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**Working Paper**

## The effect of Western TV on crime: Evidence form East Germany

MAGKS Joint Discussion Paper Series in Economics, No. 10-2017

**Provided in Cooperation with:**

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*Suggested Citation:* Friehe, Tim; Müller, Helge; Neumeier, Florian (2017) : The effect of Western TV on crime: Evidence form East Germany, MAGKS Joint Discussion Paper Series in Economics, No. 10-2017, Philipps-University Marburg, School of Business and Economics, Marburg

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**MAGKS**



**Joint Discussion Paper  
Series in Economics**

by the Universities of  
**Aachen · Gießen · Göttingen  
Kassel · Marburg · Siegen**

ISSN 1867-3678

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This paper can be downloaded from  
<http://www.uni-marburg.de/fb02/makro/forschung/magkspapers>

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# The effect of Western TV on crime: Evidence from East Germany

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February 13, 2017

## Abstract

This paper explores the causal influence of Western television programming on crime rates. We exploit a natural experiment involving access to West German TV within the German Democratic Republic (GDR) in which only geography and topography determined the allocation of individuals to treatment and control groups. Focusing on violent and property crime (as these domains were most likely to be affected by the marked differences in TV content), we find that in the post-reunification decade in which TV content was harmonized, regions that had access to Western TV broadcasts prior to the reunification experienced lower rates of violent crime, sex crime, and theft, but more fraud.

*Keywords:* Crime; Television; Media; Natural experiment; Germany.

*JEL classification:* J22, K42, P37, P39.

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We thankfully acknowledge comments made by Max Albert, Georg Götz, Bernd Hayo, Hannes Rusch, Björn Vollan, and participants at workshops in Giessen, Lüneburg, and Marburg. We are also grateful for the support of the State Criminal Police Offices (in particular Tom Bernhardt in Saxony) and the State Statistical Offices in Brandenburg, Mecklenburg-Western Pomerania, and Saxony.

# 1 Introduction

## 1.1 Motivation

Crime is a very important social phenomenon that consistently places at or near the top of lists of social maladies in survey data (Helsley and Strange 1999). The extent to which crime is caused by media content is a hotly debated issue with clear policy relevance. The US Congress has held more than 40 hearings on this subject over the last 50 years (Perse and Lambe 2016), and each major adverse incident puts the role of media content in relation to crime back on the agenda. For example, after a mass shooting at the Sandy Hook Elementary School in Connecticut in 2012, President Obama called for further research on the relationship between media and violence.

This paper exploits a natural experiment involving access to Western TV programming in the former socialist German Democratic Republic (GDR) to explore the relationship between media content and crime. Before the German reunification, Western TV programming was accessible in only some parts of the former GDR. For a period spanning more than two decades, only geography and topography were decisive in determining whether or not GDR residents could access West German TV broadcasts. The GDR regions without access were located either in the Northeast or in the Southeast of the country, and were thus either too far away from the transmitter masts in the Federal Republic of Germany (FRG) or were located in valleys on the other side of mountains that blocked the signals. As it happened, about 85% of the GDR population was “treated” with access to Western TV, while the remaining 15% only had access to East German TV broadcasts. We explore the potential causal effects of the long-lasting exposure of a random subset of GDR residents to Western TV on violent and property crime in the post-reunification decade in which TV content was harmonized across regions. To this end, we study whether post-reunification crime rates differ across regions with access to Western TV before reunification and those without. We are thus interested in how past exposure to different media contents bear on criminal behavior at a later point in time. Put differently, we seek to explore whether there is a lasting effect of media content on criminal behavior.<sup>1</sup>

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<sup>1</sup>There is some literature on the long-term effects of institutions. For example, Acemoglu et al. (2001) relate colonization styles to present economic performance, Nunn and Wantchekon (2009) explain present levels of trust in Africa with references to the slave trade, and Voigtländer and Voth (2012) find that pogroms in medieval times predict anti-Semitic violence in Nazi Germany. In comparison to these and related contributions (see Bisin and Verdier 2011 for a recent overview), our interest involves a much shorter time span and a very different object of study.

## 1.2 Differences in TV Content

West German TV differed from its East German counterpart in significant ways. For one thing, West German TV included advertising, whereas there was no advertising on East German TV until very shortly before reunification (Bursztyn and Cantoni 2016). In addition, West German TV programming often idealized the lifestyle of rich people who enjoyed an abundance of consumer goods; East German TV focused primarily on “normal life”, with depictions of average-income families with many children (e.g., Bönisch and Hyll 2015).<sup>2</sup> Extensive censorship in the GDR prevented such Western lifestyles from being promoted in East German broadcasts; as a result, most East Germans attributed little credibility to their local TV programming (possibly limiting its impact on attitudes and behavior).<sup>3</sup> East German TV often aired productions from the Soviet Union that faced similarly restrictive censorship, whereas West German TV relied to a great extent on content from the United States. Unlike Western TV, a large proportion of Soviet programming was political or educational. For instance, Bazylar and Sadovy (1991) report results from a study indicating that more than 40 percent of such programming was devoted to news and public affairs. The significant share of American programming contributed to West German TV’s comparatively sizable amount of violent content. For example, Perse and Lambert (2016) assert that, on average, in the period from 1967 to 1985, about 5 minutes of every hour of US prime-time TV were devoted to the depiction of violent acts. East German TV – in its role as an instrument of propaganda – ascribed violence and other societal problems to Western societies (using formats such as *Der Schwarze Kanal*). The divergence in terms of violent content also manifested itself in locally produced programs, for example, in the selection of crimes depicted in the popular crime series *Polizeiruf* (GDR) and *Tatort* (FRG).<sup>4</sup> Moreover, sexual content was treated somewhat more freely in the West than in the East, a disparity that grew as private television stations began broadcasting via terrestrial signals in the late 1980s; these

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<sup>2</sup>In an analysis of 67 Western TV series in 1990, Weiderer and Faltenbacher (1994) found that more than half of the characters lived in a dream world of luxury and wealth. Television series portraying lavish lifestyles such as *Denver* and *Dallas* were particularly popular with the GDR citizens who could access these broadcasts (Henninghausen 2015). *Dallas* was considered by some in the East German regime to be a testimony to the manipulative power of US cultural imperialism (Röser and Preil 2005: 156).

<sup>3</sup>As in other socialist countries, East German TV professionals were subject to a range of checks on their work to ensure that it toed the party line, including thorough editing of scripts prior to broadcast (Kochanowski et al. 2013). Taboo topics included sexual content, the graphic portrayal of violence, and coarse language.

<sup>4</sup>This point has been raised by Jörg-Uwe Fischer, specialist on crime series in West and East Germany at the *Deutsches Rundfunkarchiv*. Fischer also contends that the East German crime series *Blaulicht* purposefully and regularly portrayed criminals as coming from West Germany.

stations often broke taboos as a strategy to attract viewers' attention (e.g., by showing pornography; Röser and Peil 2005: 159).<sup>5</sup>

### 1.3 Behavioral Implications of TV Content

Media content differences may result in behavioral heterogeneity for a variety of reasons. Such content can impact behavior via *imitation and suggestion* – that is, the display of certain kinds of acts may make people more likely to undertake them in real life<sup>6</sup> – or through *habituation-desensitization*, whereby viewers become emotionally or physiologically accustomed to certain stimuli, such that these stimuli lose their arousing quality over time (e.g., Harris and Sanborn 2013, Perse and Lambe 2016). Given that we seek to explore heterogeneity in criminal behavior resulting from exposure to different media contents in the past, one may expect *habituation-desensitization* to be a particularly important channel in our context. Media content may contribute to *social learning* (the understanding of the kinds of behavior that are appropriate in different contexts) and thus lead to *disinhibition* (e.g., Harris and Sanborn 2013, Potters 1999). Media content can also influence the extent to which people perceive cultural proximity to other regimes or countries (e.g., Yoo et al. 2014). For our setting, this means that people from the treatment (control) region may have experienced social inclusion (exclusion) to a greater extent after reunification, which could have an impact on deviant conduct (e.g., DeWall et al. 2009).

Furthermore, the advertising and lifestyles portrayed on Western TV might have increased material aspirations (e.g., Frey et al. 2007, Hyll and Schneider 2013), effecting a corresponding change in the reference group (i.e., the group of others relevant for comparison; Jensen and Oster 2009). These influences could trigger feelings of relative deprivation, a major motive for crime according to the *general strain theory of crime* (e.g., Agnew 2006).

With respect to sexual media content, some studies have supported the idea that the consumption of sexually explicit material increases sexual aggression (e.g., Malamuth et al. 2000), although others point to a negative association (e.g., Diamond 2009, Ferguson and Hartley 2009). Contradictory evidence similarly marks the literature on the relationship between media violence and crime. For instance, Anderson et al. (2003) hint

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<sup>5</sup>*SAT 1* and *RTL*, two popular private TV stations, were founded in 1984. In the second half of the 1980s, these channels obtained idle frequencies that allowed their reception via antenna (Röser and Peil 2005: 162).

<sup>6</sup>This has been found to be true for suicide, for example; Price and Dahl (2012).

at a positive association between violent media content and the likelihood of aggressive behavior, whereas others have found lower aggression in subjects with exposure to violent media (e.g., Feshbach and Singer 1971, Josephson 1987). With respect to our paper’s research focus, it is important to highlight that many other studies are concerned with whether or not people are more likely to make spur-of-the-moment decisions after the exposition to stimuli, whereas we are dealing with imprinting that has happened in the past and over a longer time period.

With regard to media content and criminal behavior, it is interesting to note that prior studies have relied either on experiments – and thus stop short of making a connection to real-world behavior – or on correlations (see the survey by DellaVigna and La Ferrara forthcoming). Moreover, many scholars have highlighted the methodological problems of previous studies, concluding that we actually know very little about the relationship between media content and violent crime (e.g., Ferguson and Savage 2012, Savage and Yancey 2008).

## 1.4 Main Results

This paper seeks to contribute to the understanding of the relationship between media content and actual criminal behavior by exploiting a natural experiment that occurred in the GDR involving access to Western TV programming. We find that the total number of crimes in the post-reunification decade (in which media content was harmonized) was lower in the regions that had access to Western TV prior to the reunification (i.e., the treatment region). When various important crime categories are considered, our results strongly suggest that access to West German TV reduced the number of sex offenses, homicides, and acts of theft. In contrast, we observe the reverse effect with regard to fraud. Channels linking media content to actual behavior well known in the psychology of mass media – in particular *suggestion* and *habituation-desensitization* – and the possibility of divergence in terms of social exclusion or cultural adaptation may be helpful in understanding our findings.

## 1.5 Related Literature

The present paper uses a natural experiment involving access to West German TV broadcasts in the GDR in an attempt to understand the influence of television content on

crime.<sup>7</sup> Bursztyn and Cantoni (2016) consider the implications of this natural experiment for consumption levels in the post-reunification decade. Using consumption information from the years 1993 and 1998, they find that although absolute consumption levels were not affected, access to West German TV programming altered the composition of the consumption baskets of former GDR residents in favor of heavily advertised products right after the reunification, thus underscoring the importance of the difference between East and West German TV with respect to advertising. By relating pre-reunification TV access to post-reunification behavior, our study parallels Bursztyn and Cantoni (2016), albeit for a different outcome variable. Hyll and Schneider (2013) find that GDR citizens with access to West German TV broadcasts experienced higher material aspirations during the GDR era. The fact that differences in TV content influenced the belief of GDR citizens that success depends on effort rather than luck is established in Henninghausen (2015). Finally, Bönisch and Hyll (2015) determine that Western TV reception lowered fertility, demonstrating the importance of the lifestyles depicted on TV and confirming earlier analyses from other countries (e.g., Chong et al. 2012).

There is also a broader literature relating TV consumption to various behaviors. For example, Gentzkow (2006) shows that TV consumption can lower voter turnout, Enikolopov et al. (2011) find that having had access to the only national and politically independent channel in Russia increased vote shares of major opposition parties in the elections in 1999, and DellaVigna and Kaplan (2007) find that the availability of the Fox News channel influenced voting behavior in favor of Republicans. Examining data from Indonesia, Olken (2009) finds that better TV signal reception is associated with less participation in social organizations and with lower self-reported trust. On the basis of Indian data, Jensen and Oster (2009) present results concerning women's autonomy, fertility, and the acceptability of domestic violence. In addition, research has been conducted on the question of whether or not TV consumption decreases happiness (e.g., Bruni and Stanca 2008, Frey et al. 2007, Kataria and Regner 2011). Our paper adds to this literature by providing evidence on the influence of Western TV on one of the most important social ills: crime.

Dahl and DellaVigna (2009) study the short-term effects of movie violence on violent crime by exploiting variation in the violence of blockbuster movies and focusing on same-day assaults. They attribute their counterintuitive finding of a decrease in violent crime

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<sup>7</sup>In the companion paper Friehe et al. (2017), we utilize the same research design for understanding the implications of the natural experiment for electoral outcomes.



on days with larger movie theater audiences for violent movies to voluntary incapacitation. In contrast, we are interested in long-term effects stemming from the differential exposure to Western TV content for more than two decades. This also sets us apart from Chong and Yanez-Pagans (2017) who explore the contemporaneous effects of the availability of any kind of TV on homicides in Brazil. Key mechanisms in their study such as incapacitation are not important for our research because all treatment and control regions had harmonized access to TV broadcasting after the German reunification.

## 1.6 Plan for the Paper

The structure of the paper is as follows: Section 2 describes the research design in detail. Section 3 introduces the data. Section 4 presents the empirical specifications considered for our empirical analysis and then discusses the results. Section 5 concludes.

## 2 Research Design

The present paper explores the causal effects of TV content on crime, exploiting a natural experiment involving access to Western TV broadcasts in the former German Democratic Republic (GDR). In this section, we explicitly address key issues pertaining to our research design.

**Definition and Exogeneity of Treatment** Only geography and topography were decisive in determining whether or not GDR residents could access West German TV broadcasts. Here, we use the coding of Bursztyn and Cantoni (2016), which relies on a signal propagation model that takes the Earth’s curvature and elevation features into account. The GDR regions without access were located either in the Northeast or in the Southeast of the country, and were either too far away from the transmitter masts in the FRG or were located on the other side of mountains that blocked the signals (see Figure 1). The signal strength in Dresden is the cutoff level for the partition into treatment and control groups, implying that the treatment area comprises all regions with a positive probability of reception of Western TV broadcasts. Importantly, there was no sorting into or out of the treatment group because mobility in the GDR was very limited; in fact, the GDR had a rate of spatial mobility three times lower than that of the FRG. Mobility across occupations and across space was intended to serve the overarching social and economic objectives of the planning committees rather than personal desires. Citizens of

the GDR had to apply for housing and sometimes had to wait decades to be able to move. Interestingly, data from the *Zentralinstitut für Jugendforschung* (1989) survey suggest that the desire to move was similar for people in both the treatment and the control region.

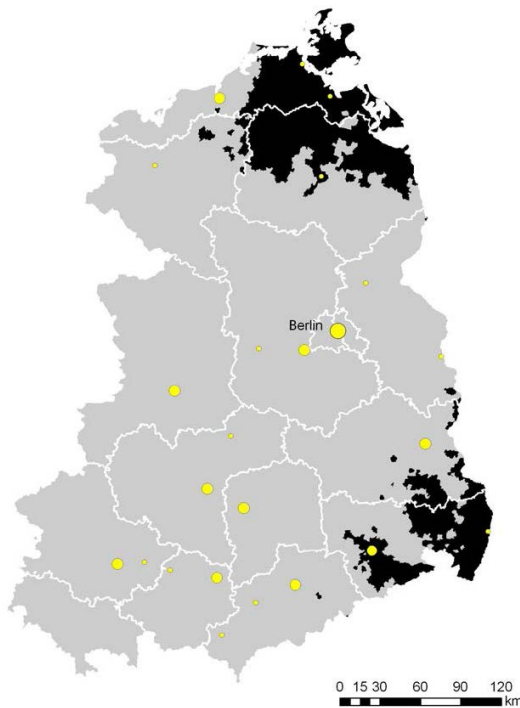


Figure 1: Signal Strength in East Germany, 1989 (Dark areas: Signal strength weakly weaker than in Dresden; Yellow dots: Major cities). *Source: Bursztyn and Cantoni (2016), Figure 3.*

**Comparability of Control and Treatment Regions** Before Western TV became available in the treatment areas, residents of the GDR could be considered a highly homogeneous group (Hyll and Schneider 2013). The totalitarian socialist system contributed greatly to harmonization in most respects. In addition, treatment and control regions were comparable with regard to the presence of industrial and cultural centers such as Leipzig (treatment) and Dresden (control) (Bursztyn and Cantoni 2016). According to the data available, the treated and non-treated regions were comparable in terms of population density, shares of employment by sector, retail sales, and savings (see Table 1). In our data, we also find that the regions were comparable with respect to our covariate vector after the German reunification (see Section 3).

Table 1: Regional Characteristics of Treatment and Control Regions in 1955/1990 at the GDR District Level

	Treatment	Control	Diff.	Std. err.	<i>p</i> -value
1955					
Population density	206	202	4	77	0.959
Share of workers employed in agriculture	23.7	27.8	-4.1	11.1	0.744
Share of workers employed in industry	34.1	28.7	5.4	10.0	0.635
Retail sales per capita	1691	1694	-3	102	0.979
Savings per capita	277	297	-20	28	0.544
1990					
Population density	181	176	5	62	0.941
Share of workers employed in agriculture	13.5	11.3	2.2	5.1	0.706
Share of workers employed in industry	33.2	39.5	-6.3	7.5	0.479
Retail sales per capita	7577	7250	327	188	0.190
Savings per capita	9312	9381	-69	928	0.946
Cars per 1,000 inhab.	237.4	237.6	-0.2	12.1	0.992
Difference 1990-1955					
Population density	-18	-26.2	8.2	15.4	0.626
Share of workers employed in agriculture	-14.5	-12.6	-1.9	6.0	0.778
Share of workers employed in industry	5	5.5	-0.5	3.0	0.870
Retail sales per capita	5862	5557	305	157	0.142
Savings per capita	8946	8994	-48	770	0.954

*Notes:* Population-weighted averages. Number of GDR control (treatment) districts: 3 (11), namely the districts of Dresden, Neubrandenburg, and Rostock; East Berlin was excluded. *P*-values based on weighted Welch’s *t*-tests of difference in means (two-sided, allowing for unequal variances). *Source:* Bursztyn and Cantoni (2016), Table 1

**Consumption of West/East German TV Broadcasts** Despite the fact that TV broadcasts began only in 1959, by 1960, TV had become a mass medium in the GDR, with one million sets in private homes (implying that about 19 percent of households had a TV set) (e.g., Schubert and Stiehler 2006). By 1975, about 82 percent of GDR households had a TV set. Viewing Western TV was first vehemently opposed by the State; later, it was tolerated but frowned upon.<sup>8</sup> Nevertheless, a survey of young people conducted in 1985, *Zentralinstitut für Jugendforschung* (1985), reports that respondents in the treatment region watched more than two hours of West German TV per day on average. Other surveys consistently indicate that people with access to Western TV also consumed it (see Table 2).

With respect to the question of whether GDR residents without access to Western TV simply consumed less TV, Stiehler (2001) reports that usage was quite similar across treatment and control regions. Along the same lines, the youth survey *Zentralinstitut für Jugendforschung* (1989) suggests that people in treatment and control regions had similar

<sup>8</sup>After the construction of the Berlin Wall in 1961, the Socialist Unity Party recognized the reception of West German TV (i.e., “enemy propaganda”) as problematic, but it refrained from signal jamming because it feared the potential public outcry (Gumbert 2013).

Table 2: Self-reported Frequency of Watching West German TV by GDR District

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

*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).

habits with regard to involvement in sports and attendance of cultural events, among other aspects, indicating that there was no substitution of activities for TV viewing. Data on the purchasing of color TV sets strongly suggest that people in the control region also valued the ability to watch TV (Bursztyn and Cantoni 2016). Meyen and Nawratil (2004) report that the ratings of East German TV were comparatively high, with evening programming reaching an average of 35 to 40 percent of the population in the 1980s.

**Migration in Reunified Germany** After reunification, people from East Germany migrated to West Germany (Hunt 2006). There also was some minor degree of migration from West to East Germany by residents of the former FRG. East-West migration was highest right after reunification and peaked again around 2001. Chevalier and Marie (forthcoming) argue that the internal migration flow indeed died down quickly. Migration was a particularly attractive option for young and better-educated Easterners (Fuchs-Schündeln and Schündeln 2009). Nevertheless, East Germans continue to show a comparatively small willingness to migrate (Bönisch and Schneider 2013). Our identification strategy would be compromised if migration was of asymmetric importance for treatment and control areas. We test this by regressing the population density with the Western TV dummy and a time trend for the counties we consider; we do not find any significant differences with respect to migration.<sup>9</sup> However, the possibility that migration may confound our estimated effects cannot be ruled out.

<sup>9</sup>Results are available upon request from the authors.

### 3 Data

In our analysis, we seek to explain county-level crime rates using information about access to Western TV broadcasts in the GDR before reunification and a standard covariate vector.

**Crime Data** We collected crime data for the years 1993-2000 from State Criminal Police Offices (*Landeskriminalämter*). In order to match the demarcation of treatment and control regions (as depicted in Figure 1), our analysis is conducted at the county level. Data from the totalitarian GDR regime are not included because of limited availability at the level of disaggregation required and notorious issues of quality.<sup>10</sup> Our focus on the post-reunification decade means that we are interested in tumultuous years. For example, the difficulties in introducing the West German Criminal Police Office’s statistical system in East Germany were so extreme that data from 1991 and 1992 are unreliable (BKA 1994). Against this background, it comes as no surprise that some State Criminal Police Offices were unable to offer crime statistics at the county level for the early 1990s due to the confusion after reunification and the far-reaching administrative changes occurring throughout the period (particularly in 1994).<sup>11</sup>

We have data for all 18 counties in the state of Mecklenburg-Western Pomerania for the years 1993-2000, all 13 counties in the state of Saxony for the years 1993 and 1995-2000, and all 18 counties in the state of Brandenburg for the years 1996-2000.<sup>12</sup> Importantly, our data includes information on all the counties from the control group, which are located either in Mecklenburg-Western Pomerania or in Saxony; the missing states are exclusively from the treatment group. The total number of crimes from the three states included in our data corresponds to about 63 percent of all crimes reported in East Germany in 1993.

As is standard, we consider the log of total crimes per 100,000 inhabitants in our empirical analysis (e.g., Raphael and Winter-Ebmer 2001, Spamann 2016).<sup>13</sup> With respect to crime categories, we include the total number of crimes in addition to street crimes,

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<sup>10</sup>For example, von der Lippe (1999) argues that official statistics were entirely used as an instrument of the Socialist Unity Party.

<sup>11</sup>To give an idea of the extent of the restructuring involved, note that the states themselves had to be created after the two parts of Germany were reunited, as the GDR was divided into 15 districts. These states have a strong resemblance to what existed before 1952, but are not identical to those historical demarcations.

<sup>12</sup>Thuringia and Saxony-Anhalt could not provide data starting as early.

<sup>13</sup>More specifically, we consider  $\log\left(\frac{\text{number of crimes}}{100,000 \text{ inhabitants}} + 1\right)$ , since there are some zero observations in our data.

homicides, sex offenses, and property crimes (namely, fraud & forgery, fraud (as a sub-category), and theft). The category of street crime includes crimes occurring in streets and public alleys or open spaces (e.g., assault, property damage in the public sphere, and robbery); this makes up a significant share of all crimes reported. For example, in 1993, this category comprised about 35 percent of all reported crimes (BKA 1994). The category of fraud & forgery comprises a number of different kinds of crime. In 1993, about 76 percent of the crimes reported under the heading of fraud & forgery fell under the sub-category of fraud, which we also explicitly include in our analyses; about 42 percent of all East German fraud cases in 1993 concerned fraud involving products and services (BKA 1994). The remainder of fraud & forgery crimes is split between other various types of crime, among which falsification of documents is the most prevalent (representing about 13 percent of the total crimes in the category of fraud & forgery in 1993). Our focus on property and violent crime follows the hypothesized channels of Western TV exposure described in our introduction.<sup>14</sup>

**County Characteristics** Our key covariate is a dummy variable at the county level that is equal to one when the signal strength of the county in question was better than that of Dresden, following Bursztyn and Cantoni (2016).<sup>15</sup> Moreover, we include information about important economic aspects at the county level known to influence crime (e.g., Foley 2011, Lin 2008, Raphael and Winter-Ebmer 2001, Williams and Sickles 2002). All of our empirical models incorporate the unemployment rate and the log of GDP per capita; the share of welfare recipients is included only in some of the models (as this inclusion implies a loss of observations due to missing data). The unemployment rate was obtained from the Employment Office, whereas the other county characteristics were sourced from the Statistical Offices of the three states in question.<sup>16</sup> In order to integrate information about the respective county populations, we include population density and average age in all regressions. In addition, the share of foreigners is incorporated in our preferred specification (e.g., Entorf and Spengler 2000). Furthermore, we consider

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<sup>14</sup>With regard to the empirical relevance of the crime categories we consider, theft represented about 67.3 percent of the crimes reported in all of East Germany in 1993, fraud 4.9 percent, violence about 3.0 percent, and sex offenses about 0.1 percent (BKA 1994).

<sup>15</sup>This means that 23 of the 215 counties that existed in East Germany up to 1994 are allocated to the control group. Numerous administrative reforms led to a significant decrease in the number of counties over time. This is an aspect that we had to take into account.

<sup>16</sup>Because unemployment rates at the county level are not available before 1996, we had to impute the county unemployment rates for the years 1993-1995 using the trend at the state level and the county-level information from later years. For 245 out of the 325 observations, we use the county-level information directly reported by the Employment Office.

a dummy variable that is equal to one for counties that share a border with Poland or the Czech Republic and zero otherwise. (With respect to motor vehicle theft and theft from vehicles, for example, criminal groups from and marketplaces in Eastern Europe are important factors (e.g., BKA 2008)). Finally, we include an urban district dummy variable to distinguish counties that comprise only a city from those with rural areas, since it is well documented that there is more crime per inhabitant in big cities than in small cities or rural areas (Glaeser and Sacerdote 1999).<sup>17</sup>

Summary statistics are presented in Table 3. Our covariate vector is comparable to those used in previous studies (e.g., Entorf and Winker 2008, Raphael and Winter-Ebmer 2001). Limitations of the data do not allow us to include education, which is known to be influential for criminal propensity at the individual level (e.g., Lochner and Moretti 2004). However, the level of GDP per capita is representative of education to some extent.

Table 3: Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min.	Max.
log(Total crime)	324	9.193	0.347	8.278	10.159
log(Homicide)	325	1.803	0.514	0	3.066
log(Street crime)	217	7.548	1.175	0	9.329
log(Sex offenses)	325	3.992	0.340	2.952	4.890
log(Asset forgery)	325	6.675	0.495	5.472	8.741
log(Fraud)	325	6.345	0.532	4.994	8.741
log(Theft)	325	8.644	0.495	7.602	9.830
Western TV	325	0.763	0.426	0	1
Population density	325	0.344	0.444	0.040	1.797
Unemployment	325	19.839	3.521	9.785	29.1
log(GDP per capita)	325	9.559	0.364	7.548	10.285
Average age	325	39.784	1.934	34.753	44.647
Foreigners	325	1.922	0.942	0.278	5.581
Welfare recipients	294	2.273	0.891	0.822	6.246
Urban district	325	0.274	0.447	0	1
Border dummy	325	0.271	0.445	0	1

*Notes:* The time period studied is 1993-2000. Our dependent variables are the logs of crimes reported per 100,000 inhabitants. Western TV, our key explanatory variable, is coded as zero when the signal access to broadcasts is at least as bad as in Dresden.

Here, it is interesting to assess whether the treatment and control groups are compara-

<sup>17</sup>We do not have county-level data on alcohol use, another variable relevant for crime (e.g., Carpenter 2005). However, the results of the youth survey *Zentralinstitut für Jugendforschung* (1989) document that the treatment and control regions were similar with regard to alcohol consumption. The same survey also reports that young GDR citizens “treated” with Western TV and the others had comparable professional outlooks in 1989.

ble in terms of the covariates. This is similar in spirit to the discussion of the comparability of treatment and control regions presented in Section 2. Confirming those results, we find that the distributions for the covariates of the treatment and control regions are very similar (see Table 4). There are significant differences with respect to average age – with people in the treatment area somewhat older than those in the control group – but the magnitude of that difference is relatively small. In addition, the share of foreigners is higher in the treatment region, but both percentages are quite low on average.<sup>18</sup>

Table 4: Covariate Balance

Variable	Treatment	Control	Difference	Std. Err.	<i>p</i> -value
Population density	0.344	0.342	0.002	0.160	0.989
Unemployment	19.359	21.386	-2.027	1.215	0.102
log(GDP per capita)	9.620	9.364	0.255	0.182	0.167
Average age	40.051	38.923	1.128	0.507	0.031
Foreigners	2.035	1.556	0.479	0.235	0.047
Welfare recipients	2.248	2.357	-0.109	0.171	0.526
Urban district	0.266	0.299	-0.033	0.058	0.577
Border dummy	0.234	0.390	-0.156	0.170	0.363

## 4 Empirical Approach and Results

### 4.1 Empirical Approach

We employ random-effects panel regressions and clustering of standard errors at the county level. The dependent variables we consider are the *log* of the number of crimes reported in a specific crime category *k* per 100,000 inhabitants of county *i* at time *t*. The most complete model specification that we estimate is given by the equation

$$\log \left( \frac{\text{crimes}_{ikt}}{100,000 \text{ inhabitants}_{it}} + 1 \right) = \alpha_j + \beta_t + \gamma \text{Western TV}_i + \delta X_{it} + \eta_{it},$$

where  $\alpha_j$  denotes the dummy variable for state *j* and  $\beta_t$  is the year dummy variable. We are primarily interested in the coefficient  $\gamma$ .  $X_{it}$  is a vector of covariates at time *t* for county *i*. In our preferred specification, we include *population density*, *unemployment rate*, *log(GDP per capita)*, *average age*, *the share of foreigners*, *the share of welfare recipients*, and a dummy variable for *urban district* as covariates. The results from more parsimonious empirical models will also be presented. The dummy variable *border* reported in Tables 3 and 4 is used in a robustness check. In addition, we consider pooled ordinary least

<sup>18</sup>Below, we will find that higher GDP per capita, higher average age, and a greater share of foreigners are all positively associated with crime in our estimates (when there is any correlation).



squares regressions with both state and year dummy variables and standard errors either clustered at the county level or estimated using the wild bootstrap procedure suggested by Cameron et al. (2008) as robustness checks.

## 4.2 Main Results

Table 5 presents our main results for total crimes. The first column shows results from an empirical model that includes only *population density*, *unemployment rate*, *log(GDP per capita)*, *average age*, and the *urban district* dummy variable as covariates in addition to our key dummy variable *Western TV* (which is equal to one when the county in question had access to West German TV broadcasts). The result of our preferred specification is shown in Column (4). We find that total crime in the post-reunification decade is significantly lower in counties from the treatment region – that is, former GDR counties with access to Western TV broadcasts. The negative coefficient is comparable in size across specifications and is significant at the 5 percent level. Controlling for important covariates of crime, we find that there is about 14 percent less crime in regions with access to Western TV broadcasts during the GDR era. As explained in Section 3, the total number of crimes is to a large extent driven by theft, which is a property crime and our next object of study.

In our regression exercises for theft, we also find that access to West German TV broadcasts is significant and exhibits a negative coefficient of about 0.14 in all models.<sup>19</sup> Both *habituation-desensitization* and *strain theory* suggest that the advertising and lifestyles portrayed in Western TV broadcasts stimulated people from the control region to a greater extent; people from the treatment region were thus habituated to these stimuli from their experiences during the GDR era. This may contribute to an understanding of the results of our theft regressions. The difference in theft between counties in the treatment region and those in the control region could be one of the key influences on the impact on total crime discussed above. The positive and significant coefficient of the *log* of GDP per capita may be seen as evidence that theft becomes more attractive when the prospects are better (for example, because the expected value of the stolen goods increases).

Theft is just one of the property crimes we consider. We do not find a significant effect

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<sup>19</sup>The coefficient is only marginally significant in Columns (1) and (2), but we view the fact that the significance increases when we include more covariates as further support for the influence of Western TV.

Table 5: Western TV and Total Crime

	Total Crime			
	(1)	(2)	(3)	(4)
Western TV	-0.146** (0.034)	-0.145** (0.035)	-0.135** (0.025)	-0.136** (0.024)
Population density	0.066 (0.748)	0.075 (0.712)	0.238 (0.127)	0.232 (0.122)
Unemployment rate	0.008 (0.235)	0.008 (0.229)	-0.005 (0.415)	-0.005 (0.396)
log(GDP per capita)	0.509*** (0.003)	0.500*** (0.005)	0.205** (0.029)	0.196** (0.025)
Average age	-0.000 (0.949)	-0.000 (0.972)	-0.001 (0.786)	-0.001 (0.801)
Urban district	0.273* (0.092)	0.269* (0.093)	0.202* (0.094)	0.203* (0.084)
Foreigners		-0.000 (0.983)		0.008 (0.487)
Welfare recipients			0.023** (0.043)	0.023** (0.037)
Between R <sup>2</sup>	0.706	0.710	0.791	0.797
<i>N</i>	324	324	293	293

*Notes:* Crime data come from State Criminal Police Offices, unemployment rates stem from the Employment Office, and other covariates are from State Statistical Offices. The time period studied is 1993-2000. We use random-effects regressions with state and year dummy variables. Covariates are at the county level. Standard errors are clustered at the county level. *p*-values in parentheses; \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

for the somewhat heterogeneous category of fraud & forgery. In contrast, the influence of access to Western TV broadcasts on fraud is positive and significant at the 1% level in all four models. Controlling for important covariates of crime, we find that there was about 21 percent more fraud in regions with access to Western TV during the GDR era. Fraud is an empirically important crime category, such that the positive impact is notable and interesting in view of the negative impact on theft. This finding suggests that access to Western TV broadcasts could have asymmetric effects on different kinds of income-generating crimes. It may be conjectured that *suggestion* as an important channel through which media content affects behavior may explain the fact that the treatment region reported more instances of a somewhat more sophisticated property crime.

Table 6: Western TV and Property Crime

	Fraud & Forgery				Fraud				Theft			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Western TV	0.094 (0.159)	0.093 (0.161)	0.084 (0.218)	0.081 (0.233)	0.209*** (0.009)	0.208*** (0.010)	0.213*** (0.003)	0.214*** (0.003)	-0.153* (0.060)	-0.152* (0.060)	-0.135** (0.046)	-0.136** (0.041)
Population density	0.148 (0.540)	0.132 (0.564)	0.338* (0.068)	0.305* (0.090)	0.146 (0.587)	0.141 (0.585)	0.385** (0.043)	0.387** (0.043)	0.122 (0.599)	0.117 (0.615)	0.314* (0.092)	0.293 (0.101)
Unemployment rate	-0.004 (0.820)	-0.004 (0.801)	-0.016 (0.341)	-0.017 (0.328)	-0.010 (0.562)	-0.010 (0.563)	-0.022 (0.267)	-0.022 (0.270)	0.007 (0.186)	0.007 (0.209)	-0.001 (0.825)	-0.002 (0.757)
log(GDP per capita)	0.350* (0.086)	0.335 (0.100)	0.091 (0.453)	0.074 (0.499)	0.348 (0.113)	0.350 (0.119)	0.038 (0.752)	0.041 (0.727)	0.567*** (0.002)	0.552*** (0.003)	0.268*** (0.007)	0.248*** (0.007)
Average age	0.014 (0.287)	0.015 (0.274)	0.009 (0.462)	0.010 (0.438)	0.005 (0.728)	0.005 (0.723)	-0.002 (0.907)	-0.002 (0.908)	-0.003 (0.588)	-0.003 (0.610)	-0.003 (0.613)	-0.003 (0.624)
Urban district	0.371* (0.069)	0.374* (0.061)	0.283* (0.093)	0.292* (0.075)	0.400* (0.074)	0.402* (0.072)	0.305* (0.073)	0.305* (0.075)	0.257 (0.150)	0.258 (0.145)	0.186 (0.160)	0.193 (0.130)
Foreigners		0.018 (0.596)		0.028 (0.351)		0.002 (0.964)		-0.003 (0.935)		0.010 (0.624)		0.020 (0.170)
Welfare recipients			0.036 (0.347)	0.037 (0.321)			0.041 (0.335)	0.040 (0.343)			0.019 (0.178)	0.019 (0.164)
Between R <sup>2</sup>	0.652	0.660	0.694	0.704	0.609	0.608	0.682	0.682	0.713	0.721	0.800	0.810
N	325	325	294	294	325	325	294	294	325	325	294	294

*Notes:* Crime data come from State Criminal Police Offices, unemployment rates stem from the Employment Office, and other covariates are from State Statistical Offices. The time period studied is 1993-2000. We use random-effects regressions with state and year dummy variables. Covariates are at the county level. Standard errors are clustered at the county level.  $p$ -values in parentheses; \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Next, we turn to violent crime categories. Regions that had access to West German TV broadcasts during the GDR era reported significantly lower numbers of homicides. The effect size appears to be greater than those found for theft and for total crime. Controlling for important covariates of crime, we find that there were about 22 percent fewer homicide incidents in regions with access to Western TV broadcasts. Our results are thereby in line with some prior contributions to the literature (e.g., Feshbach and Singer 1971, Josephson 1987). It may be conjectured that *habituation-desensitization* – whereby individuals become accustomed to certain stimuli, such that the stimuli lose their ability to arouse – may have played a role in this divergence in the violent crime experienced in treatment and control regions. Specifically, people from the treatment region had a twenty-plus-year history of exposure to violent media content and were thus less aroused by the display of violent acts on TV in the 1990s in comparison to people from the control region.

Next, we consider street crime, a category that includes elements of property crime (e.g., criminal damage, robbery) as well as elements of violent crime (e.g., assault). There are fewer observations for street crime in comparison to the other kinds of crime considered; this may contribute to our finding that the negative coefficient for access to Western TV is insignificant. Among the covariates, population density is positively and significantly associated with street crime. In this regard, it is often argued that a positive effect may arise due to a greater number of possibilities “within reach”, whereas a negative effect can be explained by the greater probability of a witness reporting any given act.

Finally, we turn to the effect of access to West German TV broadcasts on sex offenses. The coefficient of Western TV is negative and significant, with a level of about 0.13. Our findings thus support prior research indicating that greater access to sexual content may lower sexual offenses (e.g., Ferguson and Hartley 2009, Wongsurawat 2006). The well-known channel *habituation-desensitization* may again be relevant in producing this result. In another line of inquiry, Kendall (2007) explores the possibility of a substitutionary relationship in his study of internet, porn, and sex offenses.

The overall pattern of lower violent crime in the treatment region that we find for both homicides and sex offenses may also be related to greater feelings of social exclusion among people in the control region; lacking access to West German TV, they did not have the opportunity to become accustomed to the regime and the workings of the FRG that people from the treatment region enjoyed. Feelings of social exclusion have previously been linked to violent tendencies (e.g., De Wall et al. 2009).

Table 7: Western TV and Homicide, Street Crime, and Sex Offenses

	Homicide				Street Crime				Sex Offenses			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Western TV	-0.171** (0.042)	-0.172** (0.044)	-0.220*** (0.004)	-0.223*** (0.005)	-0.257 (0.132)	-0.233 (0.179)	-0.463 (0.119)	-0.405 (0.161)	-0.130** (0.013)	-0.133** (0.012)	-0.134** (0.010)	-0.137** (0.010)
Population density	-0.075 (0.767)	-0.083 (0.734)	0.112 (0.452)	0.089 (0.562)	0.532** (0.023)	0.409* (0.054)	0.364 (0.306)	-0.027 (0.926)	0.220** (0.016)	0.190** (0.035)	0.296*** (0.000)	0.273*** (0.000)
Unemployment rate	-0.002 (0.862)	-0.002 (0.867)	-0.009 (0.462)	-0.009 (0.466)	0.032 (0.408)	0.033 (0.400)	0.034 (0.486)	0.040 (0.425)	0.007 (0.395)	0.007 (0.410)	0.001 (0.944)	0.001 (0.948)
log(GDP per capita)	0.227 (0.440)	0.229 (0.446)	-0.061 (0.502)	-0.070 (0.450)	0.469*** (0.001)	0.404*** (0.009)	0.721** (0.035)	0.562* (0.081)	0.156 (0.394)	0.144 (0.424)	-0.007 (0.949)	-0.017 (0.879)
Average age	0.072** (0.027)	0.073** (0.026)	0.058* (0.060)	0.059* (0.057)	0.026 (0.423)	0.026 (0.419)	0.048 (0.270)	0.054 (0.248)	0.010 (0.438)	0.011 (0.409)	0.005 (0.653)	0.006 (0.621)
Urban district	0.044 (0.801)	0.046 (0.786)	-0.055 (0.663)	-0.047 (0.704)	0.087 (0.726)	0.102 (0.669)	-0.024 (0.942)	0.029 (0.924)	0.178*** (0.009)	0.186*** (0.005)	0.130*** (0.007)	0.137*** (0.004)
Foreigners		0.004 (0.923)		0.019 (0.624)		0.106 (0.201)		0.301* (0.056)		0.025 (0.234)		0.018 (0.382)
Welfare recipients			0.068 (0.108)	0.068 (0.113)			-0.065 (0.621)	-0.088 (0.540)			0.055** (0.026)	0.055** (0.025)
Between R <sup>2</sup>	0.239	0.237	0.377	0.372	0.513	0.526	0.735	0.745	0.614	0.616	0.678	0.682
N	325	325	294	294	217	217	186	186	325	325	294	294

Notes: Crime data come from State Criminal Police Offices, unemployment rates stem from the Employment Office, and other covariates are from State Statistical Offices. The time period studied is 1993-2000. We use random-effects regressions with state and year dummy variables. Covariates are at the county level. Standard errors are clustered at the county level.  $p$ -values in parentheses; \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Dynamic Effects** All individuals in both the treatment and the control region had access to Western TV beginning in 1990. Our focus is the long-term effects of differential access in the past, which suggests the consideration of dynamic effects. In a similar vein, Bursztyn and Cantoni (2016) establish significant differences with regard to consumption patterns in 1993 and 1998. We therefore explore possible dynamic effects related to the impact of access to Western TV broadcasts during the GDR era by interacting all variables with dummy variables indicating either the period 1993-1997 or 1998-2000.<sup>20</sup> The results from this exercise are collected in Table 8, where we present the coefficient of the Western TV dummy variable for our preferred specification. We find evidence of a convergence, such that the differential access to Western TV effect loses importance over time.

Table 8: Western TV Coefficient for Preferred Specification: Dynamic Effects

	1993-1997	1998-2000	<i>t</i> -Test
Total Crime	-0.167** (0.014)	-0.106 (0.103)	-0.061* (0.052)
Homicide	-0.182* (0.074)	-0.294*** (0.003)	0.112 (0.392)
Street Crime	-0.555* (0.080)	-0.097 (0.721)	-0.457* (0.074)
Sex Offenses	-0.148** (0.023)	-0.115* (0.050)	-0.033 (0.585)
Asset Forgery	0.088 (0.247)	0.078 (0.321)	0.011 (0.880)
Fraud	0.210** (0.012)	0.240*** (0.004)	-0.031 (0.637)
Theft	-0.152** (0.032)	-0.121 (0.112)	-0.031 (0.391)

*Notes:* Crime data come from State Criminal Police Offices, unemployment rates stem from the Employment Office, and other covariates are from State Statistical Offices. The time period studied is 1993-2000. We use random-effects regressions with state and year dummy variables in which all variables are interacted with dummy variables for the periods 1993-1997 and 1998-2000. Covariates are at the county level. Standard errors are clustered at the county level. *p*-values in parentheses; \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

### 4.3 Robustness Checks

Our main analysis uses a random-effects panel model with state and year dummy variables. Tables 9, 10, and 11 in our Appendix show that our results do not change much when

<sup>20</sup>The first group comprises more years but fewer observations per year on average. As a result, this division provides a rough balancing of observations.

running pooled ordinary least squares regressions with state and year dummy variables.

In our main analysis, we cluster standard errors at the county level. Since we have relatively few cross-sectional units of observation, this may imply that our conventional cluster-robust standard errors are biased downwards. We therefore estimate cluster-robust standard errors using the wild bootstrap procedure suggested by Cameron et al. (2008) for the pooled OLS model explained above; the findings are presented in Table 12. It is reassuring that all the effects reported in our main analysis are virtually unchanged by this procedural variation. The key difference is that the  $p$ -value for the effect of access to Western TV broadcasts on theft is now  $p = 0.104$ .

Our final robustness check of the results reported above concerns the effect of bordering either Poland or the Czech Republic. Again, we find that the results are quite robust to this inclusion (see Table 13).

## 5 Conclusion

How media content influences individual behavior and thereby shapes social outcomes is a highly relevant and timely question for policy-makers. This is particularly true with respect to a very important social ill, namely crime. The extensive literature in this field often uses correlations or data from the laboratory to arrive at (sometimes conflicting) conclusions. We exploit a natural experiment that occurred in the GDR involving access to Western TV broadcasts: either the distance from antennas or the local topography hindered such access for some citizens, but not for others.

We find that the total number of crimes was lower in the treatment region in the years immediately following reunification. With respect to the crime categories considered, access to West German TV *during the GDR era* appears to have reduced the incidence of sex offenses, homicide, and theft; we observe the reverse effect for fraud.

The present study seeks footprints of past differential TV content exposure in criminal behavior recorded after access to TV broadcasts was harmonized. Our results are not in line with many of the basic intuitions people may harbor about the relationship between contemporaneous media content and crime. However, well-known channels linking media content to behavior from the psychology of mass media (e.g., Harris and Sanborn 2013) – in particular *suggestion* and *habituation-desensitization* – as well as the possibility of divergence in terms of social exclusion or cultural adaptation are helpful in understanding our findings.

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# Appendix

Table 9: Western TV and Total Crime (OLS model)

	Total Crime			
	(1)	(2)	(3)	(4)
Western TV	-0.108*	-0.116*	-0.120**	-0.130**
	(0.091)	(0.067)	(0.042)	(0.025)
Population density	0.304*	0.236*	0.277**	0.206**
	(0.051)	(0.083)	(0.018)	(0.046)
Unemployment rate	0.002	0.002	-0.006	-0.006
	(0.705)	(0.745)	(0.388)	(0.370)
log(GDP per capita)	0.201**	0.176**	0.140***	0.114***
	(0.014)	(0.011)	(0.005)	(0.004)
Average age	0.001	0.004	-0.003	0.000
	(0.920)	(0.642)	(0.697)	(0.981)
Urban district	0.187	0.208*	0.159	0.182*
	(0.135)	(0.065)	(0.133)	(0.051)
Foreigners		0.058**		0.057**
		(0.047)		(0.022)
Welfare recipients			0.067**	0.068***
			(0.010)	(0.004)
R <sup>2</sup>	0.742	0.756	0.775	0.791
N	324	324	293	293

*Notes:* Crime data come from State Criminal Police Offices, unemployment rates stem from the Employment Office, and other covariates are from State Statistical Offices. The time period studied is 1993-2000. We use ordinary least squares regressions with state and year dummy variables. Covariates are at the county level. Standard errors are clustered at the county level.  $p$ -values in parentheses; \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table 10: Western TV and Property Crime (OLS model)

	Fraud & Forgery				Fraud				Theft			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Western TV	0.114 (0.133)	0.106 (0.157)	0.089 (0.226)	0.078 (0.274)	0.247*** (0.004)	0.242*** (0.005)	0.226*** (0.007)	0.222*** (0.009)	-0.089 (0.197)	-0.097 (0.156)	-0.102 (0.124)	-0.112* (0.084)
Population density	0.332* (0.090)	0.253 (0.153)	0.328** (0.034)	0.250* (0.094)	0.391* (0.055)	0.348* (0.070)	0.405** (0.011)	0.370** (0.022)	0.392** (0.031)	0.318** (0.045)	0.378*** (0.010)	0.300** (0.018)
Unemployment rate	-0.007 (0.499)	-0.008 (0.480)	-0.018 (0.107)	-0.018 (0.109)	-0.016 (0.218)	-0.016 (0.217)	-0.026* (0.051)	-0.026* (0.052)	0.001 (0.927)	0.000 (0.979)	-0.006 (0.493)	-0.006 (0.479)
log(GDP per capita)	0.173 (0.227)	0.144 (0.259)	0.090 (0.361)	0.062 (0.449)	0.084 (0.476)	0.068 (0.544)	-0.014 (0.869)	-0.027 (0.736)	0.188** (0.013)	0.161** (0.013)	0.135*** (0.006)	0.106** (0.024)
Average age	0.006 (0.735)	0.010 (0.584)	0.004 (0.823)	0.008 (0.643)	-0.014 (0.482)	-0.012 (0.540)	-0.016 (0.430)	-0.014 (0.488)	-0.022* (0.089)	-0.019 (0.122)	-0.026** (0.048)	-0.022* (0.081)
Urban district	0.273 (0.105)	0.299* (0.057)	0.225 (0.113)	0.251* (0.057)	0.304* (0.080)	0.318* (0.057)	0.257* (0.070)	0.268* (0.051)	0.193 (0.175)	0.217* (0.096)	0.173 (0.179)	0.198* (0.086)
Foreigners		0.067 (0.110)		0.063* (0.078)		0.037 (0.337)		0.029 (0.422)		0.063** (0.021)		0.063** (0.011)
Welfare recipients			0.099** (0.028)	0.099** (0.017)			0.097** (0.043)	0.098** (0.040)			0.045 (0.116)	0.045* (0.080)
R <sup>2</sup>	0.580	0.589	0.571	0.581	0.539	0.541	0.548	0.550	0.787	0.798	0.805	0.818
N	325	325	294	294	325	325	294	294	325	325	294	294

*Notes:* Crime data come from State Criminal Police Offices, unemployment rates stem from the Employment Office, and other covariates are from State Statistical Offices. The time period studied is 1993-2000. We use ordinary least squares regressions with state and year dummy variables. Covariates are at the county level. Standard errors are clustered at the county level.  $p$ -values in parentheses; \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table 11: Western TV and Violent Crime (OLS model)

	Homicide				Street Crime				Sex Offenses			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Western TV	-0.150*	-0.148*	-0.216***	-0.215***	-0.197	-0.173	-0.285	-0.273	-0.117**	-0.120**	-0.129**	-0.133**
	(0.073)	(0.075)	(0.006)	(0.007)	(0.254)	(0.278)	(0.198)	(0.175)	(0.029)	(0.028)	(0.019)	(0.017)
Population density	0.052	0.068	0.107	0.114	0.570**	0.342	0.527	0.126	0.290***	0.262***	0.308***	0.280***
	(0.780)	(0.713)	(0.438)	(0.439)	(0.034)	(0.133)	(0.138)	(0.670)	(0.000)	(0.000)	(0.000)	(0.000)
Unemployment rate	-0.008	-0.008	-0.012	-0.012	0.043	0.045	0.045	0.053	0.004	0.004	-0.000	-0.000
	(0.493)	(0.500)	(0.322)	(0.325)	(0.384)	(0.360)	(0.459)	(0.393)	(0.601)	(0.616)	(0.982)	(0.976)
log(GDP per capita)	0.052	0.058	-0.077	-0.074	0.419**	0.296	0.409	0.172	0.058	0.048	-0.035	-0.045
	(0.769)	(0.748)	(0.324)	(0.363)	(0.031)	(0.142)	(0.247)	(0.683)	(0.675)	(0.725)	(0.729)	(0.636)
Average age	0.064**	0.063**	0.050*	0.050*	-0.011	-0.008	-0.003	0.009	0.005	0.007	0.002	0.004
	(0.037)	(0.039)	(0.078)	(0.080)	(0.720)	(0.760)	(0.938)	(0.776)	(0.714)	(0.661)	(0.873)	(0.791)
Urban district	-0.005	-0.010	-0.071	-0.073	0.153	0.180	0.128	0.178	0.147**	0.156***	0.122**	0.131***
	(0.973)	(0.946)	(0.554)	(0.549)	(0.550)	(0.455)	(0.673)	(0.537)	(0.012)	(0.008)	(0.013)	(0.010)
Foreigners		-0.014		-0.006		0.177**		0.293**		0.025		0.023
		(0.756)		(0.887)		(0.030)		(0.020)		(0.253)		(0.310)
Welfare recipients			0.094**	0.094**			0.013	-0.011			0.058**	0.058**
			(0.015)	(0.016)			(0.907)	(0.926)			(0.017)	(0.015)
R <sup>2</sup>	0.198	0.198	0.234	0.234	0.508	0.513	0.478	0.490	0.386	0.388	0.439	0.442
N	325	325	294	294	217	217	186	186	325	325	294	294

*Notes:* Crime data come from State Criminal Police Offices, unemployment rates stem from the Employment Office, and other covariates are from State Statistical Offices. The time period studied is 1993-2000. We use ordinary least squares regressions with state and year dummy variables. Covariates are at the county level. Standard errors are clustered at the county level.  $p$ -values in parentheses; \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table 12: Western TV and Different Crime Categories (Bootstrap Procedure)

	Total Crime	Homicide	Street Crime	Sex Offenses	Asset & Forgery	Fraud	Theft
Western TV	-0.130* (0.064)	-0.215** (0.024)	-0.273 (0.174)	-0.133** (0.030)	0.078 (0.348)	0.222** (0.022)	-0.112 (0.104)
Population density	0.206 (0.190)	0.114 (0.522)	0.126 (0.730)	0.280*** (0.000)	0.250 (0.192)	0.370* (0.090)	0.300 (0.178)
Unemployment rate	-0.006 (0.378)	-0.012 (0.310)	0.053 (0.596)	-0.000 (0.954)	-0.018 (0.114)	-0.026* (0.076)	-0.006 (0.580)
log(GDP per capita)	0.114*** (0.000)	-0.074 (0.334)	0.172 (0.738)	-0.045 (0.806)	0.062 (0.574)	-0.027 (0.790)	0.106** (0.030)
Average age	0.000 (0.924)	0.050* (0.072)	0.009 (0.756)	0.004 (0.770)	0.008 (0.664)	-0.014 (0.472)	-0.022 (0.120)
Urban district	0.182 (0.252)	-0.073 (0.654)	0.178 (0.620)	0.131** (0.020)	0.251 (0.160)	0.268 (0.178)	0.198 (0.356)
Foreigners	0.057 (0.102)	-0.006 (0.864)	0.293** (0.030)	0.023 (0.360)	0.063 (0.122)	0.029 (0.400)	0.063*** (0.002)
Welfare recipients	0.068** (0.010)	0.094* (0.014)	-0.011 (0.926)	0.058** (0.020)	0.099** (0.032)	0.098* (0.074)	0.045 (0.146)
R <sup>2</sup>	0.791	0.234	0.490	0.442	0.581	0.550	0.818
N	293	294	186	294	294	294	294

*Notes:* Crime data come from State Criminal Police Offices, unemployment rates stem from the Employment Office, and other covariates are from State Statistical Offices. The time period studied is 1993-2000. The results stem from ordinary least squares regressions with state and year dummy variables. Covariates are at the county level. We estimate cluster-robust standard errors using the wild bootstrap procedure suggested by Cameron et al. (2008).  $p$ -values in parentheses; \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .



Table 13: Western TV and Different Crime Categories (Border-Dummy Model)

	Crime Total	Homicide	Steet Crime	Sex Offenses	Asset & Forgery	Fraud	Theft
Western TV	-0.115* (0.062)	-0.180** (0.036)	-0.368 (0.187)	-0.142*** (0.009)	0.096 (0.187)	0.165** (0.023)	-0.153** (0.035)
Population density	0.251* (0.096)	0.122 (0.432)	0.014 (0.963)	0.269*** (0.000)	0.317* (0.078)	0.350* (0.054)	0.279 (0.110)
Unemployment rate	-0.006 (0.339)	-0.013 (0.302)	0.037 (0.439)	0.001 (0.908)	-0.018 (0.304)	-0.019 (0.352)	-0.001 (0.818)
log(GDP per capita)	0.184** (0.034)	-0.107 (0.312)	0.533* (0.082)	-0.012 (0.918)	0.063 (0.579)	0.073 (0.528)	0.256*** (0.006)
Average age	-0.001 (0.748)	0.055* (0.075)	0.052 (0.249)	0.006 (0.602)	0.009 (0.470)	0.001 (0.970)	-0.002 (0.659)
Urban district	0.211* (0.081)	-0.033 (0.803)	0.043 (0.892)	0.135*** (0.009)	0.298* (0.075)	0.285* (0.075)	0.186 (0.135)
Foreigners	0.009 (0.426)	0.019 (0.620)	0.296* (0.061)	0.018 (0.393)	0.028 (0.342)	-0.004 (0.900)	0.020 (0.184)
Welfare recipients	0.024** (0.030)	0.073* (0.089)	-0.084 (0.554)	0.055** (0.028)	0.038 (0.312)	0.038 (0.375)	0.018 (0.178)
Border dummy	0.076 (0.187)	0.151 (0.109)	0.139 (0.466)	-0.020 (0.731)	0.056 (0.559)	-0.178** (0.049)	-0.060 (0.282)
Between R <sup>2</sup>	0.808	0.424	0.750	0.682	0.708	0.701	0.812
N	293	294	186	294	294	294	294

*Notes:* Crime data come from State Criminal Police Offices, unemployment rates stem from the Employment Office, and other covariates are from State Statistical Offices. The time period studied is 1993-2000. We use a random-effects model with state and year dummy variables. Covariates are at the county level. Standard errors are clustered at the county level.  $p$ -values in parentheses; \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .