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Media's Role in the Making of a Democrat: Evidence from East Germany

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Media's Role in the Making of a Democrat: Evidence from East Germany

Abstract

This paper explores the causal influence of media content on voting behavior. We exploit a natural experiment involving access to West German TV within the German Democratic Republic. Focusing on federal and state election outcomes in the post-reunification decade (i.e., a time at which TV content was harmonized), we find that municipalities that had access to Western TV broadcasts before reunification have lower vote shares for left-wing and right-wing extremist parties. With regard to potential channels, we provide evidence based on survey data that GDR citizens with access to West German TV were less loyal to the socialist regime, less hostile toward foreigners, and exhibited higher levels of social capital. Our findings thus support the notion that access to free media influences political attitudes and facilitates the consolidation of democracy.

JEL-Codes: D720, L820, P300.

Keywords: voting, extremism, television, media, natural experiment, Germany.

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1 Introduction

1.1 Motivation and Main Results

Which factors lead people to fully embrace a newly established democracy? Conversely, under what circumstances will people use their new and hard-won freedom to support extremist parties that do not support the democratic regime? A substantial literature has tested the importance of different factors for the consolidation of democracy, such as education, the extent of political rights, or centralization (e.g., Acemoglu and Robinson 2006; Goldstone and Ulfelder 2004; Siedler 2010). In this paper, we explore the role of media content that was consumed for a long period before the establishment of democracy. The continued attempts to curtail news reporting and media discourse by political leaders in Turkey, North Korea, and China, for example, suggest that contemporaneous media content matters for political outcomes. In contrast, our interest lies with *historical* differences in media content.

This paper exploits a natural experiment involving access to West German TV programming during communist rule in the German Democratic Republic (GDR) to explore the causal effect of media content on electoral outcomes in the post-reunification decade. Before German reunification, Western TV broadcasts were accessible in only some parts of the GDR; access depended solely on geography and topography (e.g., Buhl 1990). The GDR regions without access were located in either the northeast or southeast of the country, and were thus either too far away from the transmitter masts in the Federal Republic of Germany (FRG) or were in valleys on the other side of mountains that blocked the signals. About 85% of the GDR population was “treated” with access to Western TV; the remaining 15% only had access to East German TV. After reunification, West German TV was quickly made accessible to all former GDR residents. We explore how the long-lasting exposure of a random subset of GDR residents to free Western TV broadcasting influenced political attitudes by analyzing regional variation in the vote share of extremist parties in the post-reunification decade. Put differently, we investigate whether media content affects voting behavior.

Since East German TV was primarily used as a propaganda instrument to rally support for the communist leadership and stir up public opposition to the political and economic regime of the FRG, we hypothesize that former GDR residents who had access to only East German TV prior to reunification are more strongly inclined to support extremist parties. In contrast, West German TV programming was free from political influence and

provided an unfiltered view of politics in both West and East Germany. Thus, former GDR residents who had access to West German TV prior to reunification should be more likely to embrace the democratic transition and the liberties that come with it, resulting in less support for extremist parties that oppose the democratic regime and the capitalist economic system. In line with our prior, we find that regions in which West German TV programming was available prior to reunification have significantly lower vote shares for both left-wing and right-wing extremist parties. Our findings are thus consistent with the proposition that free media supports the making of a democrat by influencing political culture.

1.2 Related Literature

By utilizing regional variation in the pre-unification availability of West German TV in the GDR to study the influence of media content on voting, our paper relates to two strands of the literature.¹

First, our paper relates to fairly recent literature investigating the relationship between media content and election outcomes. However, this literature focuses on the contemporaneous effect of media content on political outcomes, whereas our interest is in the long-lasting effect of historic differences in media content. Important contributions in this area include the study by Kern and Hainmüller (2009), who show that access to Western TV broadcasts is inversely related to the number of exit visa applications during the GDR era and that GDR citizens with access to Western TV feel more attached to the GDR. Based on this evidence, they conclude that Western TV was more of a stabilizing influence than a destabilizing one during the communist regime. They attribute this finding to the entertainment value of Western TV making life in the GDR more bearable. Kern (2011) explores whether regional variation in access to Western TV is related to the diffusion of protests in 1989, using data on protest activities at the county level and survey data on protest participation as outcome variables, but finds no statistically significant relationship. Crabtree et al. (2015) support this finding using similar data. Enikolopov et al. (2011) study the effect of access to the only national and politically independent TV channel on the outcome of the 1999 parliamentary elections in Russia. Similar to our paper, the authors utilize exogenous variation in signal availability to identify a causal effect. Their findings suggest that access to independent media content has a positive

¹Another strand our paper also connects to focuses on the economic and social impact of media in a broader sense. See DellaVigna and La Ferrara (2015) for a literature review.

influence on the vote shares of major opposition parties. Also focusing on Russia, Garcia-Arenas (2016) studies the influence of Radio Liberty, an American radio broadcast, on the outcomes of the first elections that were held after the demise of the Soviet Union in 1991. He reports that this broadcast had a positive influence on the share of votes Boris Yeltsin received, thus supporting the notion that contemporaneous media content can actually have political consequences. For the United States, DellaVigna and Kaplan (2007) analyze the impact of conservative Fox News Channel’s entry into the cable market on the Republicans’ vote share and voter turnout in the presidential election of 2000. The authors find that Fox News’ entry increased the Republican vote share and voter turnout, indicating that media bias significantly affects election outcomes. Gentzkow (2006) analyzes the consequences of the dissemination television sets between 1940 and 1972 for voter turnout and detects an inverse relationship. Focusing on Germany before World War II, Adena et al. (2015) study the effect of politically biased radio news on support for the Nazi Party. Using more recent data, DellaVigna et al. (2014), by looking at radio signal strength and electoral outcomes, describe how radio content can fuel ethnic conflicts in Croatia. To the best of our knowledge, the only paper besides ours that explores the relationship between historic differences in media content and later political outcomes is the one by Durante et al. (forthcoming). The authors analyze whether the staggered introduction of Silvio Berlusconi’s private TV network across Italian regions in the 1980s is related to the share of votes Berlusconi’s party received in the elections in the 1990s and 2000s.

The second strand of literature to which our paper is related is that which exploits the natural experiment of regional variation in the availability of West German TV as an identification strategy to study the causal influence of media content on various outcomes. For example, Bursztyn and Cantoni (2016) analyze whether access to West German TV has affected individual consumption behavior. Their finding suggests that former GDR citizens who had access to Western TV spent relatively more on highly advertised products. Despite focusing on a different outcome variable, our study is closely related to Bursztyn and Cantoni (2016) in that we also focus on how pre-reunification access to Western TV influences individual behavior after reunification. Utilizing data from a survey conducted during the GDR era, Hyll and Schneider (2013) find that GDR citizens who had access to West German TV broadcasts demonstrate higher material aspirations. In a similar vein, Henninghausen (2015) reports that exposure to Western TV made GDR citizens more inclined to believe that personal success depends on individual effort rather

than luck. Finally, Friehe et al. (forthcoming) analyze how access to West German TV impacts crime rates.

1.3 Plan for the Paper

The remainder of the paper is organized as follows. Section 2 provides background information on the division and reunification of Germany, explains how media content differed across West and East Germany, and motivates our research hypotheses. The research design is detailed in Section 3. Section 4 contains survey evidence for the relevance of access to Western TV for political attitudes. Section 5 describes the empirical approach and presents the estimation results. In addition, we also report the results from several robustness checks. Section 6 concludes.

2 Historical Background

2.1 German Separation and Reunification

After World War II, Germany was divided into four occupation zones, one under US administration, one under British, one under French, and one under that of the Soviet Union (e.g., Burchardi and Hassan 2013). In 1949, the Federal Republic of Germany (FRG; West Germany) was founded on the territory of the US, British, and French zones. Also in 1949, the territory occupied by the Soviet Union became the German Democratic Republic (GDR; East Germany). The border between the FRG and the GDR was completely sealed in 1952.

The political environment in the two parts of Germany was very different. The FRG adopted a parliamentary democratic system with free and fair elections and extensive political rights for its citizens, and had close ties to other Western democracies. It became a member of NATO in 1955 and was a founding member of the European Economic Community in 1957. In contrast, the GDR effectively established a communist authoritarian regime and was ruled by the Socialist Unity Party (*Sozialistische Einheits Partei Deutschlands*).² The Soviet Union continued to have significant political and economic influence in the GDR, which was also part of the Eastern Bloc during the Cold War and a member of the Warsaw Pact. The GDR's communist regime denied its citizens basic

²According to the constitution of the GDR, the parliament resulted from general, free, and secret elections. In fact, citizens were expected to participate in elections by giving approval to a coalition of parties. Usually, preconditions for a secret election such as polling booths were not ensured and citizens were put under pressure to support the regime.

political rights, such as freedom of speech, freedom of assembly, and the right to a free election, as well as basic human rights, as evidenced by the imprisonment and torture of political opponents. The GDR regime secured and consolidated its power with the support of an extensive secret service, the State Security Service (*Staatssicherheit*).

The economic development of the two parts of Germany also differed strongly. Whereas the FRG benefited from Allied support under the Marshall Plan, the economy of the GDR suffered from Soviet reparation claims. The FRG had a free market economy combined with social policies intended to ensure equal opportunities; the GDR adopted a centrally planned economy in which almost all means of production were state owned and the society was meant to be egalitarian and free of class distinctions.³ In the GDR, the allocation of resources and distribution of goods in the GDR was organized by a planning committee. In the 1950s and 1960s, the FRG experienced a massive and long-lasting economic boost, commonly referred to as the “German economic miracle” (*Wirtschaftswunder*). By the early 1970s, the FRG’s economy had become the fourth largest one in terms of GDP. Although the standard of living in the GDR was higher than in many other communist countries at that time, it was still drastically lower than in the FRG. There were frequent shortages of supplies and rationing of food and consumption goods.

German reunification was initiated by a series of protests that started in 1989 and eventually culminated in the fall of the Berlin Wall in November 1989 (e.g., Kern 2011). The process of reunification was completed in October 1990 when the GDR was integrated into the territory of the FRG and adopted the FRG’s political and economic system. The division of Germany thus lasted for more than 40 years. Also in October 1990, the first elections for state parliaments were held in the East German states. Only two months later, in December 1990, the first federal elections were held in unified Germany.

2.2 Differences in TV Content Across West and East Germany

Media content differed notably across the Iron Curtain. As in other Soviet bloc states, the media in the GDR was tightly controlled by the communist regime and subject to extensive censorship. It was regarded as a potent propaganda instrument and used to create a *socialist personality* and consolidate the incumbent regime’s power. For example, Section 4 (2) of the Young Persons Act of 1974 made it mandatory for media (press, radio, and

³For instance, in the GDR in 1988, the average net income of individuals with a university degree was only 15% higher than that of blue-collar workers, while this difference amounted to 70% in West Germany (Schäffgen 1998).

TV) content to promote socialist youth development. To ensure that the media complied with this mandate, the GDR media was closely scrutinized by the central committee’s Propaganda Department and TV and radio program scripts had to be approved prior to broadcast to ensure that they reflected the party line (e.g., Kochanowski et al. 2013; Stiehler 2004). Stiehler (2004) argues that East German TV lost contact with reality and with the audience’s experience in the political domain, that it tried to show how reality should be and not how it actually was.

In contrast, ever since World War II, the media in West Germany was free from political influence and censorship (e.g., Müller and Gusy 2011).⁴ West German TV portrayed a vivid political discourse and functioning political checks and balances, as well as institutions that secured and protected the citizens’ political and human rights. Thus, GDR citizens with access to West German TV were able to see the benefits of democracy. Moreover, West German TV featured a number of broadcasts explicitly dealing with the political and economic conditions in the GDR, such as the political TV programs *Kennzeichen D* and *Kontraste* (e.g., Kern and Hainmüller 2009). Thus, GDR citizens with access to West German TV were provided with an unfiltered view of the situation in their home country and saw events that the communist regime tried to conceal, such as the shortfall of supplies and the treatment of political opponents and dissidents.

2.3 TV Content and Voting Behavior

There are different ways that access to free media, as opposed to media that is mainly an authoritarian regime’s propaganda, can influence electoral outcomes in the post-reunification period (in which media content was identical in West and East Germany).

First, previous exposure to Western TV programming may have given people a political head start right after the demise of the GDR. Roth (1990: 371) argues that democracy was uncharted territory for citizens of the former GDR, given that they had experienced more than 40 years of socialist rule, not to mention 12 years under the Nazis previous to that. Reunification occurred very rapidly after the protests that occurred in the fall of 1989, giving GDR residents little time to become familiar with the new democratic regime. In fact, until 1989, the GDR was considered one of the most stable communist regimes in Eastern Europe, meaning that its citizens were in no way preparing for regime change (e.g., Kern 2011). As a result, amid the turmoil in 1989 and 1990, previous exposure to

⁴*Freedom of the Press* has rated West Germany as “free” since its inception in 1980, and assigned an average score of about 15 in the period 1994-2015 (where 0 is the most free and 100 is the least free).

Western TV may have had a direct effect on electoral outcomes in 1990 simply due to differences in levels of information held between those who had been watching Western TV and those who had not. However, such a direct effect, if it occurred at all, would have been very short-lived. We are far more interested in whether access to West German TV had a long-lasting influence on attitudes toward democracy, leading to long-lasting differences in electoral outcomes.

Such an impact would be consistent with political culture theory (e.g., Almond and Verba 1963; Inglehart 1988). Political culture refers to peoples' beliefs about the political domain and consists of cognitive, affective, and evaluative orientations toward the political and economic system. Proponents of political culture theory argue that the consolidation and viability of democracy requires a political culture that is consistent with basic democratic norms and values (e.g., Jebril et al. 2013). They also emphasize that media is an important agent of political socialization, meaning that it exerts a significant influence on peoples' attitudes toward political and economic institutions. It is highlighted that free media and independent news reporting may contribute to the emergence of orientations that are favorable for democracy as well as the internalization of values and norms that are conducive to democratic transition. Support for a political and economic regime is more likely when there is ideational identification with the system, trust in political representatives, and satisfaction with the workings and outcomes, among other things. Access to Western TV may facilitate the development of a democratic political culture by, for example, showing that politicians are held accountable by media representatives and tightly controlled by members of opposition parties, and institutions such as the Federal Audit Office, *inter alia*. GDR citizens with access to Western TV were able to witness the merits of a free and liberal society. They saw, for instance, politicians catering to the needs of their constituents and being responsive to citizens' groups and demonstrations. Also, watching Western TV allowed GDR citizens to compare their standard of living to the notably higher living standard of the people in the FRG, arguably leading to an erosion of support for the GDR's communist regime and the centrally planned economic system.⁵

Socialist indoctrination of GDR citizens may indeed have nourished unfavorable at-

⁵The United States and other Western countries strongly believed that uncensored information provided by Western media would nurture pro-democratic and pro-Western sentiments in Soviet bloc states, which is why they made an effort to reach audiences in communist countries (e.g., Kern and Hainmüller 2009).

titudes toward democracy.⁶ Communist propaganda may have fueled hostile attitudes toward the FRG’s capitalist economic system, as the idea that capitalism inevitably leads to exploitation of the working class was an integral part of the communist ideology. For example, Buhl (1990) argues that, on average, about 10% of news on East German TV was dealing with downsides of the FRG’s regime such as unemployment, housing problems or the crime rate (using formats such as *Der Schwarze Kanal*). Importantly, the impact of media steered by the GDR regime was strengthened by the secret service actively spreading distrust among the people, as this barred open discourse about the material presented on East German TV.⁷ To some extent, access to West German TV may have immunized GDR citizens to communist propaganda, as it allowed people to see how life in West Germany really was, which stood in stark contrast to what the communist regime tried to make people believe it was.

Long-lasting differences in electoral outcomes due to historic differences in media content may also be the result of different levels of social capital in regions with and without access to Western TV during the GDR era.⁸ Higher levels of social capital may enable stronger bonding within groups and bridging between groups. Putnam (1994) famously argues that social capital is important for electoral outcomes in the north and south of Italy. Importantly, Geber et al. (2016) present data consistent with the idea that free and pluralistic media systems support the production of social capital. Put differently, access to Western TV prior to German reunification may have resulted in higher levels of social capital, which tends to be beneficial for the consolidation of democracy.⁹

Media content can also influence the extent to which people perceive cultural proximity to other regimes or countries (e.g., Yoo et al. 2014). The GDR leadership’s propaganda aimed at rallying support for the communist regime and stirring up hostility against the FRG and other Western democracies (Saunders 2007). Accordingly, being exposed to only East German TV may have made it relatively more difficult to embrace the FRG and its citizens after reunification, whereas access to West German TV enabled East Germans to

⁶The importance of political indoctrination for individual attitudes is also emphasized by Alesina and Glaeser (2004), for instance.

⁷Limiting free discussion was a general principle in the GDR and harshly imposed in the education system, for example (Saunders 2007).

⁸Evidence presented in Heineck and Süßmuth (2013), Ockenfels and Weimann (1999), and Rainer and Siedler (2009) is consistent with the hypothesis that people from East Germany had on average lower social capital than people from West Germany. We are interested in regional variation across East Germany resulting from differences in the availability of West German TV.

⁹Western TV may also lead to people spending more time watching TV which may harm social capital (Olken 2009, Putnam 1995). However, in Section 3.2, we will argue that the extent of watching TV was comparable such that the difference in content remains.

know and understand the FRG and its citizens, at least to some degree. For our setting, this means that former GDR citizens who had access to Western TV before reunification may have found it easier to become integrated after reunification. Such differences in the perceived level of social inclusion and exclusion may be important for electoral outcomes.

Exposure to West German TV may not only have exerted a positive influence on the attitudes GDR citizens have toward West Germany and its citizens, but also on their attitudes toward foreigners. West German TV relied heavily on foreign productions, especially broadcasts from the United States, and thus offered politically and culturally diverse programming. It also featured documentaries on foreign countries and cultures. Since the FRG was well integrated into the Western world and one of the founding members of the European Economic Community, political broadcasts on Western TV emphasized the benefits of international partnerships and a globalized world. Moreover, the “economic miracle” West Germany experienced during the 1950s and 1960s was to a significant extent due to guest workers from different countries who were compensating for the shortage of West German labor in the aftermath of World War II. GDR citizens with access to Western TV were thus able to witness the contributions foreigners made to the reconstruction of West Germany.¹⁰

To sum up, we hypothesize that access to West German TV prior to reunification leads to an erosion of support for the GDR’s communist regime and strengthens support for the democratic transition that followed the demise of the GDR. In contrast, GDR citizens residing in regions without access to West German TV should show greater support for the GDR’s communist regime and be more hostile toward the political and economic system of the FRG and reunification per se. In our paper, we test whether this impact on attitudes and values of former GDR citizens crystallizes in extremist parties’ shares (i.e., parties that seek to destabilize the political and economic system of the FRG) in elections in the post-reunification decade.

3 Research Design

This paper studies the causal effect that GDR citizens’ varying access to West German TV prior to reunification has on electoral outcomes after reunification. For our empirical analysis, we collected regionally disaggregated data on election results and information on the signal strength of West German TV. Our analysis is conducted at the municipality

¹⁰Mocan and Raschke (2016) argue that having had contact with foreigners is likely to reduce racist tendencies. Arguably, portraying foreign cultures in media may serve as a substitute for direct contact.

level, which corresponds to the NUTS 5/LAU 2 level. The following subsections provide some background information on our research design and address key issues pertaining to our identification strategy.

3.1 Regional Variation in the Availability of West German TV

In the empirical analysis, our explanatory variable of main interest is a continuous measure of the strength of the West German TV signal across municipalities in East Germany. The variable is from Bursztyn and Cantoni (2016) and computed based on a signal propagation model that takes into account the distance to the closest transmitter mast in the FRG as well as curvature and elevation features of the terrain. Figure 1 illustrates the strength of the West German TV signal across the GDR.

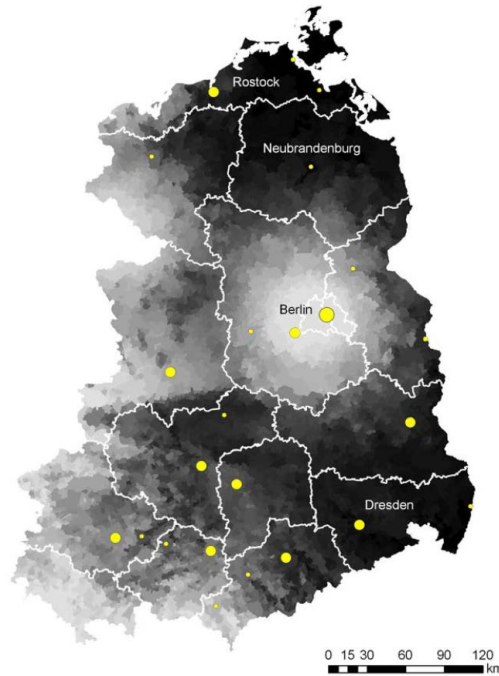


Figure 1: Signal Strength in East Germany, 1989 (Dark areas: weak signal; Yellow dots: Major cities). *Source: Bursztyn and Cantoni (2016), Figure 1.*

Whether West German TV was available in a particular region depended primarily on the strength of the TV signal. If the signal strength exceeded a certain threshold, West German TV was receivable virtually all the time; this was the case, for instance, in regions close to the FRG border. When the signal strength was below a certain threshold, however, it was never possible to watch Western TV. In between these thresholds, the availability of West German TV and reception quality depended on current atmospheric conditions

and even could vary over the day. In general, the higher the signal strength, the higher the chances of receiving Western TV and the better the reception quality. Unfortunately, the exact values for the upper and lower threshold are unknown and detailed information about regional-level reception quality prior to reunification is not available. We thus believe that a continuous measure for the strength of the West German TV signal is most appropriate for our empirical analysis.

However, as one of our robustness checks, we employ a binary indicator for the availability of West German TV. To construct this indicator, we use signal strength for the city of Dresden as a cutoff value. It is well known that West German TV was not available in the city of Dresden irrespective of atmospheric conditions, as it was located in a valley behind mountains that blocked the signal. In fact, this valley was referred to as the “valley of the clueless” because of the non-availability of West German TV broadcasting. In neighboring cities and villages, however, that were located on hills, West German TV was receivable at least sometimes, that is, when atmospheric conditions were optimal, indicating that the signal strength for Dresden was close to the lower threshold (Bursztyn and Cantoni 2016). Consequently, we code all regions with a signal strength higher than that of Dresden as 1 and all regions with a signal strength lower than or equal to that of Dresden as 0. Thus, our binary indicator takes on the value 0 only in cases in which West German TV was never accessible.

Note that we restrict our analysis to municipalities in the states of Mecklenburg West-Pomerania and Saxony, which are located in the north and south of East Germany, respectively. The reason for this is that most of the variation in the signal strength variable comes from municipalities situated in those two states. In fact, when using the binary indicator for the availability of Western TV, all municipalities coded 0 are situated in one of those two states. Our final sample includes roughly 1,500 municipalities.

3.2 Conditions for Causal Inference

To identify the *causal* effect of access to West German TV prior to reunification on electoral outcomes after reunification, the following conditions must be met.

3.2.1 Variation in TV Signal Strength Must be Exogenous

For our identification strategy to be valid, regional variation in the availability of West German TV must not be related to other factors that might affect election outcomes, implying that regions in which Western TV was (likely) accessible should be similar to

regions without access. Any violation of this condition could bias our estimates. Since our aim is to estimate the consequences of exposure to West German TV before reunification for electoral outcomes after reunification, this condition must be satisfied not only during the GDR era when there was regionally differentiated access to West German TV, but also at the time of the elections we are interested in, that is, in the post-reunification decade.

Before Reunification. That the strength of the West German TV signal depends solely on natural forces, that is, geography and topography, is clearly in favor of the assumption that regional variation in the availability of West German TV during the GDR era was exogenous. In that sense, our empirical setup can be considered a natural experiment. Attempts by the GDR’s totalitarian regime to establish a centrally organized system of coordination and harmonization for most aspects of society lend further support to this assumption. The GDR’s centralized education system served to create a socialist personality, supposedly resulting in loyal and obedient citizens. Schooling was compulsory up to the 10th grade and a large part of the uniform statewide curriculum focused on socialist subjects. Access to tertiary education was granted to only a small share of high school graduates. In addition to academic credentials, political criteria such as membership in the communist youth association (*Freie Deutsche Jugend*, FDJ) as well as family background (i.e., priority was given to children from the working class) determined eligibility to attend a university. Occupational choices were severely constrained as well. After graduating from school, graduates were assigned to vacant trainee positions by the central planning committee. Since the GDR had a centrally planned economy, the allocation process was primarily driven by the planning committee’s short- and long-term production plans. Most GDR citizens were employed in industry and agriculture, and payment was virtually equal across occupations, reflecting the socialist ideal that all people should achieve equal outcomes. Since every citizen was obliged to work, there was officially no unemployment. Due to these policies, the GDR residents can be considered a very homogenous group, and regional differences in most socio-demographic characteristics should be small (Hyll and Schneider 2013).

There is strong empirical evidence for this notion. Using a binary indicator for access to West German TV that is equivalent to the one described in Section 3.1, Bursztyn and Cantoni (2016) demonstrate that regions with and without access to West German TV were very similar in several important dimensions – such as the presence of industrial

and cultural centers, population density, shares of employment by sector, retail sales, and savings – both when the first TV networks in West and East Germany started broadcasting in the 1950s as well as shortly after the fall of the Berlin Wall (see Bursztyn and Cantoni 2016, Table 1). Based on data from the 1980s, Crabtree et al. (2015) show that regions with and without access to Western TV were similar with regard to the amenities of housing, the density of medical doctors or dentists, pollution, and the number of exit visa applications during the GDR era. To provide further evidence along this line, we utilize individual answers to the survey “Welfare East” conducted by the *Zentralinstitut für Jugendforschung* in the three months after West and East Germany were reunited in 1990.¹¹ Participants were asked about their net income, their happiness with life, current working conditions, number of friends, future prospects, and anticipated labor market trends in terms of the perceived risk of becoming unemployed and the possibility of needing to find a new job soon. Responses to these questions by people from districts with access to Western TV were not significantly different from those of people living in districts without access.

Kern and Hainmüller (2009) demonstrate that the population in regions with and without access to West German TV was also similar with regard to their political preferences before the first TV networks were established in West and East Germany. The authors show that for the federal election held in 1946, the vote share of the Socialist Unity Party (i.e., the party that ruled the GDR ever since its foundation in 1949 and established the communist regime) did not differ significantly across the district of Dresden (which, at that time, contained most of the municipalities in Saxony that did not have access to West German TV in the GDR era) and the other districts. The same is true for the vote share received by the Christian Democratic Party (CDU), which later became the strongest party in the FRG and provided the chancellor. Also, electoral outcomes of the elections held in 1932 and 1933 do not suggest that the Dresden district has a history of leaning toward extremist parties when compared to the other East-German constituencies (see Table 1 in which we also report results for the districts including treatment and control regions in Mecklenburg West Pomerania). Clearly, there is no indication that political preferences differed across regions with and without access to West German TV

¹¹The survey data from the *Zentralinstitut für Jugendforschung* that we refer to in various instances in the remainder of this paper was mainly collected during the GDR era. The survey participants were young adults. These surveys are considered to be one of the very few sources of reliable information about the behavior, attitudes, and beliefs of GDR citizens. Data from these surveys is also used and discussed in Hyll and Schneider (2013), Kern (2011), and Kern and Hainmüller (2009), for example.

in the time before Western TV became accessible at all.

Table 1: Electoral Outcomes for Key Parties in the Reichstag Elections (Districts in Italics Comprise Control Areas).

Electoral district	Party vote share					
	KPD	SPD	Zentrum	DVP	DNVP	NSDAP
	July 1932					
Chemnitz-Zwickau	19.6	22.4	0.7	0.8	3.8	47.1
<i>Dresden-Bautzen</i>	14.3	31.1	2.1	2.9	5.5	39.3
Leipzig	18.7	33.1	1.1	2.2	4.5	36
Mecklenburg	9.4	31.3	1.2	1.7	9.5	44.8
<i>Pomerania</i>	10.8	21	1.5	0.9	15.8	48
	November 1932					
Chemnitz-Zwickau	21.4	22.3	0.6	1.4	5.1	43.4
<i>Dresden-Bautzen</i>	17	29.5	1.9	4.1	8.1	33.9
Leipzig	20.7	32.2	1.1	3.3	7.2	31
Mecklenburg	11.7	30.5	0.9	2.3	15.3	37
<i>Pomerania</i>	12.1	19.8	1.2	1.1	20.7	43.1
	March 1933					
Chemnitz-Zwickau	19	21.3	0.6	0.9	5.4	50
<i>Dresden-Bautzen</i>	13.4	28.4	2.0	2.5	7.7	43.6
Leipzig	17.4	30.1	1	2	6.5	40
Mecklenburg	7.4	26.5	0.8	1.3	14.9	48
<i>Pomerania</i>	7.6	16.2	1.1	0.7	17	56.3

Notes: The electoral district of Dresden-Bautzen is about the same as the district of Dresden during the GDR era. The electoral district Pomerania includes regions without access to West German TV, but also other ones. *Source:* Falter et al. (1986).

After Reunification. To check whether regions with and without access to Western TV before reunification remain similar after reunification, we collect variables that depict the demographic and economic situation of the population in different regions and that might be related to election outcomes. Our demographic variables include population size (in logs) as well as the share of people aged between 0 and 15 years, 15 and 25 years, 25 and 40 years, 40 and 65 years, and older than 65 years. These variables are available at the municipality level and provided by the state statistical offices (*Statistische Landesämter*). As economic variables, we consider the average equivalized household income, the Gini coefficient of household incomes as a measure of income inequality, and the unemployment rate. The economic variables are from the *German Microcensus*. Note that these variables are only available at the county level.

To assess whether these variables are significantly related to the strength of the West German TV signal, we use them as left-hand-side variables in **bivariate** regressions. The right-hand-side variable is the signal strength indicator described in Section 3.1. We run separate regressions for each federal election year in the post-reunification decade, that

is, 1990, 1994, and 1998. To facilitate interpretation of the regression coefficients, we standardize the signal strength variable so that its mean is equal to zero and its standard deviation equal to one. Table 2 contains the average realizations of the variables in each sample year (column *Sample Mean*) along with the estimated slope coefficients from the bivariate regressions (column *Regression Coeff.*).

Table 2: Covariate Balance.

	1990		1994		1998	
	Sample Mean	Regression Coeff.	Sample Mean	Regression Coeff.	Sample Mean	Regression Coeff.
Population	4477.204 (0.000)	224.913 (0.481)	4291.063	222.561 (0.462)	4235.339	222.973 (0.438)
Population Share: $0 \leq \text{Age} < 15$	21.266	-0.246*** (0.001)	19.253	-0.090 (0.186)	16.282	0.035 (0.572)
Population Share: $15 \leq \text{Age} < 25$	12.313	0.051 (0.220)	11.816	0.013 (0.794)	13.306	-0.140*** (0.005)
Population Share: $25 \leq \text{Age} < 40$	23.374	0.011 (0.856)	24.070	0.119* (0.084)	22.954	0.246*** (0.000)
Population Share: $40 \leq \text{Age} < 65$	29.326	-0.124* (0.090)	30.707	-0.148* (0.068)	32.669	-0.068 (0.389)
Population Share: $65 \leq \text{Age}$	13.721	0.307*** (0.000)	14.154	0.106 (0.182)	14.789	-0.073 (0.362)
Mean Household Income	759.273	4.174 (0.319)	1073.476	23.993*** (0.001)	1137.393	19.176*** (0.002)
Gini Household Income	0.217	0.000 (0.736)	0.208	0.000 (0.986)	0.210	-0.002 (0.205)
Unemployment Rate	13.665	-0.015 (0.982)	18.348	-2.318*** (0.000)	22.287	-2.112*** (0.000)

Notes: The column *Sample Mean* shows the average realizations of the row variables for each sample year, the column *Reg. Coeff.* estimates for the slope coefficients from bivariate regressions in which the row variables are used as dependent variables and the signal strength indicator as the independent variable. Results are based on OLS estimation. *p*-values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

The estimates indicate that in 1990, that is, immediately after reunification, our TV signal strength variable is unrelated to a municipality's economic situation. Although we detect a statistically significant correlation between some of the demographic variables and TV signal strength, the size of coefficient estimates is economically negligible. An increase in the signal strength variable by one standard deviation, for instance, is associated with an increase in share of people aged 65 years or older by only 0.31 percentage points.

However, in the subsequent years, we observe some significant economic disparities. For 1994 and 1998, our findings indicate that signal strength is positively related to average household income and negatively related to unemployment, suggesting that regions that were more likely to have access to West German TV before reunification experienced more favorable economic development after reunification. Although this does not necessarily render our identification strategy invalid, the effects of Western TV on the outcomes of the elections held in those years that we estimate in our subsequent empirical analysis should nevertheless be interpreted with caution.

3.2.2 No Spatial Sorting Before Reunification

It is important that variation in the quality of the West German TV signal did not cause people to move. In fact, due to its centrally planned economy, mobility in the GDR was severely restricted, so that self-sorting into or out of regions with access to Western TV can be ruled out. Mobility across occupations and across space served the planning committee's objectives; personal preferences were not relevant. If GDR residents wanted to change residence, they had to apply for housing and sometimes had to wait decades before being able to move. On average, East Germans moved across county borders once every 64 years (Grundmann 1998). Interestingly, data from the *Zentralinstitut für Jugendforschung* (1989) survey suggest that desire to move was similar for people in regions with and without access to West German TV broadcasting.¹²

3.2.3 No Asymmetric Migration After Reunification

After the fall of the Berlin Wall, people from East Germany migrated to West Germany (Hunt 2006). There also was some migration, albeit limited, from West to East Germany. East-West migration was highest right after reunification and peaked again around 2001. Chevalier and Marie (2017), as well as Hunt (2006), argue that migration flows between East and West Germany eased off relatively quickly. East Germans continue to demon-

¹²Results are available upon request.

strate a comparatively small willingness to migrate (Bönisch and Schneider 2013). Our identification strategy would be compromised if migration was of asymmetric importance for areas with and without access to Western TV. We test for this by regressing the population figures on our measure of TV signal strength, dummy variables for our sample years, and interaction terms between these dummies and the signal strength variable. The regression is conducted at the municipality level. Our results indicate that migration after reunification is not related to signal strength as the interactions terms are insignificant both individually as well as jointly at every reasonable level of significance.¹³ However, the possibility that migration may confound our estimated effects cannot be excluded with certainty.

3.2.4 Consumption of West German TV Broadcasts in East Germany

Our research strategy rests on the assumption that GDR residents living in regions in which West German TV was accessible were actually watching Western TV. In both West and East Germany, TV broadcasting started in 1952. By 1960, TV had become a mass medium in the GDR, with 1 million sets in private homes, implying that about 19% of households had a TV set (e.g., Schubert and Stiehler 2006). By 1978, about 87% of GDR households had a TV set (Meyen and Nawratil 2004). Watching Western TV was vehemently opposed by the GDR’s communist regime at first, and later tolerated but frowned upon.¹⁴ Despite the regime’s attitude toward Western TV, surveys of young people conducted in 1985 and 1989 by the *Zentralinstitut für Jugendforschung* reveal that respondents who had access to Western TV watched more than two hours per day on average. For the survey conducted in 1989, respondents in eight (out of 15) administrative districts of the former GDR were asked how often they watch West German TV. Table 3 contains the most relevant descriptive statistics.

Table 3 indicates that a vast majority of respondents residing in the district of Dresden never watched West German TV.¹⁵ This finding is well in line with the anecdotal evidence discussed in Section 3.1, which suggests that Western TV was not accessible in the greater part of the district as it was located in a valley far away from the FRG border. For the

¹³Results are available upon request from the authors.

¹⁴After the construction of the Berlin Wall in 1961, the Socialist Unity Party considered the reception of West German TV (i.e., “enemy propaganda”) problematic, but it refrained from jamming the signal because it feared that it would spark public unrest (Gumbert 2013). The important contribution by Kern and Hainmüller (2009) presents evidence that this ultimately was probably a wise choice for the stability of the GDR regime.

¹⁵Note that Dresden is both the name of the city as well as the name of a district (within which the city of Dresden is located).

Table 3: Self-reported Frequencies of Watching West German TV.

District	Obs.	<i>How often do you watch West German TV?</i>			
		Mean	Std. Dev.	Median	Never in %
Berlin	416	1.5	0.78	1	0.24
Cottbus	60	1.28	0.72	1	1.67
Dresden	734	4.3	1.23	5	63.52
Erfurt	641	1.4	0.76	1	1.23
Karl-Marx-Stadt	622	1.51	0.82	1	2.05
Leipzig	274	1.85	1.18	1	5.42
Magdeburg	542	1.35	0.72	1	1.09
Schwerin	191	1.47	0.91	1	1.04

Notes: Data was collected only for the districts listed (out of the 15 GDR districts). The possible answers to the question “How often do you watch West German TV?” were: “Every day” (coded as 1), “more than once a week” (2), “once a week” (3), “less than once a week” (4), and “never” (5). *Source:* Zentralinstitut für Jugendforschung (1989).

remaining districts, the median respondent stated that she watched Western TV every single day, and only a small minority indicates never watching Western TV. Our measure of the strength of the West German TV signal suggests that in virtually all municipalities that are located in those seven districts, the quality of the West German TV signal was notably better than in the district of Dresden. Thus, the findings from this survey not only demonstrate that GDR citizens were indeed watching West German TV wherever it was accessible, but also indicate that our signal strength measure is a reliable indicator for the availability of Western TV.

Note that other sources also consistently indicate that West German TV was widely viewed where available. Utilizing data from surveys of GDR refugees, Hesse (1988) finds that, in total, more than 80% of the respondents stated that they regularly watched West German TV in the GDR. Based on GDR secret service files, Saunders (2007) reports that about 80% of adolescents between 14 and 16 years of age in the district of Halle regularly watched Western TV.

One may wonder whether GDR residents without access to West German TV simply watched less TV in general, thus spending more time on other leisure activities. However, Stiehler (2001) reports that the time persons spent watching TV was very similar across regions with and without access to Western TV. Indeed, Meyen and Nawratil (2004) document that East German TV broadcasts received quite high ratings, with evening programming achieving average viewing figures of 35 – 40% in the 1980s. A survey conducted by the Zentralinstitut für Jugendforschung (1989) suggests that people in regions with and without access to Western TV valued involvement in sports and attending cultural events,

among other things, to a similar extent, indicating yet again that such activities were no substitutes for watching TV. In a similar vein, Bursztyn and Cantoni (2016) refer to data from the GDR Ministry of Commerce and Provisioning suggesting that the density of color TV sets in regions in which Western TV was available was similar to the density in those where it was not. Kern and Hainmüller (2009) point to the fact that due to the scarcity of restaurants, movie theaters, and theaters, as well as night and sports clubs, watching TV was probably the most important leisure activity in the GDR.

4 The Effect of West German TV on Political Attitudes – A First Impression

Before analyzing the influence of access to West German TV on electoral outcomes, we provide a first impression on the relevance of Western TV for the political attitudes of GDR citizens. To this end, we draw on data from different surveys that were conducted in East Germany around October 1990, that is, the time the GDR was integrated into the political and economic system of the FRG.

The first survey we utilize is the *Politbarometer Ost* 1990, which was conducted between March and December 1990. In this survey, representatively selected respondents were asked about how they expect German reunification to affect the life of East German citizens. Two survey questions are particularly relevant for our analysis. In the first question, respondents were asked whether they believe that German reunification will lead to a sellout of the GDR and that GDR residents will be treated as second-class citizens. In the second question, respondents were asked whether members of the GDR's secret service – which was responsible for the imprisonment and torture of (alleged) dissidents and opponents – should be prosecuted. Arguably, the answers to these questions indicate how strongly GDR citizens' political attitudes have been influenced by communist propaganda. Critique of capitalism was an integral part of the communist propaganda. East German media tried to create an image of West Germany suggesting that the worst fears of the Marxist doctrine had become reality. The GDR's communist regime would claim that the FRG's government was run by a capitalist elite that used its political and economic power to suppress and exploit a materially deprived working class. GDR citizens who had access to West German TV were presented a much different picture of the life in West Germany. West German TV showed a prosperous society providing its members with a living standard that was significantly higher than that of GDR citizens. Also, the

GDR communist regime tried to conceal the imprisonment and torture carried out by its secret service on its behalf. In contrast, West German TV featured detailed reports on human rights violations in the GDR.¹⁶

To shed some light on the association between exposure to Western TV and attitudes toward foreigners, we use individual responses to two surveys that were conducted by the *Zentralinstitut für Jugendforschung* (1990a, 1990b) in the fall of 1990. The topic of the first survey was “Youth and Right-Wing Extremism”; the topic of the second was “Youth and Xenophobia”. Survey participants were students and trainees from three East German districts: Dresden, Leipzig, and Chemnitz. In both surveys, the respondents were confronted with a number of statements and asked to indicate whether they agreed or disagreed. Four statements are of particular interest to our study: (1) “I feel sad when I think about the episode of fascism,” (2) “I would not be willing to invite a foreigner into my home,” (3) “There are too many foreigners in East German states,” and (4) “Foreigners harm German culture”. The individual responses to these items allow us to assess whether persons residing in regions where West German TV was available are indeed less inclined to right-wing attitudes.

In Section 2.3, we conjecture that the availability of West German TV contributed to the formation of social capital. We test this conjecture using data from two additional surveys. The first one was conducted by the *Zentralinstitut für Jugendforschung* in 1989. In this survey, respondents were asked whether they agreed with the statement that it is important to help each other out even if that means that they will suffer a disadvantage. Second, we use data from the German General Social Survey (ALLBUS) wave of 1991. Specifically, we focus on individual responses to the statement that most strangers can be trusted, which is commonly used as a measure of social capital (e.g., Rainer and Siedler 2009; Bauenschuster et al. 2012).

Unfortunately, the aforementioned surveys contain information about respondents’ places of residence only at a rather high level of regional aggregation, that is, the NUTS 2 level (*Regierungsbezirke*). This makes unfeasible the use of a continuous measure for the availability of Western TV, as there are only seven NUTS 2 regions in East Germany. We thus rely on a binary indicator for the availability of West German TV and assign the respondents to a treatment and a control group. We set the binary treatment indicator

¹⁶Note that Avdeenko (2018) finds that respondents who do not want to prosecute state-security members are more likely to indicate support for the Party of Democratic Socialism, i.e., the successor party to the GDR’s Socialist Unity Party

Table 4: Effect of Western TV on Political Attitudes.

Question	z-Value Wilcoxon	p-value Wilcoxon
(i) Afraid of sellout of GDR after reunification	2.07	0.0382
(ii) Prosecute people from state-security	2.50	0.0126
(iii) Feel sad about the time of facism	2.51	0.0120
(iv) Willingness to invite a foreigner into my home	-2.41	0.0160
(v) Number of foreigners in East German states	2.39	0.0166
(vi) Foreigners harm German culture	3.39	0.0007
(vii) Importance to help each other out even when suffering disadvantages	2.48	0.0131
(viii) Trust in strangers	1.96	0.0503

Notes: A positive z-value indicates that survey respondents who did not have access to West German TV prior to reunification (i.e., subjects from the control group) are more likely to choose an option with a higher score. Questions (i) and (ii): Data from *Politbarometer Ost 1990* (conducted by *Forschungsgruppe Wahlen*, item V163 (coded as 0 if not mentioned and 1 if mentioned) and item V211 (answers options: “Prosecute every member” (1), “Prosecute only the leaders” (2), “Prosecute no one” (3)). Questions (iii) and (iv): Data from *Zentralinstitut für Jugendforschung* (1990a) survey (on the topic “Youth and Right-Wing Extremism”), items 44 and 65; answer options: “Fully agree” (1) to “Do not agree at all” (5)). Questions (v) and (vi): Survey “Youth and Xenophobia” (*Zentralinstitut für Jugendforschung* 1990b), item 29 (answer options: “Too many” (1), “Not too many” (2), “Not many” (3) and “Every foreigner is one too many” which we rescaled from (4) to (0)) and item 43 (answer options: “Fully agree” (1) to “Do not agree at all” (5)). Question (vii): Data from *Zentralinstitut für Jugendforschung* (1989) survey, item u88 0007; answer options: “Great importance” (1) to “No importance” (5)). Question (viii): *ALLBUS* data (from the years 1991-2000), item V513; answer options: “You can trust” (1), “You have to be careful” (2) and “It depends” (3).

equal to 1 when the population-weighted average signal strength across all municipalities located in that district is stronger than the signal strength for Dresden, and 0 otherwise. To investigate whether the individual answers to the survey questions differ significantly between respondents residing in regions with and without access to Western TV, we apply the nonparametric Wilcoxon rank-sum test. The test results are set out in Table 4.

The results indicate the influence West German TV had on the political attitudes of GDR citizens. Respondents residing in regions with access to Western TV appear to be more optimistic about the consequences of reunification, less hostile toward foreigners, and are more trusting, suggesting a higher endowment with social capital.

5 The Effect of Western TV on Election Outcomes

5.1 The Empirical Model

Our main goal is to investigate whether the availability of West German TV in East Germany before reunification has an influence on the outcome of the elections that were held after reunification. We focus on federal and state elections that took place in the first decade after reunification, for two reasons. First, results from other studies indicate that the effect of exposure to West German TV on other outcomes diminishes over time and eventually vanishes (Bursztyn and Cantoni 2016). Second, the asymmetric economic development that we observe in the late 1990s (cf. Table 2), as well as the peak in outward migration in the early 2000s (cf. Section 3.2.3), pose a challenge to our identification strategy.

We are interested in the share of votes extremist parties received at federal and state elections. As detailed in Section 2, we hypothesize that voters residing in regions without access to West German TV are more likely to support left-wing and right-wing extremist parties. To test this conjecture, we estimate different specifications of the following empirical model:

$$y_{it} = \alpha_t + \beta_t \text{Signal strength}_i + \gamma_t X_{it} + \varepsilon_{it}. \quad (1)$$

The dependent variable y_{it} is the share of votes for left-wing and right-wing extremist parties, respectively, in municipality i and time t . Our explanatory variable of main interest is a continuous measure of the strength of the West German TV signal in municipality i prior to reunification. To facilitate the interpretation of the coefficient β_t , this variable is standardized so that it has a mean of zero and a standard deviation of one. X_{it} is a vector of control variables.¹⁷ We estimate all model specifications using ordinary least squares. To check whether the coefficient of interest varies over time, we estimate separate regressions for each t . Our sample comprises 1,502 municipalities at the beginning of our sample period and 1,491 at the end. The slight decrease in the number of municipalities over time is due to territorial reforms.

5.2 Data on Electoral Outcomes

We collected official data on the outcomes of the elections in Mecklenburg West-Pomerania and Saxony for the state parliaments as well as the federal parliament. The elections we are interested in were held in the first decade after reunification; our data are at the

¹⁷Descriptive statistics are presented in Table 12 of the Appendix.

municipality level. During this period, federal and state elections were each held three times. Federal elections took place in 1990, 1994 and 1998. Mecklenburg West-Pomerania held state elections in the same years. In Saxony, state elections were also held in 1990 and 1994, and then again in 1999.¹⁸ Since in both states, federal and state elections were held in close succession, we pool the observations on the federal and state election outcomes for 1990, 1994 and 1998/1999, respectively. We thus estimate Equation (1) for three different election periods; for each period, our sample comprises two observations per municipality. However, as one of our robustness checks, we also estimate separate effects for federal and state elections.

We are interested in the vote shares of left-wing and right-wing extremist parties. Table 5 lists the parties that we consider to be left-wing or right-wing extremist. The classification is informed by Avdeenko and Siedler (2017), Ramiro (2016), and Rellecke (2010), among others. In principle, we label as extremist all parties that are under surveillance of either the Federal Office for the Protection of the Constitution (*Bundesverfassungsschutz*) or its state-level counterparts and are thus suspected to impose an imminent threat to the free democratic basic order.

Table 5: Classification of Left-wing and Right-wing Extremist Parties.

Left-wing extremist parties	Right-wing extremist parties
Bund Sozialistischer Arbeiter (BSA)	Republikaner (REP)
Kommunistische Partei Deutschlands (KPD)	Nationaldemokratische Partei Deutschlands (NPD)
Spartakist-Arbeiterpartei Deutschlands (SPAD)	Deutsche Volksunion (DVU)
Marxistisch-Leninistische Partei Deutschlands (MLPD)	Bund freier Bürger - Offensive für Deutschland (BFB)
Partei des Demokratischen Sozialismus (PDS)	Bürgerrechtsbewegung Solidarität (BüSo)
	Patrioten für Deutschland

Notes: Some parties only ran in selected elections, and sometimes parties only ran in selected municipalities. The PDS is the succession party of the *Sozialistische Einheits Partei Deutschlands*, the ruling party in the GDR, and was renamed to *Die Linke* in 2007. The Federal Office for the Protection of the Constitution had the PDS under surveillance and argued that the position towards democracy was unclear, justifying their inclusion here. The party BüSo is the succession party of Patrioten für Deutschland.

All of the left-wing parties listed in Table 5 (are suspected to) sympathize with the idea of creating a socialist political and economic regime and oppose the principles of the free market economy, whereas the right-wing parties are nationalist in the sense that they are openly hostile toward foreigners and the influences of foreign culture. Despite their ideological differences, there are at least two things that the right-wing and left-wing extremist parties listed in Table 5 have in common. First, they insist that the society is split into two camps, the political elite on the one side and the common people or working

¹⁸In Saxony, the period between two elections at the state level was extended to five years after the 1994 election.

class on the other, and that the former group exploits the latter, whose advocates they pretend to be. Second, they take an anti-capitalist, protectionist policy stance.

Among the parties we consider to be left-wing extremist is the Party of Democratic Socialism (PDS). There is some debate about whether this party should be considered extremist. We include the PDS in the list of extremist left-wing parties for two reasons. First, the PDS is the successor party of the Socialist Unity Party, which ruled the GDR from German division until reunification and established an authoritarian communist regime. Thus, we expect the PDS to be particularly appealing to former GDR residents that had been exposed to the propaganda of the communist regime. Second, the PDS has been monitored by the Federal Office for the Protection of the Constitution because it tolerates extreme left-wing associations within the ranks of its members and strives to establish a socialist regime. In 2007, the PDS merged with the Leftist Party (*Linkspartei*) and, arguably, moved closer to the political center.

5.3 Control Variables

Although we argued that our research design resembles a natural experiment – which would make it unnecessary to include control variables for the purpose of obtaining an unbiased estimate for the coefficient of signal strength – we add additional explanatory variables to our empirical model for two reasons. First, including control variables increases the explanatory power of the empirical model and, thus, enhances estimation efficiency, implying that the coefficient for signal strength can be estimated more precisely. Second, including controls allows us to assess whether our assumption regarding the exogeneity of our explanatory variable of main interest is plausible. If the coefficient estimate for the signal strength variable is insensitive to the inclusion of control variables, then there is good reason to believe that our signal strength variable is unrelated not only to the observable variables included in our empirical model, but also to unobservables that are correlated with the control variables.

Our vector of control variables includes the demographic and economic variables shown in Table 2. In addition, we add two time-invariant regressors to our empirical model that capture regional variation in the political situation during the GDR era. The first variable is the number of unofficial informants for the GDR’s State Security per 1,000 inhabitants (Stasi density). This variable can be interpreted as a measure of the intensity with which the GDR’s secret service spied on a region’s population. The data are from official records provided and updated by the Agency of the Federal Commissioner for

the State Security Records (*BStU*). A detailed description is provided in Müller-Enbergs (2008). The data are at the county level and represent averages for the 1980s. The second variable is the number of protests that occurred during the uprising on and around June 17, 1953. These protests started in Berlin on June 16, 1953 as a strike against an increase in working hours. Over the following days, protests were held in more than 700 East German municipalities, focusing more generally on the political regime and low standard of living (Kowalczyk 2003). The protests were violently suppressed with the support of the Soviet military, as the GDR's regime was taken completely by surprise by these events. The military's interference resulted in the deaths of 34 protesters. The variable is from Crabtree et al. (2015). We also include two dummy variables depicting the municipalities' geographic location. The first variable takes on the value 1 when a municipality is located close to the former border separating the FRG and GDR; the second variable takes the value 1 if a municipality is close to the border with either Poland or the Czech Republic (e.g., Krueger and Pischke 1997). In both cases, close means that the respective border is less than 100 kilometers away. Finally, we include a dummy variable taking the value 1 for urban districts, that is, municipalities that combine political competencies of the municipal and district level, as well as a dummy taking the value 1 when an observation refers to a federal election (0 for state elections). Descriptive statistics are presented in Table 12 of the Appendix.

To check whether the coefficient estimate of the signal strength variable is sensitive to the inclusion of the control variables, we start by estimating bivariate regressions omitting the control variables and then proceed by adding them consecutively in three groups to our empirical specification.

5.4 Results for the Elections of 1990

We start with the results for the federal and state elections that were held in 1990, that is, immediately after reunification. Table 6 shows the vote share of left-wing parties, Table 7 that of right-wing parties. Moving from Column (1) to (4), we add additional control variables to our empirical specification.

Our findings suggest that the better the access to West German TV during the GDR era, the lower the vote shares for left-wing and right-wing extremist parties. The coefficient estimates of the signal strength variable are remarkably robust across the different specifications, as is their significance, which supports our notion that regional variation in TV signal quality is exogenous and, thus, our estimates are unbiased. The estimates

suggest that a one standard deviation increase in the strength of the West German TV signal is associated with a roughly 1 percentage point decrease in the share of votes for left-wing extremist parties. For right-wing extremist parties, the decrease is equal to about 0.1 percentage points. Comparing these estimates to the average vote shares (see the third line from bottom of Tables 6 and 7) implies that the share of votes for both left-wing and right-wing parties decreases by about 10% in response to a one standard deviation increase in the signal strength indicator. Thus, the estimated effects are not only statistically significant, but also economically relevant. Also, note that for left-wing extremist parties, the R^2 for the bivariate regression (Column (1) of Table 6) indicates that the variation in signal strength explains 7.3% of regional variation in the vote shares, which is remarkably large.

Our results are well in line with the theoretical arguments outlined in Section 2.3 as well as with the survey evidence presented in Section 4. Our estimates suggest that voters residing in regions in which West German TV was available before reunification are less likely to support extremist parties, arguably indicating stronger support for the democratic and economic transition brought about by German reunification, whereas people residing in regions with access to only Eastern TV exhibit a stronger leaning toward parties that (are believed to) reject the democratic and/or capitalist system of the FRG in general and parties that openly support socialism in particular. Our findings are thus consistent with the notion that access to free media increased the resilience of GDR residents to the communist regime's propaganda and led to an erosion of support for socialism, helping people to embrace the democratic transition.

A glance at the coefficient estimates for our control variables provides some intuitive results. For example, the vote share for left-wing extremist parties is positively related to unemployment as well as to income inequality (as measured by the Gini coefficient), while there is a negative association between the share of votes for right-wing parties and average household income.¹⁹ Our findings thus indicate that economic hardship is associated with rising support for extremist parties. Interestingly, left-wing extremist parties appear to have a stronger appeal for younger voters.

¹⁹Bowyer and Vail (2011), Lubbers and Scheepers (2001), Ramiro (2016), and Rooduijn and Burgoon (forthcoming) analyze correlates of political support for radical parties at the micro and macro level and derive qualitatively similar results.

Table 6: Results for Vote Share of Left-wing Extremist Parties in 1990

	(1)	(2)	(3)	(4)
Signal strength	-1.080*** (0.000)	-1.027*** (0.000)	-1.026*** (0.000)	-0.860*** (0.000)
Federal election		-0.590*** (0.000)	-0.590*** (0.000)	-0.588*** (0.000)
Log(Population)		0.244*** (0.005)	0.224** (0.011)	0.261*** (0.004)
Population Share: $15 \leq \text{Age} < 25$		0.230** (0.014)	0.242*** (0.009)	0.236*** (0.010)
Population Share: $25 \leq \text{Age} < 40$		0.246** (0.017)	0.240** (0.018)	0.209** (0.037)
Population Share: $40 \leq \text{Age} < 65$		-0.075 (0.181)	-0.080 (0.145)	-0.096* (0.080)
Population Share: $65 \leq \text{Age}$		-0.281*** (0.000)	-0.280*** (0.000)	-0.285*** (0.000)
Average household income		-0.002 (0.578)	-0.006 (0.109)	-0.008** (0.028)
Gini household income		15.147** (0.019)	15.120** (0.019)	11.549* (0.075)
Unemployment rate		0.086*** (0.008)	0.070** (0.026)	0.089*** (0.005)
Urban district			4.551*** (0.000)	5.320*** (0.000)
Distance to GDR border < 100km			0.837*** (0.003)	0.909*** (0.002)
Distance to Polish/Czech border < 100km			0.671*** (0.010)	0.622** (0.013)
Stasi density				275.000*** (0.002)
Log(1+No. of protests)				-0.247** (0.011)
Constant	9.072*** (0.000)	2.205 (0.705)	5.270 (0.364)	7.802 (0.175)
Mean dep. var.	9.192	9.192	9.192	9.180
R^2	0.073	0.246	0.255	0.263
N	3001	2994	2994	2990

Notes: Results are based on OLS estimation. The dependent variable is the vote share of left-wing extremist parties in the federal and state elections of 1990 at the municipality level. Observations for federal and state elections are pooled, yielding two observations per municipality. *Signal strength* is a continuous measure of the strength of the West German TV signal at the municipality level. The demographic variables as well as the number of protests that occurred during the uprising June 17, 1953, also refer to the municipality level. The economic variables as well as the number of unofficial informants per 1,000 inhabitants during (*Stasi density*) are measured at the county level. Standard errors are clustered at the municipality level. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Results for the Vote Share of Right-wing Extremist Parties in 1990

	(1)	(2)	(3)	(4)
Signal strength	-0.148*** (0.000)	-0.130*** (0.000)	-0.128*** (0.000)	-0.122*** (0.000)
Federal election		0.841*** (0.000)	0.841*** (0.000)	0.840*** (0.000)
Log(Population)		-0.062*** (0.000)	-0.067*** (0.000)	-0.069*** (0.000)
Population Share: 15 ≤ Age < 25		0.026 (0.249)	0.025 (0.273)	0.025 (0.269)
Population Share: 25 ≤ Age < 40		0.039* (0.077)	0.039* (0.077)	0.039* (0.076)
Population Share: 40 ≤ Age < 65		0.009 (0.565)	0.009 (0.558)	0.008 (0.573)
Population Share: 65 ≤ Age		-0.008 (0.527)	-0.008 (0.534)	-0.008 (0.539)
Average household income		-0.004*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)
Gini household income		-2.621* (0.066)	-2.822** (0.050)	-2.827* (0.052)
Unemployment rate		-0.041*** (0.000)	-0.040*** (0.000)	-0.040*** (0.000)
Urban district			0.285** (0.021)	0.295** (0.019)
Distance to GDR border < 100km			-0.101** (0.041)	-0.101** (0.043)
Distance to Polish/Czech border < 100km			-0.070 (0.291)	-0.064 (0.301)
Stasi density				8.546 (0.672)
Log(1+No. of protests)				0.009 (0.716)
Constant	1.340*** (0.000)	4.073*** (0.002)	3.951*** (0.004)	4.004*** (0.003)
Mean dep. var.	1.356	1.356	1.356	1.356
R^2	0.023	0.186	0.187	0.187
N	3001	2994	2994	2990

Notes: Results are based on OLS estimation. The dependent variable is the vote share of right-wing extremist parties in the federal and state elections of 1990 at the municipality level. Observations for federal and state elections are pooled, yielding two observations per municipality. *Signal strength* is a continuous measure of the strength of the West German TV signal at the municipality level. The demographic variables as well as the number of protests that occurred during the uprising June 17, 1953, also refer to the municipality level. The economic variables as well as the number of unofficial informants per 1,000 inhabitants during (*Stasi density*) are measured at the county level. Standard errors are clustered at the municipality level. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5.5 Results for the Elections of 1994 and 1998/1999

Tables 8 to 11 contain the results for the federal and state elections held in 1994, 1998, and 1999. Tables 8 and 9 show the results for vote shares of left-wing extremist parties; Tables 10 and 11 for right-wing extremist parties.

Our findings suggest that the effect of exposure to Western TV on the vote share of left-wing parties is lasting, although it appears to diminish over time. In the elections of 1994, the coefficient estimate varies between 0.7 and 0.8, which is still remarkably large given that it had been four years since German reunification. In 1998/1999, though, the estimate shrinks to roughly 0.2 and is only marginally significant, at best. Thus, the importance of regional variation in the availability of Western TV for election outcomes seems to decrease over time.

The findings are similar with regard to the share of votes for right-wing extremist parties in the elections held in 1994. Although the coefficient estimate of the signal strength variable becomes somewhat smaller, it remains statistically significant at every reasonable level of significance and remarkably robust to the inclusion of control variables. In 1998/1999, however, the coefficient becomes sensitive to the inclusion of control variables (yet significant across all specifications). Adding control variables to our empirical model notably decreases the coefficient estimate for our explanatory variable of main interest. Thus, we cannot rule out that the inclusion of omitted variables could bring the coefficient estimate even closer to zero. Thus, the results for the elections of 1998 and 1999 should be interpreted with caution.

Table 8: Results for the Vote Share of Left-wing Extremist Parties in 1994

	(1)	(2)	(3)	(4)
Signal strength	-0.772*** (0.000)	-0.678*** (0.000)	-0.761*** (0.000)	-0.732*** (0.000)
Federal election		0.782*** (0.000)	0.782*** (0.000)	0.784*** (0.000)
Log(Population)		0.126 (0.270)	0.078 (0.502)	0.111 (0.350)
Population Share: $15 \leq \text{Age} < 25$		-0.068 (0.482)	-0.054 (0.576)	-0.060 (0.533)
Population Share: $25 \leq \text{Age} < 40$		0.262** (0.015)	0.262** (0.014)	0.250** (0.018)
Population Share: $40 \leq \text{Age} < 65$		0.104 (0.142)	0.103 (0.139)	0.094 (0.176)
Population Share: $65 \leq \text{Age}$		-0.533*** (0.000)	-0.529*** (0.000)	-0.526*** (0.000)
Average household income		0.004 (0.151)	0.003 (0.315)	0.002 (0.569)
Gini household income		37.962*** (0.000)	38.482*** (0.000)	42.456*** (0.000)
Unemployment rate		0.066** (0.031)	0.048 (0.123)	0.036 (0.249)
Urban district			4.724*** (0.000)	5.293*** (0.000)
Distance to GDR border < 100km			0.955*** (0.008)	1.069*** (0.003)
Distance to Polish/Czech border < 100km			0.306 (0.334)	0.163 (0.601)
Stasi density				82.104 (0.453)
Log(1+No. of protests)				-0.394*** (0.001)
Constant	15.962*** (0.000)	0.230 (0.973)	1.560 (0.814)	2.991 (0.645)
Mean dep. var.	16.047	16.068	16.068	16.052
R^2	0.026	0.251	0.257	0.261
N	3004	2996	2996	2992

Notes: Results are based on OLS estimation. The dependent variable is the vote share of left-wing extremist parties in the federal and state elections of 1994 at the municipality level. Observations for federal and state elections are pooled, yielding two observations per municipality. *Signal strength* is a continuous measure of the strength of the West German TV signal at the municipality level. The demographic variables as well as the number of protests that occurred during the uprising June 17, 1953, also refer to the municipality level. The economic variables as well as the number of unofficial informants per 1,000 inhabitants during (*Stasi density*) are measured at the county level. Standard errors are clustered at the municipality level. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 9: Results for the Vote Share of Left-wing Extremist Parties in 1998/1999

	(1)	(2)	(3)	(4)
Signal strength	-0.222** (0.030)	-0.061 (0.630)	-0.231* (0.088)	-0.269** (0.047)
Federal election		-0.781*** (0.000)	-0.780*** (0.000)	-0.773*** (0.000)
Log(Population)		0.477*** (0.000)	0.449*** (0.000)	0.431*** (0.000)
Population Share: $15 \leq \text{Age} < 25$		0.104 (0.206)	0.109 (0.181)	0.116 (0.155)
Population Share: $25 \leq \text{Age} < 40$		0.187* (0.051)	0.203** (0.031)	0.206** (0.028)
Population Share: $40 \leq \text{Age} < 65$		0.164** (0.016)	0.167** (0.013)	0.170** (0.011)
Population Share: $65 \leq \text{Age}$		-0.264*** (0.000)	-0.256*** (0.000)	-0.247*** (0.000)
Average household income		-0.011*** (0.001)	-0.012*** (0.000)	-0.014*** (0.000)
Gini household income		70.815*** (0.000)	64.411*** (0.000)	64.927*** (0.000)
Unemployment rate		-0.078 (0.216)	-0.096 (0.136)	-0.124** (0.035)
Urban district			3.294*** (0.001)	3.523*** (0.000)
Distance to GDR border < 100km			1.472*** (0.000)	1.507*** (0.000)
Distance to Polish/Czech border < 100km			0.265 (0.314)	0.280 (0.281)
Stasi density				-14.323 (0.874)
Log(1+No. of protests)				-0.029 (0.786)
Constant	19.675*** (0.000)	9.339 (0.169)	11.166* (0.096)	13.166** (0.045)
Mean dep. var.	19.699	19.699	19.699	19.685
R^2	0.003	0.140	0.155	0.155
N	2982	2982	2982	2978

Notes: Results are based on OLS estimation. The dependent variable is the vote share of left-wing extremist parties in the federal and state elections of 1998 and 1999 at the municipality level. Observations for federal and state elections are pooled, yielding two observations per municipality. *Signal strength* is a continuous measure of the strength of the West German TV signal at the municipality level. The demographic variables as well as the number of protests that occurred during the uprising June 17, 1953, also refer to the municipality level. The economic variables as well as the number of unofficial informants per 1,000 inhabitants during (*Stasi density*) is measured at the county level. Standard errors are clustered at the municipality level. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 10: Results for the Vote Share of Right-wing Extremist Parties in 1994

	(1)	(2)	(3)	(4)
Signal strength	-0.098*** (0.000)	-0.079*** (0.000)	-0.093*** (0.000)	-0.089*** (0.000)
Federal election		0.078*** (0.000)	0.078*** (0.000)	0.078*** (0.000)
Log(Population)		0.060*** (0.001)	0.059*** (0.002)	0.049** (0.016)
Population Share: 15 ≤ Age < 25		0.031 (0.100)	0.031 (0.101)	0.032* (0.092)
Population Share: 25 ≤ Age < 40		0.001 (0.969)	0.007 (0.748)	0.008 (0.719)
Population Share: 40 ≤ Age < 65		0.001 (0.936)	0.004 (0.785)	0.004 (0.776)
Population Share: 65 ≤ Age		0.020 (0.165)	0.023 (0.113)	0.023 (0.124)
Average household income		-0.002*** (0.000)	-0.002*** (0.001)	-0.001*** (0.005)
Gini household income		-0.550 (0.719)	-1.169 (0.442)	-2.114 (0.178)
Unemployment rate		-0.012** (0.037)	-0.006 (0.296)	-0.004 (0.458)
Urban district			-0.344** (0.032)	-0.394** (0.015)
Distance to GDR border < 100km			-0.115** (0.036)	-0.129** (0.018)
Distance to Polish/Czech border < 100km			-0.256*** (0.000)	-0.231*** (0.000)
Stasi density				5.600 (0.761)
Log(1+No. of protests)				0.065*** (0.003)
Constant	1.294*** (0.000)	2.712** (0.031)	2.162* (0.083)	1.965 (0.116)
Mean dep. var.	1.305	1.306	1.306	1.307
R^2	0.016	0.055	0.068	0.073
N	3004	2996	2996	2992

Notes: Results are based on OLS estimation. The dependent variable is the vote share of right-wing extremist parties in the federal and state elections of 1994 at the municipality level. Observations for federal and state elections are pooled, yielding two observations per municipality. *Signal strength* is a continuous measure of the strength of the West German TV signal at the municipality level. The demographic variables as well as the number of protests that occurred during the uprising June 17, 1953, also refer to the municipality level. The economic variables as well as the number of unofficial informants per 1,000 inhabitants during (*Stasi density*) are measured at the county level. Standard errors are clustered at the municipality level. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 11: Results for the Vote Share of Right-wing Extremist Parties in 1998/1999

	(1)	(2)	(3)	(4)
Signal strength	-0.437*** (0.000)	-0.271*** (0.000)	-0.208*** (0.002)	-0.176*** (0.009)
Federal election		0.962*** (0.000)	0.962*** (0.000)	0.964*** (0.000)
Log(Population)		0.014 (0.789)	0.017 (0.757)	-0.001 (0.990)
Population Share: 15 ≤ Age < 25		-0.006 (0.885)	-0.007 (0.870)	-0.015 (0.741)
Population Share: 25 ≤ Age < 40		-0.023 (0.630)	-0.030 (0.534)	-0.037 (0.449)
Population Share: 40 ≤ Age < 65		-0.055* (0.096)	-0.056* (0.088)	-0.059* (0.070)
Population Share: 65 ≤ Age		-0.012 (0.717)	-0.015 (0.655)	-0.029 (0.386)
Average household income		-0.002 (0.278)	-0.002 (0.352)	-0.002 (0.225)
Gini household income		-36.222*** (0.000)	-34.426*** (0.000)	-36.871*** (0.000)
Unemployment rate		0.102*** (0.000)	0.107*** (0.000)	0.092*** (0.002)
Urban district			-0.385 (0.202)	-0.470* (0.090)
Distance to GDR border < 100km			-0.514*** (0.000)	-0.531*** (0.000)
Distance to Polish/Czech border < 100km			-0.053 (0.691)	0.035 (0.795)
Stasi density				93.969** (0.031)
Log(1+No. of protests)				0.188*** (0.000)
Constant	5.047*** (0.000)	14.406*** (0.000)	13.995*** (0.000)	15.321*** (0.000)
Mean dep. var.	5.094	5.094	5.094	5.097
R^2	0.046	0.130	0.136	0.144
N	2982	2982	2982	2978

Notes: Results are based on OLS estimation. The dependent variable is the vote share of right-wing extremist parties in the federal and state elections of 1998 and 1999 at the municipality level. Observations for federal and state elections are pooled, yielding two observations per municipality. *Signal strength* is a continuous measure of the strength of the West German TV signal at the municipality level. The demographic variables as well as the number of protests that occurred during the uprising June 17, 1953, also refer to the municipality level. The economic variables as well as the number of unofficial informants per 1,000 inhabitants during (*Stasi density*) are measured at the county level. Standard errors are clustered at the municipality level. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5.6 Robustness Checks

To check the robustness of our results and glean further insights, we modify our empirical specification in several ways.

First, to control for unobserved regional heterogeneity, we include a set of six dummy

variables indicating in which of the GDR’s administrative districts each municipality was located prior to reunification. The results are shown in Table 13 (for the vote share of left-wing extremist parties) and Table 14 (for the vote share of right-wing extremist parties) of the Appendix. As can be seen, all of our estimates are robust to the inclusion of region fixed-effects.

Second, we test whether the effect of exposure to West German TV varies across federal and state elections by running separate regressions. The results for the vote share of left-wing extremist parties are presented in Table 15 of the Appendix; those for right-wing extremist parties in Table 16. For the elections held in 1990 and 1994, the coefficient estimate of the signal strength variable is virtually identical across federal and state elections. For the elections held in 1998/1999, we observe slightly larger coefficients (in absolute terms) for the federal election for both the share of left- and right-wing extremist parties. However, the differences are modest.

Third, we include voter turnout as an additional control variable. Utilizing rainfall as an instrument, Arnold and Freier (2016) show that voter turnout has an asymmetric influence on the share of votes for left-wing and right-wing parties. However, our results are unaffected by the inclusion of voter turnout.²⁰

Finally, we replace our continuous variable that indicates the strength of the West German TV signal with a binary indicator for the availability of West German TV, the construction of which is explained in Section 3.1. Tables 15 and 16 in the Appendix show the estimates. We find that our results are qualitatively unchanged and that our conclusions remain valid.

6 Conclusion

Democracy is widely considered to be the most desirable political regime. However, newly founded democracies in particular, but even those that are long established, are under threat of deconsolidation (e.g., Foa and Mounk 2017). Consequently, ways to ensure consolidation and stability of democracy are needed and many factors, such as institutions or citizens (e.g., education), are said to be important for this task (e.g., Siedler 2010). This paper presents evidence that past exposure to free media content is helpful in the making of a democrat.

Analyzing electoral outcomes at the municipality level, we find that regions that had

²⁰Results are available upon request.

access to West German TV prior to German reunification have lower vote shares for extremist parties in the elections that were held after reunification. Our results support the hypothesis that West German TV was helpful in creating political culture and developing a favorable attitude toward the FRG's democratic regime during the period of German division. In contrast, East German TV, which mainly was an instrument of socialist propaganda, appears to have been successful at indoctrinating some GDR citizens and nurturing hostile attitudes toward democracy and/or capitalism. Previous literature shows that access to free media content may not contemporaneously destabilize authoritarian regimes (Kern and Hainmüller 2009). However, our results suggest that providing people who are living under authoritarian regimes with access to free media can increase the likelihood that the establishment of a democratic regime will be successful in terms of consolidation and stability.

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References

- Acemoglu, D., and J.A. Robinson, 2006. *Economic origins of dictatorship and democracy*. Cambridge, UK: Cambridge University Press.
- Adena, M., Enikolopov, R., Petrova, M., Santarosa, V., and E. Zhuravskaya, 2015. Radio and the rise of the Nazis in prewar Germany. *Quarterly Journal of Economics* 130, 1885-1939.
- Alesina, A., and E. Glaeser, 2004. *Fighting poverty in the US and Europe: A World of Difference*. New York.
- Almond, G.A., and S. Verba, 1963. *The civic culture: Political attitudes and democracy in five nations*. Princeton University Press, Princeton.
- Arnold, F., and R. Freier, 2016. The partisan effects of voter turnout: How Conservatives profit from rainy election days. *Electoral Studies* 41, 213-224.
- Avdeenko, A., 2018. Long-term evidence of retrospective voting: A natural experiment

from the German Democratic Republic. *European Economic Review* 103, 83-107.

Avdeenko, A., and T. Siedler, 2017. Intergenerational correlations of extreme right-wing party preferences and attitudes toward immigration. *Scandinavian Journal of Economics* 119, 768-800.

Bönisch, P., and L. Schneider, 2013. The social capital legacy of communism – results from the Berlin Wall experiment. *European Journal of Political Economy* 32, 391-411.

Bowyer, B.T., and M.I. Vail, 2011. Economic insecurity, the social market economy, and support for the German Left. *West European Politics* 34, 683-705.

Buhl, D., 1990. Window to the West: How television from the Federal Republic influenced events in East Germany. Discussion paper D-5. Joan Shorenstein Barone Center, Harvard University.

Burchardi, K.B., and T.A. Hassan, 2013. The economic impact of social ties: Evidence from German reunification. *Quarterly Journal of Economics* 128, 1219-1271.

Bursztyn, L., and D. Cantoni, 2016. A tear in the iron curtain: The impact of Western television on consumption behavior. *Review of Economics and Statistics* 98, 25-41.

Chevalier, A., and O. Marie, 2017. Economic uncertainty, parental selection, and childrens educational outcome. *Journal of Political Economy* 125, 393-430.

Crabtree, C., and H.L. Kern, forthcoming. Using electromagnetic signal propagation models for radio and television broadcasts: An introduction. *Political Analysis*.

Crabtree, C., Darmofal, D., and H.L. Kern, 2015. A spatial analysis of the impact of West German television on protest mobilization during the East German revolution. *Journal of Peace Research* 52, 269-284.

DellaVigna, S., Enikopolov, R., Mironova, V., Petrova, M., and E. Zhuravskaya, 2014. Cross-border media and nationalism: Evidence from Serbian radio. *American Economic Journal: Applied Economics* 6, 103-132.

DellaVigna, S., and E. Kaplan, 2007. The Fox News Effect: Media Bias and Voting. *Quarterly Journal of Economics* 122, 807-860.

DellaVigna, S., and E. La Ferrara, 2015. Economic and social impacts of the media. *Handbook of Media Economics* 1, 723-768.

Durante, R., Pinotti, P., and A. Tesei, forthcoming. The political legacy of entertainment TV. *American Economic Review*.

Enikopolov, R., Petrova, M., and E. Zhuravskaya, 2011. Media and political persuasion: Evidence from Russia. *American Economic Review* 111, 3253-3285.

Falter, J., Lindenberger, T., and S. Schumann, 1986. Wahlen und Abstimmungen in der

- Weimarer Republik. Materialien zum Wahlverhalten 1919-1933. München: Beck.
- Foa, R.S., and Y. Mounk, 2017. The signs of deconsolidation. *Journal of Democracy* 28, 5-16.
- Friehe, T., Müller, H., and F. Neumeier, forthcoming. The effect of Western TV on crime: Evidence from East Germany. *European Journal of Political Economy*.
- Fuchs-Schündeln, N., and M. Schündeln, 2009. Who stays, who goes, who returns? *Economics of Transition* 17, 703-738.
- Garcia-Arenas, J., 2016. The impact of free media on regime change: Evidence from Russia. Mimeo.
- Geber, S., Scherer, H., and D. Hefner, 2016. Social capital in media societies: The impact of media use and media structures on social capital. *International Communication Gazette* 78, 493-513.
- Gentzkow, M., 2006. Television and voter turnout. *Quarterly Journal of Economics* 121, 931-972.
- Goldstone, J.A., and J. Ulfelder, 2004. How to construct stable democracies. *Washington Quarterly* 28, 7-20.
- Grundmann, S., 1998. *Bevölkerungsentwicklung in Ostdeutschland*. Opladen, Leske + Budrich.
- Gumbert, H., 2013. *Envisioning Socialism: Television and the Cold War in the German Democratic Republic*. Ann Arbor, MI: University of Michigan Press.
- Heineck, G., and B. Süßmuth, 2013. A different look at Lenin's legacy: Social capital and risk taking in the two Germanies. *Journal of Comparative Economics* 41, 789-803.
- Henninghausen, T., 2015. Exposure to television and individual beliefs: Evidence from a natural experiment. *Journal of Comparative Economics* 43, 956-980.
- Hunt, J., 2006. Staunching emigration from East Germany: Age and the determinants of migration. *Journal of the European Economic Association* 4, 1014-1037.
- Hyll, W., and L. Schneider, 2013. The causal effect of watching TV on material aspirations: Evidence from the "valley of the clueless". *Journal of Economic Behavior and Organization* 86, 37-51.
- Inglehart, R., 1988. The renaissance of political culture. *American Political Science Review* 82, 1203-1230.
- Jebri, N., Stetka, V., and M. Loveless, 2013. *Media and democratization: What is known about the role of mass media in transitions to democracy*. Report Reuters Institute University of Oxford.

- Kern, H.L., 2011. Foreign media and protest diffusion in authoritarian regimes: The case of the 1989 East German Revolution. *Comparative Political Studies* 44, 1179-1205.
- Kern, H.L., and J. Hainmüller 2009. Opium for the masses: How foreign media can stabilize authoritarian regimes. *Political Analysis* 17, 377-399.
- Kochanowski, K., Trültzsch, S., and R. Viehoff, 2013. An Evening with Friends and Enemies: Political Indoctrination in Popular East German Family Series. In: Imre, A., Havens, T., Lustvik, K. (eds.). *Popular Television in Eastern Europe During and Since Socialism* Abingdon: Routledge.
- Kowalczyk, I.S., 2003. 17. Juni 1953 - Volksaufstand in der DDR. Ursachen – Abläufe – Folgen. Edition Temmen, Bremen.
- Krueger, A., and J.S. Pischke, 1997. A statistical analysis of crime against foreigners in Unified Germany. *Journal of Human Resources* 32, 182-209.
- Lubbers, M. and P. Scheepers, 2001. Explaining the trend in extreme right-wing voting: Germany 1989-1998. *European Sociological Review* 17, 431-449.
- Lubbers, M., Gijsberts, M., and P. Scheepers, 2002. Extreme right-wing voting in Western Europe. *European Journal of Political Research* 41, 345-378.
- Meyen, M., and U. Nawratil, 2004. The viewers: television and everyday life in East Germany. *Historical Journal of Film, Radio and Television* 24, 355-364.
- Müller, S., and C. Gussy, 2011. Does media policy promote media freedom and independence? The case of Germany. MediaDem Case study report.
- Müller-Enbergs, H., 2008. Inoffizielle Mitarbeiter des Ministeriums für Staatssicherheit, Teil 3: Statistiken. Berlin, Ch. Links.
- Mocan, N., and C. Raschke, 2016. Economic well-being and anti-semitic, xenophobic, and racist attitudes in Germany. *European Journal of Law and Economics* 41, 1-63.
- Nunn, N., and L. Wantchekon, 2011. The slave trade and the origins of mistrust in Africa. *American Economic Review* 101, 3221-3252.
- Ockenfels, A., and J. Weimann, 1999. Types and patterns: An experimental East-West-German comparison of cooperation and solidarity. *Journal of Public Economics* 71, 275-287.
- Olken, B.A., 2009. Do television and radio destroy social capital? Evidence from Indonesian villages. *American Economic Journal: Applied Economics* 1, 1-33.
- Putnam, R.D., 1994. Making democracy work: Civic traditions in modern Italy. Princeton, NJ: Princeton University Press.
- Putnam, R.D., 1995. Bowling alone: America's declining social capital. *Journal of*

Democracy 6, 65-78.

Rainer, H., and T. Siedler, 2009. Does democracy foster trust? Evidence from the German reunification. *Journal of Comparative Economics* 37, 251-269.

Ramiro, L., 2016. Support for radical left parties in Western Europe: Social background, ideology and political orientations. *European Political Science Review* 8, 1-23.

Rellecke, W., 2010. Sachsen – vom “roten Königreich” zum CDU-dominierten Sechsparteiensystem. In: Kost, A., Rellecke, W., Weber, R. (eds.). *Parteien in den deutschen Ländern*. München: Verlag Beck.

Rooduijn, M., and B. Burgoon, forthcoming. The paradox of wellbeing: Do unfavorable socioeconomic and sociocultural contexts deepen or dampen radical left and right voting among the less well-off? *Comparative Political Studies*.

Roth, D., 1990. Die Wahlen zur Volkskammer in der DDR. Der Versuch einer Erklärung. *Politische Vierteljahresschrift* 31, 369-393.

Saunders, A., 2007. *Honecker’s children*. Manchester University Press, Manchester.

Schäfer, K., 1998. *Die Verdoppelung der Ungleichheit. Sozialstruktur und Geschlechterverhältnisse in der Bundesrepublik und in der DDR*. Humboldt-University Berlin, Germany.

Schubert, M., and H.J. Stiehler, 2006. Program structure analysis of the GDR Television. *SPIEL: Siegener Periodicum zur Internationalen Empirischen Literaturwissenschaft* 25, 259-269.

Siedler, T., 2010. Schooling and citizenship in a young democracy: Evidence from post-war Germany. *Scandinavian Journal of Economics* 112, 315-338.

Statistisches Reichsamt, 1935. *Die Wahlen zum Reichstag am 31. Juli und 6. November 1932 und am 5. März 1933 (Sechste bis achte Wahlperiode)*. Statistik des Deutschen Reiches, Bd. 434, Berlin: Verlag für Sozialpolitik, Wirtschaft und Statistik.

Stiehler, H.J., 2001. *Leben ohne Westfernsehen*. Media Studien 9. Leipzig: Leipziger Universitätsverlag.

Stiehler, H.J., 2004. Disappearing reality: the end of East German television. *Historical Journal of Film, Radio and Television* 24, 483-489.

Voigtländer, N., and H.J. Voth, 2012. Persecution perpetuated: The medieval origins of anti-semitic violence in Nazi Germany. *Quarterly Journal of Economics* 127, 1339-1392.

Yoo, J.W., Jo, S., and J. Jung, 2014. The effects of television viewing, cultural proximity, and ethnocentrism on country image. *Social Behavior and Personality* 41, 89-96.

Zentralinstitut für Jugendforschung, 1985. *Resonanz und Wirksamkeit von Jugendme-*

dien. GESIS Datenarchiv ZA 6073.

Zentralinstitut für Jugendforschung, 1989. Politisches Klima und gesellschaftliche Bedingungen in der DDR 1988/1989. GESIS Datenarchiv ZA 6008.

Zentralinstitut für Jugendforschung, 1990a. Jugend und Rechtsextremismus. GESIS Datenarchiv ZA 6004.

Zentralinstitut für Jugendforschung, 1990b. Jugend und Ausländerfeindlichkeit. GESIS Datenarchiv ZA 6005.

Zentralinstitut für Jugendforschung, 1990c. Wohlfahrtssurvey “Ost” 1990. GESIS Datenarchiv ZA 2121.

Appendix

Table 12: Descriptive Statistics

	Mean	Std. dev.	Min.	Max.
Signal strength	0	1	-2.210	3.104
Log(Population)	7.145	1.410	4.317	13.231
Population Share: $15 \leq \text{Age} < 25$ (in %)	12.545	2.029	3.704	32.633
Population Share: $25 \leq \text{Age} < 40$ (in %)	23.228	2.879	10.500	41.882
Population Share: $40 \leq \text{Age} < 65$ (in %)	31.206	3.668	10.738	44.578
Population Share: $65 \leq \text{Age}$ (in %)	14.496	3.598	1.879	34.906
Average household income (in EUR)	1007.171	176.733	667.288	1330.329
Gini household income	0.211	0.016	0	0.265
Unemployment rate (in %)	18.393	5.771	3.898	38.716
Urban district	0.004	0.062	0	1
Distance to GDR border < 100km	0.183	.386	0	1
Distance to Polish/Czech border < 100km	0.247	0.431	0	1
Stasi density (per 1,000 inhabitants)	0.004	0.001	0.001	0.008
Log(1+No. of protests)	1.932	1.037	0	3.970

Table 13: Results for the Vote Share of Left-wing Extremist Parties – Controlling for Region Fixed-Effects

	1990	1994	1998/1999
Signal strength	-0.781*** (0.000)	-0.627*** (0.000)	-0.482*** (0.001)
Demogr. & econ. controls	Yes	Yes	Yes
Municip. charact.	Yes	Yes	Yes
Political controls	Yes	Yes	Yes
Region FE	Yes	Yes	Yes

Notes: Results are based on OLS estimation. The dependent variable is the vote share of left-wing extremist parties in the federal and state elections of 1990, 1994, and 1998/1999 at the municipality level. Observations for federal and state elections are pooled, yielding two observations per municipality. *Signal strength* is a continuous measure of the strength of the West German TV signal at the municipality level. All specifications include the full set of control variables described in Section 5.3 as well as region fixed-effects for the administrative districts of the former GDR. Standard errors are clustered at the municipality level. *p*-values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 14: Results for the Vote Share of Right-wing Extremist Parties – Controlling for Region Fixed-Effects

	1990	1994	1998/1999
Signal strength	-0.121*** (0.000)	-0.071*** (0.007)	-0.155** (0.035)
Demogr. & econ. controls	Yes	Yes	Yes
Municip. charact.	Yes	Yes	Yes
Political controls	Yes	Yes	Yes
Region FE	Yes	Yes	Yes

Notes: Results are based on OLS estimation. The dependent variable is the vote share of right-wing extremist parties in the federal and state elections of 1990, 1994, and 1998/1999 at the municipality level. Observations for federal and state elections are pooled, yielding two observations per municipality. *Signal strength* is a continuous measure of the strength of the West German TV signal at the municipality level. All specifications include the full set of control variables described in Section 5.3 as well as region fixed-effects for the administrative districts of the former GDR. Standard errors are clustered at the municipality level. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 15: Results for the Vote Share of Left-wing Extremist Parties – Federal vs. State Elections

	(1)	(2)	(3)	(4)
<i>Federal elections</i>				
1990	-1.115*** (0.000)	-1.043*** (0.000)	-1.002*** (0.000)	-0.835*** (0.000)
1994	-0.787*** (0.000)	-0.697*** (0.000)	-0.785*** (0.000)	-0.771*** (0.000)
1998	-0.287*** (0.005)	-0.137 (0.300)	-0.273** (0.048)	-0.302** (0.030)
<i>State elections</i>				
1990	-1.046*** (0.000)	-1.012*** (0.000)	-1.050*** (0.000)	-0.886*** (0.000)
1994	-0.757*** (0.000)	-0.659*** (0.000)	-0.738*** (0.000)	-0.692*** (0.000)
1998/1999	-0.157 (0.141)	0.086 (0.522)	-0.105 (0.467)	-0.157 (0.273)
Demogr. & econ. controls	No	Yes	Yes	Yes
Municip. charact.	No	No	Yes	Yes
Political controls	No	No	No	Yes

Notes: The Table shows the coefficient estimates for *signal strength*, which is a continuous measure of the strength of the West German TV signal at the municipality level. Results are based on OLS estimation. The dependent variable is the vote share of left-wing extremist parties in the federal and state elections of 1990, 1994, and 1998/1999 at the municipality level. The control variables described in Section 5.3 are added consecutively. Standard errors are clustered at the municipality level. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 16: Results for the Vote Share of Right-wing Extremist Parties – Federal vs. State elections

	(1)	(2)	(3)	(4)
<i>Federal elections</i>				
1990	-0.128*** (0.000)	-0.108*** (0.000)	-0.118*** (0.000)	-0.120*** (0.000)
1994	-0.100*** (0.000)	-0.078*** (0.000)	-0.092*** (0.000)	-0.088*** (0.000)
1998	-0.442*** (0.000)	-0.462*** (0.000)	-0.419*** (0.000)	-0.382*** (0.000)
<i>State elections</i>				
1990	-0.168*** (0.000)	-0.152*** (0.000)	-0.139*** (0.000)	-0.125*** (0.000)
1994	-0.096*** (0.000)	-0.081*** (0.000)	-0.094*** (0.000)	-0.090*** (0.000)
1998/1999	-0.432*** (0.000)	-0.238*** (0.000)	-0.181*** (0.007)	-0.144** (0.033)
Demogr. & econ. controls	No	Yes	Yes	Yes
Municip. charact.	No	No	Yes	Yes
Political controls	No	No	No	Yes

Notes: The Table shows the coefficient estimates for *signal strength*, which is a continuous measure of the strength of the West German TV signal at the municipality level. Results are based on OLS estimation. The dependent variable is the vote share of right-wing extremist parties in the federal and state elections of 1990, 1994, and 1998/1999 at the municipality level. Observations for federal and state elections are pooled, yielding two observations per municipality. The control variables described in Section 5.3 are added consecutively. Standard errors are clustered at the municipality level. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 17: Results for the Vote Share of Left-wing Extremist Parties – Binary Treatment Indicator

	(1)	(2)	(3)	(4)
1990	-2.042*** (0.000)	-1.929*** (0.000)	-1.930*** (0.000)	-1.478*** (0.000)
1994	-1.417*** (0.000)	-1.111*** (0.000)	-1.273*** (0.000)	-1.067*** (0.002)
1998/1999	0.234 (0.356)	0.518* (0.062)	0.230 (0.435)	0.270 (0.372)
Demogr. & econ. controls	No	Yes	Yes	Yes
Municip. charact.	No	No	Yes	Yes
Political controls	No	No	No	Yes

Notes: The Table shows the coefficient estimates for a dummy variable that takes the value 1 if West German TV was available in a municipality and 0 otherwise. Results are based on OLS estimation. The dependent variable is the vote share of left-wing extremist parties in the federal and state elections of 1990, 1994, and 1998/1999 at the municipality level. Observations for federal and state elections are pooled, yielding two observations per municipality. The control variables described in Section 5.3 are added consecutively. Standard errors are clustered at the municipality level. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 18: Results for the Vote Share of Right-wing Extremist Parties – Binary Treatment Indicator

	(1)	(2)	(3)	(4)
1990	-0.301*** (0.000)	-0.276*** (0.000)	-0.255*** (0.000)	-0.229*** (0.000)
1994	-0.175*** (0.000)	-0.127** (0.024)	-0.121** (0.050)	-0.132** (0.037)
1998/1999	-1.120*** (0.000)	-0.715*** (0.000)	-0.599*** (0.000)	-0.600*** (0.000)
Demogr. & econ. controls	No	Yes	Yes	Yes
Municip. charact.	No	No	Yes	Yes
Political controls	No	No	No	Yes

Notes: The Table shows the coefficient estimates for a dummy variable that takes the value 1 if West German TV was available in a municipality and 0 otherwise. Results are based on OLS estimation. The dependent variable is the vote share of right-wing extremist parties in the federal and state elections of 1990, 1994, and 1998/1999 at the municipality level. Observations for federal and state elections are pooled, yielding two observations per municipality. The control variables described in Section 5.3 are added consecutively. Standard errors are clustered at the municipality level. p -values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.