were also broadcasted from West Berlin, the "island" in the middle of the GDR, most parts of the GDR had a good or at least reasonable West German television reception. There were, however, differences in quality and two parts of the GDR, the North Eastern and South Eastern parts, were not able to receive West German television signals at all. Due to their relative lack of information, these regions were made fun of

[4]Only in 1991, the World Wide Web started publicly. The top level domain for the GDR (.dd) was therefore only used internally at two East German universities, but never for international communication.

[5]These numbers result from surveys conducted by GDR researchers, which could only be published after reunification (Förster, 1995).

by East Germans. Particularly, the South Eastern region that included the third largest East German city, Dresden, was nicknamed "the valley of the clueless"[6], see Fig. 2.

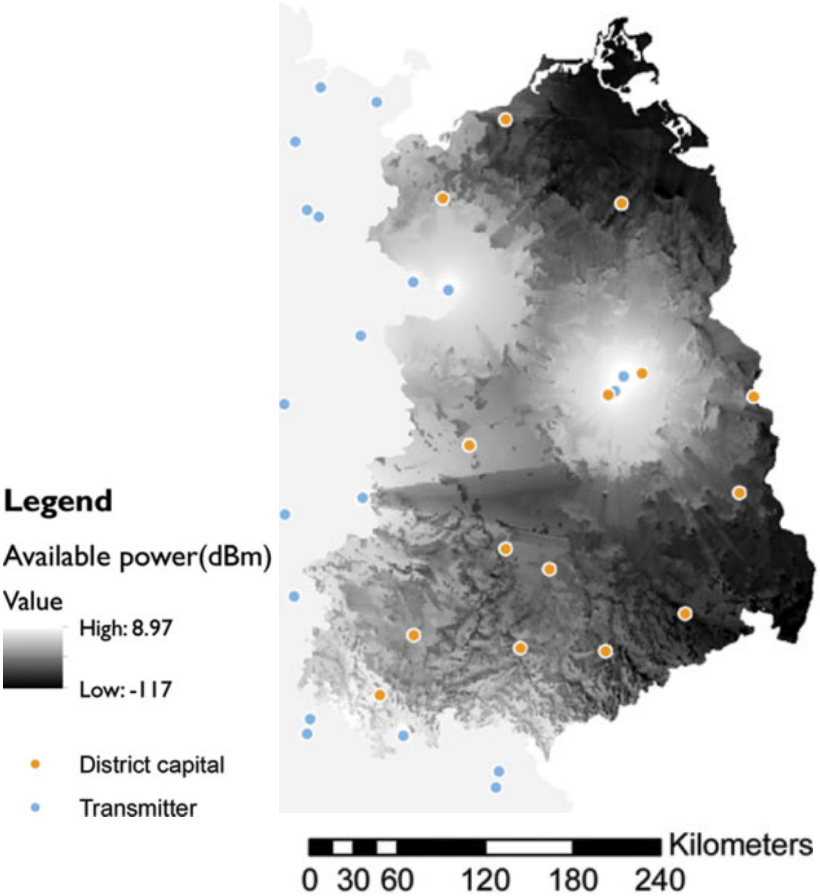

Figure 2: Reception of West German television in the GDR: bright areas had better reception, dark areas little to none. This map is reproduced and slightly modified from Crabtree et al. (2015).

2.3 Foreigners on East and West German television

The difference between West and East German television was not restricted to politics and ideology. While in West Germany, the audience was expecting to see the world on their television screens – with reports from other countries, but also with traveling reports, foreign movies or documentaries – East German television programs broadcasted much less foreign content, but more domestic programs (Stiehler, 1999). The type of foreign programs differed as well. Traveling reports were fewer in East Germany – comprehensible, given that traveling was restricted – and political reports from other countries tended to contain more political propaganda than general information (Oehmig, 2017, Kuschel, 2016, Bönisch and Hyll, 2015).

In sum, West German television exposed its audience frequently to foreign countries and generally to foreigners from Europe, America, but also from all around the world. The

[6]In German: "Tal der Ahnungslosen".

size of this discrepancy can be inferred by comparing the program of the two main public television stations in the West (ARD and ZDF)[7] with the two East German television stations (DDR1 and DDR2). To quantify this difference, we analyzed the television program of three arbitrary weeks in the years 1980, 1985 and 1988. While the two main public television stations in West Germany broadcasted 36 programs with foreign content out of 141 (25.53 %) in the respective week in 1980, we only found 20 out of 138 (14.49 %) on the two main East German stations. Only five out of these 20 productions originated from non-Eastern Bloc countries.[8] In 1985, we find an even more pronounced difference with a share of foreign broadcastings of 32.19 % in West Germany and a share of 17.98 % in East Germany. In 1988, we find an almost equal portion in West (19.74 %) and East Germany (20.15 %). The share of productions from non-Eastern Bloc countries, however, was again much lower (7.46 %). The difference between the West and East German television became even larger with the introduction of the private television in West Germany, which contained a higher portion of foreign content and exhibited in the late eighties already substantial rating figures (Müller, 1990).

The content of the broadcastings obviously differed markedly. While foreign content in East German television could include watching a Soviet union propaganda movie or a report about the visit of a GDR politician in a "friendly socialist country", in the West, this part of the program was much more diverse.[9] For instance, on Sunday, August 16, 1981, the program of the ZDF included broadcastings about the US, Italy, Africa, Russia and Slovakia, starting at noon with the "Sunday Concert" from New Orleans, followed by a report about "Our neighbors, the Italians", and later in the evening even including a documentary about movies and cinemas in sub-Saharan Africa. All in all, nine broadcastings had foreign content. On the same day, *both* East German television stations *together* only had three (Hörzu, 1981). As can be seen from this example, the amount of exposure to foreign countries and foreign people on West German television was large and diverse.

Given the differences in exposure to West German television in the GDR, depending on the geographic location, this provides us with an ideal set-up to study the long-term effects of exposure to foreigners on television on the attitudes towards foreigners in general.

3 Xenophobia and nationalist parties in Germany

3.1 Xenophobia in East and West Germany

Like in most countries, there is a certain number of people with xenophobic tendencies in Germany. While before reunification this problem was frequently discussed publicly in West Germany and, especially given Germany's history, a lot of political and educational efforts were made to reduce xenophobia, the problem was officially non-existent in East

[7]Prior to the advent of private television in West Germany in 1984, these were the only two stations nation-wide. They were still the most frequently watched stations throughout the 1980s.

[8]We excluded news from the analysis, since their foreign content could not be determined in retrospective from the television program. The online appendix includes an overview of the analysis of the television program.

[9]However, the East German television producer started with increased regularity to buy Western television productions in the late eighties (Kuschel, 2016, p. 290).

Germany. The communist state was considered by definition to be "anti-fascist." Practically, however, xenophobia was a built-in feature in the GDR: "the German Democratic Republic was a [...] system where foreignness didn't have space" (Klier, 1994). In fact, very few foreigners were allowed to live – usually temporarily – in the GDR and their rights were highly restricted. Exchange students from African countries, for example, were only allowed to eat out in *one* designated restaurant of their city of residence; female workers from Vietnam and Mozambique, who became pregnant during their stay in the GDR, were forced to have an abortion and were generally not permitted to marry Germans (Klier, 1994). Due to these manifold restrictions, the already smaller number of foreigners, around 1 % of the GDR population in 1989, was much less integrated and therefore much less visible than in West Germany. This situation also gave rise to xenophobia in the East and consequently, hostility as well as violence against foreigners was reported (Klier, 1994). Of course, this was officially concealed and thus, not well-known among the contemporary population – neither in the East nor in the West.

In West Germany, the situation for foreigners differed significantly. A large influx of foreigners into West Germany occurred, particularly in the 1960s and 1970s. Furthermore, interactions with the occupying foreign armies were closer, an important difference especially in the first years after the war, and later there was also a larger number of foreign tourists and exchange students.[10] This meant that foreigners were a real-life experience for West German people. Even though contact was at first often restricted to culinary adventures into Yugoslavian, Italian, Greek, Turkish or Chinese restaurants, in the long run, most West Germans had personal contacts with foreigners and particularly larger cities became international. According to data by the Federal Statistical Office of Germany, in 1989, 8 % of the West German population were foreigners, not counting immigrants with German citizenship.[11]

Indeed, surveys show that the number of contacts between West Germans and foreigners was even in 1994, four years after the reunification, much larger than the number of contacts between East Germans and foreigners (Schmidt and Weick, 1998), see Fig. 3.

Although the relation with foreigners and their situation was substantially better in West Germany than in the East, some degree of xenophobia existed in the West as well, with political parties profiting from it. Their success, however, was limited to regional elections and was only moderate. At nation-wide elections, they never won more than 4.3 % of the votes.[12]

[10] In 1989, there were 92,000 foreign students studying in West Germany (according to the Federal Statistics Bureau of Germany), but only 13,000 in East Germany (Deutsches Historisches Museum Berlin, 2016). In relation to the population size in 1989, we obtain a value of 0.15 % for West Germany and 0.03 % for East Germany. Numbers of foreign visitors to East Germany are difficult to find. The Statistics Bureau of the GDR only recorded the numbers for the most popular tourist region at the Baltic Sea (Bezirk Rostock). In 1987, there were less than 200,000 foreign visitors in this region. The number for the whole GDR can therefore be estimated as less than 2 million, many of them will have been West Germans (counting as foreigners at that time), thus leaving an even smaller amount as "real" foreigners. In the same year in West Germany, the number was 14 million (according to the Federal Statistics Bureau of Germany). The difference is in both cases (students and visitors) *much* larger than the difference in size between West and East Germany would suggest.

[11] This is a significant number to be added. There are no statistics for the 1980s, but in 2016, they account for around half of all immigrants in Germany.

[12] This was the voting outcome of the National Party of Germany in the federal election in 1969 (The Federal Returning Officer, 2019).

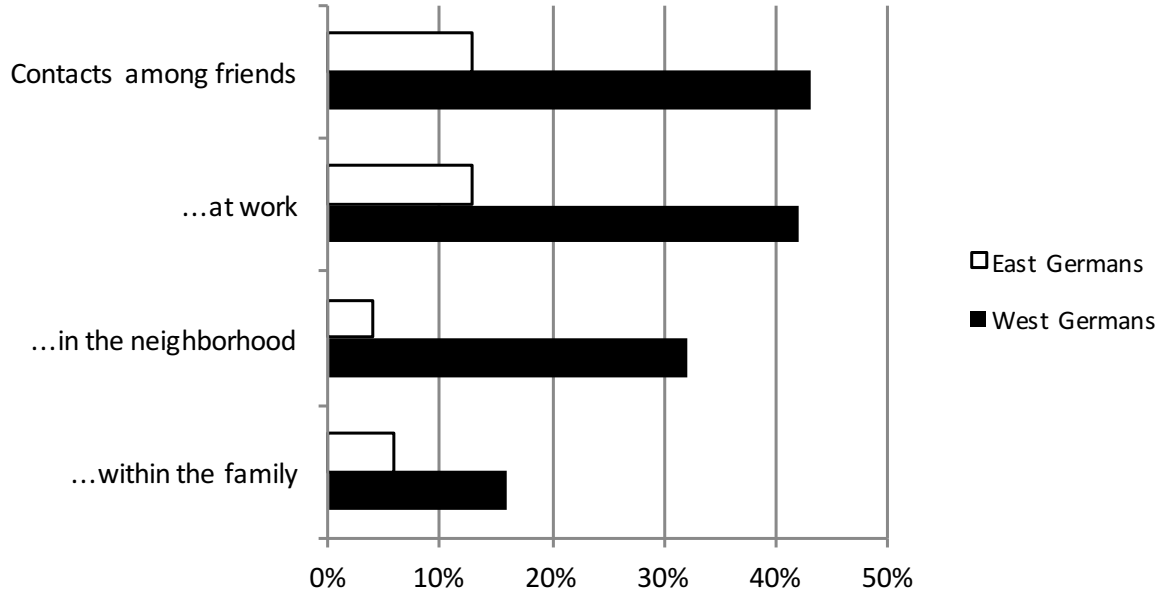

Figure 3: Contact with foreigners was rarer in East Germany – even four years after reunification (the earliest data point). This data has been taken from Schmidt and Weick (1998).

With the reunification, the situation changed dramatically, particularly in East Germany. The economic breakdown during the transition into a market economy led to a sudden rise in unemployment rates up to 20 % on average and even higher in some regions. At the same time, more foreigners started to migrate to East Germany, especially since refugees and asylum seekers started to be distributed to the eastern parts of the country as well. High unemployment and the immigration of foreigners led to violence against foreigners and a moderate success of right-wing parties.[13] Though the situation improved significantly in the middle of the 1990s, it worsened again in 2015 with a sudden advent of a big wave of refugees, particularly from Syria and North Africa.

3.2 Right-wing parties in Germany

The political spectrum in Germany is usually reflected by a number of parties. In the aftermath of elections, some of these parties will collaborate to form a government. This multi-party system is possible since seats are allocated according to voters shares. Parties that do not reach 5 % are excluded from this distribution. This usually leads to two-, sometimes three-party coalitions. It also means that extreme opinions are more likely to be reflected by extreme parties, different from the US where they are usually integrated into one of the two major parties.

The most notable right-wing parties in Germany were the "National Party of Germany" (*Nationaldemokratische Partei Deutschlands*, NPD) that had some success in

[13]In this regard, Hyll and Schneider (2018) find that people, who bother about their own economic status compared with better-off peers in East Germany in the time after the reunification exhibit more likely negative attitudes towards foreigners.

the 1960s and then again from the 1990s onward, the "The Republicans" (*Die Republikaner*, REP) that had most success in the early 1990s, and the "German People's Union" (*Deutsche Volksunion*, DVU), most successful from the 1990s until they joined the NPD in 2011. While The Republicans were usually considered to be the most moderate among the right-wing parties, DVU and NPD were considered to be the most extreme, even including neo-Nazis in their ranks.

In 2013, a new party, the "Alternative for Germany" (*Alternative für Deutschland*, AfD) appeared on the stage and started as a moderate Euro-critical movement. Later, the AfD heavily criticized immigration, particularly with campaigns aimed at the Eastern part of Germany, where it already had moderate success in the 2013 elections. In the 2017 election, the AfD was even able to reach over 30 % in some electoral districts in East Germany. In our study, we also consider the AfD as a right-wing party.

3.3 Xenophobia versus general dissatisfaction

If those East Germans that received West German television were indeed less xenophobic, as a benchmark we would consider them to also vote less frequently for right-wing parties. It is important to disentangle xenophobic tendencies from another motivation to vote for these parties – anger towards the current political system. There is, however, another alternative for such voters to show their disagreement with current policies and the state of Germany as such: the communist party. While in the FRG, communist parties had never been successful, this changed after the reunification. The former East German communist party that had ruled the GDR under the name "Socialist Unity Party of Germany" (*Sozialistische Einheitspartei Deutschlands*, SED) survived the reunification, changed names twice (first to *Partei des Demokratischen Sozialismus*, PDS and then to *Die Linke*) and managed to have some moderate success in West Germany. In East Germany, however, its success was much larger, entering regional governments several times and in 2014, even winning a governor position in Thuringia.

Xenophobia should not motivate people to vote for *Die Linke*, but to vote for right-wing parties. General dissatisfaction with "those politicians" or the German democratic system should lead to a success of both, radical left and radical right.[14] Thus, voting results will enable us to distinguish both motivations to some extent.

4 West German television and election outcomes

4.1 Hypotheses

In line with intergroup contact theory (Williams, 1947, Allport, 1954) and our findings in Section 2.3, we expect people who received West German television programs, and were thus exposed more frequently to foreigners, to have developed less xenophobia than people who were not exposed to these television programs. We therefore hypothesize that people from counties that did receive West German television programs should have voted less frequently for right-wing parties.

[14] In fact, it is a frequent phenomenon that *some* voters switch back and forth between Die Linke and right-wing parties, as surveys have shown, so this motif indeed exists (ARD/Infratest dimap, 2017).

Hypothesis: *Reception of West German television programs in the former GDR reduced xenophobia and therefore leads to a lower voting outcome for right-wing parties.*

We consider the election outcomes for right-wing parties to be an appropriate method to measure xenophobic attitudes, because, for one thing, people can state their preference anonymously and, for another, people should be incentivized to state their real preferences in an election.

An alternative explanation of such an election outcome could be that West German television broadcasting conveyed a more realistic picture of the West German system. People in East Germany could have had different expectations about the new system they were confronted with in the early 1990s. Those East Germans that received West German television were consequently less disappointed with the system that replaced the former GDR. If disappointment with the new political system was the main motivation behind the election results, one would, again, expect East Germans that did not receive West German television programs to have voted not only for the right-wing parties, but also for the PDS/Die Linke, as explained in Section 3.3. Therefore, we will test for this effect as well.

Other factors resulting from the pre- and post-communist area have been suggested to influence voting behavior today. First, there is ample empirical evidence that regions with largely unskilled individuals that suffer from unemployment and low income are associated with anti-immigration preferences (Scheve and Slaughter (2001); Mayda (2006); Faccini and Mayda (2009)).[15] In contrast, according to intergroup contact theory, regular encounters with foreigners who are visiting the region as tourists or on business trips, and might potentially also strengthen the local economy, should lead to a reduction in xenophobia.[16] A reduction of xenophobia should consequently lead to a lower election turnout for right-wing parties. This is in line with previous research that has shown that a higher GDP per capita improves attitudes towards immigrants (Brenner and Fertig, 2006) and that welfare concerns are a more significant driver of attitudes towards foreigners than labour market concerns (Dustmann and Preston, 2007).

However, not every contact with foreigners will reduce xenophobia. We have already pointed out in Section 3.1 that in the former GDR, contact with foreigners was often restricted and lacked the chance for personal and thus, positive experiences. After reunification, many new foreigners who arrived in the East were refugees, living in large refugee accommodations. Again, contacts were rare, this time due to language and cultural barriers (Schmidt and Weick, 1998). Instead, their arrival increased concerns about the already difficult job market situation. This has been discussed early already (Stone, 1990). The threat of unemployment might trigger xenophobia under low skilled workers. The encounter of unemployed foreigners might make the lack of jobs and the burden to the welfare state obvious to average citizens. Thus, while intergroup contact theory suggests that having contact with foreigners reduces xenophobia, we are skeptical whether the forms of encounter that were typical in East Germany result in such an outcome.

Furthermore, there is empirical evidence that certain cultural traits are persistent over long periods of time (Mocan and Raschke (2016); Voigtländer and Voth (2015)). Using data about anti-semitism in Germany, Voigtländer and Voth (2012) show that medieval

[15] A recent paper by Hainmueller et al. (2015) contradicts these findings, as it finds no evidence that fears about unemployment and wage reductions drive anti-immigration attitudes.

[16] Mocan and Raschke (2016) find evidence that higher encounters with foreigners reduce racist feelings.

pogroms predict violence against Jews in the 1920s and election outcomes for the NSDAP – both several centuries later. They find such persistence to be lower in areas that had a high level of immigration and trade. Nevertheless, it seems possible that certain regions might have a long-term preference for extreme right-wing parties. Counties that had voted for Hitler's National Socialist German Workers' Party (*Nationalsozialistische Deutsche Arbeiterpartei*, NSDAP) in 1933 might also be more inclined to vote for the AfD, DVU, NPD or the Republicans during the elections after the reunification.

Finally, we also consider that cities might be *per se* more cosmopolitan and open minded. Voters from a more densely populated region should thus suffer less strongly from xenophobia.

4.2 Identification strategy

In 1989, the GDR was divided into 14 districts and 217 counties.[17] We make use of the fact that the population of some of those counties could previously receive West German television. We consider all counties which were able to receive these programs to be part of the treatment area. Consequently, our control area consists of all counties without access to West German television. In order to investigate the impact of watching West German television on voting behavior, three assumptions have to be fulfilled.

Firstly, the inhabitants in the treatment and control area were comparable and varied only in the access to West German television. This assumption seems to be reasonable, because the GDR was a totalitarian socialist system that focused especially on the equalization of regional differences. These efforts started already in the early childhood education with a centralized education system (Hyll and Schneider, 2013). In this regard, Bursztyn and Cantoni (2016) analyzed whether the inhabitants of the districts of Dresden, Neubrandenburg and Rostock, which constitute large parts of our control area, were comparable to the other districts in the GDR in terms of demographic and economic conditions. They do not find any significant difference between both areas regarding the population density, retail sales, savings per capita or the share of workers employed in industry or agriculture. Their results are in line with the findings of Kern and Hainmueller (2009), who show that the district of Dresden was comparable to the other districts in the GDR. We extend the approach of Bursztyn and Cantoni (2016) and focus especially on the percentage of foreigners, the share of foreigner visitors and on further demographic figures.[18] Table 2 shows that both areas do not differ significantly from each other for the first recorded year in 1955 and the last year in 1989.[19] Unfortunately, some data is only documented in the latest period.

Table 2 around here

Furthermore, if there had been any differences in the voting behavior before the treatment this would potentially invalidate our analysis. Therefore, we compare the results of the federal state elections in the year 1946 during the Soviet occupation. We focus

[17] East Berlin was not an official district, but was passed for one and fulfilled the function of a district after an administrative reform in 1961. Today, the former area of the GDR in the reunified Germany consists of 75 counties and 61 electoral districts.

[18] The data is obtained from several issues of the GDR Statistical yearbook.

[19] We excluded East Berlin from this analysis, since East Berlin as the capital of the former GDR occupied a unique position.

on the federal state elections of the two states where our control areas are located in, namely Mecklenburg-West Pomerania and Saxony. We compare for both states whether the vote shares for the three major parties "Socialist Unity Party of Germany" (*Sozialistische Einheitspartei Deutschlands*, SED), "Christian Democratic Union of Germany" (*Christlich-Demokratische Union Deutschlands*, CDU), and "Liberal Democratic Party of Germany" (*Liberal-Demokratische Partei Deutschlands*, LDP) differ between the treatment and the control areas.[20] Having done so, we find no significant differences in the vote shares.[21]

Table 3 around here

The second important aspect for our analysis is that the individuals that had access to West German television due to their geographical location were not only able to receive it but actually watched it.[22] The black and white television reception was easily possible after the change of the GDR television to the West European system in the 1960s. Most of the modern color television sets produced in the GDR were provided with a Phase Alternating Line (PAL) color encoding system, which was also used in West German television sets. Furthermore, a subsequent extension to the PAL system was easily possible for older television sets (Bundeszentrale für politische Bildung, 2012). Against this backdrop, we can rule out that technical differences hindered access to West German television programs.

Third, we have to consider internal migration between the treatment and the control areas. In the time before reunification, residential and labor mobility was extremely restricted due to the East Germany's centrally planned economy. In addition, the mobility across regions was further limited, because the GDR faced a large shortage of housing since its foundation in 1949 (Bursztyn and Cantoni (2016); Hyll and Schneider (2013); Kern and Hainmueller (2009)). Therefore, selective spatial sorting during the GDR period should not be an issue for our identification strategy. Nevertheless, selective migration after reunification would also be an issue in our research design. In this regard, Bursztyn and Cantoni (2016) show that the migration rates to West Germany were similar for both groups. Furthermore, they provide evidence that the migration rates between the treatment and the control regions were relatively low in the years after reunification. Moreover, these migration rates do not show any asymmetric pattern.

4.3 Data

The data for the over-the-air signal strength was retrieved from Crabtree et al. (2015). In their paper, a Longley-Rice electromagnetic signal propagation model, terrain data as well as data on the location and technical characteristics of West German television transmitters are used to model signal strength. They discretize the continuous measure of West German television signal strength and generate four different categories: -86.5 dBm, -85 dBm, -82.5 dBm, and -80 dBm. Following Bursztyn and Cantoni (2016) and Crabtree et al. (2015), we use a dummy variable for the reception of West German television on a

[20] For further details, see Table 3.

[21] Our findings are in line with Kern and Hainmueller (2009), who report that the vote shares of these three parties in the district of Dresden were similar to those of the other districts.

[22] In Section 2.2, we already highlighted the important role of West German television in the everyday life of East Germans.

county level. The dummy variable equals one if the signal strength is above -86.5 dBm.[23] Fig. 4 shows the treatment and control area. County level data for the national elections to the German Federal Parliament (*Bundestag*) were retrieved from the Federal Returning Officer (*Bundeswahlleiter*) for the elections from 1994 to 2017.[24] As there were various right-wing parties running for the elections, we consolidated the votes for the AfD, DVU, NPD, and REP under the label "Right Parties".

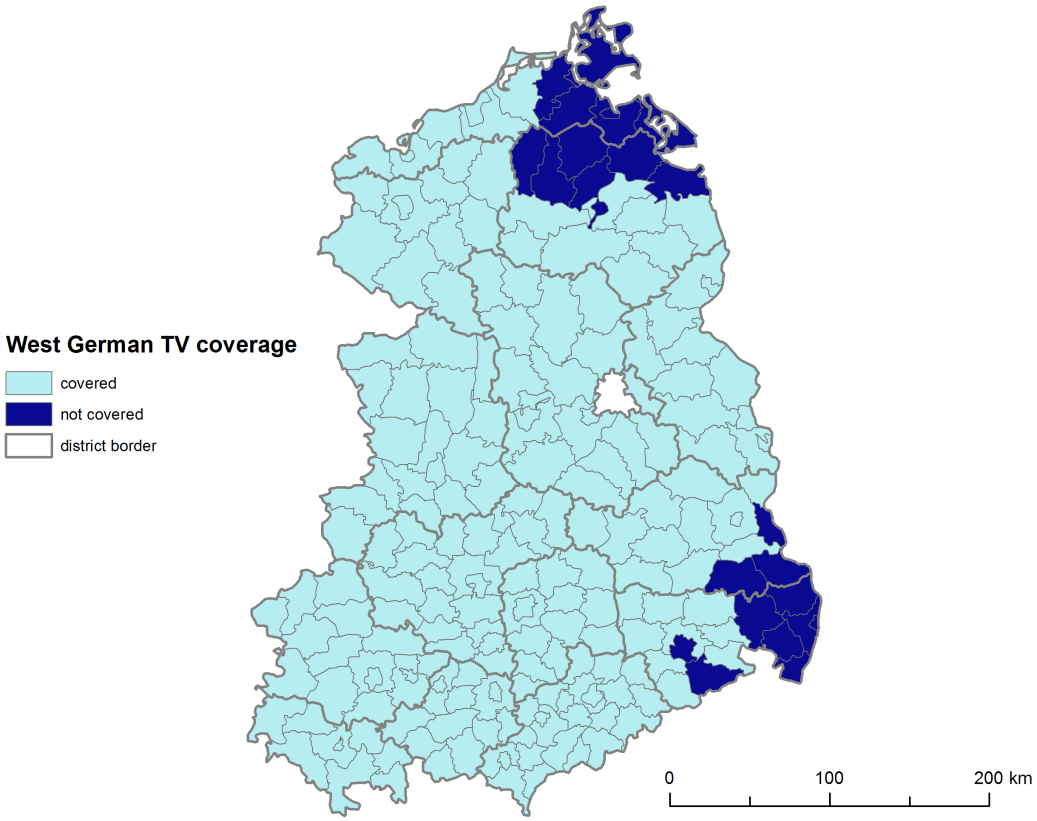

Figure 4: West German TV coverage. The classification is based on a cutoff level of -86.5 dBm. Dark blue colored counties represent the control area with no reception (25 counties) and light blue colored counties the treatment area with a sufficient signal strength (192 counties). District borders are indicated with gray lines. This data has been taken from Crabtree et al. (2015).

In addition to our variable of interest, we consider a range of control variables. First, to account for differences in the voting behavior of the urban and rural population, we include the logarithmized population density of the respective counties for each election year. The data was retrieved from the electoral management body and the regional statistical offices (*Statistische Landesämter*). Furthermore, we control for the share of women, since

[23]The results do not change if we use one of the other signal strengths. They are available in the online appendix.

[24]Federal elections take place every four years. After the acting Chancellor Gerhard Schröder lost a motion of no confidence in 2005, an exceptionally early federal election took place.

several studies suggest that males are more prone to xenophobic attitudes.[25] In addition, we consider the percentage of school-leavers with a university entrance certificate and the percentage of school-leavers without graduation. The information about the percentage of women as well as the information about school-leavers were retrieved from BBSR Bonn (2018).[26] To account for the historical voting heritage of the counties, we consider the votes for the NSDAP in 1933 in the respective county. The data was retrieved from `www.wahlen-in-deutschland.de` and was available for the historical electoral districts, which we subsequently matched to the current counties. Moreover, we consider the average relevant lifetime that the counties' inhabitants spent in the former GDR as another control variable, because there could exist differences in exposure time to the treatment across counties. Relevant years refer only to years spent in the former GDR after the 14th year of life. Inhabitants that were 15 years old at the time of the fall of the Berlin Wall would enter the calculation of the GDRT with a value of one year. To make a comparison between the individual counties possible, we subtract the overall average number of relevant years in a given year from the average of each county. Furthermore, we consider the average disposable income and the unemployment rate of the respective counties for each election year as well as the percentage of unemployed foreigners in the years 1998 to 2017.[27] Once again, the data stems from the regional statistical offices. We also consider the percentage of foreigners living in the county. For the year 1989, the data is available on the district level (*DDR Bezirke*) and comes from the last Statistical Yearbook of the former GDR. For the respective election years, it was collected from regional statistical offices. To account for potential contact with foreigners visiting the relevant county during the year of the election, we also consider foreign visitors for the respective election year. The data was again retrieved from regional statistical offices. Furthermore, we use the number of available hotel rooms in 1989 as a proxy for contacts with foreign visitors, which is available on the district level from the last Statistical Yearbook of the former GDR. A definition of all variables is provided in Table 1.

4.4 Descriptive statistics

Regarding election results, right-wing parties have generally been on the rise in East Germany. While these parties received merely 1.3 % of the votes in 1994, their share of voters increased to almost 9 % in 2013 and even to 24 % in 2017. Except for the election in 2017, relative to the left-wing party PDS, which was later renamed Die Linke, right-wing parties were less popular.

With an average of 20 %, the unemployment rate during the 1990s was generally high in East Germany. The situation has strongly improved over the last decade and the unemployment rate averaged at half as many people as in the 1990s. In the election year 2017, the unemployment rate of foreigners was more than three times higher. By contrast, the rate of foreigners living in the respective regions was generally low, with the exception of Berlin, where on average 16 % of the population owned a foreign passport. The number of foreigners visiting East Germany has steadily been increasing, with by far the most

[25] See for example Watts (1996).

[26] The percentage of school-leavers with a university entrance certificate and the percentage of school-leavers without graduation are not yet available for the years after 2015.

[27] The unemployment rate of foreigners is not available for the year 1994 and the disposable income not yet for the years after 2015.

people visiting Berlin and the fewest the city of Artern in Thuringia. Furthermore, while most hotels during the existence of the GDR were found in East Berlin and the district of Rostock, the fewest were located in Potsdam. The historical support for the NSDAP varied greatly in the electoral districts, with the lowest turnout in Berlin and the highest in Neubrandenburg and Rostock in the northeast of the former GDR. Table 4 provides descriptive statistics of our variables.

Table 4 around here

Table 5 shows a correlation table, which includes our explanatory variables. Not surprisingly, we find variables that were measured at multiple points in time to be highly correlated, which is why we restricted the table to observations from the year 2017 unless we explicitly state the year to which the variable refers.

Table 5 around here

4.5 Main results

To test whether the exposure to West German television leads to a lower percentage of votes for right-wing parties, we estimate for each federal election since 1994 an ordinary least squares regression using clustered standard errors at the district level. We estimate the following equation:

$$RV_{it} = \beta_0 + \beta_1 TV_i + \beta_2 TV \times GDRT_{it} + \beta_3 X_{it} + \epsilon_{it}, \tag{1}$$

where RV_{it} represents the voting outcome for right-wing parties in county i in the federal election in year t. TV_i takes the value of one if county i had access to West German television prior to the reunification. As a consequence, β_1 is our coefficient of interest. In addition, all models include an interaction term between the television reception and the average relevant lifetime of a counties' inhabitants spent in the former GDR. X_{it} denotes a vector of covariates for county i at time t, while ϵ_{it} indicates the error term. Table 6a and 6b report the results.[28]

We find that the exposure to West German television during the GDR period had a negative and significant effect on election outcomes for right-wing parties (except for the elections in 1994 and 2017), which is in line with the hypothesis stated above. Unlike previous studies, which have shown that preferences between East and West Germans converge over time (Alesina and Fuchs-Schündeln, 2007), we find the political attitudes of individuals within East Germany who could not receive West German television not to converge but rather to diverge from the rest of the East German population.[29] Furthermore, we find that the percentage of foreigners living in the former GDR had a positive and significant effect on the election results for right-wing parties (except for the election year 1994). This result is contrary to intergroup contact theory and might be due to the way foreigners were officially treated and perceived in the former GDR. In line with this conjecture, we do not find that the percentage of foreigners living in the respective region

[28] Regression results with a stepwise inclusion of control variables are displayed in the online appendix.

[29] Hennighausen (2015) and Giuliano and Spilimbergo (2013) argue that convictions or moral values which evolved over decades can be long-lasting.

had a significant effect on election outcomes. Yet, for all elections since 2005, the number of foreign visitors reduced the election outcome for right-wing parties. The regressions further show negative results for population density in the years 1994, 1998 and 2009. In contrast, the share of women had a positive and significant effect in the first two election years and a negative effect in the recent most election. The percentage of school-leavers with a university entrance certificate had a negative and significant effect on the election results for right-wing parties in 1998 and 2002, whereas the percentage of high school dropouts reduced the election outcome in 2002 and 2005. Only in the election year 2009 did the overall unemployment rate have a significant effect on right-wing votes. In contrast, the unemployment rate of foreigners showed a negative and significant effect in the election years 1998, 2002, 2005, and 2009.

Table 6a and 6b around here

4.6 Robustness

First, we estimate the models presented in Section 4.5, but this time we run mixed effect models instead of ordinary least squares regressions. In all models, we run a regression with our explanatory variables entered as fixed effects and the election results for right-wing parties as the dependent variable. To account for non-independent election results nested within the larger districts, we entered them as random variables. In addition, all models include, again, an interaction term between the television reception and the average relevant lifetime of a counties' inhabitants spent in the former GDR. The television dummy remains negative and statistically significant for the right-wing parties' election outcome for each election year, excepting the elections in 1994 and 2017.[30]

As a further robustness check, we use a different measure of the signal strength. As mentioned in Section 4.3, our earlier measure of West German television signal strength is retrieved from Crabtree et al. (2015) and constitutes a simple dummy variable. We then constructed an ordinal variable that received the value of 4 if the signal strength was higher than -80.0 dBm, down to the value of 0 if the signal strength was lower than -86.5 dBm. If we use this measurement instead of the dummy, all of our previous results remain unaffected.[31]

In Table 7, we present an alternative specification where we utilize the panel nature of our data. This allows us to control for time invariant factors that we were not able to capture in our previous specifications. Therefore, we employ a random-effects model with the following regression equation:

$$RV_{it} = \beta_0 + \beta_1 TV_i + \beta_2 TV \times GDRT_{it} + \beta_3 X_{it} + Y_i + \epsilon_{it}, \tag{2}$$

The only difference to equation (1) is the term Y_i, which represents the county-specific random effect, i.e. the difference between the average voting outcome at county i and the average voting outcome in all of East Germany. Arguably, the random effects estimator is the only estimator that allows us to identify non-time varying factors such as television reception, but it might be inconsistent. Although the results of this model provide additional support for our hypothesis, running a Hausman test makes us wary of believing

[30] The regression results are displayed in the online appendix.
[31] The regression results are displayed in the online appendix.

that this estimator produces consistent estimates. We find that the television dummy is negative and statistically significant for the right-wing parties' election outcome. Furthermore, our results remain the same if we include the previous election results as another explanatory variable.[32]

In contrast to Crabtree et al. (2015), Kern and Hainmueller (2009) and Kern (2011) classify counties into treatment and control areas based on historical maps and apply a slightly different classification. If we apply their classification, our results remain unchanged. Moreover, if we use a cutoff level of -80.0 dBm, -82.5 dBm or -85.0 dBm instead of -86.5 dBm for the construction of our TV dummy, our results still remain the same. Further details are reported in the online appendix.

Table 7 around here

To investigate whether general dissatisfaction with the political system rather than xenophobia drives our results, we analyze the effect of our TV dummy on other potential forms of expressing political dissatisfaction in an election. For this purpose, we replace in Model 1 (cf. Table 8) the voting outcome for right-wing parties with the voting outcome for the left-wing party as dependent variable. However, we find no significant relationship between prior West German television exposure and the election outcome for the left-wing party. If general dissatisfaction with the political system had been the main motivation behind the election results for the right-wing parties rather than xenophobia, we would have expected to obtain a statistically significant and negative effect of the television dummy on the vote shares of the left party as well. Following Gray and Caul (2000), invalid votes can be treated as an alternative expression of protest. In this context, Weber (2011) includes abstention as a further method to declare general dissatisfaction with the current political situation. Therefore, we run the same model once with the voter turnout as dependent variable (Table 8 Model 2) and once with the share of invalid votes (Table 8 Model 3). In both cases, the television reception has no significant effect.[33]

Table 8 around here

To ensure that the effect of the television dummy pertains to both regions of the former GDR without access to West German television, the industrialized south eastern and the agrarian north eastern part, we replicated our analysis for regional subsamples. Therefore, we split our sample in north and south. The panel estimations for both regions show that the effect of the television dummy is present for the northern and the southern parts as well.[34]

Nevertheless, the signal strength in a given county is affected by its location and its topography, for example when the county is surrounded by mountains. There are a number of county characteristics that can be correlated with the geography and topography of the county. We are already controlling for aspects such as population density or economic growth.[35] In addition, the distance to the border could be correlated with unobservable

[32]The regression results including the previous election results are displayed in the online appendix.

[33]In contrast to our findings, a recent study by Friehe et al. (2017) finds a positive relationship between West German television exposure and voter turnout in federal and state elections from 1990 to 1999.

[34]For further details, see Table 9.

[35]The religious make-up of the county is another example which could be correlated with geography. There are, however, no substantial differences in religious affiliation between the regions in East Germany.

characteristics, which may explain the rise of far-right parties after reunification. To ensure that our television dummy is not actually a geographic measure for a close proximity to the closest border, we implement a dummy variable that equals one if the respective county is located in an electoral district which is situated next to the border to Poland or to the Czech Republic. Considering the aforementioned points, the results do not change.[36] As an alternative approach to address this issue, we calculate the geodesic line between the administrative center of each county and its closest border and use the distance as a further explanatory variable in our panel model. Again our results regarding the election outcomes for right-wing parties remain unchanged.[37]

The signal strength in a given county is affected by local conditions such as the elevation. Since the over-the-air signal is not restricted to county borders, it could be that spillover effects exist in the counties in vicinity to the border between our treatment and control areas (Kern, 2011). Therefore, small areas within counties that generally had no access to West German television were perhaps able to receive these programs. Conversely, there might also be small areas within counties that generally had access that were unable to watch West German television, because they were for example located in a valley. To reduce possible spillover effects between these two groups, we exclude at first all counties of our treatment area that are located next to the control area and run the same regression again. This concerns 18 counties. As a result, our treatment area consists now of 174 counties and the control area of 25. By doing so, our previous results remain unchanged. In a second step, we also exclude the counties of our control area that are situated next to the treatment area. This concerns 14 counties. As a result, our treatment area consists now of 174 counties and the control area of 11. Figure 5 illustrates our approach. Again, the results for our panel estimation do not change.[38]

Since East Berlin was the capital of the former GDR and its demographic composition was highly different from the other regions, we consider it necessary to exclude East Berlin from our sample as a further robustness check. In doing so, none of our previous results change.

4.7 Other measures for xenophobia

While election results provide a very good measure for individual preferences – they are by definition incentivized and include a large part of the population – one might argue that the motives for electing extreme right parties are not directly observable and might be different from xenophobia. As a robustness test, we therefore apply different measures for xenophobic attitudes. For this purpose, we use a dataset on a regional level from the German Socio-Economic Panel Study from 2016.[39] In the questionnaire, the respondents were asked several questions about their attitudes towards refugees. These questions cover opinions related to economic, cultural and social consequences of the immigration

Furthermore, the vast majority of the population has no religious affiliation (Federal Statistical Office and the Statistical Offices of the Länder (2014)).

[36] For further details, see Table 10.

[37] For further details, see Table 10. Although Denmark would be the closest bordering state for 22 counties, in this case we consider only the shortest distance to either Poland or the Czech Republic as relevant for our approach. However, if we also include Denmark, our results do not change either. The respective regression results are reported in the online appendix.

[38] For further details, see Table 11.

[39] See SOEP v33 (2018) and Goebel et al. (2018).

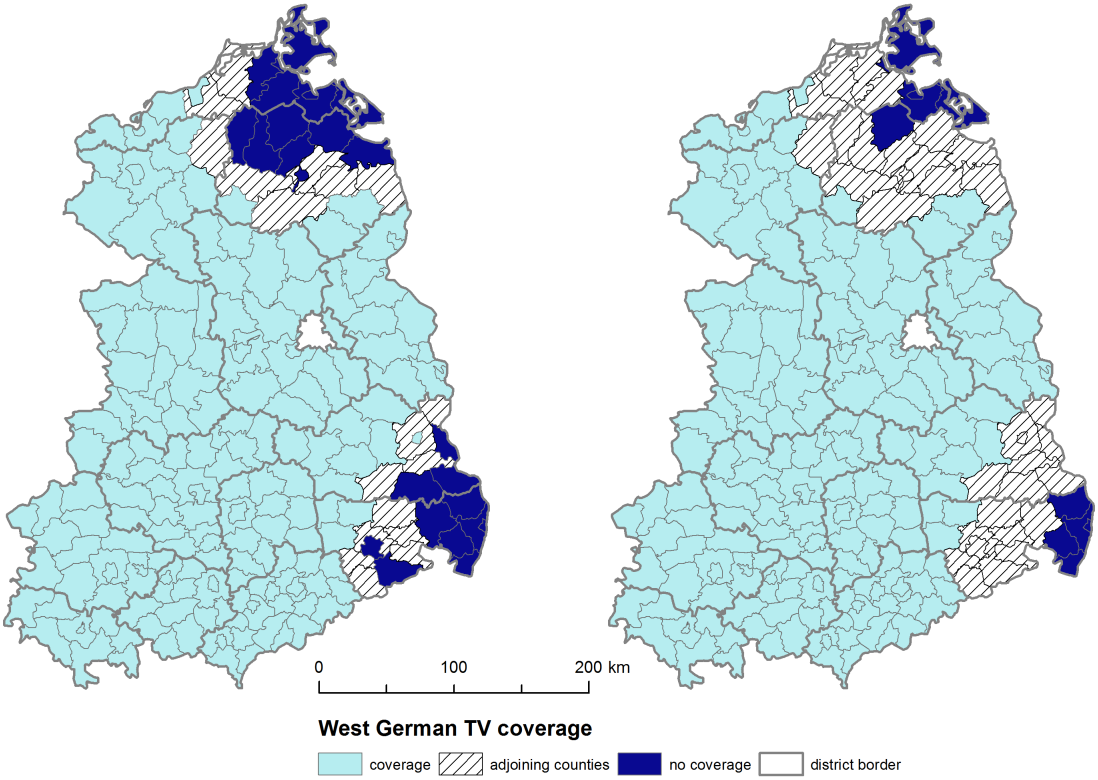

Figure 5: West German TV coverage. The classification is based on a cutoff level of -86.5 dBm. Dark blue colored counties represent the control area with no reception and light blue colored counties the treatment area with a sufficient signal strength. Shaded counties are excluded from the analysis. District borders are indicated with gray lines. The left map represents our approach in step one corresponding to Model 1 in Table 11. The right map concerns Model 2 in Table 11.

of refugees. Furthermore, respondents were asked whether they consider an influx of refugees more as an opportunity or more as a risk in the short-term and in the long-term. The respondents had to answer these questions based on a scale ranging from 0 (negative opinion) to 10 (positive opinion).[40] According to our hypothesis in Section 4.1, we expect people who received West German television to consider refugees to be an enrichment rather than a threat to German society. Therefore, we predict that these people select a higher value on the Likert scale. We calculate the mean of the answers of all respondents for each spatial planning region and allocate these values to the corresponding counties in our data set.[41]

The results from mixed effect models are reported in Table 12. We find that the exposure to West German television during the existence of the GDR had overall a positive effect on the respondents' attitudes towards refugees. Model 1 and 2 (cf. Table 12) reveal that the respondents living in the treatment area tend to consider refugees to be an

[40]The exact wording of the questions can be found in the online appendix.

[41]Spatial planning regions are smaller than the regions at the NUTS 2-level, but larger than counties. In 2016, Germany consisted of 401 NUTS-3-regions, which are condensed into 96 spatial planning regions with 23 of them located in East Germany (including Berlin).

enrichment rather than a threat to German economy and culture. We find the same pattern for the questions regarding the short-term and long-term opportunities or risks as well as for the combination of all five questions. These findings are in line with our hypothesis. Only in Model 3 (cf. Table 12), we do not find a significant effect. However, this might be due to the fact that some respondents are convinced that Germany will not become a worse place because of refugees per se, but still answer with a low score, because they believe that in consequence of the influx of foreign people, Germany becomes more divided or even more right-wing.

In addition to the aforementioned questions, the participants were also asked whether or not they had supported refugees by donating money, working with them directly (e.g. providing support in language learning) or by participating in demonstrations for initiatives to help refugees within the last year or if they plan to do so in the future.[42] We would again assume that we find a higher percentage of supporters in counties located in the treatment area. Therefore, we calculate the percentage of respondents who supported refugees or plan to do so for each spatial planning region. The results from mixed effect models are reported in Table 13. We find that the share of people who donated money to refugees in the past or plan to do so in the future is significantly higher in counties that had West German television exposure during the GDR period. In addition, these counties also exhibit higher shares of people who plan to work with refugees in the future. In contrast, we do not find a significant relationship between our TV dummy and the percentage of people who participated in demonstrations for initiatives to help refugees or plan to do so in the future. Apart from Model 3 and 4 (cf. Table 13), the GDRT variable that measures the average relevant lifetime that a counties' inhabitants spent in the former GDR shows a negative relationship. The logarithmized population density, however, is significant and positive for all variables that inquire survey respondents about past actions. This seems reasonable, since it is generally more likely to get in contact with refugees in more densely populated areas. The same is true for demonstrations, which also rather take place in cities than in rural areas.

As a further robustness test, we use data on attacks targeting refugees provided by the Amadeu Antonio Foundation and the non-profit organization PRO ASYL.[43] Between January 2015 and the beginning of December 2018 they documented 4126 incidents for East Germany (including Berlin) and categorized them into the following four groups: arson (119), battery (1033), other assaults (e.g. property damage to refugee accommodations, intimidation etc.) (2687) and incidents related to anti-refugee demonstrations (287). In addition, they classified 109 further incidents as suspected cases.[44] All incidents are geo-coded with an exact longitude and latitude, which we use to assign them to the respective county. Although the geo-code was missing in 24 cases, we managed to allocate the incidents to the respective county by hand via the statement of the location.[45] The dataset also contains a description and the source for each entry (e.g. police reports or inquires by political parties etc.). According to our hypothesis, we would expect to find

[42] The exact wording of the questions can be found in the online appendix.

[43] The dataset is freely available at https://www.mut-gegen-rechte-gewalt.de/service/chronik-vorfaelle. A recent paper by Müller and Schwarz (2018) uses the same dataset to analyze the link between social media and hate crime against refugees.

[44] The online appendix contains a list of examples for each type of anti-refugee activity.

[45] A figure illustrating the number of incidents per 1,000 asylum seekers for each East German county can be found in the online appendix.

a lower number of incidents in counties with former West German television exposure. Results from a panel data model are reported in Table 14.[46]

Our results reveal a negative and statistically significant relationship between former West German television exposure and the number of arson attacks and the number of incidents related to anti-refugee demonstrations, which is in line with our hypothesis. Moreover, for all kinds of hate crime, excepting the category other assaults, we find that the GDRT variable affects the number of incidents negatively. In contrast to the results of Model 1 and 4 (cf. Table 14), we do not find a significant effect of our TV dummy on the number of batteries and other assaults.[47]

As a final test, we use county data on naturalization per capita in the year 2015. The data is obtained from BBSR Bonn (2018). We estimate a linear mixed effects model with naturalization per capita as dependent variable and our set of controls as explanatory variables. Furthermore, we include the geodesic line between the counties' center and the closest border, since this geographic characteristic might be correlated with naturalization. The results are reported in Table 15. We find that former exposure to West German television had a positive and significant effect on naturalization. Not surprisingly, we find that a higher share of foreigners is positively related to naturalization. In addition, there is also a positive relationship between the share of women, the disposable income, the number of foreign visitors, the percentage of school-leavers without graduation and with a high-school diploma and naturalization. Surprisingly, we find the same pattern for the unemployment rate of foreigners. In contrast, the GDRT variable has a negative impact. The interpretation of these results is not obvious. Whereas the previous robustness checks presented different methods of measuring xenophobic attitudes, the results presented in Table 15 can be also interpreted as a consequence of xenophobic attitudes. It might be the case that foreigners self-select themselves into counties or regions which seem to be more open-minded.

Table 9-15 around here

5 Conclusions

Using the natural experiment of the differences in access to Western television that the separation of Germany provided, we have found strong empirical evidence for a mitigating impact of media on xenophobia. Our results show that regions that could receive West German television were less likely to vote for right-wing parties during the national elections from 1994 to 2017. Moreover, we provide evidence that West German television exposure has a negative effect on the number of arson attacks as well as the number of incidents related to anti-refugee demonstrations. In fact, the exposure had a positive effect on Germans' current attitudes towards refugees and naturalizations in general. Our results are robust and still visible, even 28 years after the German reunification. Unlike previous studies, which have shown that preferences between East and West Germans converge over time, we find that political attitudes of the two groups differing in their

[46] Since we could not obtain our control variables for the year 2018, we take the information from 2017.

[47] Results from probit estimations support our findings. Furthermore, they suggest that the likelihood of batteries is significantly lower in counties with former West German television exposure. The results can be found in the online appendix.

access to West German television diverge more strongly over time. Differences between areas with and without Western television cannot be explained by the economic situation, differences between city and countryside or by an inherent "right-wing tradition", as we have demonstrated by using various control variables. Given these results, one might conjecture that it was not by chance that the xenophobic "Pegida" movement in 2015 started in Dresden, right in the "the valley of the clueless." Indeed, the rise of "Pegida" might be a strange and belated side effect of the media censorship in the GDR.

Our findings might also have some broader implications. The recent literature on economic preferences suggests that preferences are affected by experience with markets (Falk and Szech, 2013, Fehr and Hoff, 2011, Henrich et al., 2011). Our results indicate that media provides another channel that has a lasting effect on preferences. Media content may not only reduce xenophobia, but might also, for example, shape preferences in favor of democratization more generally. The easy transfer of information between individuals via social media has led oppressive regimes such as China, Iran and North Korea to restrict access to internet services in fear of democratic tendencies. On the other hand, modern media might also contribute to the rise of populism. Conducting a text analysis of politicians using Facebook and Twitter, Engesser et al. (2017) provide evidence that populism manifests itself on social media. With the rise of smart television, social media functionalities have recently been evolving in television as well. Our analysis contributes to this literature by showing that television can have a positive and lasting effect on individual attitudes towards foreigners. However, unlike in the case social media, television content has traditionally been decided upon by program directors that are elected by semi-public broadcasting councils. The content of social media is largely determined by algorithms and what has been referred to as a "filter bubble" (Pariser, 2011).

Future works might investigate insights into the channels through which television affects xenophobia more precisely. Is it a familiarity effect, foreigners becoming "normal" by seeing them so often on the TV screen, or was a positive image of foreigners established, although a negative bias in the depiction of foreigners in movies and shows has often be suspected? And how was this difference preserved since reunification? Is this a case of intergenerational transfer of attitudes? Did the initial success of right-wing parties lead to more visibility, easier recruiting as well as mobilizing and thus to a stable development? To answer such questions, a more in-depth look at surveys regarding attitudes towards foreigners and their demographic distribution would be optimal. Such data, however, does not seem to be available in a high geographical and temporal resolution.

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Table 1: List and definition of variables

Dependent variables	Description	Source
Right parties	The variable measures the percentage of votes right-wing parties received in the national elections to the German Federal Parliament (*Bundestag*) during the years from 1994 to 2017. The data is measured at the county level (*Kreisebene*). We consider as right-wing parties the "Alternative for Germany" (*Alternative für Deutschland*, AfD), the "German People's Union" (*Deutsche Volksunion*, DVU), the "National Party of Germany" (*Nationaldemokratische Partei Deutschlands*, NPD), and "The Republicans" (*Die Republikaner*, REP). The variable is measured at the county level.	The data was retrieved from the Federal Returning Officer (*Bundeswahlleiter*).
Left party	The variable measures the percentage of votes the left-wing party "Party of Democratic Socialism" (*Partei des Demokratischen Sozialismus*, PDS) – which was renamed "The Left" (*Die Linke*) in 2007 – received in the national elections to the German Federal Parliament (*Bundestag*) in the years from 1994 to 2017. The variable is measured at the county level (*Kreisebene*).	The data was retrieved from the Federal Returning Officer (*Bundeswahlleiter*).
Voter turnout	The variable measures voter turnout in the national elections to the German Federal Parliament (*Bundestag*) in the years from 1994 to 2017. The variable is measured at the electoral district level (*Wahlkreisebene*)	The data was retrieved from the Federal Returning Officer (*Bundeswahlleiter*).
Invalid votes	The variable measures the percentage of invalid votes in the national elections to the German Federal Parliament (*Bundestag*) in the years from 1994 to 2017. The variable is measured at the electoral district level (*Wahlkreisebene*).	The data was retrieved from the Federal Returning Officer (*Bundeswahlleiter*).
Economic	The variable measures the average subjective predictions of economic development caused by refugees coming to Germany per spatial planning region (*Raumordnungsregion*). Exact wording can be found in the online appendix.	The data source is SOEP v33 (2018).
Culture	The variable measures the average subjective predictions of the refugees' influence on German culture per spatial planning region (*Raumordnungsregion*). Exact wording can be found in the online appendix.	The data source is SOEP v33 (2018).
Better place	The variable measures the average subjective predictions of the refugees' influence on the satisfaction of living in Germany per spatial planning region (*Raumordnungsregion*). Exact wording can be found in the online appendix.	The data source is SOEP v33 (2018).
Opportunity (short-term)	The variable measures the average subjective opinions regarding short-term risks and developments of a large influx of refugees into Germany per spatial planning region (*Raumordnungsregion*). Exact wording can be found in the online appendix.	The data source is SOEP v33 (2018).
Opportunity (long-term)	The variable measures the average subjective opinions regarding long-term risks and developments of a large influx of refugees into Germany per spatial planning region (*Raumordnungsregion*). Exact wording can be found in the online appendix.	The data source is SOEP v33 (2018).
Combination	The variable measures the respondents' average answer score of the variables 'Economic', 'Culture', 'Better place', 'Opportunity (short-term)' and 'Opportunity (long-term)',	Own calculation. The data source is SOEP v33 (2018).
Donating (past)	The variable measures the average of participants who stated that they have donated money or goods to refugees in the past per spatial planning region (*Raumordnungsregion*). Exact wording can be found in the online appendix.	The data source is SOEP v33 (2018).
Donating (future)	The variable measures the average of participants who stated that they plan to (also) donate money or goods to refugees in the future per spatial planning region (*Raumordnungsregion*). Exact wording can be found in the online appendix.	The data source is SOEP v33 (2018).
Working (past)	The variable measures the average of participants who stated that they have directly worked with refugees since the preceding year per spatial planning region (*Raumordnungsregion*). Exact wording can be found in the online appendix.	The data source is SOEP v33 (2018).

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Table 1: List and definition of variables (proceeding)

Working (future)	The variable measures the average of participants who stated that they plan to (also) directly work with refugees in the future per spatial planning region (*Raumordnungsregion*). Exact wording can be found in the online appendix.	The data source is SOEP v33 (2018).
Demonstration (past)	The variable measures the average of participants who stated that they have actively supported demonstrations or initiatives to help refugees since the preceding year per spatial planning region (*Raumordnungsregion*). Exact wording can be found in the online appendix.	The data source is SOEP v33 (2018).
Demonstration (future)	The variable measures the average of participants who stated that they plan to (also) actively support demonstrations or initiatives to help refugees in the future per spatial planning region (*Raumordnungsregion*). Exact wording can be found in the online appendix.	The data source is SOEP v33 (2018).
Arson	The variable measures the number of arson attacks per 1,000 refugees and was measured at the county level (*Kreisebene*).	The data was retrieved from the Amadeu Antonio Stiftung.
Battery	The variable measures the number of battery crimes per 1,000 refugees and was measured at the county level (*Kreisebene*).	The data was retrieved from the Amadeu Antonio Stiftung.
Other assaults	The variable measures the number of other assaults per 1,000 refugees and was measured at the county level (*Kreisebene*).	The data was retrieved from the Amadeu Antonio Stiftung.
Demonstration	The variable measures the number of incidents during anti-refugee demonstrations per 1,000 refugees and was measured at the county level (*Kreisebene*).	The data was retrieved from the Amadeu Antonio Stiftung.
Naturalization per capita	The variable measures the number of naturalization per capita in 2015 and was measured at the county level (*Kreisebene*).	The data source is BBSR Bonn (2018).
Variables of interest		
TV dummy	This dummy variable varies at the county level and equals one if the West German television signal strength was at least -86.5 dBm.	The data was retrieved from Crabtree et al. (2015).
TV quality	This variable measures West German television signal strength and was measured at the county level (*Kreisebene*). The variable has an ordinal scale and runs from 0 to 4. It received the value 0 if the signal strength was less than -86.5 dBm, 1 if it was at least -86.5 dBm, 2 if it was at least -85 dBm, 3 if it was at least -82.5 dBm and 4 if it was at least -80 dBm. Information about the over-the-air signal strength is measured at the county level (*Kreisebene*).	The data was retrieved from Crabtree et al. (2015).
Control variables		
Border distance	The variable measures the geodesic line between the administrative center of each GDR county and its closest border (either to Poland or to the Czech Republic). This variable is calculated with the geographic information system ArcGIS.	Own calculation.
Border dummy	The dummy variable equals one if the respective county is located in an electoral district which is situated next to the border to Poland or to the Czech Republic.	Own calculation.
Disposable income	The variable measures the average amount of money that households have available for consumption and saving after income taxes have been accounted for. The disposable income was measured at the county level (*Kreisebene*).	The data was provided by the Federal Statistical Office.
Foreigners (%)	The variable measures the share of the population that was foreigners in the respective election year and was measured at the county level (*Kreisebene*).	The data sources are various Statistical Yearbooks (*Statistische Jahrbücher*) and Departments for Statistics (*Amt für Statistik*) at the federal state (*Bundesland*) level.
Foreigners in 1989 (%)	The variable measures the share of the population that was foreigners in 1989 and was available at the district level (*DDR Bezirke*).	The data source is the Statistical Yearbook of the GDR from 1990.

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Table 1: List and definition of variables (proceeding)

Foreign visitors	The variable measures the number of overnight stays by foreigners relative to the total population number in the respective election year and was measured at the county level (*Kreisebene*).	The data sources are various Statistical Yearbooks (*Statistische Jahrbücher*) and Departments for Statistics (*Amt für Statistik*) at the federal state (*Bundesland*) level.
High school diploma (%)	The variable measures the percentage of school-leavers that graduated with a university entrance certificate in the respective election year and was measured at the county level (*Kreisebene*).	The data source is BBSR Bonn (2018).
High school dropout (%)	The variable measures the percentage of high school dropouts in the respective election year and was measured at the county level (*Kreisebene*).	The data source is BBSR Bonn (2018).
Hotel rooms	The variable measures the number of hotel rooms per 1000 inhabitants at the district level (*DDR Bezirke*) in 1989.	The data was taken from the Statistical Yearbook of the GDR from 1990.
Population density (ln)	Population density measures the population per km^2 living in a certain region in the respective election year and was measured at the county level (*Kreisebene*).	The data sources are various Statistical Yearbooks (*Statistische Jahrbücher*) and Departments for Statistics (*Amt für Statistik*) at the federal state (*Bundesland*) level.
Relevant lifetime spent in the GDR	The variable measures the average number of relevant years the counties' inhabitants had spent in the former GDR for each county and each election year. Relevant years refer only to years spent in the former GDR after the 14th year of life. Someone who was 15 years old at the time of the fall of the Berlin Wall would enter the calculation with a value of one. To make a comparison between the individual counties possible, we subtract the overall average number over relevant years in a given year from the average of each county.	The data sources are various Statistical Yearbooks (*Statistische Jahrbücher*) and Departments for Statistics (*Amt für Statistik*) at the federal state (*Bundesland*) level.
Unemployment rate foreigners	The unemployment rate of foreigners is the percentage of the labor force that are foreigners and jobless. The data was available at the county level (*Kreisebene*) for the election years 2005, 2009, 2013 and 2017 and at the federal state (*Bundesland*) level for the election years in 1998 and 2002.	The data sources are various Statistical Yearbooks (*Statistische Jahrbücher*) and Departments for Statistics (*Amt für Statistik*) at the federal state (*Bundesland*) level.
Unemployment rate total	The unemployment rate is the percentage of the labor force that was jobless in the respective election year and was measured at the county level (*Kreisebene*).	The data source are various Statistical Yearbooks (*Statistische Jahrbücher*) and Departments for Statistics (*Amt für Statistik*) at the federal state (*Bundesland*) level.
Votes for NSDAP in 1933	The variable measures the percentage of people that voted for the "National Socialist German Workers' Party" (*Nationalsozialistische Deutsche Arbeiterpartei*, NSDAP) in 1933.	The data was retrieved from www.wahlen-in-deutschland.de and was available for the historical electoral districts and subsequently matched to the current electoral districts.
Women (%)	The variable measures the share of women in the respective election year and was measured at the county level (*Kreisebene*).	The data sources are various Statistical Yearbooks (*Statistische Jahrbücher*) and BBSR Bonn (2018).

Note: This table includes for each variable used in the main paper and online appendix a description and a reference.

Table 2: Differences between treatment and control districts

	Treatment Area	**Control Area**	**Difference**		
	mean	mean	difference	se	p-value
1955					
share of women *(%)*	56.79	56.62	0.17	1.09	0.8819
average household size	2.79	2.90	−0.11	0.16	0.5668
infant mortality	50.09	45.33	4.76	4.73	0.3601
suicides per 100,000 inhabitants	24.72	21.99	2.73	4.56	0.5874
sales per capita	1654.55	1645.00	9.55	119.06	0.9413
1989					
share of women *(%)*	51.97	51.60	0.37	0.53	0.5362
average household size (1981)	2.57	2.70	−0.13	0.10	0.3171
infant mortality	7.95	6.77	1.19	0.56	0.0686
suicides per 100,000 inhabitants	27.06	25.63	1.43	1.14	0.5001
sales per capita	7576.27	7874.33	−298.06	208.48	0.2504
share of foreigners *(%)*	1.06	0.94	0.12	0.33	0.7368
share of foreign tourists in intercamping *(%)*	18.20	25.18	−6.98	14.41	0.6494
share of foreign tourists in youth leisure facilities *(%)*	15.77	16.42	−0.66	4.71	0.8920

Note: District differences between treatment (11) and control area (3). P-values based on two-sided Welch's t-tests of difference in means designed for unequal variances.

Table 3: Voting behavior

	Treatment	**Control**	**Difference**		
	mean	mean	difference	se	p-value
Mecklenburg-West Pomerania					
SED *(%)*	46.42	48.49	−2.07	3.53	0.5619
CDU *(%)*	32.69	35.89	−3.20	3.11	0.3164
LDP *(%)*	14.07	10.60	3.47	3.66	0.3555
Saxony					
SED *(%)*	49.21	50.19	−0.98	1.68	0.5692
CDU *(%)*	25.30	22.49	2.81	2.31	0.2400
LDP *(%)*	22.25	23.72	−1.48	3.61	0.6887

Note: County differences in the voting outcome of the three main parties in the federal state election in the year 1946 in the states Mecklenburg-West Pomerania and Saxony. Total number of counties 59 (treatment area: 40 and control area: 19). P-values based on two-sided Welch's t-tests of difference in means designed for unequal variances. *Socialist Unity Party of Germany* (SED), *Christian Democratic Union of Germany* (CDU), *Liberal Democratic Party of Germany* (LDP).

Table 4: Summary statistics

Voting behaviour	**Mean**	**Min**	**Max**	**N**	**n**	**T**
Right parties	6.96%	0.68%	37.33%	1519	217	7
NPD	2.19%	0.00%	7.07%	1302	217	6
REP	0.63%	0.00%	2.74%	1302	217	6
DVU	1.57%	0.00%	4.79%	434	217	2
AfD	14.32%	0.73%	35.46%	434	217	2
Left party	21.04%	2.56%	34.90%	1519	217	7
Explanatory variables						
TV dummy	0.88	0.00	1.00	1519	217	1
GDRT	0.00	−3.18	2.39	1519	217	7
Foreigners	2.09%	0.15%	33.57%	1519	217	7
Foreigners in 1989	1.07%	0.41%	1.62%	1519	217	1
Foreign visitors per inhabitant	0.22	0.01	7.69	1519	217	7
Hotels per 1000 inhabitants in 1989	2.09	0.99	4.84	1519	217	1
Votes for NSDAP in 1933	47.73%	30.70%	56.30%	1519	217	1
ln Population density	4.92	3.58	9.32	1519	217	7
Women	50.79%	47.57%	54.05%	1519	217	7
High school diploma	28.97%	15.03%	64.23%	1519	217	7
High school dropout	9.95%	3.93%	18.55%	1519	217	7
Unemployment rate total	15.05%	3.60%	26.80%	1519	217	7
Unemployment rate foreigners	30.58%	7.50%	76.40%	1302	217	6
Disposable income	14896.14	9784.00	22298.00	1519	217	7

Note: This table shows descriptive statistics of our variables (means, minimum and maximum value over time). N (n) refers to the number of observations (counties). T indicates the number of years for which we have information about the respective variable.

Table 5: Correlation table

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
[1]	TV dummy in 1989													
[2]	GDRT	-0.0677												
[3]	Foreigners (%)	-0.0358	-0.5466											
[4]	Foreigners 1989 (%)	0.0412	0.2418	-0.1082										
[5]	Foreign visitors	-0.1086	-0.4036	0.6612	0.0321									
[6]	Hotels per 1000 inhabitant in 1989	-0.3099	-0.1666	0.1007	0.0479	0.3431								
[7]	Votes for NSDAP in 1933	-0.3835	0.1916	-0.0506	-0.0434	-0.1482	0.0349							
[8]	ln Population density	0.1366	-0.3737	0.5514	0.3628	0.3216	0.0931	-0.1868						
[9]	Women (%)	0.2796	-0.5437	0.3044	-0.1753	0.2046	-0.1673	-0.1946	0.2745					
[10]	High school diploma (%)	0.0327	-0.6020	0.5636	-0.0922	0.2729	0.0423	-0.0272	0.5068	0.4148				
[11]	High school dropout (%)	0.0358	0.1708	0.0848	-0.0952	-0.0408	-0.1895	-0.0514	-0.0950	-0.0554	-0.2876			
[12]	Unemployment rate total	-0.3711	0.1880	0.1975	-0.1274	0.0577	0.0207	0.1952	-0.0524	-0.1406	-0.0229	0.5268		
[13]	Unemployment rate foreigners	-0.0894	0.2488	-0.0260	0.1457	-0.1556	-0.1669	0.0560	0.1120	-0.1065	-0.0119	0.3242	0.6606	
[14]	Disposable income	0.2906	-0.0517	0.0044	0.3327	0.2282	-0.0389	-0.3363	0.2233	0.0389	-0.0567	-0.2810	-0.6327	-0.2917

Note: This table shows the correlation between our explanatory variables. The table is restricted to observations from the year 2017 unless we explicitly state the year to which the variable refers (e.g. Votes for NSDAP in 1933).

Table 6a: Results of OLS: Right-wing parties (1994–2005)

	Model 1 Right Parties 1994		**Model 2 Right Parties 1998**		**Model 3 Right Parties 2002**		**Model 4 Right Parties 2005**	
	b	p	b	p	b	p	b	p
TV dummy	−0.130	0.165	-0.604^{*}	0.026	-0.708^{***}	0.000	-1.107^{***}	0.000
GDRT	0.031	0.747	−0.051	0.895	0.365^{*}	0.012	0.362	0.267
TV dummy x GDRT	−0.021	0.824	0.055	0.897	-0.261^{+}	0.076	−0.188	0.528
Foreigners (%)	−0.041	0.432	0.028	0.344	−0.075	0.268	−0.056	0.663
Foreigners in 1989 (%)	0.100	0.474	1.099^{*}	0.011	0.914^{**}	0.006	1.154^{*}	0.037
Foreign visitors	0.704	0.177	0.231	0.645	−0.836	0.184	-1.869^{*}	0.030
Hotel rooms	0.088	0.161	−0.000	0.999	−0.035	0.811	0.355^{+}	0.052
Votes for NSDAP in 1933	0.007	0.403	−0.004	0.861	-0.040^{*}	0.013	−0.024	0.337
ln Population density	-0.096^{+}	0.076	-0.338^{*}	0.010	0.100	0.500	−0.001	0.996
Women (%)	0.193^{**}	0.006	0.410^{*}	0.021	0.087	0.577	0.172	0.546
High school diploma (%)	−0.003	0.805	-0.033^{+}	0.095	-0.033^{+}	0.076	−0.020	0.457
High school dropout (%)	0.004	0.796	−0.021	0.534	-0.087^{**}	0.008	-0.181^{*}	0.038
Unemployment rate total	−0.031	0.528	0.036	0.191	0.004	0.872	0.030	0.688
Unemployment rate foreigners			-0.115^{***}	0.000	-0.056^{+}	0.098	-0.020^{+}	0.057
Income	−0.000	0.963	0.000	0.601	0.000	0.215	0.000	0.654
Intercept	-8.135^{*}	0.020	−11.609	0.141	0.429	0.958	−3.583	0.788
Log likelihood	0.73		-201.24		-134.76		-272.32	
Adj. R^2	0.24		0.60		0.57		0.53	
Observations	217		217		217		217	

Note: OLS-estimations. The dependent variable in the models 1–4 is the voting outcome for right-wing parties in the federal elections from 1994 to 2005. Standard errors clustered at district level. Regression results with a stepwise inclusion of control variables are displayed in the online appendix. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 6b: Results of OLS: Right-wing parties (2009–2017)

	Model 5 Right Parties 2009		**Model 6 Right Parties 2013**		**Model 7 Right Parties 2017**	
	b	p	b	p	b	p
TV dummy	-0.994^{***}	0.000	-1.770^{***}	0.000	-1.276	0.266
GDRT	0.240	0.387	0.474	0.275	6.653^{***}	0.000
TV dummy x GDRT	-0.226	0.288	-0.185	0.525	-5.263^{***}	0.000
Foreigners (%)	0.108	0.320	0.007	0.970	-0.502	0.129
Foreigners in 1989 (%)	1.138^{**}	0.009	2.291^{**}	0.004	5.361^{***}	0.000
Foreign visitors	-1.556^{***}	0.001	-0.828^{*}	0.027	-1.536^{*}	0.031
Hotel rooms	0.175	0.286	0.562	0.102	0.508	0.456
Votes for NSDAP in 1933	0.005	0.798	0.007	0.836	-0.123	0.172
ln Population density	-0.342^{+}	0.062	-0.199	0.510	0.756	0.121
Women (%)	-0.047	0.839	0.277	0.462	-0.974^{*}	0.026
High school diploma (%)	0.019	0.202	0.036	0.498	0.028	0.669
High school dropout (%)	-0.051	0.306	-0.071	0.382	-0.219	0.296
Unemployment rate total	0.209^{*}	0.048	-0.163	0.168	0.152	0.691
Unemployment rate foreigners	-0.038^{*}	0.034	-0.014	0.777	-0.023	0.654
Income	0.000^{*}	0.022	-0.000	0.612	0.001	0.292
Intercept	-2.389	0.848	-2.639	0.869	60.446^{*}	0.021
Log likelihood	-217.57		-367.40		-542.03	
Adj. R^2	0.52		0.41		0.68	
Observations	217		217		217	

Note: OLS-estimations. The dependent variable in the models 5–7 is the voting outcome for right-wing parties in the federal elections from 2009 to 2017. Standard errors clustered at district level. Regression results with a stepwise inclusion of control variables are displayed in the online appendix. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 7: Results of panel data model: Right-wing parties

	Model 1 Right Parties	
	b	p
TV dummy	-1.506^{***}	0.000
GDRT	2.216^{***}	0.001
TV dummy × GDRT	-1.758^{**}	0.006
Foreigners (%)	−0.231	0.148
Foreigners in 1989 (%)	1.895^{***}	0.000
Foreign visitors	-1.223^{***}	0.000
Hotel rooms	0.152	0.477
Votes for NSDAP in 1933	−0.019	0.361
ln Population density	0.657^{***}	0.000
Women (%)	-0.468^{***}	0.000
High school diploma (%)	−0.011	0.704
High school dropout (%)	−0.031	0.311
Unemployment rate total	0.024	0.586
Income	0.000	0.125
Intercept	70.377^{***}	0.000
Year dummies	✓	
Overall R^2	0.95	
Observations	1519	

Note: Random effects model. The dependent variable in Model 1 is the voting outcome for right-wing parties in the federal elections from 1994 to 2017. Standard errors clustered at district level. Regression results with a stepwise inclusion of control variables are displayed in the online appendix. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 8: Results of panel data model: Voting outcome left party, turnout and invalid votes

	Model 1 Left Parties		**Model 2 Turnout**		**Model 3 Invalid votes**	
	b	p	b	p	b	p
TV dummy	0.687	0.111	0.630	0.261	−0.062	0.308
GDRT	−0.907	0.447	−1.289	0.116	−0.119	0.320
TV dummy × GDRT	1.130	0.338	0.792	0.313	0.104	0.372
Foreigners (%)	0.249^{***}	0.000	-0.174^{***}	0.000	−0.015	0.213
Foreigners in 1989 (%)	-2.925^{***}	0.001	1.880^{**}	0.006	−0.094	0.139
Foreign visitors	−0.239	0.678	-0.876^{+}	0.067	−0.009	0.925
Hotel rooms	−0.138	0.596	0.683	0.112	−0.003	0.856
Votes for NSDAP in 1933	0.087^{*}	0.016	−0.035	0.467	0.012^{**}	0.006
ln Population density	0.589^{*}	0.034	0.535^{+}	0.061	-0.109^{*}	0.011
Women (%)	-0.339^{*}	0.016	−0.057	0.764	-0.046^{+}	0.079
High school diploma (%)	−0.043	0.303	0.101^{**}	0.005	0.004	0.643
High school dropout (%)	−0.044	0.462	-0.126^{+}	0.084	−0.020	0.187
Unemployment rate total	−0.042	0.502	−0.009	0.882	0.024^{+}	0.094
Income	−0.000	0.946	0.000	0.320	0.000	0.519
Intercept	33.193^{***}	0.001	66.880^{***}	0.000	3.604^{*}	0.013
Year dummies	✓		✓		✓	
Overall R^2	0.78		0.85		0.31	
Observations	1519		1519		1519	

Note: Random effects models. The dependent variable in Model 1–3 are the voting outcome for the left-wing parties, the voting turnout and the share of invalid votes in the federal elections from 1994 to 2017, respectively. Standard errors clustered at district level. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 9: Results of panel data model: Sample split

	Model 1 **Right Parties** *(North)*		**Model 2** **Right Parties** *(South)*	
	b	p	b	p
TV dummy	-1.123^{**}	0.002	-0.547^{+}	0.064
GDRT	1.282^{***}	0.000	3.498^{***}	0.000
TV dummy × GDRT	-0.818^{***}	0.000	-2.927^{***}	0.000
Foreigners (%)	0.097^{*}	0.036	-0.549^{***}	0.000
Foreigners in 1989 (%)	−0.391	0.662	2.760^{***}	0.000
Foreign visitors	-0.510^{*}	0.046	-0.183^{+}	0.766
Hotel rooms	−0.015	0.925	0.412^{*}	0.035
Votes for NSDAP in 1933	0.025	0.402	−0.027	0.371
ln Population density	−0.050	0.738	0.796^{***}	0.000
Women (%)	−0.260	0.459	-1.552^{***}	0.000
High school diploma (%)	0.006	0.872	0.028	0.249
High school dropout (%)	-0.048^{**}	0.004	−0.043	0.196
Unemployment rate total	0.005	0.905	−0.033	0.469
Income	−0.000	0.926	0.000	0.768
Intercept	15.601	0.348	74.988^{***}	0.000
Year dummies	✓		✓	
Overall R^2	0.97		0.96	
Observations	462		1057	

Note: Random effects models. In both models, the dependent variable is the voting outcome for right-wing parties in the federal elections from 1994 to 2017. Model 1 includes only the 66 counties that are located in the northern half of the former GDR (52 of these counties are part of the treatment group and 14 part of the control group). Model 2 includes only the 151 counties situated in the southern half (140 of these counties are part of the treatment group and 11 part of the control group). Berlin represents the border between both areas. Standard errors clustered at district level. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 10: Results of panel data model: Border region

	Model 1 **Right Parties** *(Border Dummy)*		**Model 2** **Right Parties** *(Border Distance)*	
	b	p	b	p
TV dummy	-1.073^{***}	0.001	-0.600^{*}	0.024
GDRT	2.056^{**}	0.002	2.160^{***}	0.001
TV dummy × GDRT	-1.546^{*}	0.012	-1.747^{**}	0.003
Border dummy	1.164^{***}	0.001		
Border distance			-0.000^{***}	0.000
Foreigners (%)	-0.258	0.107	-0.261^{+}	0.090
Foreigners in 1989 (%)	1.334^{***}	0.001	0.686^{*}	0.016
Foreign visitors	-1.099^{***}	0.000	-1.173^{***}	0.000
Hotel rooms	0.256	0.125	0.257^{*}	0.046
Votes for NSDAP in 1933	-0.036^{*}	0.017	-0.041^{**}	0.003
ln Population density	0.708^{***}	0.000	0.716^{***}	0.000
Women (%)	-1.427^{***}	0.000	-1.447^{***}	0.000
High school diploma (%)	-0.007	0.783	-0.021	0.317
High school dropout (%)	-0.038	0.254	-0.003	0.932
Unemployment rate total	0.029	0.493	0.018	0.587
Income	0.000	0.106	0.000	0.350
Intercept	68.358^{***}	0.000	73.636^{***}	0.000
Year dummies	✓		✓	
Overall R^2	0.95		0.96	
Observations	1519		1519	

Note: Random effects models. In both models, the dependent variable is the voting outcome for right-wing parties in the federal elections from 1994 to 2017. Model 1 includes a dummy variable which equals one if the respective county is located in an electoral district which is situated next to the border to Poland or to the Czech Republic. Model 2 includes a variable which measures the distance between the administrative center of each county and its closest border (either to Poland or to the Czech Republic). The distance is measured by the geodesic line and stated in kilometers. Standard errors clustered at district level. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 11: Results of panel data model: Spillover effects

	Model 1 Right Parties		**Model 2 Right Parties**	
	b	p	b	p
TV dummy	-1.708^{***}	0.000	-1.429^{**}	0.007
GDRT	2.256^{**}	0.002	2.638^{*}	0.024
TV dummy × GDRT	-1.751^{*}	0.014	-2.097^{+}	0.066
Foreigners (%)	−0.192	0.170	−0.197	0.166
Foreigners in 1989 (%)	1.973^{***}	0.000	2.296^{***}	0.000
Foreign visitors	-1.326^{***}	0.000	-1.141^{***}	0.000
Hotel rooms	0.128	0.445	0.199	0.266
Votes for NSDAP in 1933	−0.017	0.307	−0.017	0.350
ln Population density	0.593^{***}	0.000	0.532^{***}	0.000
Women (%)	-1.402^{***}	0.000	-1.351^{***}	0.000
High school diploma (%)	0.002	0.924	0.014	0.571
High school dropout (%)	-0.056^{+}	0.066	-0.068^{*}	0.039
Unemployment rate total	−0.003	0.935	−0.017	0.663
Income	0.000	0.163	0.000	0.242
Intercept	68.284^{***}	0.000	65.867^{***}	0.000
Year dummies	✓		✓	
Overall R^2	0.95		0.96	
Observations	1393		1295	

Note: Random effects models. In both models, the dependent variable is the voting outcome for right-wing parties in the federal elections from 1994 to 2017. In Model 1, the 18 counties of the treatment area that are located next to the control area are excluded. In Model 2, the 14 counties of the control area that are situated next to the treatment area are additionally excluded. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 12: Results of linear mixed effects model: attitudes towards refugees

	Model 1 **Economic**		**Model 2** **Culture**		**Model 3** **Better place**		**Model 4** **Opportunity (short-term)**		**Model 5** **Opportunity (long-term)**		**Model 6** **Combination**	
	b	p	b	p	b	p	b	p	b	p	b	p
TV dummy	0.161^{*}	0.029	0.157^{+}	0.068	0.106	0.181	0.146^{*}	0.027	0.224^{*}	0.025	0.172^{*}	0.027
GDRT	−0.109	0.119	−0.048	0.560	−0.047	0.529	-0.183^{**}	0.003	-0.202^{*}	0.033	-0.150^{*}	0.045
TV dummy × GDRT	0.093	0.175	0.005	0.952	−0.031	0.673	0.133^{*}	0.030	0.163^{+}	0.080	0.082	0.252
Foreigners (%)	0.017	0.540	−0.038	0.242	−0.029	0.331	−0.013	0.600	−0.029	0.435	0.026	0.339
Foreigners in 1989 (%)	−0.081	0.681	−0.158	0.567	−0.215	0.364	−0.272	0.147	-0.434^{+}	0.060	−0.206	0.334
Foreign visitors	0.032	0.576	0.068	0.334	0.014	0.828	0.061	0.249	0.144^{+}	0.057	0.031	0.618
Hotel rooms	0.048	0.541	0.075	0.507	0.121	0.208	0.044	0.559	0.097	0.288	0.060	0.488
Votes for NSDAP in 1933	0.000	0.960	−0.003	0.662	−0.006	0.361	0.003	0.565	0.007	0.366	0.001	0.917
ln Population density	0.018	0.651	0.089^{+}	0.052	0.038	0.364	0.032	0.355	0.057	0.278	0.028	0.511
Women (%)	−0.002	0.579	0.002	0.611	−0.001	0.712	0.000	0.940	−0.001	0.878	-0.075^{*}	0.014
High school diploma (%)	0.003	0.594	0.002	0.679	0.004	0.483	0.000	0.931	0.005	0.403	0.001	0.856
High school dropout (%)	0.020^{+}	0.099	0.010	0.480	0.017	0.183	0.000	0.998	0.015	0.364	0.013	0.304
Unemployment rate total	-0.045^{+}	0.065	−0.040	0.164	−0.021	0.434	−0.010	0.647	−0.053	0.103	-0.065^{*}	0.018
Unemployment rate foreigners	0.000	0.941	−0.000	0.964	0.001	0.831	−0.001	0.800	0.002	0.683	0.007	0.106
Income	0.000	0.786	0.000	0.607	0.000	0.398	0.000	0.617	0.000	0.767	0.000	0.598
Intercept	3.948^{***}	0.000	3.313^{**}	0.004	2.923^{**}	0.005	2.025^{*}	0.020	2.973^{*}	0.022	6.835^{***}	0.000
District	-1.312^{***}		-0.929^{***}		-1.102^{***}		-1.353^{***}		-1.202^{***}		-1.221^{***}	
Residual	-1.400^{***}		-1.250^{***}		-1.332^{***}		-1.512^{***}		-1.092^{***}		-1.376^{***}	
Log likelihood	-25.14		-60.90		-41.75		-1.75		-89.16		-31.18	
Observations	217		217		217		217		217		217	

Note: All models include district as random effects variable. In addition, all models include our explanatory variables (television reception, GDRT, foreigners living in the county, foreigners who lived there in 1989, foreigners visiting the county, number of hotel rooms in 1989, votes for NSDAP in 1933, logarithmized population density, percentage of women, share of school-leavers with a high school diploma, share of high school dropouts, total unemployment rate, unemployment rate of foreigners and disposable income) as fixed effects terms. All Models further include an interaction term between the TV dummy and the GDRT variable. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 13: Results of linear mixed effects model: refugee-related activities

	Model 1 Donating (past)		**Model 2 Donating (future)**		**Model 3 Working (past)**		**Model 4 Working (future)**		**Model 5 Demonstration (past)**		**Model 6 Demonstration (future)**	
	b	p	b	p	b	p	b	p	b	p	b	p
TV dummy	0.025^{**}	0.004	0.044^{***}	0.000	0.004	0.323	0.016^{**}	0.002	0.001	0.803	0.006	0.366
GDRT	-0.017^{*}	0.040	-0.043^{***}	0.000	0.005	0.263	0.000	0.999	-0.016^{***}	0.000	-0.028^{***}	0.000
TV dummy × GDRT	0.006	0.463	0.029^{**}	0.004	−0.004	0.350	0.001	0.800	0.008^{*}	0.038	0.020^{**}	0.002
Foreigners (%)	-0.007^{*}	0.044	−0.002	0.544	−0.002	0.166	−0.002	0.355	-0.003^{*}	0.043	0.001	0.597
Foreigners in 1989 (%)	-0.047^{+}	0.099	−0.024	0.504	−0.013	0.292	−0.019	0.413	0.021^{+}	0.083	0.044^{***}	0.001
Foreign visitors	0.008	0.260	0.010	0.264	0.001	0.710	-0.004^{*}	0.436	0.004	0.289	−0.001	0.867
Hotel rooms	0.011	0.344	0.014	0.349	0.006	0.213	0.021^{*}	0.041	−0.001	0.892	0.004	0.474
Votes for NSDAP in 1933	−0.000	0.747	−0.000	0.693	-0.001^{*}	0.010	0.000	0.960	0.000	0.646	−0.001	0.105
ln Population density	0.013^{**}	0.004	0.006	0.337	0.010^{***}	0.000	0.009^{**}	0.002	0.007^{***}	0.001	0.000	0.987
Women (%)	0.001^{*}	0.048	0.001	0.253	0.000	0.160	0.000^{*}	0.260	0.000^{*}	0.047	0.000	0.572
High school diploma (%)	−0.001	0.155	−0.001	0.251	-0.000^{+}	0.091	0.000	0.913	-0.001^{***}	0.000	-0.002^{***}	0.001
High school dropout (%)	−0.001	0.485	0.000	0.977	-0.001^{*}	0.256	0.001	0.173	−0.000	0.962	−0.001	0.641
Unemployment rate total	0.000	0.963	−0.004	0.236	-0.003^{*}	0.043	-0.009^{***}	0.000	0.003^{*}	0.029	0.006^{**}	0.009
Unemployment rate foreigners	-0.001^{*}	0.031	−0.000	0.453	−0.000	0.185	0.000	0.274	-0.001^{**}	0.002	-0.001^{*}	0.016
Income	0.000	0.939	−0.000	0.551	−0.000	0.234	-0.000^{*}	0.027	0.000	0.312	0.000	0.647
Intercept	0.191^{+}	0.100	0.308^{*}	0.035	0.139^{*}	0.017	0.175^{*}	0.014	−0.032	0.573	0.073	0.404
District	-3.188^{***}		-2.958^{***}		-4.107^{***}		-3.261^{***}		-4.058^{***}		-4.175^{***}	
Residual	-3.541^{***}		-3.310^{***}		-4.216^{***}		-4.067^{***}		-4.259^{***}		-3.777^{***}	
Log likelihood	435.74		385.72		585.68		543.42		593.80		497.16	
Observations	217		217		217		217		217		217	

Note: All models include district as random effects variable. In addition, all models include our explanatory variables (television reception, GDRT, foreigners living in the county, foreigners who lived there in 1989, foreigners visiting the county, number of hotel rooms in 1989, votes for NSDAP in 1933, logarithmized population density, percentage of women, share of school-leavers with a high school diploma, share of high school dropouts, total unemployment rate, unemployment rate of foreigners and disposable income) as fixed effects terms. Model 5-7 further include an interaction term between the TV dummy and the GDRT variable. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 14: Results of panel data model: Hate crime

	Model 1 Arson		**Model 2 Battery**		**Model 3 Other assaults**		**Model 4 Demonstration**	
	b	p	b	p	b	p	b	p
TV dummy	-0.179^{*}	0.023	0.087	0.815	-0.493	0.495	-0.228^{*}	0.016
GDRT	-0.110^{+}	0.063	-0.600^{**}	0.008	0.052	0.894	-0.306^{**}	0.002
TV dummy × GDRT	0.092	0.116	0.424^{*}	0.030	0.198	0.636	0.353^{***}	0.000
Foreigners (%)	-0.038^{+}	0.090	0.104	0.529	0.238	0.268	0.056	0.549
Foreigners in 1989 (%)	0.051	0.561	0.568	0.126	2.501^{***}	0.000	0.488^{*}	0.022
Foreign visitors	-0.013	0.818	-0.289	0.295	-0.525	0.207	-0.225	0.201
Hotel rooms	-0.009	0.710	-0.137	0.303	0.216	0.400	0.162^{*}	0.027
Votes for NSDAP in 1933	-0.011^{*}	0.014	-0.010	0.786	-0.076	0.232	-0.022^{**}	0.001
ln Population density	0.012	0.772	-0.341^{+}	0.059	-0.655^{**}	0.009	0.017	0.853
Women (%)	0.005^{+}	0.091	-0.011	0.812	0.049	0.114	0.006	0.589
High school diploma (%)	-0.004	0.397	-0.013	0.599	-0.028	0.322	-0.012	0.541
High school dropout (%)	-0.000	0.998	0.006	0.954	0.054	0.775	0.011	0.818
Unemployment rate total	0.001	0.972	-0.007	0.968	-0.212	0.293	-0.106	0.131
Income	0.000	0.665	-0.000	0.593	0.000	0.892	-0.000	0.456
Intercept	0.641	0.576	6.160	0.467	5.641	0.615	4.401	0.132
Year dummies	✓		✓		✓		✓	
Overall R^2	0.20		0.12		0.33		0.30	
Observations	868		868		868		868	

Note: Random effects models. The dependent variables in Model 1 and 2 are the number of arson attacks and the number of battery crimes per 1000 refugees. In Model 3 and 4 the dependent variables are the number of other assaults and the number of incidents during anti-refugee demonstrations per 1000 refugees. Standard errors clustered at district level. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 15: Results of linear mixed effects model: naturalization

	Model 1 Naturalization per capita	
	b	p
Fixed Effects		
TV dummy	0.060^{*}	0.021
GDRT	-0.045^{+}	0.067
TV dummy×GDRT	0.012	0.611
Border distance	−0.000	0.252
Foreigners (%)	0.046^{***}	0.000
Foreigners in 1989 (%)	0.007	0.880
Foreign visitors	0.065^{***}	0.000
Hotel rooms	0.006	0.693
Votes for NSDAP in 1933	0.000	0.977
ln Population density	0.013	0.415
Women (%)	0.074^{***}	0.001
High school diploma (%)	0.005^{**}	0.002
High school dropout (%)	0.022^{***}	0.000
Unemployment rate total	−0.004	0.608
Unemployment rate foreigners	0.003^{*}	0.021
Income	0.000^{**}	0.004
Intercept	-4.872^{***}	0.000
District	-3.034^{***}	
Residual	-2.484^{***}	
Log-likelihood	218.35	
Observations	217	

Note: Model 1 includes district as random effects variable. In addition, Model 1 includes our explanatory variables (television reception, GDRT, border distance, foreigners living in the county, foreigners who lived there in 1989, foreigners visiting the county, number of hotel rooms in 1989, votes for NSDAP in 1933, logarithmized population density, percentage of women, share of school-leavers with a high school diploma, share of high school dropouts, total unemployment rate, unemployment rate of foreigners and disposable income) as fixed effects terms. Furthermore, Model 1 includes an interaction term between the TV dummy and the GDRT variable. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.