Television and Gender Stereotypes*

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Abstract

In this paper, we investigate the long-term causal effects of West German television (WGTV) exposure on attitudes towards marital status and family planning. In particular, we analyze whether different gender stereotypes broadcasted by WGTV affect marriage, divorce, and fertility rates. We take advantage of the fact that individuals in some areas of the GDR could not receive WGTV due to the geographical location of their place of residence before reunification in 1989. By analyzing administrative and survey data, our results show that WGTV has a significant and negative impact on marriage and fertility rates as well as a significant and positive effect on divorce rates, even 25 years after reunification. The analysis of survey data from the mid and late 1980s shows that mainly women are affected by WGTV programs.

Keywords: Media; Television; Divorce; Marriage; Fertility; East Germany; Natural experiment

JEL classification: J12; J13; L82

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1 Introduction

In the past decades, traditional family relations have undergone a major change. During this period, divorce rates, for example, have been increasing in almost all OECD countries. Countries such as Belgium, Greece, Israel, Luxembourg, Korea, Norway, Portugal, and the Slovak Republic have seen an increase in their crude divorce rates to more than double the former rates. During the same period, marriage rates have declined overall. While in 1970, the number of marriages per 1000 inhabitants ranged from around 7 to 10, the numbers decreased to around 5 to 7 in 2016 (OECD, 2018a). A similar pattern exists for fertility rates, which also dropped significantly in these countries during the last few decades (OECD, 2018b).

Therefore, it is crucial for researchers as well as for policymakers to understand the mechanisms which contribute to these developments. Among other influencing factors, media as a vital determinant of socialization has gained much attention over the last decades. In this regard, the influence of media is considered to develop and maintain social norms and gender stereotypes even beyond generations (Signorielli, 1990). Against this backdrop, several studies have shown that portrayals of women reflecting leading gender norms that are broadcasted on television solidify stereotypes about women and their roles in society by touching on a range of topics such as professional roles, domestic responsibilities, and sexual customs (Holbert et al., 2003).

But can television content have such far-reaching effects that it can even influence the design of our life plans? Following this question, we investigate in this study whether television content can influence decisions on marital status and family planning. For this reason, we exploit a natural experiment that took place in the German Democratic Republic (GDR) during the period of the German division. In particular, we use the fact that parts of the East German population – due to the geographical position of their places of residence – were able to receive West German television (WGTV) programs before reunification. We argue that these programs have regularly exposed their audience to female characters who were single, unmarried, and rarely portrayed mothers. These representations were in apparent contradiction to the social norms prevalent in the GDR at that time. Such content might have created preferences for living alone instead of being in a partnership or a marriage. The same applies to the minor role of families with children in WGTV programs, which might have lead to lower fertility rates.

To analyze these presumptions, we use two different data sources in our main analysis. Firstly, we use administrative data for the period from 1995 to 2017 provided by BBSR Bonn (2019) to determine whether WGTV exposure has a long-term causal effect that is still present after reunification. Our results show that even 25 years after reunification, WGTV has a significant and negative impact on marriage and fertility rates, but has a

positive effect on divorce rates. For the second part of our analysis, we use the German Socio-Economic Panel study (SOEP). This enables us to investigate the treatment effect already in the year 1990 while keeping possible distortions caused by internal migration to a minimum. Finally, we explore a survey that was conducted by the *Institute for Sociology and Social Policy at the Academy of Sciences of the GDR* in 1987. This survey contains information on a wide range of attitudes towards marital status and fertility choices. With this data set, we can show that the treatment effect was present already before reunification and that it mainly affected women.

Over the past two decades, a series of studies have already shown that the contents provided by television programs can affect individuals' attitudes, preferences, or decisions. For example, Enikolopov et al. (2011), Gentzkow (2006), DellaVigna and Kaplan (2007), and Durante et al. (2019) have demonstrated that television reception can influence political attitudes as well as voting behavior. Gentzkow and Shapiro (2004) show in their study that attitudes towards the United States correlate with television consumption in Muslim countries. In addition, Olken (2009) documents a negative connection between increased access to television and participation in social organizations and self-reported trust for Indonesia.

With this study, however, we are contributing to two specific strands of literature. The first one examines how repeated media exposure affects families.[1] Chong and La Ferrara (2009) analyze the link between geographical television expansion and divorce rates in Brazil. By doing so, they show that the share of women who are separated or divorced increased significantly after the RedeGlobo signal (a Brazilian television network) became available. RedeGlobo broadcasted soap-operas that commonly contained the portrayal of families with a small number of children. Similar to our study, La Ferrara et al. (2012) show that women who are living in areas with RedeGlobo coverage exhibit lower numbers of children. By exploiting the variation in the introduction of cable television in India, Jensen and Oster (2009) find that the introduction is associated with decreased preferences for sons and lower domestic violence against women. Similar to La Ferrara et al. (2012), they also find declining fertility rates. Finally, Kearney and Levine (2015) analyze the impact of the introduction of the MTV reality show *16 and Pregnant* on teen pregnancy rates in the United States. In their study, they find that this show, which confronts its audience with the difficulties of being a teen mother, results in a decrease in teenage births. At the same time, the show generated an increased interest in contraception and abortions.

[1]For an excellent literature review, see Price and Dahl (2012). In addition, DellaVigna and La Ferrara (2015) provide a lengthy literature review, in which they summarize studies analyzing the impact of media on further outcomes (e.g., education, labor, health, crime, etc.).

The second strand of literature deals with the impacts of WGTV in the GDR. In recent years, scholars have also exploited the exogenous variation in the availability of WGTV within the GDR. In this regard, Bursztyn and Cantoni (2016) find evidence that western television has influenced individual consumption decisions. Hornuf et al. (2018) document that former WGTV reception has a mitigating effect on xenophobic attitudes, even 25 years after reunification. Further studies have examined the impacts of WGTV exposure on crime (Friehe et al., 2018), material aspirations (Hyll and Schneider, 2013), self-reported support of the GDR regime (Kern and Hainmueller, 2009), and individual beliefs about what drives success in life (Hennighausen, 2015).

Most closely related to this paper, however, is the study by Bönisch and Hyll (2015). They analyze how lifestyles promoted in WGTV affected the fertility behavior of women. Nevertheless, there are several crucial differences between the study by Bönisch and Hyll (2015) and the present paper. The first difference is that Bönisch and Hyll (2015) focus only on the effect of WGTV on fertility. The differences between the stereotypical portrayals of families on western television and the prevailing image of families in East German society at the time were not limited to differences in family planning. We also expect an impact on marital status, which is the reason why, in this study, we also examine the effects on marriages and divorces. Another aim of this study is to investigate the extent to which the effect of WGTV continues to have an impact after reunification. That is the reason why we examine a period from 1995 to 2017 with our administrative data. This is not feasible in the study of Bönisch and Hyll (2015), since they use data from the time before reunification (except the SOEP for the year 1990). Another key difference is that we are examining gender differences in the WGTV effect, rather than just assuming that the effect is restricted to women.

The remainder of this paper is structured as follows. Section 2 briefly outlines the history of divided Germany and the role of WGTV regarding family relations. In Section 3, we describe the natural experiment, our empirical strategy, as well as the data. Our empirical analysis is conducted in Section 4 and our robustness tests in Section 5. Furthermore, in Section 5, we focus on effect heterogeneity, while Section 6 concludes.

2 The role of WGTV on family relations

2.1 Institutional background

After World War II, the Allied forces divided Nazi Germany and the city of Berlin into four military occupation zones, respectively. In 1949, the western sectors, controlled by the United States, France, and Great Britain, merged to form the Federal Republic of Germany, which has been a parliamentary democracy and a social market economy

since its creation. The Soviet occupation zone in the East of Germany developed into a socialist state with a one-party system, namely the German Democratic Republic, which was controlled militarily and politically by the Soviet Union. The fall of the Berlin Wall on November 9, 1989, represented the initial point for a rather rapid reunification process, which translated first into the economic union in July 1990 and second into the political reunification in October 1990.

Following the German division in 1949, the media landscape in East and West Germany drifted apart in their respective developments. Strict censorship of all media on behalf of the government characterized the situation in East Germany. Additionally, the government imposed import bans on print media from the West, enforced by rigorous border controls (Kuschel, 2016, p. 111 ff.). In terms of television stations, only the DFF1 (*German Television Broadcasting 1*) and DFF2 (*German Television Broadcasting 2*) existed, which started broadcasting in 1952 and 1969, respectively. Both television networks were also controlled by the ruling Socialist Unity Party of Germany and were used mainly as a means of propaganda (Großmann, 2015, p. 53 ff.). As a result, the credibility of the broadcast content was rather low in the eyes of the general population (Hesse, 1990). The East German population was therefore inclined to watch WGTV stations, which they considered as the only "window to the world" (Stiehler, 2001, p. 13), since they offered the opportunity to collect uncensored information from outside of the GDR.[2] Since there were no language barriers or different technical reception systems in the television sets, the number of East German viewers increased quickly and significantly.[3] This development was reinforced by the successive increase in the number of households with a television set. By the end of the 1980s, about 98 % of the households had a television set, and approximately 85 % of the population used WGTV regularly (Müller, 2000).[4] The socialist government first tried to ban viewing these programs, which were strongly affected by Western influence (e.g., from the United States, Great Britain, and France). Since the over-the-air signal could not be interrupted by border authorities, the government abandoned these efforts due to lack of feasibility (Boyd, 1983, Kuschel, 2016, p. 143 ff.).

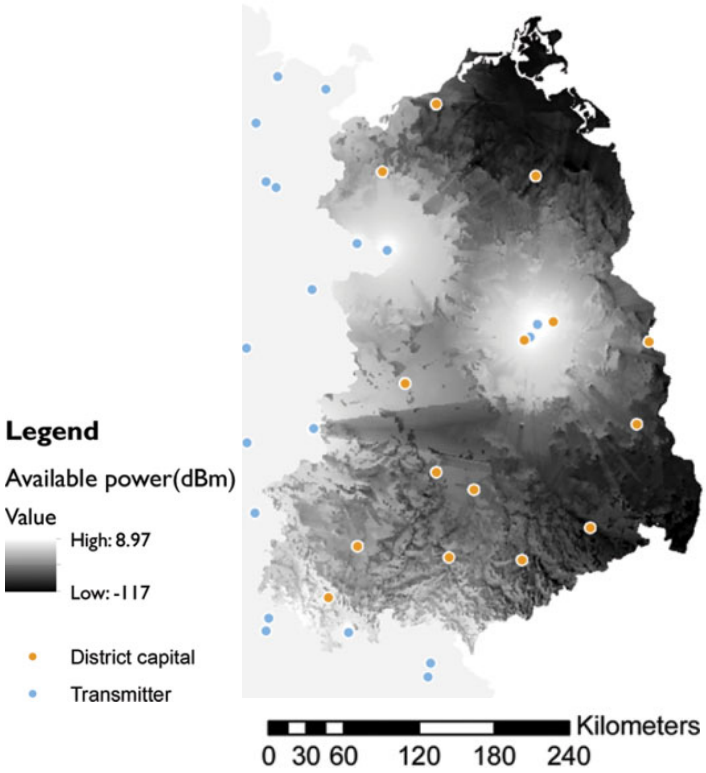
Against this background, the West German government set up numerous television transmitters near the border, including in West Berlin, especially in the 1960s and 1970s. In the end, the majority of the East German population was able to receive WGTV. Only

[2]The television landscape in the Federal Republic of Germany was at that time also characterized by two television channels. The West German counterparts to DFF1 and DFF2 were the ARD (*First German Television*) founded in 1952 and the ZDF (*Second German Television*), which began broadcasting in 1969. The two public television stations were extended in the mid- to late-1960s by the regional third programs of the ARD. Private broadcasting was permitted in 1981, leading to a further increase in the number of available television channels.

[3]There were also households in West Germany that were able to receive EGTV programs, but the number of actual viewers was relatively low (Boyd, 1983).

[4]The audience figures come from surveys of GDR researchers, which were published after reunification (Förster, 1995).

Figure 1: Reception of WGTV in the GDR



Notes: Brighter areas had a stronger WGTV over-the-air signal and thus a better television reception, while dark areas had weak to no reception. This illustration is taken from Crabtree et al. (2015) with slight modification.

the inhabitants in the northeastern part of the GDR and the southeastern area around the third-largest city Dresden had no access to these programs. This was due to the geographical distance to the WGTV transmitters as depicted in Figure 1.[5]

With the reunification on October 3, 1990, the DFF was no longer the state broadcaster of the GDR. The shutdown of the DFF took place in two steps. After the ARD had already taken over the television station DFF 1 on December 15, 1990, the remaining broadcast of the DFF was ceased according to Article 36 of the Unification Treaty between the two German states on December 31, 1991.

2.2 Perception of families in East and West German Television

The differences between the WGTV and EGTV programs were diverse and not only restricted to different political ideologies transmitted in the programs. Due to the strong influence of the socialist government on the program content in East Germany, aspects such as materialistic aspirations and the "Western way of life" in itself were portrayed

[5]The southeastern part of the GDR was therefore called the "valley of the clueless" by the rest of the East German population.

as something highly negative (Hyll and Schneider, 2013). In addition, there was no advertising in EGTV until shortly before reunification (Bursztyn and Cantoni, 2016).

Fundamental differences were also present in the proportion of contributions that dealt with the issue of marriage and family planning. These topics were more prominent in East German programs compared to their West German counterparts. The main reason for this is that, once fertility rates across eastern Germany began to decline in the 1960s, the socialist government used the television program as a tool to support its family and women politics.[6] Against this backdrop, the image of women in EGTV was based precisely on the women's policy propagated by the socialist government (Bühler, 1997). In accordance with this ideological orientation, the image of women in the EGTV generally followed a predefined path of marriage and motherhood (Dölling, 1993, Adler, 1997). In this context, marriage was perceived as the foundation of the family and had a high priority in the government's considerations (Engelhardt-Wölfler et al., 2002).[7] This representation of women had been present in East German media until reunification (Hannover and Birkenstock, 2005, p. 40).

Unlike on EGTV, the issues of family and marriage did not play a decisive role in WGTV. By analyzing the program of the two public television stations in West Germany for six weeks in 1975, Küchenhoff (1975) shows that only 0.2 % of all recorded news broadcasting dealt with the issue of family and children. For news magazines, he finds a share of 2 %. In a similar study conducted in July 1990, Weiderer and Faltenbacher (1994) observe a proportion of 3.6 %. In addition to the smaller number of non-fictional television formats dealing with these topics, there were also differences in the characterization of male and female roles in fictional formats such as films and series. Küchenhoff (1975) and Hannover and Birkenstock (2005) describe that single women and men are significantly overrepresented in WGTV and rank first in terms of marital status. Comparable results also exist for television advertising (Kotelmann and Mikos, 1981). Similar to partnership or marriage, both studies indicate that children played a subordinate role in these programs. Moreover, they document that more male than female main characters regularly appear with children. Overall, these studies suggest that especially women were, on average, less often portrayed fulfilling the role of mothers on WGTV and that accordingly, children played a subordinate role in their life planning (Hannover and Birkenstock, 2005). Overall, these representations contradict the family constellation intended at that time in the GDR.

[6]The overall goal of the government was population development in the form of birth promotion (Engelhardt-Wölfler et al., 2002). Among other things, the government tried to enforce this by reducing the working hours of mothers and by providing extensive and publicly financed child care (Rosenfeld et al., 2004, Kranz, 2005).

[7]This does not necessarily mean a church wedding. In the GDR, in addition to church marriages, there also existed the so-called socialist marriage.

The results of the Küchenhoff (1975) and Weiderer and Faltenbacher (1994) studies mentioned so far relate only to the frequency with which the issues of family and marriage are addressed in WGTV or the frequency in which characters are presented as spouses or parents. Additionally, Küchenhoff (1975) identifies in his study differences in the stereotypical depiction of female characters. He differentiates between two leading female role models in the WGTV: First, the image of the housewife and mother without sex appeal and secondly, the representation of the young, independent, and single-woman, who is portrayed as beautiful and sexually attractive. These representations are in apparent contradiction to the role models contained in the EGTV.

The question now is to what extent the repeated exposure to the content of the WGTV affected the attitudes of individuals concerning the marital status and family planning. The lower importance of marriages in WGTV might have influenced the opinions of men and women towards this issue and might have affected decisions regarding marital status. The same applies to the subordinate role of families with children in WGTV programs, which may have created different preferences concerning family planning. The studies mentioned above document a more significant discrepancy between the representation in WGTV programs and the prevailing image in the East German society for female characters than they find for male characters. This could result in gender-specific differences relating to the television effect. The stereotypical depictions of female characters can reinforce this argument. These stereotypical images connect female characters in the roles of wives and mothers with more negative traits, while single and childless women were ascribed more positive attributes. Such content might have created preferences for living alone instead of being in a marriage or preferences for remaining childless.

3 Empirical strategy and data

3.1 Identification strategy

To identify the causal effect of WGTV exposure on preferences regarding family planning or regarding the decision to marry or to divorce, we utilize that the population of some parts of the GDR could receive West German programs before reunification. Important for our empirical strategy is that only the geographical distance to the television transmitters determined whether inhabitants were able to receive these programs or not. However, before we examine the differences between regions with and without previous WGTV reception, we have to make sure that our identification strategy is also valid.

First of all, it is essential for our analysis that the individuals who potentially had access to WGTV due to their geographical location could actually receive the corresponding programs. In Section 2.1 we have already mentioned that the proportion of households

Table 1: Differences between treatment and control districts

	Treatment Area	Control Area	Difference		
	mean	mean	difference	se	p-value
1955					
share of women *(%)*	57.20	57.04	0.16	0.93	0.870
population density	207.17	203.18	3.99	74.20	0.958
infant mortality	49.79	42.72	7.07	4.41	0.135
suicides per 100,000 inhabitants	26.01	24.87	1.14	4.46	0.803
sales per capita	1680.42	1684.31	−3.89	80.86	0.962
employed in agriculture *(%)*	22.79	26.83	−4.04	9.53	0.679
employed in industry *(%)*	23.63	28.91	−5.28	9.16	0.575
employed in trade *(%)*	10.59	10.86	−0.27	0.30	0.384
1989					
share of women *(%)*	52.11	51.90	0.21	0.53	0.695
population density	176.14	181.24	−5.10	58.65	0.932
share of foreigners *(%)*	1.13	1.12	0.01	0.28	0.984
infant mortality	7.78	6.83	0.95	0.50	0.081
suicides per 100,000 inhabitants	27.70	26.37	1.33	1.70	0.449
sales per capita	7544.16	7836.19	−292.03	188.77	0.148
employed in agriculture *(%)*	11.31	13.50	−2.19	4.34	0.623
employed in industry *(%)*	39.47	33.41	6.06	6.90	0.397
employed in trade *(%)*	9.68	10.30	−0.62	0.63	0.345

Note: District differences between treatment (11) and control area (3). Population-weighted averages. East Berlin is excluded from this analysis. Further tests are shown in Bursztyn and Cantoni (2016).

with a television set was relatively high and that there were no decisive differences between the television sets in West and East Germany that would have prevented the reception of West German programs in the East. Also, due to the lack of language barriers, the population share that watched the WGTV programs regularly was large.

Second, it is crucial to our approach that the only difference between the inhabitants of the treatment and the control group was the reception of WGTV and there were otherwise no significant differences, for example, in terms of demographics and economic conditions. To check this, we use data from the statistical yearbooks of the GDR to see whether the two groups differed from each other before the introduction of the treatment in 1955 and at the end of the GDR period in 1989. Similar approaches are used by Bursztyn and Cantoni (2016) and Kern and Hainmueller (2009). The results shown in Table 1 indicate that there were no significant differences between the districts of our treatment and our control areas in either 1955 or 1989.[8] Especially the results from 1989 correspond with the remarks made by Hyll and Schneider (2013), which describe that the government of the GDR places a special focus on the reduction of regional differences. The only exception is the East Berlin district, which was not officially listed as a district but functioned as one. Nevertheless, due to its role as the capital, East Berlin had a particular position that distinguished it from other districts. Therefore, it is not included in Table 1 and 2.

Moreover, if there were differences in terms of marriage, divorce, or fertility rates between both areas prior to the introduction of WGTV, this would potentially invalidate

[8] 1955 is the first year for which we can use information from the statistical yearbooks of the GDR.

Table 2: Marriage, divorce, and fertility rates by treatment status in 1955

	Treatment Area	Control Area	Difference		
	mean	mean	difference	se	p-value
I: District differences					
marriages per 1,000 inhabitants	8.56	8.75	−0.19	0.27	0.485
divorces per 1,000 inhabitants	1.39	1.23	0.16	0.12	0.230
divorce-marriage-ratio	0.16	0.14	0.02	0.02	0.251
births per 1,000 inhabitants	16.43	17.55	−1.12	2.01	0.587
II: County differences					
marriages per 1,000 inhabitants	8.63	8.80	−0.17	0.26	0.525
births per 1,000 inhabitants	17.06	17.32	−0.26	1.48	0.863

Note: Part I of the table shows district differences between treatment (11) and control area (3) in 1955. Part II displays differences on county-level between treatment (194) and control area (25) in 1955. Population-weighted averages. East Berlin is excluded from this analysis.

our identification strategy. Against this background, we also check in Table 2 if there were any differences in terms of these variables. In contrast to divorce rates, information on marriage rates and birth rates is even available at the county level. Similar to Table 1, we find no significant differences.

Another aspect of great relevance to our approach is migration. Here we have to distinguish between migration before and after reunification. In the period before 1990, residential as well as labor mobility was severely limited. This had several reasons. On the one hand, spatial mobility conflicted with the state-planned economy, and on the other hand, the supply of free housing in the GDR was very limited (Bursztyn and Cantoni, 2016, Hyll and Schneider, 2013, Kern and Hainmueller, 2009). In this regard, selective spatial sorting before reunification should be less of a concern for our procedure. However, as we are particularly interested in the long-term impact of the treatment, we must also consider possible migration flows after reunification. In this context, Bursztyn and Cantoni (2016) show that the migration rates from East to West Germany were overall relatively low, except for a short period immediately after reunification. More importantly, they document that there were no significant differences in the migration rates to West Germany between our treatment and control areas. They also report that migration rates between the two groups were relatively low in the first half of the 1990s and did not exhibit a systematic connection.

3.2 Data and empirical approach

To investigate the effects of WGTV reception and its persistence, we use in the first part of the analysis administrative data from the period of 1995-2017.[9] To test our hypotheses, we employ linear random-effects models with the following regression equation:

$$Y_{it} = \beta_0 + \beta_1 TV_i + \beta_2 X_{it} + \mu_t + U_i + \epsilon_{it}, \tag{1}$$

where Y_{it} represents the crude marriage rate in county i in year t. To examine the influence on divorces, we use both the crude divorce rate and the divorce-to-marriage ratio as dependent variable. Finally, as a measure for fertility, we use the total fertility rate as well as the crude birth rate. X_{it} denotes a vector of covariates for county i at time t, μ_t represents year-fixed effects, while U_i signifies the county-specific random effect, i.e., it measures the difference between the average marriage rate at county i and the average marriage rate in all East German counties. Finally, ϵ_{it} indicates the error term. TV_i takes the value of one if county i had access to WGTV prior to reunification. As a consequence, β_1 is our coefficient of interest.

The data regarding television reception comes from Crabtree et al. (2015).[10] Similar to their approach and the method of Bursztyn and Cantoni (2016), we use a signal strength of -86.5 dBm as the critical threshold. If the signal strength exceeded this threshold, WGTV reception was possible. Using this threshold, in about 88.5 % of the 217 GDR counties, the signal strength was sufficient to allow for WGTV reception. These counties represent our treatment group, whereas the remaining 11.5 % constitute our control group.

Our vector of covariates includes demographic county characteristics such as average age, population density, total net migration, the share of women as well as the share of foreigners. Furthermore, we include a dummy variable that equals one if the respective county is an urban district. We also adjust for differences in economic conditions like GDP per capita, disposable income, and unemployment rate. Finally, we try to capture educational differences between the counties by adding the share of school dropouts and the share of school leavers with a higher education entrance degree as additional explanatory variables. All information varies on the county level except for GDP per capita for the years 1995-1999 and the unemployment rate for the years 1995-1997. The corresponding data varies at the state level and is retrieved from the Federal Statistical Office and the Federal Employment Agency. Overall, the data on the characteristics of the counties

[9] For the period after reunification from 1990 up to and including 1994, much of the information that we need for our analysis is not available, especially not at the county level.

[10] Crabtree et al. (2015) use a Longley-Rice electromagnetic signal propagation model, terrain data as well as data on the location and technical characteristics of WGTV transmitters to model signal strength. They discretize the continuous measure of West German television signal strength and generate four different categories: -86.5 dBm, -85 dBm, -82.5 dBm, and -80 dBm.

come from BBSR Bonn (2019) and the statistical offices in Germany.[11] Table A.1 in the appendix shows a description of each variable used in the analysis of the administrative data set, while Table A.2 contains descriptive statistics.

In the second part of the analysis, we use data from the SOEP, an annual representative panel study of German households (see SOEP v35 (2019) and Goebel et al. (2019)). One advantage of the SOEP is that this study was carried out for the first time in the area of the GDR already in June 1990, a few months before the official reunification. In total, 4,697 people in the East were interviewed at that time. We restrict our sample to the 4,357 people who claim to have already lived in the GDR in 1989. This ensures that we do not include individuals in the sample who moved from West Germany or from abroad to the East after the border opening in November 1989.

Since residential and labor mobility were highly limited before reunification, as described in Section 3.1, it is reasonable to assume that the people lived in the same place in the GDR as where they were interviewed in 1990. This enables us to divide individuals into treatment and control groups, while keeping possible distortions caused by internal migration to a minimum. After this assignment, we can examine the effect of WGTV on outcomes such as marriage, divorce, and the likelihood of having children. To be more specific, we estimate the following equation using a probit model:

$$Y_i = \beta_0 + \beta_1 TV_i + \beta_2 X_i + \epsilon_i, \tag{2}$$

where Y_i represents a dummy variable that equals one if individual i is married in 1990 and zero otherwise. To analyze the effect of WGTV on divorce and fertility, we use the same approach and simply change the dependent variable.[12] X_i denotes the vector of covariates, while ϵ_i is the error term. TV_i takes the value of one if individual i had access to WGTV before 1990. Similar to Hennighausen (2015), we assume that people who lived in the GDR district of Dresden had no WGTV reception.[13] The area of this district corresponds almost precisely to that of the two spatial planning regions "Dresden" and

[11] The majority of the data is freely available online under the following link: https://www.inkar.de/.

[12] Since the questions about marital status and children are included in every wave of the survey, we could use the information from all 29 waves from 1990 to 2018. Nonetheless, our sample is limited to the individuals who were interviewed in 1990 as part of the East Sample. Since a substantial proportion of people leave the SOEP every year, a sample attrition problem arises. Nonetheless, we can show that our results are preserved if we use the panel structure and employ survey weights based on the cross-sectional weight of the initial survey year and the inverse staying probability of the respondent.

[13] This assumption is also supported by the results of a survey conducted by the Zentralinstitut für Jugendforschung (1989), in which the participants were asked, among other things, how often they watched WGTV programs. While 68 % of the participants from the Dresden district stated that they never watched WGTV programs and another 15 % said that they rarely watched them, the values in the remaining districts were 2 % and 4 %, respectively.

Table 3: Administrative data: Regression results

	(1) Marriage rate	(2) Divorce rate	(3) Divorce-to-marriage ratio	(4) Fertility rate	(5) Birth rate
TV-dummy	-0.895^{+}	0.138^{*}	0.053^{***}	-0.035^{**}	-0.215^{***}
	(0.467)	(0.065)	(0.015)	(0.013)	(0.065)
Overall R^2	0.253	0.153	0.410	0.904	0.830
Observations	4991	4991	4991	4991	4991

Note: Random effects models. The dependent variable in columns 1 to 5 is the crude marriage rate, crude divorce rate, divorce-to-marriage ratio, fertility rate, and the crude birth rate in the time frame from 1995 – 2017, respectively. All models include a full set of controls: Average age, log. population density, total net migration, share of women, share of foreigners, dummy for urban county, GDP per capita, disposable income per capita, unemployment rate, share of school dropouts, share of school-leavers with higher education entrance qualification, and year dummies. Standard errors are clustered at county level and shown in parentheses. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

"Oberlausitz".[14] Whether a participant previously had WGTV reception or not depends, therefore, on the spatial planning region in which the individual lived in 1990. Similar to the study of Hennighausen (2015), we exclude individuals of the spatial planning region "Greifswald-Stralsund" in the northeastern part of the GDR, since this area cannot be clearly assigned to either the treatment or the control group. In total, 133 participants are affected by this restriction. We report summary statistics in Table A.4 in the appendix.

4 Main results

First, we consider the analysis of administrative data. The results employing random-effects models are reported in Table 3. Columns 1 to 3 show the estimates for marriage and divorce rates as well as for the divorce-to-marriage ratio, respectively. All models include a set on county controls as well as year dummies. The complete regression results are displayed in Table A.3 in the appendix. According to our hypothesis, we find in column 1 that the exposure to WGTV during the GDR period has a negative and significant effect on marriage rates in the period from 1995 to 2017. The coefficient means that the number of marriages per 1,000 adult inhabitants in the treatment region is on average -0.895 lower due to the television reception. In contrast, column 2 indicates a positive relationship between our TV dummy and divorce rates. The same connection also exists for the divorce-to-marriage ratio in column 3. Both results are again in line with our initial predictions. To analyze the impact of WGTV exposure on fertility rates and birth

[14] Spatial planning regions (*Raumordnungsregionen*) are a classification of regions for purposes of regional planning. Their size is between NUTS-2 and NUTS-3 level. In 1990, the former East consisted of 215 NUTS-3-regions that were condensed into 23 spatial planning regions (including Berlin). For the beginning of the 1990s, the SOEP does not include information about the county of residence for the respondents in East Germany.

Table 4: SOEP: Cross section 1990

	(1) Married	(2) Divorced	(3) Children	(4) Nbr. of children
TV-dummy	-0.046*	0.027*	−0.052**	0.902*
	(0.020)	(0.013)	(0.019)	(0.037)
Pseudo R^2	0.303	0.157	0.425	0.239
Log likelihood	-1350.258	-764.105	-1591.015	-3707.494
Observations	3693	3693	3993	3993

Note: Columns (1) to (3) report probit average marginal effects, while column (4) shows incident rate ratios. The models in columns (1) and (2) include the following controls: Gender, age, age^2, age^3, number of children in household, religious affiliation, migration background, log. household income, employment status, education level, and health satisfaction. In columns (3) and (4), we adjust for marital status instead of the number of children in the household. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

rates, we use the same approach as in columns 1 to 3 and simply replace the outcome variables. We report the results in column 4 and 5. According to our hypotheses, we find that counties with former WGTV exposure exhibit significantly lower fertility and birth rates.

In the following, we focus on the analysis of the SOEP data. Table 4 shows the effect of WGTV exposure on the likelihood of being married, being divorced, having children in the household as well as on the number of children in the household. In columns (1) to (3), we employ probit models and report average marginal effects.[15] In column (4), we use a poisson regression model and report incident rate ratios. The estimates in the first column show that the likelihood of being married is significantly lower for participants who had former WGTV exposure. We find the exact opposite relationship regarding the probability of being divorced in the second column.[16] Column (3) reveals a negative and significant relationship between treatment and the likelihood of having children. The same applies to the number of children shown in column (4).[17] The estimates in columns (3) and (4) are in line with the findings of Bönisch and Hyll (2015). The results shown in Tabel 4 support our hypotheses and are qualitatively consistent with the results of the analysis of the administrative data reported in Table 3. The full regression results are shown in Table A.5, while the results with a step-wise inclusion of control variables are displayed in the online appendix.

[15] We obtain similar results if we employ logit models.

[16] In columns (1) and (2), we only consider people older than 18 and exclude individuals who are widowed. The reason for the latter restriction is that we cannot know whether the individuals concerned would have been still married at the time of the interview if their partner had not died. However, our results are independent of this restriction.

[17] The results shown in columns (3) and (4) are robust against various age restrictions.

5 Robustness and Effect heterogeneity

5.1 Robustness

When we estimated the effect of WGTV exposure using the administrative data set shown in Table 3, we used a cutoff-level of -86.5 dBm to divide the counties into treatment and control areas. The results shown above are broadly robust to several different specifications of the TV-dummy. In the online appendix, we show that our results remain unchanged when we use a signal strength of -80.0 dBm, -82.5 dBm, or -85.0 dBm as a relevant threshold. The same applies if we create an ordinal variable out of the four different signal strengths. Other previous studies that examined the influence of western television used historical maps to construct a dummy variable for WGTV exposure (e.g., Kern and Hainmueller, 2009, Kern, 2011). Again, our results hardly change when we apply their classification.

One possible concern is that the geographic location of a particular county is related to a person's preferences for marriage, divorce, or family planning. After reunification, the West German influence may have been more decisive in areas closer to the former West. Since both control groups are located in the East of East Germany, we add for each county the distance to West Germany as an additional control variable. Again, our previous results remain unchanged.[18]

In addition to the distance to West Germany, other county characteristics could also be correlated with the geographic location of a particular county. For example, there are regional differences in the denomination in eastern Germany. This applies particularly to the federal state of Thuringia, where the proportion of members of the Protestant church is significantly higher than in the remaining five eastern German states. However, the majority of the East German population does not belong to any denomination. In all East German federal states, the population share without a denomination exceeds 60 %. In Mecklenburg-Western Pomerania and Saxony-Anhalt even 78 % and 80 %, respectively (Federal Statistical Office and the Statistical Offices of the Länder, 2014). To test whether denomination has an impact on our results (especially regarding marriage and divorce rates), we add the population share without religious affiliation in 2011 as an additional control variable for each county.[19] As indicated in Table A.7 in the appendix, our results are also retained in this robustness test.

[18] Regression results for all dependent variables are included in Table A.6 in the appendix.

[19] Annual data on denomination at the county level is only available to a limited extent. Generally, only the number of members of the Roman or Evangelical Church is shown separately in official statistics. The population share without denomination often only appears in combination with other religious affiliations such as the Orthodox Church or Islam under the heading "Other".

Table 5: Distance to West Germany

	(1) Marriage rate	(2) Divorce rate	(3) Divorce-to-marriage ratio	(4) Fertility rate	(5) Birth rate
TV-dummy	-0.929^{+}	0.134^{+}	0.058^{***}	-0.036^{**}	-0.278^{***}
	(0.487)	(0.069)	(0.017)	(0.013)	(0.068)
West Germany distance (log.)	−0.034	−0.004	0.005	−0.001	-0.061^{**}
	(0.069)	(0.020)	(0.006)	(0.004)	(0.023)
Overall R^2	0.25	0.15	0.41	0.90	0.83
Observations	4991	4991	4991	4991	4991

Note: Random effects models. The dependent variable in columns 1 to 5 is the crude marriage rate, crude divorce rate, divorce-to-marriage ratio, fertility rate, and the crude birth rate in the time frame from 1995 – 2017, respectively. All models include a variable which measures the logarithmic distance between the administrative center of each county and its closest border to West Germany. The distance is measured by the geodesic line and stated in kilometers. Further controls: Average age, log. population density, total net migration, share of women, share of foreigners, dummy for urban county, GDP per capita, disposable income per capita, unemployment rate, share of school dropouts, share of school-leavers with higher education entrance qualification, and year dummies. Standard errors are clustered at county level and shown in parentheses. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

As the last robustness test, we take Berlin's unique role into account. In Section 3.1, we discussed that Berlin is a unique observation in our data set. Therefore, we exclude Berlin as a further robustness check and estimate our models from Section 4 as well as from the current section again. By doing so, none of our previous results change. This also applies to our SOEP estimates.[20]

5.2 Effect heterogeneity

In this subsection, the analysis focuses on two aspects. First of all, we extend our list of robustness tests by showing that the effect of WGTV can already be observed in the period before reunification. Based on our considerations in Section 2.2, we also examine whether WGTV exposure affects women and men to the same extent. A naive approach to investigate gender differences in the treatment effect would be to estimate the models from Table 4 for men and women separately or to include an interaction term. By doing so, we do not find gender differences in the treatment effect. Nevertheless, this does not necessarily mean that the different content on WGTV has influenced men and women in the same way. If we assume, for example, that the treatment has exclusively affected women and has resulted in women having fewer children, there will inevitably be fewer men with children as well. The same argument applies to a similar extent to marriages and divorces. Therefore, in this section, we focus on the effects of the treatment on subjective attitudes towards marriage, divorce, and family planning. This allows us to study potential effect heterogeneities.

[20]The regression results are available at request.

Table 6: GDR survey questionnaire

No.	Statements	Possible answers		
I	Please tell us how important the following matters are for you personally: That you live with your partner all your life.	unimportant	□□□□□	very important
II	Please tell us how important the following matters are for you personally: That you are faithful to each other.	unimportant	□□□□□	very important
III	Please tell us how important the following matters are for you personally: That in inharmonic relationships you can also break up again.	unimportant	□□□□□	very important
IV	Please tell us how important the following matters are for you personally: Living with children.	unimportant	□□□□□	very important
V	Please tell us how important the following matters are for you personally: Living harmoniously together as a family with children.	unimportant	□□□□□	very important

Note: This table shows the five statements and the possible answers. The original German wording, as well as the entire questionnaire, are available at https://search.gesis.org/research_data/ZA6869.

For this purpose, we use survey data that was collected by the Institut für Soziologie und Sozialpolitik an der Akademie der Wissenschaften der DDR (1987) in the period from March 1987 to September 1987.[21] In total, the written survey includes 2,710 women and 1,425 men aged 18-40 years. The survey contains information on a range of attitudes towards family life. In particular, the participants were asked to assess how important the content of five specific statements was to them. Table 6 shows these five statements. The first three statements capture attitudes about relationships, with statements I and II referring to characteristics of a relationship that are relevant for the concept of marriage: long-term partnership and faithfulness. Statement III relates to personal attitudes towards divorce. The remaining two statements are related to family planning and concern attitudes about the importance of children. Given the skewed distribution of the answer categories, we generate for each statement a dummy variable that equals one if the participant has answered with "very important" and zero otherwise.[22]

Furthermore, the data set includes socioeconomic characteristics as well as the location where the survey took place, which enables us to allocate the survey participants into treatment and control group. In total, 518 female and 292 male participants come from

[21] The data set as well as the questionnaire and further information on the selection method are available at https://search.gesis.org/research_data/ZA6869.

[22] Our results hardly change if we group the two categories "important" and "very important" together. Furthermore, we arrive at similar results if we employ ordered probit models using all information on the five answer categories. The respective results are shown in the online appendix.

Table 7: GDR survey – probit regression

	Relationship			Children	
	I	II	III	IV	V
TV-dummy	−0.085***	−0.057**	0.046**	−0.044*	−0.037*
	(0.020)	(0.018)	(0.018)	(0.019)	(0.015)
Pseudo R^2	0.049	0.045	0.031	0.057	0.043
Log likelihood	−2365.990	−1951.458	−1525.319	−2077.058	−1502.743
Observations	3629	3701	3260	3687	3684

Note: The table reports probit average marginal effects. The dependent variables in column I to V correspond to the five statements in Table 6. All models include the following controls: gender, age, age^2, age^3, marital status, children, siblings, education, employment status, vocational qualification, and industry. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

the Dresden district. Similar to our SOEP analysis in Section 4 and the studies by Kern and Hainmueller (2009), Hyll and Schneider (2013), and Hennighausen (2015), we assume that the inhabitants of the Dresden district were unable to receive WGTV and therefore represent our control group. Table A.8 in the appendix provides summary statistics, while the results of probit models are shown in Table 7. Each model relates to one statement regarding relationship attitudes or attitudes towards children and includes a set of control variables.[23]

In all five columns, we find a significant effect of the TV-dummy. For column I, this means that people with WGTV exposure were 8.5 % less likely to consider that living with your partner all your life is "very important" to them. The same applies to the question of the importance of faithfulness in a partnership (II). Here, the probability is 5.8 % lower. Both statements contain aspects that are important to the concept of marriage. Column III is the only model in which we find a significantly positive effect. This means that participants from the treatment group are 4.8 % more likely to see the possibility of separation in an inharmonic partnership as very important. Columns IV and V show that WGTV exposure reduces the probability that respondents consider living with children as very important by 4.7 % and 3.9 %, respectively.[24]

To understand our results better, it is helpful to find out which groups of participants drive our findings on the role of WGTV exposure. In line with the considerations in Section 2.2, we expect the WGTV effect to have a greater impact on women than on men. Therefore, we divide our sample into a female and a male subsample and repeat the probit estimates from Table 7 for both subsamples. Table 8 shows the probit regression results for female and male respondents separately. In all of the five columns, we find a higher

[23] Full regression results are shown in Table A.9 in the appendix.

[24] In addition to the probit models, we also ran logistic regressions, which lead to similar results and are shown in the online appendix.

Table 8: Sample split

	Relationship			Children	
	I	II	III	IV	V
Female					
TV-dummy	-0.089^{***}	-0.078^{***}	0.066^{**}	-0.061^{**}	-0.053^{**}
	(0.025)	(0.022)	(0.023)	(0.023)	(0.019)
Pseudo R^2	0.053	0.045	0.030	0.050	0.037
Log likelihood	−1531.394	−1190.175	−1027.166	−1269.839	−894.329
Observations	2383	2433	2142	2428	2424
Male					
TV-dummy	-0.075^{*}	−0.026	0.014	−0.016	−0.014
	(0.035)	(0.032)	(0.027)	(0.033)	(0.027)
Pseudo R^2	0.054	0.042	0.060	0.047	0.067
Log likelihood	−816.676	−744.015	−478.553	−791.002	−584.275
Observations	1246	1268	1091	1259	1260

Note: The table reports probit average marginal effects. The upper half of the table includes the results for women and the lower half for men. All models include the following controls: age, age^2, age^3, marital status, children, siblings, education, employment status, vocational qualification, and industry. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

coefficient for females. In addition, the estimates show that the TV dummy, except for column 1, has only a significant effect on the attitudes of the female participants. At this point, however, it is essential to mention that only 1,425 men were interviewed compared to 2,710 women. To ensure that our results were not driven by a different number of observations for men and women, we repeatedly drew random samples of 1,425 women and repeated the estimates. By doing so, we obtain similar results.[25]

6 Conclusion

By utilizing a natural experiment, we investigated whether television content can influence decisions on marital status and family planning. Our analysis, which draws on both administrative and survey data, shows that former WGTV exposure has a significant and negative effect on marriage, fertility, and birth rates as well as a positive impact on divorce rates. Since we cannot completely rule out that the observed differences between the treatment and control areas are driven solely by WGTV reception, we subjected our results to various robustness tests. These tests indicate that our findings are remarkably robust. In addition, the analysis of a survey from the 1980s showed that women and men

[25]This applies to all main estimations and robustness checks from this section. For reasons of space, the regression results are not included in the text, but they are available to any interested reader.

are not affected equally by the treatment. Interestingly, the results indicate that WGTV exposure had a particular impact on the attitudes of women towards family issues.

There are various mechanisms through which different television contents can influence women's preferences regarding marital status and family planning. For example, television can influence fertility decisions by providing information about family planning. The fact that family issues were less important on WGTV and were also broadcast less often could have affected women in this way. This explanation, however, does not clarify why men's attitudes towards these issues are not influenced as well. Another reason might be that WGTV showed alternative lifestyles that conflicted with existing social norms and weakened them over time. Therefore, seeing childless or divorced female characters regularly in series and movies might have emancipated women's roles, which led to the questioning of traditional values. Finally, psychological studies document that repeated exposure to television over a long period also affects beliefs about the real world, causing individuals to believe that social reality corresponds to the reality shown on television (Gerbner and Gross, 1976). In this regard, the stereotypical portrayal of female characters, which displayed married women and women with children in a rather negative way, could have contributed to this effect as well. Developing a deeper understanding of which mechanisms apply in individual cases is a topic for future research.

Although we examined in this study a unique scenario, our results are of great relevance beyond the geographical and chronological scope. Overall, they indicate that television content can influence the fundamental life decisions of individuals by affecting their attitudes towards family issues. Once formed, such attitudes tend to be stable over time and can even be passed on from one generation to the next, which could potentially explain the persistence of the WGTV-effect even two decades after the reunification. Finally, our findings have crucial policy implications. Since watching television is undoubtedly the most time-consuming form of recreational activity in OECD countries, television could be an efficient and inexpensive way to reach a substantial part of society across all social classes.

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Appendix

Table A.1: List and definition of variables

Variable	Description
Average age	The variable measures the average age of the population in years.
Birth rate	The variable measures the total number of live births per 1,000 inhabitants.
Disposable income per capita	The variable measures the average amount of money in €1,000 that people have available for consumption and saving after income taxes have been accounted for.
Divorce-to-marriage ratio	This ratio compares the number of divorces to the number marriages.
Divorce rate	The variable measures the share of divorces per 1,000 inhabitants at a minimum age of 18.
Fertility rate	The variable measures the total fertility rate, which is a measure of the reproductive capacity of a population from within itself. It indicates how many children a woman of a fictitious birth cohort would give birth to in the course of her life.
Foreigners (%)	The variable denotes the percentage of the population that were foreigners.
GDP per capita	The variable measures the GDP in €1,000 per inhabitants.
Marriage rate	The variable measures the share of marriages per 1,000 inhabitants at a minimum age of 18.
Population density (log.)	Population density measures the population per km^2 living in a certain region.
Population without religious affiliation (%)	The variable measures the percentage of inhabitants without religious affiliation.
School dropouts (%)	The variable measures the percentage of high school dropouts.
School-leavers with higher education entrance qualification (%)	The variable measures the percentage of school-leavers that graduated with a university entrance certificate.
Total net migration	The variable measures the share of total net migration per 1.000 inhabitants.
TV-dummy	This dummy variable varies at the county level and equals one if the West German television signal strength was at least -86.5 dBm.
Unemployment rate total	The unemployment rate is the percentage of the labor force that was jobless.

table continues on the next page

Table A.1: List and definition of variables (proceeding)

Urban county	This dummy variable varies at the county level and equals one if the respective county is an urban district and zero if it is a rural district.
West Germany distance (log.)	The variable measures the geodesic line between the administrative center of each GDR county and its closest border to the Federal Republic of Germany (including West Berlin as part of the Federal Republic of Germany). This variable is calculated with the geographic information system ArcGIS. Own calculation.
Women (%)	The variable measures the share of women.

Note: This table includes a description for each variable used in the analysis of the administrative data set in Section 4 and 5.1.

Table A.2: Descriptive Statistics: Administrative data

	mean	sd	min	max	N
Dependent variables					
Marriage rates	5.10	1.64	0.94	16.40	4991
Divorce rates	2.22	0.60	0.49	8.01	4991
Divorce-to-marriage ratio	0.46	0.14	0.12	1.36	4991
Fertility rate	1.35	0.24	0.72	1.98	4991
Birth rate	7.20	0.96	4.62	12.23	4991
Explanatory variables					
TV-dummy	0.88	0.32	0.00	1.00	4991
Average age	43.98	2.88	36.76	50.21	4991
Log. population density	4.90	0.89	3.58	8.31	4991
Total net migration	-1.34	8.58	-35.98	51.24	4991
Women (%)	50.89	0.58	49.67	52.83	4991
Foreigners (%)	2.22	1.40	0.12	17.65	4991
Urban county	0.12	0.32	0.00	1.00	4991
GDP per capita	19.74	5.19	12.01	40.74	4991
Disposable income per capita	15.19	2.52	9.78	22.72	4991
Unemployment rate (%)	14.46	4.61	3.60	25.43	4991
School dropouts (%)	10.02	2.56	2.50	21.25	4991
School-leavers with higher education entrance qualification (%)	29.04	8.54	0.00	65.23	4991

Note: This table shows descriptive statistics (means, standard deviation, minimum, and maximum over time). N refers to the number of observations.

Table A.3: Administrative data: Full regression results

	(1) Marriage rate	(2) Divorce rate	(3) Divorce-marriage ratio	(4) Fertility rate	(5) Birth rate
TV-dummy	-0.895^{+}	0.138^{*}	0.053^{***}	-0.035^{**}	-0.215^{***}
	(0.467)	(0.065)	(0.015)	(0.013)	(0.065)
Average age	0.064	0.022	0.006	0.012^{***}	-0.384^{***}
	(0.044)	(0.020)	(0.004)	(0.003)	(0.024)
Log. population density	-0.689^{***}	0.077	0.072^{***}	-0.016^{*}	0.225^{***}
	(0.118)	(0.047)	(0.010)	(0.008)	(0.058)
Total net migration	-0.006	-0.007^{**}	-0.001	-0.001^{*}	0.008^{***}
	(0.005)	(0.002)	(0.000)	(0.000)	(0.002)
Women (%)	0.633^{***}	-0.183^{***}	-0.050^{***}	-0.018^{+}	0.307^{***}
	(0.122)	(0.051)	(0.013)	(0.011)	(0.064)
Foreigners (%)	0.041	-0.029	-0.009^{*}	-0.013^{**}	0.022
	(0.050)	(0.018)	(0.004)	(0.004)	(0.021)
Urban county	0.221	0.359^{***}	0.060^{*}	-0.007	-0.156^{+}
	(0.351)	(0.107)	(0.024)	(0.012)	(0.084)
GDP per capita	-0.019	0.016^{***}	0.002	0.003^{**}	0.030^{***}
	(0.016)	(0.004)	(0.001)	(0.001)	(0.005)
Disposable income per capita	0.310^{***}	-0.004	-0.021^{**}	0.033^{***}	0.037
	(0.081)	(0.030)	(0.007)	(0.005)	(0.035)
Unemployment rate (%)	0.035^{*}	-0.009	-0.006^{**}	-0.002	0.001
	(0.018)	(0.009)	(0.002)	(0.001)	(0.005)
School dropouts (%)	0.056^{***}	0.015^{*}	-0.001	0.001^{*}	0.013^{***}
	(0.009)	(0.006)	(0.001)	(0.001)	(0.004)
School-leavers with higher	0.024^{***}	-0.001	-0.002^{***}	-0.002^{***}	-0.002
education entrance qualification (%)	(0.004)	(0.002)	(0.000)	(0.000)	(0.002)
Year	Yes	Yes	Yes	Yes	Yes
Overall R^2	0.253	0.153	0.410	0.904	0.830
Observations	4991	4991	4991	4991	4991

Note: Random effects models. The dependent variable in column 1 to 3 is the marriage, divorce, and divorce-to-marriage ratio in the time frame from 1995 to 2017, respectively. Standard errors are clustered at county level and shown in parentheses. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.4: Descriptive Statistics: SOEP data

	mean	sd	min	max	N
TV-Dummy	0.89	0.31	0.00	1.00	4224
Female	0.52	0.50	0.00	1.00	4224
Age	42.31	16.23	16.00	95.00	4224
Children-Dummy	0.48	0.50	0.00	1.00	4224
Number of children in household	0.79	0.96	0.00	5.00	4224
Religious affiliation	0.29	0.45	0.00	1.00	4224
Migration background	0.03	0.18	0.00	1.00	4224
Log. household income	6.76	0.46	5.03	7.87	4159
Martial status					
Married	0.70	0.46	0.00	1.00	4216
Single	0.18	0.38	0.00	1.00	4216
Divorced	0.06	0.24	0.00	1.00	4216
Widowed	0.06	0.24	0.00	1.00	4216
Employment status					
Full-time	0.67	0.47	0.00	1.00	4093
Part-time	0.10	0.29	0.00	1.00	4093
Not employed	0.24	0.42	0.00	1.00	4093
Education					
Low	0.39	0.49	0.00	1.00	4211
Medium	0.38	0.49	0.00	1.00	4211
High	0.22	0.42	0.00	1.00	4211
Health satisfaction					
0	0.04	0.20	0.00	1.00	4209
1	0.01	0.10	0.00	1.00	4209
2	0.02	0.16	0.00	1.00	4209
3	0.04	0.20	0.00	1.00	4209
4	0.04	0.20	0.00	1.00	4209
5	0.17	0.38	0.00	1.00	4209
6	0.08	0.27	0.00	1.00	4209
7	0.12	0.33	0.00	1.00	4209
8	0.19	0.40	0.00	1.00	4209
9	0.09	0.29	0.00	1.00	4209
10	0.18	0.39	0.00	1.00	4209

Note: This table shows descriptive statistics (means, standard deviation, minimum, and maximum over time). N refers to the number of observations.

Table A.5: SOEP: Cross section 1990

	(1) Married	(2) Divorced	(3) Children	(4) Nbr. of children
TV-dummy	−0.046*	0.027*	−0.052**	0.902*
	(0.020)	(0.013)	(0.019)	(0.037)
Female	−0.031**	0.050***	−0.000	0.936*
	(0.012)	(0.008)	(0.012)	(0.030)
Age	0.070***	0.029***	0.113***	1.887***
	(0.010)	(0.008)	(0.009)	(0.081)
Age^2	−0.001***	−0.001**	−0.003***	0.986***
	(0.000)	(0.000)	(0.000)	(0.001)
Age^3	0.000***	0.000**	0.000***	1.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Number of children in household	0.107***	−0.016*		
	(0.010)	(0.006)		
Religious affiliation	0.008	−0.025**	−0.001	1.032
	(0.013)	(0.009)	(0.013)	(0.036)
Migration background	0.047	−0.057*	−0.029	0.985
	(0.032)	(0.026)	(0.033)	(0.131)
Log. household income	0.179***	−0.127***	0.046**	1.376***
	(0.016)	(0.012)	(0.016)	(0.074)
Employment status (omitted: Full-time)				
Part-time	0.105***	−0.052***	0.019	1.091+
	(0.018)	(0.010)	(0.018)	(0.050)
Not employed	0.041*	−0.057***	0.123***	1.485***
	(0.017)	(0.010)	(0.019)	(0.075)
Education (omitted: Low)				
Medium	−0.005	0.008	0.006	0.983
	(0.017)	(0.011)	(0.016)	(0.047)
High	0.009	0.016	0.072***	1.028
	(0.017)	(0.011)	(0.017)	(0.050)
Marital status (omitted: Married)				
Single			−0.348***	0.464***
			(0.019)	(0.033)
Divorced			−0.097***	0.763***
			(0.026)	(0.061)
Widowed			0.103***	1.886***
			(0.030)	(0.292)
Pseudo R^2	0.303	0.157	0.425	0.239
Log likelihood	-1350.258	-764.105	-1591.015	-3707.494
Observations	3693	3693	3993	3993

Note: Column (1) to (3) report probit average marginal effects, while column (4) shows incident rate ratios. All models include 10 dummy variables for health satisfaction. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.6: Distance to West Germany

	(1) Marriage rate	(2) Divorce rate	(3) Divorce-to-marriage ratio	(4) Fertility rate	(5) Birht rate
TV-dummy	-0.929^{+}	0.134^{+}	0.058^{***}	-0.036^{**}	-0.278^{***}
	(0.487)	(0.069)	(0.017)	(0.013)	(0.068)
West Germany distance (log.)	-0.034	-0.004	0.005	-0.001	-0.061^{**}
	(0.069)	(0.020)	(0.006)	(0.004)	(0.023)
Average age	0.063	0.021	0.006	0.012^{***}	-0.383^{***}
	(0.044)	(0.020)	(0.004)	(0.003)	(0.024)
Population density (log.)	-0.690^{***}	0.075	0.072^{***}	-0.015^{+}	0.229^{***}
	(0.118)	(0.047)	(0.010)	(0.008)	(0.058)
Total net migration	-0.006	-0.007^{**}	-0.001	-0.001^{*}	0.008^{***}
	(0.005)	(0.002)	(0.000)	(0.000)	(0.002)
Women (%)	0.631^{***}	-0.182^{***}	-0.050^{***}	-0.018^{+}	0.304^{***}
	(0.122)	(0.051)	(0.013)	(0.011)	(0.064)
Foreigners (%)	0.042	-0.028	-0.009^{*}	-0.013^{**}	0.023
	(0.050)	(0.018)	(0.004)	(0.004)	(0.021)
Urban county	0.226	0.356^{***}	0.060^{*}	-0.008	-0.157^{+}
	(0.351)	(0.107)	(0.024)	(0.012)	(0.084)
GDP per capita	-0.019	0.016^{***}	0.002	0.003^{**}	0.030^{***}
	(0.016)	(0.004)	(0.001)	(0.001)	(0.005)
Disposable income per capita	0.313^{***}	-0.002	-0.022^{**}	0.033^{***}	0.042
	(0.081)	(0.030)	(0.007)	(0.005)	(0.035)
Unemployment rate (%)	0.036^{*}	-0.009	-0.006^{**}	-0.001	0.003
	(0.018)	(0.009)	(0.002)	(0.001)	(0.005)
School dropouts (%)	0.055^{***}	0.016^{*}	-0.001	0.001^{*}	0.013^{***}
	(0.009)	(0.006)	(0.001)	(0.001)	(0.004)
School-leavers with higher education entrance qualification (%)	0.024^{***}	-0.001	-0.002^{***}	-0.002^{***}	-0.001
	(0.004)	(0.002)	(0.000)	(0.000)	(0.002)
Year	Yes	Yes	Yes	Yes	Yes
Overall R^2	0.25	0.15	0.41	0.90	0.83
Observations	4991	4991	4991	4991	4991

Note: Random effects models. All models include a variable which measures the logarithmic distance between the administrative center of each county and its closest border to West Germany. The distance is measured by the geodesic line and stated in kilometers. Standard errors clustered at county level and shown in parentheses. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.7: Religious affiliation

	(1) Marriage rate	(2) Divorce rate	(3) Divorce-to-marriage ratio	(4) Fertility rate	(5) Birht rate
TV-dummy	-0.904^{*}	0.124^{*}	0.052^{**}	-0.033^{**}	-0.200^{***}
	(0.444)	(0.055)	(0.016)	(0.011)	(0.060)
Population without	0.027^{*}	0.015^{***}	0.002^{**}	-0.002^{***}	-0.018^{***}
religious affiliation (%)	(0.012)	(0.003)	(0.001)	(0.000)	(0.002)
Average age	0.058	0.018	0.006	0.012^{***}	-0.383^{***}
	(0.044)	(0.019)	(0.004)	(0.003)	(0.023)
Population density (log.)	-0.717^{***}	0.068	0.071^{***}	-0.013^{+}	0.234^{***}
	(0.116)	(0.044)	(0.010)	(0.007)	(0.055)
Total net migration	-0.005	-0.007^{**}	-0.001	-0.001^{**}	0.008^{***}
	(0.005)	(0.002)	(0.000)	(0.000)	(0.002)
Women (%)	0.633^{***}	-0.178^{***}	-0.050^{***}	-0.018^{+}	0.301^{***}
	(0.121)	(0.051)	(0.013)	(0.010)	(0.062)
Foreigners (%)	0.040	-0.030	-0.009^{*}	-0.012^{**}	0.021
	(0.050)	(0.022)	(0.004)	(0.004)	(0.021)
Urban county	0.121	0.292^{**}	0.053^{*}	0.001	-0.071
	(0.347)	(0.100)	(0.024)	(0.011)	(0.074)
GDP per capita	-0.021	0.014^{***}	0.002	0.003^{**}	0.031^{***}
	(0.016)	(0.004)	(0.001)	(0.001)	(0.005)
Disposable income per capita	0.307^{***}	-0.013	-0.022^{**}	0.033^{***}	0.041
	(0.080)	(0.031)	(0.007)	(0.005)	(0.033)
Unemployment rate (%)	0.030^{+}	-0.017^{+}	-0.006^{***}	-0.001	0.007
	(0.018)	(0.009)	(0.002)	(0.001)	(0.005)
School dropouts (%)	0.054^{***}	0.013^{*}	-0.001	0.002^{*}	0.015^{***}
	(0.009)	(0.006)	(0.001)	(0.001)	(0.004)
School-leavers with higher	0.025^{***}	-0.001	-0.002^{***}	-0.002^{***}	-0.002
education entrance qualification (%)	(0.004)	(0.002)	(0.000)	(0.000)	(0.002)
Year	Yes	Yes	Yes	Yes	Yes
Overall R^2	0.28	0.20	0.42	0.91	0.85
Observations	4991	4991	4991	4991	4991

Note: Random effects models. All models include a variable which measures the logarithmic distance between the administrative center of each county and its closest border to West Germany. The distance is measured by the geodesic line and stated in kilometers. Standard errors clustered at county level and shown in parentheses. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.8: Descriptive Statistics: GDR survey data

	mean	sd	min	max	N
Dependent variables					
Question I	0.55	0.50	0.00	1.00	4020
Question II	0.76	0.43	0.00	1.00	4109
Question III	0.19	0.39	0.00	1.00	3626
Question IV	0.71	0.45	0.00	1.00	4092
Question V	0.85	0.36	0.00	1.00	4088
Explanatory variables					
TV-dummy	0.80	0.40	0.00	1.00	4135
Female	0.66	0.48	0.00	1.00	4135
Age	28.38	6.25	18.00	41.00	4134
Age^2	844.41	361.47	324.00	1681.00	4134
Age^3	26210.95	16281.42	5832.00	68921.00	4134
Married	0.63	0.48	0.00	1.00	4119
Children	0.78	0.42	0.00	1.00	4026
Siblings	0.88	0.33	0.00	1.00	4062
Education					
Below 8th grade	0.02	0.14	0.00	1.00	4131
8th grade	0.14	0.34	0.00	1.00	4131
10th grade	0.69	0.46	0.00	1.00	4131
12th grade	0.15	0.36	0.00	1.00	4131
Job					
Full time	0.85	0.36	0.00	1.00	4126
Short hours	0.07	0.25	0.00	1.00	4126
Unemployed	0.01	0.11	0.00	1.00	4126
In training	0.07	0.25	0.00	1.00	4126
Qualification					
Unskilled	0.04	0.19	0.00	1.00	3989
Semi-skilled	0.04	0.19	0.00	1.00	3989
Skilled worker	0.60	0.49	0.00	1.00	3989
Foreman	0.04	0.19	0.00	1.00	3989
Trade/ technical school degree	0.20	0.40	0.00	1.00	3989
University degree	0.09	0.29	0.00	1.00	3989
Industry					
Industrial/ construction business	0.31	0.46	0.00	1.00	4057
Service	0.08	0.28	0.00	1.00	4057
Transport/ traffic/ postal/ telecommunication	0.06	0.23	0.00	1.00	4057
Healthcare sector	0.09	0.29	0.00	1.00	4057
Government bodies/ armed forces	0.09	0.28	0.00	1.00	4057
Education	0.08	0.27	0.00	1.00	4057
Crafts business	0.02	0.14	0.00	1.00	4057
Agriculture/ forestry	0.13	0.33	0.00	1.00	4057
University/ technical school/ scientific institution	0.02	0.14	0.00	1.00	4057
Still in training	0.06	0.24	0.00	1.00	4057
Other	0.07	0.25	0.00	1.00	4057

Note: This table shows descriptive statistics (means, standard deviation, minimum, and maximum over time). N refers to the number of observations.

Table A.9: GDR survey: Full probit results

	Relationship			Children	
	I	II	III	IV	V
TV-dummy	-0.085***	-0.057**	0.046**	-0.044*	-0.037*
	(0.020)	(0.018)	(0.018)	(0.019)	(0.015)
Female	0.058**	0.070***	0.036*	0.097***	0.047***
	(0.018)	(0.016)	(0.016)	(0.016)	(0.013)
Age	-0.341***	-0.129	0.032	-0.105	-0.052
	(0.100)	(0.088)	(0.083)	(0.089)	(0.070)
Age^2	0.011**	0.004	-0.001	0.003	0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
Age^3	-0.000**	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Children	-0.011	0.020	-0.019	0.166***	0.095***
	(0.029)	(0.026)	(0.024)	(0.026)	(0.021)
Siblings	0.016	-0.017	-0.013	0.026	-0.002
	(0.025)	(0.021)	(0.020)	(0.022)	(0.018)
Marital status (omitted: Married)					
Cohabitation	-0.136***	-0.045+	0.105***	-0.071**	-0.070**
	(0.029)	(0.025)	(0.026)	(0.026)	(0.022)
Single	-0.193***	-0.077**	0.098***	-0.099**	-0.062*
	(0.032)	(0.029)	(0.029)	(0.031)	(0.026)
Divorced	-0.187***	-0.062+	0.102**	-0.088*	-0.027
	(0.043)	(0.036)	(0.037)	(0.039)	(0.030)
Education (omitted: Below 8th grade)					
8th grade	0.010	-0.010	0.039	0.049	-0.024
	(0.061)	(0.047)	(0.053)	(0.059)	(0.041)
10th grade	-0.051	-0.064	-0.003	0.084	-0.008
	(0.062)	(0.047)	(0.053)	(0.060)	(0.041)
12th grade	-0.146*	-0.164**	-0.004	0.071	-0.027
	(0.069)	(0.056)	(0.058)	(0.066)	(0.047)
Job (omitted: Full time)					
Short hours	-0.028	0.007	-0.010	0.001	0.013
	(0.032)	(0.029)	(0.027)	(0.029)	(0.023)
Unemployed	0.193+	0.078	-0.118+	-0.169	0.043
	(0.107)	(0.091)	(0.067)	(0.120)	(0.073)
In training	-0.076	-0.044	-0.034	-0.032	-0.011
	(0.080)	(0.073)	(0.053)	(0.076)	(0.063)
Qualification (omitted: Unskilled)					
Semi-skilled	-0.095	-0.132*	-0.113*	0.025	-0.023

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Table A.9 – continued from previous page

	I	II	III	IV	V
	(0.062)	(0.058)	(0.053)	(0.054)	(0.049)
Skilled worker	-0.058	-0.027	-0.065	-0.014	0.004
	(0.044)	(0.039)	(0.045)	(0.042)	(0.035)
Foreman	-0.111^{+}	-0.089	-0.052	0.031	0.021
	(0.062)	(0.055)	(0.061)	(0.056)	(0.046)
Trade/ technical school degree	-0.133**	-0.056	-0.083^{+}	0.002	0.025
	(0.048)	(0.042)	(0.047)	(0.045)	(0.037)
University degree	-0.179**	-0.088^{+}	-0.091^{+}	-0.003	0.063
	(0.060)	(0.052)	(0.054)	(0.054)	(0.040)
Industry (omitted: Industrial business)					
Service	0.012	0.008	-0.038	-0.023	0.008
	(0.031)	(0.027)	(0.025)	(0.029)	(0.022)
Transport/ traffic/ postal/ telecommunication	0.062^{+}	0.020	-0.024	-0.023	-0.022
	(0.036)	(0.032)	(0.029)	(0.034)	(0.027)
Healthcare sector	0.054^{+}	0.064*	-0.019	0.015	0.015
	(0.032)	(0.027)	(0.027)	(0.030)	(0.023)
Government bodies/ armed forces	-0.045	-0.004	-0.027	0.047^{+}	0.010
	(0.031)	(0.027)	(0.025)	(0.027)	(0.022)
Education	0.054	0.048^{+}	-0.009	0.102***	0.041^{+}
	(0.034)	(0.029)	(0.029)	(0.029)	(0.023)
Crafts business	0.100^{+}	0.055	0.051	0.004	-0.016
	(0.058)	(0.049)	(0.055)	(0.056)	(0.045)
Agriculture/ forestry	0.031	0.021	-0.040^{+}	0.033	-0.004
	(0.027)	(0.023)	(0.022)	(0.024)	(0.020)
University/ technical school/ scientific institution	-0.119^{+}	0.058	0.090	-0.010	0.017
	(0.070)	(0.049)	(0.061)	(0.059)	(0.045)
Still in training	-0.001	0.036	0.184*	0.113^{+}	0.007
	(0.083)	(0.070)	(0.087)	(0.064)	(0.063)
Other	0.030	0.079**	-0.026	-0.049	-0.048^{+}
	(0.034)	(0.028)	(0.028)	(0.032)	(0.027)
Pseudo R^2	0.049	0.045	0.031	0.057	0.043
Log likelihood	-2365.990	-1951.458	-1525.319	-2077.058	-1502.743
Observations	3629	3701	3260	3687	3684

Note: The table reports probit average marginal effects. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: $^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.