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Working Paper

Western TV and crimes against foreigners in East Germany

Ruhr Economic Papers, No. 1213

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Suggested Citation: Fieles-Ahmad, Omar Martin; Kvasnicka, Michael (2026) : Western TV and crimes against foreigners in East Germany, Ruhr Economic Papers, No. 1213, ISBN 978-3-96973-398-1, RWI - Leibniz-Institut für Wirtschaftsforschung, Essen, https://doi.org/10.4419/96973398

This Version is available at:
https://hdl.handle.net/10419/342545

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RUHR
ECONOMIC PAPERS

Western TV and Crimes against Foreigners in East Germany

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RWI #1213

Imprint

Ruhr Economic Papers

Ruhr Economic Paper #1213 "Western TV and Crimes against Foreigners in East Germany"
Responsible Editor: Ronald Bachmann

Jointly published by

RWI – Leibniz-Institut für Wirtschaftsforschung e.V.
Hohenzollernstr. 1-3, 45128 Essen, Germany

Ruhr-Universität Bochum (RUB), Department of Economics
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Gaußstraße 20, 42119 Wuppertal, Germany

Series Coordination:
RWI Press Office, presse@rwi-essen.de, phone +49 (0) 201 8149-213
RWI – Leibniz Institute for Economic Research, Hohenzollernstr. 1–3, 45128 Essen, Germany
www.rwi-essen.de

RWI is funded by the Federal Government and the federal state of North Rhine-Westphalia.
The Institute has the legal form of a registered association; Vereinsregister, Amtsgericht Essen VR 1784

The working papers published in the series constitute work in progress circulated to stimulate discussion and critical comments. Views expressed represent exclusively the authors' own opinions and do not necessarily reflect those of the editors and institutions.

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ISSN 1864-4872 (online)
ISBN 978-3-96973-398-1
DOI https://dx.doi.org/10.4419/96973398

Western TV and Crimes against Foreigners in East Germany

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May 11, 2026

Abstract

Following reunification, anti-foreigner crimes rose sharply in the former GDR. Using county-level data for the early 1990s, we study if regional access to Western TV, i.e. non-socialist media, prior to the fall of the Berlin Wall had an impact on regional levels of serious anti-foreigner crime (murder and arson) in East Germany. We find that East German counties with no access to Western TV exhibit higher rates of such crimes, as in the 'valley of the clueless' around Dresden. This crime-attenuating effect of Western TV proves robust in a battery of robustness checks and underscores the importance of media for anti-foreigner attitudes and crimes well before the rise of the internet and social media.

Keywords: F22, J15, K42.
JEL Classification: Crimes Against Foreigners, Western TV, Immigration, East Germany.

Acknowledgements: We thank Yue Huang, Sven Hartmann, and participants of the 2024 RES Annual Conference in Belfast, the 2024 EALE Conference in Bergen, the 13th ifo Dresden Workshop on Labor Economics and Social Policy, the 5th BeNA Labor Economics Workshop in Berlin, the 17th RGS Doctoral Conference in Essen, and seminars at Friedrich Schiller University Jena and Otto-von-Guericke University Magdeburg for valuable comments. We also thank Jörn-Steffen Pischke for sharing for this project his data on crimes against foreigners in Germany in the early 1990s, Davide Cantoni for providing us with information on the regional availability of West German TV in the former GDR, and Marek Endrich for sharing data on vote shares of the NSDAP in 1932. Rüdiger Budde from the FDZ Ruhr (RWI - Leibniz Institute for Economic Research) assisted us in the management of administrative border changes. Mohamad Alhussein Saoud and Eren Aydin provided excellent research assistance. All remaining errors are our own.

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1 Introduction

Reunified Germany saw a significant surge in violent anti-foreigner crime in the early 1990s (Krueger and Pischke, 1997). In Eastern Germany (the former GDR), this rise was particularly pronounced, yet far from uniform, ranging from occasional violent attacks to major anti-foreigner riots in Hoyerswerda[1] and Rostock Lichtenhagen[2], which gained also international attention. Various factors are likely to have contributed to this rise (Ireland, 1997), such as widespread economic uncertainty and general social upheaval amidst East Germany's transition from socialism to a market economy and democracy. However, the great variability of violent anti-foreigner crime levels across East German regions in this period remains puzzling and still awaits explanation. This study addresses this question, focusing on one potential important driver, regional varying access to Western German TV (WGTV) in the GDR.

TV and print media were state controlled in East Germany and WGTV was the most important external source of uncensored information and entertainment available in the GDR. WGTV, however, could not be received everywhere in the GDR because of topographical and geographical reasons.[3] Areas in Dresden and Rostock districts were important transmission holes that earned them the epithet "valley of the clueless". East German households in these areas were socialized by state media only and therefore differently from households in areas that had access also to WGTV, which provided alternative content and conveyed a different view of the world. It has been suggested that better and more information on foreigners and foreign countries on WGTV has reduced anti-foreigner sentiments among East Germans (Endrich, 2020; Hornuf et al., 2023). If so, access to WGTV in the GDR may well have exerted also a mitigating effect on violent anti-foreigner crime in parts of East Germany after reunification in the early 1990s. This paper is the first to study this question empirically.

[1] In September 1991, a riot of neo-Nazis which was aimed against foreign contract workers, Vietnamese cigarette vendors and a refugee shelter lasted a full week (from 17-23 September). The mob included up to 500 rioters and resulted in 83 arrests and 32 injured.

[2] From 22-24 August 1992, several thousand rioters attacked a refugee shelter and a neighboring dorm for Vietnamese contract workers with stones and incendiaries.

[3] Terrestrial broadcasting signals travel through the air. Signal strength decreases with distance and is influenced by geographic and atmospheric factors.

We investigate this potential media-anti-foreigner crime link exploiting for identification arguably exogenous regional variation in WGTV signal strength in the former GDR. For our analysis, we use municipality WGTV signal strength data from Bursztyn and Cantoni (2016), which we aggregate to the county level, and county-level newspaper data on violent anti-foreigner crime in the early 1990s from Krueger and Pischke (1997). In our regression analysis, we consider both dichotomous and continuous treatment measures of WGTV signal strength (access to WGTV) and control in multiple ways for economic, socio-demographic, and geographic influences which may confound the media-crime link and impair its identification. We find that counties in East Germany with no access to Western TV indeed exhibit higher rates of violent anti-foreigner crimes. Access to WGTV reduces violent crimes in a county by about 1.9 such incidences/100,000 residents. This is a very large effect, given that the county-level sample mean for this rate is only 1.7 violent incidents/100,000 residents. We corroborate the crime-attenuating effect of WGTV in a battery of robustness checks that consider different subsamples and signal strength cutoffs, additional regression controls, potential confounding shocks from German political and economic reunification, and alternative estimation methods.

Our findings complement previous research on WGTV effects on consumption patterns (Bursztyn and Cantoni, 2016), entrepreneurial activity (Slavtchev and Wyrwich, 2023), gender stereotypes (Hartmann, 2024), individual beliefs (Hennighausen, 2015), attitudes towards extremist parties (Friehe et al., 2020), as well as xenophobia, extremist voting, and attacks on refugees in the mid-2010s (Endrich, 2020; Hornuf et al., 2023).[4] Our study also adds to a large and growing economics literature on effects of media on prejudices and crimes against minorities, foreigners, and other outgroups, before and after the rise of the internet and social media. Recent studies in this strand of research include Esposito et al. (2023), and Ang (2023) for movie screenings Ralsmark (2017), and Banerjee and Datta Gupta (2015) for TV broadcasts, Adena et al. (2015) and Yanagizawa-Drott (2014) for radio broadcasts, and Müller and Schwarz (2023), Müller and Schwarz (2021), Cao et al.

[4]Within this literature, our study is the first to control for potentially confounding regional heterogeneity in economic shocks that may cause bias and are related to reunification and East German economic transformation. For this purpose, we make use of a novel shift-share-type of shock measure in our regression analysis.

(2023), and Schutte et al. (2025) for social media posts and use.

The paper proceeds as follows. Section 2 provides background information on the possible channels by which WGTV may have influenced xenophobic sentiments and what role WGTV played in the everyday life of GDR citizens. Section 3 describes our data and the identification strategy we use in our empirical analysis. Section 4 presents our regression results. It also reports various robustness checks and discusses potential threats to our identification strategy. Finally, Section 5 summarizes our main findings and concludes.

2 Background

2.1 WGTV and Xenophobia

Why may WGTV have an attenuating effect on anti-foreigner crime in the former GDR? Economists and other social scientists often take reference to intergroup contact theory or cultivation theory to explain why media may reduce xenophobic sentiments and actions.[5] We briefly review each in turn and comment on their respective relevance for the specific period and setting under study.

According to intergroup contact theory, exposure to minorities or outgroups (here foreigners) can reduce intergroup prejudice (Williams, 1947). There were only very few foreigners in the GDR and interactions with GDR citizens were quite limited (Klier, 1994).[6] Many foreigners also stayed only temporarily in the GDR, e.g. as guest workers or students,[7] residence permits were at times limited to but one city, and inter-marriages were extremely difficult because of massive bureaucratic hurdles. At the same time, access to foreign media was severely restricted (Kuschel, 2016) and the amount of foreign content on Eastern German TV (EGTV) was quite low. According to Hornuf et al. (2023), WGTV had almost double the foreign content of EGTV. As such, West German TV provided

[5] Żerebecki et al. (2021) also offer other theories which are rooted in sociology (e.g. the parasocial contact hypothesis or social cognitive theory).

[6] In 1989, foreigners accounted for only 1.2% of the population in the GDR. In West Germany, the corresponding figure was 5.1% (Statistisches Bundesamt (DESTATIS), 2022).

[7] In 1989, only 22.6% of the 191,190 foreigners in the GDR had permanent residency (Trommer, 1992).

important additional points of contact and information on foreign countries and people to citizens of the GDR, information that could have reduced xenophobia and anti-foreigner sentiments.

Cultivation theory also predicts that TV can change attitudes and behavior (Gerbner et al., 1994, 2002). According to this theory, TV can cultivate people's values and perceptions when broadcasts are characterized by repetitive images (mainstream narratives) over longer periods, particularly when TV dominates as a medium (Morgan, 2009). Establishing common views for viewers can diminish differences between groups that stem from different social, demographic or cultural backgrounds (Gerbner et al., 2002). WGTV had not only more foreign content than EGTV, but also markedly different content, i.e. no socialist propaganda and more travel reports and general information on other countries of the world (Hornuf et al., 2023). This may have helped to challenge preconceived biases and foster a sense of empathy and understanding, cultivating a more positive and accepting view on immigrants.

Assessing empirically the explanatory power of these two related theories requires regional variation in WGTV content that can be exploited for identification. Such variation did not exist. In our empirical analysis, we will therefore not be able to test or explore further these two causal pathways by which WGTV may have attenuated xenophobic sentiments and anti-foreigner crime in parts of the former GDR. Nevertheless, both do constitute plausible channels which can rationalize such an effect. In any case, the objective of this paper is more foundational, i.e. to establish whether WGTV in fact did impact anti-foreigner crime in East Germany in the early 1990s.

2.2 WGTV in the GDR

Following World War II, Germany was divided into four occupation zones. In 1949, the British, French, and American zones in the West merged to form the democratic Federal Republic of Germany (FRG), while the Soviet zone in the East became the socialist German Democratic Republic (GDR). West Berlin, an enclave of the FRG, remained surrounded by GDR territory in the East. In addition to the ideological, political, and economic

differences between the two regimes, the construction of the Berlin Wall in 1961 physically separated the two German countries. This barrier severely restricted people's mobility and the exchange of goods and information between the East and the West, reflecting the GDR's deliberate efforts to isolate itself from Western and capitalist influences.

The democratic FRG always remained committed to the goal of reunification. So, from the inception of WGTV broadcasting in December 1952, deliberate efforts were made to extent its reach and coverage to the territory of the socialist GDR. The most important measure taken was to install transmitters in close proximity to the inner German border and in West Berlin before WGTV programs started to broadcast in 1961 (Slavtchev and Wyrwich, 2023). Access to WGTV in the GDR, however, remained far from universal. More than one in ten East German counties in two areas around Dresden and Ruegen, known as 'valley of the clueless', could not receive WGTV during GDR times, because signal strength was too low or signals were blocked by geographic features (such as mountains). This led to substantially different media socializations of parts of the GDR population, for those who could watch WGTV did so both regularly and extensively. As historian Stefan Wolle noted, "[e]ach night the GDR collectively emigrated to the FRG in front of their TV screens" (Wolle, 1998, p.71).

The GDR regime viewed WGTV as a menace and its reigning party 'Sozialistische Einheitspartei Deutschlands' (SED) actively sought to inhibit its reception on GDR territory. In a major attempt in the early 1960s (the so-called 'Aktion Ochsenkopf' or ox-head campaign), residents of the GDR were asked to actively move their antennas in a way, such that WGTV reception was no longer possible. The 'Free German Youth' (FDJ) organization, i.e. the major political youth organization in the GDR, at times even removed antennas and later also publicly shamed individuals. However, none of these initiatives had the desired effect. With the advent of détente in 1973, watching WGTV became eventually tolerated (Kuschel, 2016; Dittmar, 2014). In later years, there were still attempts to make EGTV more attractive and displace WGTV in receiving regions as a dominant source of entertainment and information.[8] However, these attempts too proved unsuccessful.

[8]A major restructuring of the TV program in the GDR in December 1982 lay greater focus on entertainment and sports so as to not lose more viewers to WGTV (Dittmar, 2014).

3 Data and Empirical Strategy

3.1 Data

1991-1993 Crime Statistics: For our regression analysis, we need a measure of anti-foreigner crime in East Germany. As police data are not available below state level for the early 1990s, we make use of newspaper-based data from Krueger and Pischke (1997).[9] The data cover the period January 1991 to June 1993 and consist of press reports from a large set of German daily (typically regional) and weekly newspapers and magazines with nationwide circulation and coverage. The press data correlate positively with police data at the state level and monthly totals of press items track closely police data at the national level; there is also no indication of overreporting in the data after the major violent incidents in Hoyerswerda, Rostock, and Solingen.[10] These features speak for the quality of the press data and their use in analyses of anti-foreigner crime. Auxiliary evidence shows that most perpetrators at the time were in fact locals (Raisch, 1994; Leenen, 1992), which suggests that counties also constitute an adequate regional unit of analysis.

Anti-foreigner incidents recorded in the press data are of quite different kind and severity, ranging from mere graffiti and the shattering of windows to (attempted) murder and arson. In our analysis, we will focus exclusively on the latter, i.e. murder and arson, because newspaper coverage is far more complete for these serious crimes.[11] Their reported numbers also do not drop off after the Rostock riots, as did those for less severe incidents, which is suggestive of changes in reporting behavior. For the 215 East German counties in our sample, the press data record a total of 236 murder and arson incidents. These violent crimes account for 51% of all incidents for East Germany reported in the press between January 1991 and June 1993. We use two measures for the prevalence of such crimes at county level, the crime rate (crimes against foreigners per 100,000 residents) and the vic-

[9] A detailed description of the data, their compilation, and coding is provided in Section III in Krueger and Pischke (1997).

[10] For more details, see the discussion in Krueger and Pischke (1997), p.188-189.

[11] This undercount comes at little surprise, for relatively minor events are not reported in the media. It is for this reason that only about 10% of incidents recorded by the police are also reported in the media and serious crimes (murder and arson) account for 40% of incidents in the newspaper data, but only for 9% in police data (Krueger and Pischke, 1997, p.188).

timization rate (crimes per 1,000 foreign residents). The latter intends to capture the risk of victimization for foreigners, but is really just a different way of scaling anti-foreigner crimes.[12]

1989 West German TV Signal Strength: We use 1989 WGTV municipality-level signal strength data for the main West German TV channel ARD from Bursztyn and Cantoni (2016), which consider distance, earth curvature and irregular terrain to determine whether counties in the GDR had access to WGTV (treatment counties) or not (control counties). For this, we convert the signal strength information to the county level using area-weighted averages of municipality levels and use the signal strength of the city of Dresden (-86.8 dB) as cutoff (like Bursztyn and Cantoni (2016)).[13] Areas around Dresden (also around Rostock/Rügen in the north) fell below this threshold and could not receive WGTV. This earned them the nickname 'valley of the clueless'.[14] Of the 215 counties in the GDR, 25 counties shared this fate. These counties comprise our control group.

Figure 1 visualizes the regional distributions of WGTV signal strength (ARD) in the GDR. Control group countries with no access to WGTV are colored black (signal strength ≤ -86.8 dB) and group in two areas in two different federal states, in Mecklenburg-Western Pomerania in the northeastern coastal area in the former district of Rostock, and in Saxony in the southeast in the former district of Dresden near the Polish and Czech borders. All other counties (signal strength > -86.8 dB) belong to the treatment group. Some GDR residents in these treatment counties probably did not have access to West German TV at times, depending on atmospheric conditions. The latter influenced signal propagation and reception, occasionally pushing signals near the cutoff below the level required for reception. This applies in particular to counties with an average TV signal strength between -75 dB and -86.8 dB. Most of these counties circle the outer realms of the two (black-colored) transmission holes in the northeast and southeast of the GDR. As

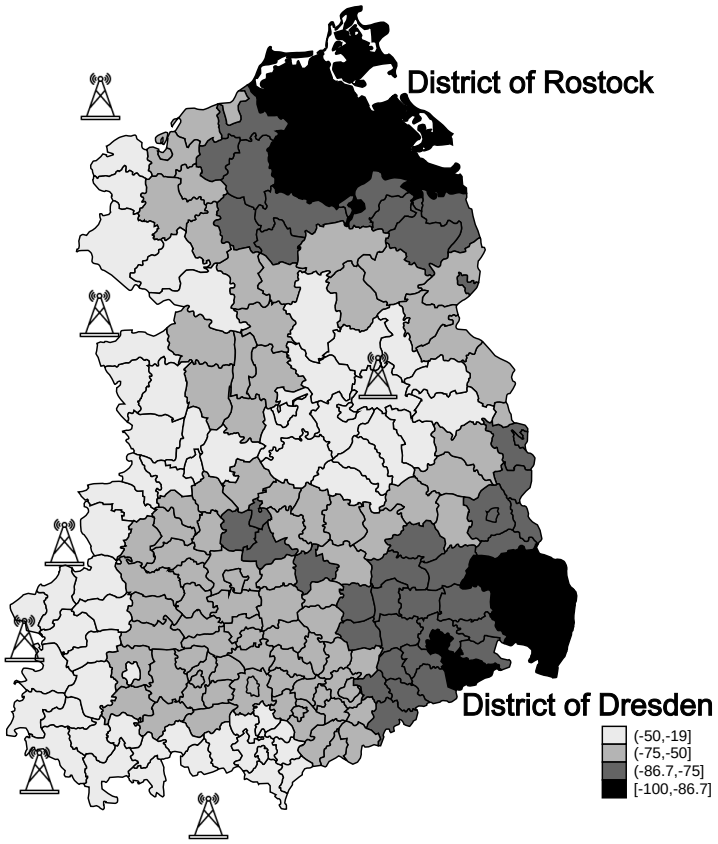
[12]The victimization rate for two counties is missing since foreigner numbers are reported as zero in official data in case the foreigner share is below 0.1 percent (Krueger and Pischke, 1997, p.198).

[13]Using unweighted county means of municipality signal strengths for this purpose does not alter counties' WGTV treatment status. Population weighting changes the treatment status of one county but does not materially affect our results (see Table 4).

[14]For the same reason, the primary WGTV channel 'ARD' also got referred to jokingly as 'Außer Rügen und Dresden' ('Except Ruegen and Dresden'.)

reception near the threshold is imperfect and the exact cutoff is not uniquely defined, we will check the robustness of our findings to alternative signal strength cutoffs in sensitivity analyses. In addition to these and our baseline dichotomous treatment indicator which takes value one if counties have a signal strength above the cutoff of −86.8 dB and zero otherwise (denoting WGTV reception, respectively no WGTV reception), we will also employ a continuous measure that, following Bursztyn and Cantoni (2016), maps signal strength into the estimated probability of watching any WGTV using a logistic fit to observed viewership patterns from a survey (Zentralinstitut für Jugendforschung, 1989) to account for the gradual nature of reception around this baseline threshold of −86.8 dB. Scaled from 0 to 100, a one-unit increase in this measure corresponds to a one-percentage-point increase in the probability to watch any WGTV.

Figure 1: WGTV Transmitters and WGTV Signal Strength in the GDR



Notes: The map shows the location of WGTV transmitters and WGTV signal strength in East German counties (as of 1989). The darker a county is colored, the weaker is the signal. Black colored counties have a signal strength of −86.8 dB or less and could not receive WGTV.

Other Data (County-level Controls): In our baseline specifications, we control for several economic and demographic factors that may impact county-level crime. Economic controls include the unemployment rate (percent) as of September 1992 and the 1990 distance by car in kilometers from county centers to the Western German border (incl. West Berlin).[15] The former captures local economic conditions in the early 1990s, the latter proximity and

[15]The former measure is taken from Krueger and Pischke (1997), the latter we derived ourselves with the help of a printed 1990 road and highway map. A similar measure is used also in the study by Bursztyn and Cantoni (2016).

access to the West German economy and labor market (e.g. via commuting). Holding distance to the West German border constant provides a strong test to assess the crime effects of WGTV reception, because WGTV signal strength too declines in distance to the German border.[16] For WGTV effects are then identified only from county observations where geographic factors (i.e., landscape features) cause TV signal strength to fall below levels necessary for WGTV reception but do not reduce driving distance. Demographic controls in our main specification include county population density (as of 1990) in logs and the county population share of foreigners (as of December 1991).[17] The density measure controls for potential level differences in crime and anti-foreigner sentiments between urban and more rural regions, the foreigner measure for likely levels of interaction between East Germans and foreigners and the size of relative county populations that are at risk to fall victim to anti-foreigner crimes.

In sensitivity analyses, we consider a number of additional covariates to check the robustness of our results when addressing various threats to our identification strategy. First, a dummy for the presence in a county of an office of the German press agency (DPA) to account for potential county-level differences in the reporting of anti-foreigner crimes (i.e., systematic over- or underreporting). Second, the 1932 NSDAP vote share to account for regional differences in xenophobic heritage that could confound the crime-WGTV link at county level.[18] And third, a measure of the severity of county-level employment losses in exporting industries following the July 1990 currency reform to account for regional heterogeneity of reunification effects that may correlate with our WGTV measure.[19] No study on WGTV effects in the literature controls for such potentially confounding regional het-

[16]Signal strength and distance by car to the Western border are highly correlated (the correlation coefficient is -0.9059.)

[17]Both measures are used also in Krueger and Pischke (1997) and have been courteously provided to us by Steve Pischke. The foreigner measure disregards guest workers who had arrived but recently (less than three months before stock-taking) and also asylum seekers.

[18]The 1932 election was the last free election before the Nazis took power in 1933. This measure has also been used in Endrich (2020). See Voigtländer and Voth (2012) for evidence on the regional persistence of xenophobic sentiments in Germany.

[19]This shock measure is inspired by Kürschner (2015). The Economic and Monetary Union between the FRG and GDR preceded reunification by several months. It saw the replacement on July 1st 1990 of the East German Mark with the West German D-Mark at the (highly controversial) rate of conversion of 1:1. As a result, prices and wages in East Germany appreciated by around 350% overnight, harming severely GDR competitiveness on export markets (Akerlof et al., 1991, p.8-9; Heiland, 2004, p.191).

erogeneity in economic shocks related to reunification and East German economic transformation. From a methodological perspective, this is a clear shortcoming, as such geographic heterogeneity may cause significant bias. We construct this currency shock measure for industry k in county i as follows:

$$currencyshock_{i,k} = \sum (sectorshare_{i,k} \times productiondecline_k) \tag{1}$$

where $sectorshare_{i,k}$ measures the employment share of industry k in county i as of September 1989 (based on data from Rudolph (1990, p.493-497)) and $productiondecline_k$ measures the decline in net production between mid-1990 and 1991 for industry k (based on data from Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Lage (1993, p.375)). The k industries are the chemical sector (with a production decline of 21.9%), the machinery and vehicle manufacturing sector (with a production decline of 48.4%) and the electro-technical sector (with a production decline of 52.3%).

Table 1 provides some summary statistics for our data. It shows means of all variables (dependent and independent) for all 215 East German counties, those that could receive WGTV before 1990, and those that could not. It also indicates whether covariates are balanced between treated ($WGTV = 0$) and control counties ($WGTV = 0$). As is evident, the mean crime rate (violent crimes/100k residents) is decidedly lower in counties that could receive WGTV; in fact, it is only about half the size of the corresponding rate in counties that could not receive WGTV in the GDR. The victimization rate is also lower in treated counties, but the unconditional difference is not statistically significant (we will review this relationship in a multivariate framework in our regression analysis). Differences are negative and also statistically significant for the unemployment rate, for the 1932 NSDAP vote share, and for the driving distance (by car) to the West German border. The two demographic controls (foreign population share, population density) and the DPA indicator, in contrast, appear balanced. Treated counties, however, were harder hit by the July 1990 Economic and Monetary Union of the FRG and GDR. Differences between treated and control counties in average signal strength (dB) and the continuous WGTV measure are of the expected sign (given dichotomous WGTV treatment definition) and also sizeable in magnitude.

Table 1: Summary statistics and covariate balancing

Variable	All (1)	$WGTV = 1$ (2)	$WGTV = 0$ (3)	Difference (4)
Crime rate (crimes/100k residents)	1.70	1.52	3.09	-1.57^{*} (.90)
Victim. rate (crimes/1k foreigners)	6.01	5.52	9.86	-4.34 (5.31)
Signal strength (dB)	-62.76	-59.04	-91.00	31.95^{***} (1.32)
WGTV (continuous)	85.35	95.34	9.42	85.92^{***} (2.00)
Unemployment rate (percent)	14.72	14.58	15.78	-1.19^{***} (0.41)
Foreign population (percent)	0.49	0.48	0.59	-0.11 (0.10)
Population density (log)	4.94	4.93	5.04	-0.11 (0.28)
Distance by car to west. border (km)	78.62	67.68	161.73	-94.05^{***} (6.02)
DPA press office (0/1)	0.065	0.063	0.08	-0.017 (0.058)
NSDAP vote (percent)	33.89	33.48	37.03	-3.55^{***} (1.16)
Currency shock	8.47	8.67	6.98	1.69^{*} (0.91)

Notes: Columns (1) to (3) report means of variables, column (1) for all 215 counties in East Germany, column (2) for the 190 counties in the treatment group, and column (3) for the 25 counties in the control group. Column (4) reports differences in means of variables between between treatment and control group (with standard errors in parentheses). ***, **, * denote statistical significance at the 1%, 5%, and 10% level and are based on t-tests of difference in means (two-sided, allowing for unequal variances) between treatment and control groups. Figures for the victimization rate are calculated for 213 counties (189 treated and 24 untreated counties).

3.2 Empirical Strategy

We use variants of the following regression model to analyse the effect of WGTV on anti-foreigner crime in East Germany after reunification:

$$Y_i = \beta_0 + \beta_1 WGTV_i + X_i'\gamma + \epsilon_i, \tag{2}$$

where Y_i is either the number of anti-foreigner incidents per 100,000 residents (crime rate) or the number of anti-foreigner incidents per 1,000 foreigners (victimization rate) in county i between January 1991 and June 1993, and $WGTV_i$ is a treatment indicator that takes value

1 if WGTV could be received in county i before 1990, and 0 otherwise. The coefficient of interest is hence β_1. Vector X_i contains a set of control variables. In our main specification, this set includes the September 1992 unemployment rate, the 1991 foreign population share, the 1990 population density (in logs), and the 1990 distance by car to the Western border. In our sensitivity analysis, we expand this set of regressors by adding controls for potential county-level differences in the reporting of anti-foreigner crimes, in xenophobic heritage, and in employment losses suffered in the wake of German reunification that could confound the crime-WGTV link.

A number of conditions must be met for estimates of β_1 to capture the anti-foreigner crime effect of WGTV. Most importantly, conditional on controls, treated and control counties must not differ systematically in unobserved features that affect crime. As already noted, distance to West Germany is a most powerful proxy in this respect, for WGTV signal strength is highly correlated with such distance. Counties may have unobserved crime-affecting features that are systematically related to their geographic centrality or remoteness in unified Germany. When we control for distance to West Germany, WGTV effects are identified only from geographic factors that cause TV signal strength to fall short of levels necessary for WGTV but do not reduce driving distance to the former inner German border.

Individuals in treated counties must also watch WGTV, and they should not spatially sort in selective ways across counties. Bursztyn and Cantoni (2016) cite various evidence that individuals in treated counties in the GDR did in fact watch WGTV intensively and regularly and that no selective spatial sorting occurred across treated and control counties, neither before reunification nor between reunification and the measurement of effects. Citizens of the GDR in fact rarely moved across county borders (Grundmann, 1998) and faced severe shortages in housing that reduced mobility (Kern and Hainmueller, 2009). Surveys of the Zentralinstitut für Jugendforschung (1989) also indicate that the desire to move in the GDR did not materially differ between districts with and without WGTV.

In addition, access to substitute sources of information, i.e. western media other than WGTV, such as books and newspaper, was severely restricted in the GDR (Kuschel, 2016,

p.114 and p.266). Frequencies of West German radio broadcasts too were jammed by the GDR regime (Hesse, 1988; Beutelschmidt, 1995). In terms of ease of access, actual spread, and intensity of use, WGTV had no rival in the GDR. In fact, 98% of households in the GDR owned a TV in 1989 (Müller, 2000). This also implies that scope for endogenous TV ownership was slim to nonexistent, which aids identification. Furthermore, TV viewing times did not differ materially between counties with and without WGTV (Stiehler, 2001, p.45-46), so any crime-attenuating effect of WGTV, if indeed present, is likely to stem from differences in content rather than amount of TV consumption.

The ideological imprint of the centralized education system also did not differ between regions (Hyll and Schneider, 2013) and neither did the same show markedly different party preferences before the GDR was founded after World War II and WGTV started transmitting, as revealed at the polls in the 1946 election (Kern and Hainmueller, 2009). This also holds for a battery of district-level social and economic indicators sampled from GDR Statistical Yearbooks in 1955 and 1990, that is in the first year such data was collected after World War II and in the last year of GDR existence, both for levels in each year and also for trend changes between 1995 and 1990 (Bursztyn and Cantoni, 2016).

While much of the evidence cited in the last three paragraphs is descriptive or even anecdotal in kind and cannot be considered explicitly in our regression analysis, its scope and wealth suggest that the setting we analyze does provide a natural experiment that is suitable to study and identify the crime effects of WGTV in East Germany.

4 Results

4.1 Main Findings

Table 2 contains our main regression results for the effects of WGTV on serious anti-foreigner incidents (murder and arson). Columns (1)-(3) of Table 2 consider as dependent variable the crime rate (incidents per 100,000 residents), and columns (4)-(6) the victimization rate (incidents per 1,000 foreigners). We also consider two measures of a county's

access to West German TV, one binary (columns (1), (2), (4), and (5)), and one continuous (columns (3) and (6)). The former takes value 1 if WGTV signal strength in a county is smaller or equal to −86.8 dB, and 0 otherwise. The latter continuous treatment variable provides a measure for the probability of watching WGTV.[20] The continuous measure takes values between 0 and 100 to facilitate the interpretation in terms of percentage point changes in probability. In addition to our dichotomous or continuous treatment measure, we control in all three specifications for the unemployment rate (in percent), the population share of foreigners (in percent), and county population density (in logs). In columns (2), (3), (5), and (6), we furthermore add to the list of covariates the 1990 driving distance (by car) from county centers to the former inner German border (including Berlin).

As shown in column (1) of Table 2, access to WGTV exerts a statistically significant and sizeable negative effect on the county-level violent anti-foreigner crime rate. Unemployment and population density work in the same direction, but effects are only imprecisely estimated.[21] The latter holds true also for the population share of foreigners, which correlates positively with county-level anti-foreigner crime. In column (2), we add to our set of core controls the 1990 distance by car to the West German border (in km). This increases the absolute value of the estimated WGTV treatment effect slightly, which remains negative and statistically significant at the 5% level. East German counties with access to WGTV before 1990 exhibit an average 1.899 fewer violent crimes per 100,000 residents than comparable East German counties that could not receive WGTV. This is a very large difference, for the mean crime rate (murder and arson incidents per 100,000 residents) in East Germany's 215 counties in 1991-1993 amounts to only 1.704, which is less than the treatment effect in absolute size. Replacing our binary treatment indicator with a continuous measure (see column (3)), produces qualitatively identical results.[22] A

[20] Bursztyn and Cantoni (2016) constructed this measure by fitting a logistic cumulative density function to the observed viewership based on district-level data from Zentralinstitut für Jugendforschung (1989). The resulting fitted curve with parameters $\mu = -84.6$ and $\sigma = 2.3$ approximates the share of respondents in the survey who could never watch WGTV as a function of signal strength.

[21] The negative effect of the unemployment rate may seem surprising, but is in fact in line with previous findings for East Germany in the same years (Krueger and Pischke, 1997). Other research, however, has been less conclusive (Raphael and Winter-Ebmer, 2001). There is also some evidence for a positive association, albeit for later years (Falk et al., 2011).

[22] Using original signal strength in dB in the regression instead of our (dichotomous or continuous) WGTV measure also produces a negative and statistically significant coefficient estimate.

one percentage point increase in the likelihood of access to WGTV before 1990 decreases the crime rate by 0.033, or 1.9 percentage points if judged against the average county rate of 1.704 in 1991-1993. Rescaling serious crimes by counties' foreign population (in 1,000), as done in columns (4)-(6), produces similar findings for both our dichotomous and continuous WGTV measures, albeit less precisely estimated.[23,24]

In sum, these results suggest that WGTV attenuated significantly levels of serious anti-foreigner crime in the former GDR. As murder and arson are low frequency events (and sample size is rather small), such sizeable and statistically significant impact is remarkable. In the next section, we subject our findings to a number of sensitivity checks. For this, we use specifications in columns (2) and (5) in Table 2 as baseline.

[23]These findings prove robust when allowing errors to be spatially correlated across neighboring or commutable counties, i.e. counties within 50km, 75km, or 100km of a county's centroid (see Appendix Table A-1.

[24]Our findings also prove robust to adding distance to Poland (in km) or travel time by train to the next metropolitan area (in minutes) to our set of core regressors, i.e. further controls for county location. The same holds true when replacing our urbanity measure (population density in logs) with an indicator for 'Kreisstadt', i.e. for a county being a single city. See Appendix Table A-2.

Table 2: Crime and victimization rates - serious anti-foreigner crimes (murder and arson)

Dependent variable:	Crime Rate (Incidents per 100,000 Residents)			Victimization Rate (Incidents per 1,000 Foreigners)		
Treatment variable:	Binary		Continuous	Binary		Continuous
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	−1.648**	−1.899**	−0.033***	−7.499	−8.692*	−0.107*
	(0.834)	(0.921)	(0.011)	(5.173)	(4.833)	(0.054)
Unemployment rate (percent)	−0.138	−0.143	−0.167*	−1.546**	−1.566**	−1.576**
	(0.100)	(0.102)	(0.098)	(0.677)	(0.686)	(0.680)
Foreign population (percent)	1.043	1.081	0.898	−7.648***	−7.452***	−7.996***
	(0.678)	(0.678)	(0.625)	(2.722)	(2.703)	(2.829)
Population density (log)	−0.264	−0.264	−0.201	−2.491***	−2.492***	−2.292***
	(0.200)	(0.200)	(0.198)	(0.903)	(0.904)	(0.863)
Distance by car to west. border (km)		−0.003	−0.010**		−0.013	−0.025
		(0.004)	(0.005)		(0.019)	(0.020)
R^2	0.069	0.071	0.101	0.104	0.105	0.106
Number of Observations	215	215	215	213	213	213

Notes: Crime and victimization rates are defined for serious anti-foreigner crimes only (murder and arson). In columns (1), (2), (4), and (5), the treatment variable is binary, taking value one if West German TV signal strength is greater or equal to −86.8 dB, and zero otherwise. In columns (3) and (6), the treatment variable is continuous and measures the probability (in percent) of watching any West German TV. This probability is constructed from a fitted (logistic) cdf with parameters $\mu = -84.6$ and $\sigma = 2.3$ that best approximates actual viewership patterns as a function of West German TV signal strength (for details, see Bursztyn and Cantoni (2016), p. 29-30). ***, **, * denote statistical significance at the 1%, 5%, and 10% level. Robust standard errors are reported in parentheses.

4.2 Sensitivity Analysis

We assess the robustness of our results in a battery of checks. We consider alternative estimation methods (Tobit and count-data models), alternative county-level aggregations of municipality WTGV signal strength, alternative signal strength cutoffs for our WGTV treatment indicator, and various subsamples of counties with more similar WGTV signal strength (akin to regression-discontinuity approaches). We also consider selected additional regressors to account for potential county-level differences in the reporting of anti-foreigner crimes, in xenophobic heritage, and in employment losses suffered as a result of German political and economic reunification. We discuss each in turn.

First, following Krueger and Pischke (1997), we estimate Tobit as well as Poisson and Negative Binomial regressions. Murder and arson are low frequency events and 49.3% of counties in our data suffer zero such incidents in 1991-1993. One way to address this bunching is to estimate Tobit models that allow the dependent variables to be censored at zero. Another way is to consider unscaled total anti-foreigner incidents as dependent variable and estimate count data models.[25] As shown in Table 3, both the Tobit and count data models also indicate an attenuating effect of WGTV on serious anti-foreigner crime levels. Our core finding hence proves robust to alternative modelling assumptions.

Second, we change the way we transformed municipality-level signal strength data from Bursztyn and Cantoni (2016) into county-level measures of average TV signal strengths. In our baseline specification, we used measures that weight municipality signals within a county by municipalities' areas. Using instead unweighted county-level means of municipality TV signal strengths (see columns (1) and (3) in Table 4), or county-level means of municipality TV signal strength weighted by municipality populations (see columns (2) and (4)), produces results that are very close or identical to our baseline estimates (even though one county changes treatment status under the latter measure).[26]

Third, we vary the cutoff level of TV signal strength for defining our dichotomous treatment variable for the availability of West German TV in an East German county.

[25] In the latter, we add a control for county population size (in logs) to account for differences in scale.

[26] This is little surprising, in fact, for the three county-level signal strength measures are highly correlated with each other (all correlation coefficients $r > 0.93$).

Table 3: Tobit and count data models (Poisson and Negative Binomial)

Model:	Tobit		Count Data	
			Poisson	Neg. Binomial
Dep. variable:	Crime Rate (Incidents/ 100k Residents)	Victimization Rate (Incidents/ 1k Foreigners)	# Crimes	# Crimes
	(1)	(2)	(3)	(4)
Treatment	-3.047^{**} (1.437)	-16.325^{**} (8.143)	-0.925^{***} (0.301)	-0.932^{***} (0.345)
Pseudo R^2	0.026	0.011	0.163	0.081
No. obs.	215	213	215	215
Treated	190	189	190	190
Control	25	24	215	25

Notes: Crime and victimization rates are defined for serious anti-foreigner crimes only (murder and arson). Total crimes considered in columns (3) and (4) are also counts of only murder and arson. The treatment variable is binary in all regressions, taking value one if West German TV signal strength is greater or equal to −86.8 dB, and zero otherwise. The Poisson and Negative Binomial models in columns (3) and (4) are estimated by maximum likelihood. All regressions control for the county-level unemployment rate, foreign population share, and population density (in logs), as well as the distance by car to the western border, as in our baseline specifications in columns (2) and (5) of Table 2. The two count data models in columns (3) and (4) also control for county population (in logs) to account for scale. ***, **, * denote statistical significance at the 1%, 5%, and 10% level. Robust standard errors are reported parentheses.

Like Bursztyn and Cantoni (2016), we consider one-sided shifts in steps of 2 dB each to −84.8 dB, −82.8 dB, and −80.8 dB (see Table 5).[27] WGTV coefficients remain negatively signed and also precisely estimated in five out of six regressions.[28] Our core finding of a crime-attenuating effect of WGTV hence proves robust also to variations in the level of signal strength that defines treatment and control counties. Furthermore, effect sizes tend to decline in the cutoff level. This is expected and in fact reassuring, for at higher cutoffs,

[27]Changing the cutoff in the other direction would assign Dresden to the group of treated counties, although Dresden had no access to WGTV. For this reason, we do not consider such shifts of the cutoff.

[28]The same holds true when estimating instead donut regressions that drop, rather than reassign to the control group, treatment counties with signal strength in close vicinity to but above the baseline cutoff level of −86.8 dB, i.e. within 1 dB, 5 dB or 10 dB. In GDR times, these counties might not always have had access to WGTV because of atmospheric conditions. See Appendix Table A-3.

Table 4: Alternative aggregations of municipality TV signal strengths

Dep. variable:	Crime Rate (Incidents / 100,000 Residents)		Victimization Rate (Incidents / 1,000 Foreigners)	
	unweighted	pop. weighted	unweighted	pop. weighted
	(1)	(2)	(3)	(4)
Treatment	−1.899**	−1.946**	−8.692*	−8.887*
	(0.921)	(0.894)	(4.833)	(4.575)
R^2	0.071	0.073	0.087	0.082
No. obs.	215	215	213	213
Treated	190	189	189	188
Control	25	26	24	25

Notes: Crime and victimization rates are defined for serious anti-foreigner crimes only (murder and arson). The treatment variable is binary in all regressions, taking value one if West German TV signal strength is greater or equal to −86.8 dB, and zero otherwise. In columns (1) and (3), the binary treatment variable has been constructed on the basis of the simple (unweighted) arithmetic county-level mean of West German TV signal strengths in municipalities. In columns (2) and (4), population-weighted county-level means of West German TV signal strength in municipalities are used. All regressions control for the county-level unemployment rate, foreign population share, and population density (in logs), as well as the distance by car to the western border, as in our baseline specifications in columns (2) and (5) of Table 2. ***, **, * denote statistical significance at the 1%, 5%, and 10% level. Robust standard errors are reported in parentheses.

more counties that do receive WGTV are at risk to be wrongly assigned to the control group.[29]

Fourth, and also inspired by Bursztyn and Cantoni (2016), we restrict the estimation sample to counties in which the signal strength lies within different pre-specified ranges. As in regression-discontinuity approaches, such restriction potentially aids identification, because counties in closer range of the cutoff for WGTV reception should be more comparable. We consider three sets of counties (see Table 6), counties with a signal strength that lies within 30 dB (column 2), 20 dB (column 3), and 10 dB (column 4) of the original threshold of signal availability (−86.8 dB). Such restrictions, however, come at a hefty

[29] At the highest cutoff (−80.8 dB), a full 17 counties are reassigned from the treatment to the control group compared to baseline (see column (3) in Table 5).

Table 5: Alternative thresholds for defining treatment and control counties

Dep. var.:	Crime Rate (Incidents / 100,000 Residents)			Victimization Rate (Incidents / 1,000 Foreigners)		
	−84.8 dB	−82.8 dB	−80.8 dB	−84.8 dB	−82.8 dB	−80.8 dB
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	−2.398***	−1.983***	−1.754***	−8.270**	−5.314*	−3.543
	(0.837)	(0.705)	(0.655)	(4.050)	(3.150)	(2.502)
R^2	0.095	0.083	0.075	0.11	0.097	0.092
No. obs.	215	215	215	213	213	213
Treated	186	179	169	185	178	168
Control	29	36	46	28	35	45

Notes: Crime and victimization rates are defined for serious anti-foreigner crimes only (murder and arson). The treatment variable is binary in all regressions, taking value one if West German TV signal strength is greater or equal to some cut-off level, and zero otherwise. All regressions control for the county-level unemployment rate, foreign population share, and population density (in logs), as well as the distance by car to the western border, as in our baseline specifications in columns (2) and (5) of Table 2. ***, **, * denote statistical significance at the 1%, 5%, and 10% level. Robust standard errors are reported in parentheses.

price, i.e. an enormous reduction in sample size, which inflates standard errors and harms precision.[30] Moreover, in narrower ranges of the cutoff for WGTV treatment, findings are also likely to be attenuated, because treatment effects are then calculated more often from comparisons of no-exposure counties to partial-exposure counties.[31] Our findings confirm these conjectures regarding attenuation and precision, but still indicate a sizeable crime-attenuating effect of WGTV.

Finally, we add a set of additional controls to account for potential (over- or under-) reporting of anti-foreigner crimes at county level, unequally cemented regional anti-foreigner sentiments predating both the founding of the GDR and the first transmission of WGTV, and differences between counties in employment losses suffered in exporting industries fol-

[30] In the crime rate regressions, sample size declines from 215 observations to 136, 92, and 51.

[31] It is for this reason that Bursztyn and Cantoni (2016) also do not find any sizeable and significant effects of WGTV on consumption choices for the narrowest range (±10 dB).

Table 6: Subsamples - regression-discontinuity design

Dep. var.:	Crime Rate (Incidents / 100,000 Residents)			Victimization Rate (Incidents / 1,000 Foreigners)		
	−86.8 dB ±30 dB	−86.8 dB ±20 dB	−86.8 dB ±10 dB	−86.8 dB ±30 dB	−86.8 dB ±20 dB	−86.8 dB ±10 dB
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	−2.202** (0.960)	−1.650* (0.989)	−1.237 (1.092)	−9.386* (4.799)	−5.797 (4.210)	−6.082 (4.888)
R^2	0.096	0.113	0.147	0.104	0.089	0.093
No. obs.	136	92	51	134	90	50
Treated	111	67	27	110	66	27
Control	25	25	24	24	24	23

Notes: Crime and victimization rates are defined for serious anti-foreigner crimes only (murder and arson). The treatment variable is binary in all regressions, taking value one if West German TV signal strength is greater or equal to −86.8 dB, and zero otherwise. Columns (1) and (4) reproduce our baseline estimate for the crime, respectively victimization rate from columns (2) and (5) in Table 2. Regressions reported in columns (2), (3), (5), and (6) consider restricted estimation samples based on different ranges of county-level West German TV signal strength. All regressions control for the county-level unemployment rate, foreign population share, and population density (in logs), as well as the distance by car to the western border. ***, **, * denote statistical significance at the 1%, 5%, and 10% level. Robust standard errors are reported parentheses.

lowing the July 1990 currency reform.[32] As shown in Table 7, neither affects our core finding, if added individually or jointly, i.e. WGTV still reduces levels of serious anti-foreigner crime. The 1932 NSDAP vote (in percent) is insignificant throughout and its coefficient always close to zero. In the two most elaborate specifications in columns (4) and (8), the presence in a county of a DPA press office is positively signed and significant for the foreigner-scaled incidence rate (victimization rate), but negatively signed and insignificant for the residents-scaled rate (crime rate). The currency shock coefficient, in turn, is negative and significant only for the crime rate.[33] In neither case, however, does

[32]The currency shock measure we consider for this purpose weights county-level employment shares of three main exporting industries by their respective aggregate production decline in East Germany between mid-1990 and 1991. A larger value, therefore, indicates a more devastating shock to the local industry and labor force. For details, see Section 3.1.

[33]The negative coefficient may result from selective migration and commuting dynamics. Similar mechanisms may also explain the negative coefficient of the unemployment rate in the study by Krueger and

our WGTV treatment effect estimate change its sign or markedly its magnitude, nor does it lose statistical significance. Our main finding therefore still holds. WGTV attenuated anti-foreigner crime in East Germany in the early 1990s.

Pischke (1997) and in our baseline specifications in columns (2) and (5) in Table 2.

Table 7: Set of additional control variables

Dependent variable:	Crime Rate (Incidents per 100,000 Residents)				Victimization Rate (Incidents per 1,000 Foreigners)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	−1.894**	−1.807*	−1.786*	−1.711*	−8.245*	−8.536*	−8.319*	−7.782*
	(0.937)	(0.923)	(0.906)	(0.923)	(4.729)	(4.806)	(4.758)	(4.649)
DPA press office (0/1)	0.074			−0.248	6.460**			5.650*
	(1.011)			(1.083)	(3.053)			(3.046)
NSDAP vote (percent)		0.010		0.010		0.017		0.025
		(0.009)		(0.010)		(0.056)		(0.057)
Currency shock			−0.077**	−0.079*			−0.257*	−0.202
			(0.038)	(0.043)			(0.143)	(0.143)
R^2	0.071	0.073	0.086	0.089	0.111	0.105	0.1105	0.114
No. obs.	215	215	215	215	213	213	213	213

Notes: Crime and victimization rates are defined for serious anti-foreigner crimes only (murder and arson). The treatment variable is binary in all regressions, taking value one if West German TV signal strength is greater or equal to −86.8 dB, and zero otherwise. All regressions control for the county-level unemployment rate, foreign population share, and population density (in logs), as well as the distance by car to the western border, as in our baseline specifications in columns (2) and (5) of Table 2. ***, **, * denote statistical significance at the 1%, 5%, and 10% level. Robust standard errors are reported in parentheses.

5 Conclusion

This paper explored empirically whether exposure to West German television before reunification affected violent anti-foreigner crime in East Germany in the early 1990s. Exploiting plausibly exogenous variation in signal availability, we show that counties without access to Western TV experienced substantially higher levels of serious anti-foreigner crime after reunification. Specifically, access to Western TV is associated with a reduction of roughly 1.9 violent incidents per 100,000 residents, a very large effect that exceeds in magnitude even the county-level sample mean for such incidents (this mean is 1.7 violent incidents/100,000 residents). Results based on a continuous measure of exposure also point to a sizeable effect. This effect proves robust in a battery of robustness checks that consider different subsamples, alternative estimations methods, alternative Western TV signal strength cutoffs, and additional controls for potential county-level differences in the reporting of anti-foreigner crimes, in xenophobic heritage, and in employment losses suffered as a result of German political and economic reunification.

The evidence we produce points to an important role of media environments in shaping social behavior well before the rise of the internet and the dominance of social media. In the GDR context, WGTV constituted a much-valued and intensively used alternative to the state-controlled East German socialist TV program that offered both different content and perspective and also greater exposure to foreign people and countries. The results we find are broadly consistent with predictions of both intergroup contact (Williams, 1947) and cultivation theory (Gerbner et al., 1994, 2002), which stress the importance of such content and its impact on attitudes and behaviors towards foreigners and minorities more generally.

An advantage of the setting we analyzed is the temporal proximity between the outcome (its measurement) and the treatment we study. By focusing on the early 1990s, our analysis does not only provide first evidence on the spatial distribution of violent crimes in East Germany in this important early period of reunified Germany; it also avoids potential bias that may arise from medium or longer-run endogenous policy responses and societal trends (e.g. selective out-migration) that may confound the WGTV-crime link in later

years. For the little time span between pre-reunification media exposure and immediate post-reunification behavior makes the relationship between treatment and outcome and its study much less susceptible to such influences and biases. Unlike the existing literature on WGTV effects, we furthermore check the robustness of our results to potentially confounding economic shocks that vary across regions and stem from reunification and the East German economic transformation. Our study therefore also provides valuable supportive evidence for other research, such as Endrich (2020) and Hornuf et al. (2023), who investigate related outcomes, such as xenophobic attitudes, extremist voting, and attacks on refugees in much later years that stretch up to the mid-2010s. It remains an open question whether similar effects to the ones we found are observable also in more recent settings, such as the Ukrainian refugee immigration to Germany, and for other minority groups, defined by gender, religion, or sexual orientation. We leave this question for future research.

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A Appendix

Table A-1: Spatial standard errors

Dep. var.:	Crime Rate (Incidents / 100,000 Residents)			Victimization Rate (Incidents / 1,000 Foreigners)		
	50 km	75 km	100 km	50 km	75 km	100 km
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	-1.899^{*}	-1.899^{**}	-1.899^{*}	-8.692^{*}	-8.692^{**}	-8.692^{**}
	(0.976)	(0.869)	(0.989)	(5.101)	(3.503)	(3.817)
R^2	0.071	0.071	0.071	0.105	0.105	0.105
No. obs.	215	215	215	213	213	213

Notes: Crime and victimization rates are defined for serious anti-foreigner crimes only (murder and arson). The treatment variable is binary in all regressions, taking value one if West German TV signal strength is greater or equal to −86.8 dB, and zero otherwise. Columns (1)–(3) report estimates for the crime rate, while columns (4)–(6) report estimates for the victimization rate. We allow for spatial correlation in the error terms between counties which are within 50 km of each other (columns (1) and (4)), 75 km of each other (columns (2) and (5)), or 100 km of each other (columns (3) and (6)). All regressions control for the county-level unemployment rate, foreign population share, and population density (in logs), as well as the distance by car to the western border. ***, **, * denote statistical significance at the 1%, 5%, and 10% level. Spatially corrected standard errors are reported in parentheses.

Table A-2: Additional and alternative controls

Dep. var.:	Crime Rate (Incidents / 100,000 Residents)			Victimization Rate (Incidents / 1,000 Foreigners)		
	+ dist. to Poland	+ time to metro	+ city - pop den	+ dist. to Poland	+ time to metro	+ city - pop den
	(1)	(2)	(3)	(4)	(5)	(6)
Treatm.	−1.818*	−1.933**	−1.767*	−8.251*	−10.904**	−8.597*
	(0.936)	(0.890)	(0.929)	(4.894)	(4.976)	(4.888)
R^2	0.131	0.071	0.076	0.128	0.131	0.101
No. obs.	215	215	215	213	213	213

Notes: Crime and victimization rates are defined for serious anti-foreigner crimes only (murder and arson). The treatment variable is binary in all regressions, taking value one if West German TV signal strength is greater or equal to −86.8 dB, and zero otherwise. Columns (1) and (5) add distance to Poland (in km) as an additional control, and columns (2) and (6) add travel time by tain to the nearest metropolitan area (in minutes). Columns (3) and (7) replace log population density with an indicator for whether a county is a single-city county. All regressions control for the county-level unemployment rate, foreign population share, and population density (in logs), as well as the distance by car to the western border, unless otherwise noted. ***, **, * denote statistical significance at the 1%, 5%, and 10% level. Robust standard errors are reported in parentheses.

Table A-3: Donut regressions

Dep. var.:	Crime Rate (Incidents / 100,000 Residents)			Victimization Rate (Incidents / 1,000 Foreigners)		
	1 dB donut	5 dB donut	10 dB donut	1 dB donut	5 dB donut	10 dB donut
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	-1.963^{**} (0.922)	-1.951^{**} (0.974)	-1.931^{*} (0.989)	-8.798^{*} (4.820)	-7.967^{*} (4.794)	-7.868 (4.777)
R^2	0.072	0.072	0.068	0.088	0.111	0.115
No. obs.	214	198	188	212	196	186
Treated	189	173	163	188	172	162
Control	25	25	25	24	24	24

Notes: Crime and victimization rates are defined for serious anti-foreigner crimes only (murder and arson). The treatment variable is binary in all regressions, taking value one if West German TV signal strength is greater or equal to −86.8 dB, and zero otherwise. Columns (1)–(3) report one-sided donut regressions for the crime rate, while columns (4)–(6) report the corresponding estimates for the victimization rate. The donut specifications successively exclude treated counties with signal strength within 1 dB, 5 dB, and 10 dB above the treatment cutoff, while retaining control counties below the cutoff. ***, **, * denote statistical significance at the 1%, 5%, and 10% level. Robust standard errors are reported in parentheses.