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The Effect of West German Television on Smoking and Health: A Natural Experiment from German Reunification

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Abstract

This paper examines the long-term impact of West German television exposure on smoking behavior in East Germany, with a focus on gender-specific responses. Using data from 1989 and 2002 and leveraging quasi-random variation in West German TV signal availability across East German regions, we find that TV exposure led to a substantial increase in smoking among women — by 10.7 percentage points in smoking probability and 68% in cigarette consumption — while having no measurable effect on men. This asymmetric effect reflects divergent pre-reunification norms: under socialism, female smoking was heavily stigmatized, and exposure to Western media relaxed these social constraints. The behavioral shift persisted over time, with exposed women reporting worse physical and mental health and higher healthcare utilization in 2002. Back-of-the-envelope calculations suggest a sizable increase in smoking-related mortality and healthcare costs. Our findings highlight how cultural integration through media can alter health behaviors and generate significant public health externalities in transitional societies.

Keywords: Health, Smoking, Cultural Transmission, Television, Social Norms, German Reunification

JEL Classification: I12, I18, N34, Z13

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1. INTRODUCTION

Smoking is a major public health challenge that contributes to chronic illnesses and imposes significant burdens on healthcare systems, labor markets, and economies worldwide (Devaux and Sassi, 2015, Dueñas et al., 2016). Once predominantly a male habit, smoking has seen a marked rise among women in recent decades, narrowing the gender gap in tobacco use (Hess, 1987, Waldron, 1991, Graham, 1996, Pampel, 2001, Gilman and Zhou, 2004). In this context, media — particularly television — has played a central role in shaping cultural norms and influencing health behaviors, especially in societies undergoing institutional and economic transformation. Understanding the social and cultural drivers of these shifts is critical for designing effective public health policies and for deepening our understanding of cultural transmission during periods of change.

This paper investigates how exposure to West German television shaped smoking behaviors in East Germany, with a focus on gender-specific effects. The fall of the Berlin Wall in 1989 and the subsequent reunification of Germany in 1990 offer a unique natural experiment for studying media's role in cultural diffusion. Under socialism, East German norms heavily stigmatized female smoking (Hinote et al., 2009), while West German media — accessible in many German Democratic Republic (GDR) regions through cross-border TV broadcasts — portrayed smoking as socially acceptable for both genders, particularly through advertising and entertainment (Feick and Gierl, 1996, Heinemann et al., 1995, Hong, 2002).[1] This study examines whether pre-reunification exposure to these contrasting cultural signals via television influenced post-reunification smoking behaviors and its related health outcomes.[2]

We assess exposure to West German television using two complementary strategies. First, we analyze individual-level data on West German TV viewership from a survey conducted in East Germany before the fall of the Berlin Wall. Second, to address potential selection bias, we exploit exogenous geographic variation — driven by topography — across East German regions in West German signal reception. Our main outcomes of interest are smoking prevalence and cigarette consumption, measured using two datasets: a pre-reunification survey from eight GDR districts, and the German Socio-Economic Panel (SOEP), a representative longitudinal survey that began covering East Germany in 1990 (Zentralinstitut für Jugendforschung, 1989, Goebel et al., 2019, SOEP v38, 2021).[3]

Our results show a substantial increase in smoking among East German women exposed to West German TV: a 10.7 percentage point rise in the probability of smoking — 49% relative to the sample mean — and a 68% increase in daily cigarette consumption. No such effect is observed among men. This gender-specific response is consistent with the differential pre-

[1] Smoking rates among men were comparable in East and West Germany during the 1980s, but female smoking was significantly more common in the West (Heinemann and Greiser, 1993). After the fall of the Berlin Wall, rates among East German women rose sharply from 22% to 29% between 1990 and 1998, while West German rates remained stable at around 30% (Robert Koch Institut, 2009).

[2] Over the past two decades, smoking-related cancer deaths among German women have surged by 36% (Statistisches Bundesamt, 2025).

[3] To identify exposure to West German TV during the GDR period, we focus on the restricted sample of SOEP respondents who had already been interviewed in East Germany in 1990, a few months before reunification.

reunification social norms — female smoking was culturally stigmatized in the GDR, and thus only women exposed to Western media adopted the more liberal smoking norms prevalent in the West.

The key assumption of our identification strategy is that, in the absence of West German TV exposure, smoking prevalence in regions with TV access would have evolved similarly to that in regions without TV access. We corroborate the validity of our identification strategy in several ways. First, we test for pre-trends in regional characteristics using data from 1955 and 1989. We find that counties with and without exposure to West German TV were comparable across a wide range of demographic, economic, and educational variables that could have explained differential patterns in smoking prevalence. Second, we use a geographic regression discontinuity (GRD) design that only includes individuals who lived in regions without Western TV reception or in the areas with reception that are in close proximity to the control region. Third, we balance the sample using different reweighting techniques, including the entropy balancing method and the coarsened exact matching algorithm. Fourth, we assess the robustness of the results to omitting: *i*) individuals residing in the counties located along the inner German border; *ii*) Berlin and its surrounding area; *iii*) individuals who changed their place of residence within the last two years before the interview in 1990; and, *iv*) individuals who moved to West Germany after reunification. Fifth, we check for the influence of outliers, consider alternative specifications, and adjust standard errors in different ways. Finally, we use different TV signal thresholds to identify regions with and without exposure to West German TV.

Our findings suggest that exposure to West German television contributed to a shift in social norms surrounding female smoking in East Germany. However, this pattern might also be explained by other factors unrelated to television. Specifically, regions with access to West German broadcasts may have differed systematically from those without in ways that could independently affect smoking behavior. To address this concern, we investigate five alternative explanations: *i*) decreased exposure to East German anti-smoking messaging; *ii*) increased economic anxiety triggered by media content; *iii*) changes in time preferences and risk attitudes; *iv*) shifts in leisure activities; and, *v*) proximity to the West German border, which may have eased access to Western cigarettes. We find no evidence supporting any of these alternative channels. Across various robustness checks, the effect of West German TV exposure remains strong and statistically significant, reinforcing the view that cultural influence through television — rather than these confounding factors — was the key driver of rising smoking rates among East German women.

In light of our findings, we consider the broader demographic and economic implications of this behavioral shift. We show that the increase in smoking among women exposed to West German television had significant downstream effects on health and mortality. Women in TV-exposed regions report worse self-assessed health, more frequent doctor visits, and lower mental well-being. Using epidemiological risk estimates, we calculate that the increase in smoking resulted in approximately 1,213 additional lung cancer deaths annually among East German women. Moreover, we estimate €321 million in additional annual healthcare costs for women

aged 40-60, equivalent to a 4% increase in per capita healthcare spending for this demographic. These findings highlight the long-run public health and fiscal consequences of norm diffusion during transitional periods.

This paper contributes to the political economy of health behaviors by providing novel causal evidence that media exposure can catalyze shifts in deeply embedded social norms — particularly in transitional contexts. Rather than simply reinforcing existing habits, television functions as a powerful instrument for reshaping health-related beliefs and risk perceptions. We show that access to West German television led to a substantial increase in smoking among East German women by altering prevailing attitudes toward tobacco use. While direct cigarette advertising played a role, portrayals of smoking in films and entertainment programming further normalized the behavior and minimized its health risks (Charlesworth and Glantz, 2005, Sargent, 2005). The absence of countervailing health messaging, coupled with the glamorization of smoking, fostered imitation and helped shift normative beliefs surrounding female tobacco use (Amos and Haglund, 2000, Hanewinkel and Wiborg, 2007).[4] Our findings build on existing evidence from adolescent populations showing that media exposure increases smoking initiation (Charlesworth and Glantz, 2005, Hanewinkel and Sargent, 2008, Titus-Ernstoff et al., 2008), and extend this literature by documenting the long-run impact of culturally permissive media environments on adult health behaviors in the context of systemic social change.

More broadly, this paper contributes to a growing literature on the unintended health consequences of media-driven cultural transmission. Prior research has shown that West German media influenced political attitudes (Kern and Hainmueller, 2009, Kern, 2011, Crabtree et al., 2015, Friehe et al., 2020, Hornuf et al., 2023) and consumer choices (Hyll and Schneider, 2013, Bursztyn and Cantoni, 2016) among East Germans. We extend these findings by documenting the downstream public health effects of cultural integration. Specifically, we show that reunification not only accelerated economic convergence but also weakened GDR-era social norms that stigmatized female smoking. This normative shift led to a substantial increase in smoking among East German women — a change not mirrored among men. This asymmetric response illustrates how media can differentially reshape health behaviors depending on pre-existing social constraints.

Our results have important implications for population health, long-term morbidity, and healthcare expenditure in transitional societies. Understanding how shifts in health norms are transmitted and internalized is essential for anticipating the broader epidemiological and fiscal effects of economic and institutional integration. While media exposure can accelerate the adoption of new behaviors, it may also introduce or exacerbate health risks, including increased prevalence of chronic disease and rising healthcare demand. These findings highlight the need for policymakers to account for the public health externalities of cultural assimilation — especially when legacy norms diverge sharply across populations undergoing integration.

The remainder of the paper is structured as follows. Section 2 discusses the historical con-

[4]Christopoulou and Lillard (2015) show that smoking behavior is influenced by culturally inherited norms.

text. Section 3 describes the identification strategy and the data. Section 4 presents the main results, the robustness checks, and the channels. Section 5 explores the implications on health outcomes, mortality trends, and healthcare costs. Section 6 concludes.

2. HISTORICAL CONTEXT

2.1 Smoking Norms in East Germany

In the GDR, smoking was a widespread and socially accepted behavior among men. The socialist government recognized the health risks of tobacco but avoided coercive regulation, favoring educational campaigns that encouraged personal responsibility. As Rolf Thranhardt of the Health Ministry stated in 1965: "The principle on which our state is founded is to teach its citizens once and for all to act responsibly and no longer to allow them to wander through a forest of 'Do Not ...' signs" (Hong, 2002). Officials acknowledged smoking as a remnant of capitalist influence but recognized that many citizens viewed it as a fundamental personal right. Indeed, by the early 1960s, 70% of East German men were regular smokers (Hong, 2002), and per capita cigarette consumption rose from 1,042 in 1955 to 1,683 in 1978 (Statistical Yearbook of the German Democratic Republic, 1979). Despite increasing awareness of the health consequences — lung cancer cases tripled between 1947 and 1961 from 1,761 to 5,225 — the socialist government struggled to meaningfully curtail tobacco use among men.

For women, however, smoking remained socially discouraged and culturally stigmatized in Soviet-influenced gender norms (Abbott et al., 2006, Transchel, 2006). Only 20% of East German women were regular smokers in the early 1960s, compared to more than three times that rate among men (Hong, 2002). This gender disparity reflected both ideological constraints and social enforcement. Women who smoked faced informal sanctions and exclusion from social and professional spaces. Workplace tensions often emerged over second-hand smoke, revealing deeper gender-specific conflicts. For example, one teacher wrote to the Ministry of Health in 1957: "Why don't I have the same right to healthy working conditions that a smoker has to deny them to me? This can't be what is meant by equal rights for women!" (Hong, 2002).

Although these gendered norms persisted into the late 1980s, the lead-up to reunification saw subtle shifts, especially as exposure to Western cultural content increased. While smoking continued to be symbolically associated with masculinity, changing gender roles and growing access to West German television began to erode longstanding taboos. As a result, women's smoking behaviors became more susceptible to change, setting the stage for the rapid behavioral shifts observed after 1990.

2.2 Television and Tobacco Consumption in West Germany

In stark contrast to the GDR's cautious public health stance, post-war West Germany maintained a permissive regulatory environment around tobacco use. Following the collapse of the Third Reich, the new West German government distanced itself from the restrictive health policies of the Nazi era — including anti-smoking campaigns — due to their authoritarian

connotations (Proctor, 1996, 1997, 1999, Smith et al., 1994). As a result, tobacco control policies in West Germany remained minimal (Cooper and Kurzer, 2003). Industry lobbying efforts further entrenched this permissive environment, facilitating the rapid expansion of domestic cigarette production and weakening regulatory oversight (Elliot, 2010, 2012, 2015). The country's approach favored health education over legal restrictions and has been characterized as a "tobacco industry paradise" (Poetschke-Langer and Schunk, 2001).

Television emerged as a key vehicle for normalizing smoking, with German media portraying tobacco use far more frequently than foreign productions (Dalton et al., 2002, Bornhäuser et al., 2006, Worth et al., 2006, Mons and Pötschke-Langer, 2010). A 2005 study found that 45% of German television programs included at least one smoking scene — rising to 77% in movies and 69% in TV magazines (Hanewinkel and Wiborg, 2007). These depictions rarely featured health warnings and often associated smoking with youth, glamour, or personal freedom. The tobacco industry capitalized on these portrayals through product placement and promotional partnerships, reinforcing smoking as a socially desirable behavior (Kluger, 1996, Mekemson and Glantz, 2002).[5]

Crucially, many East Germans had access to these portrayals through cross-border television broadcasts. Despite the GDR's efforts to promote socialist values and public health messaging, West German television offered an alternative cultural framework — one that glamorized smoking and projected Western lifestyle norms. This exposure was especially salient for East German women, who had lower baseline smoking rates and were more likely to respond to shifting gender expectations. By 1991, while 74% of East German men were current or former smokers, 64% of women had never smoked (Robert Koch Institute, 1995). After reunification, international tobacco companies aggressively entered the East German market, targeting women and adolescents with sophisticated marketing strategies (Connolly, 1995, LeGresley et al., 2006). Advertising campaigns emphasized themes of emancipation, modernity, and individuality, aligning closely with the imagery already familiar from West German media (Heinemann et al., 1995, Amos and Haglund, 2000, Hafez and Ling, 2005).

In this context, West German television functioned as a vector of cultural transmission, reshaping norms and health behaviors in the East. The rise in female smoking in post-reunification East Germany can thus be traced to sustained exposure to televised portrayals of tobacco use that clashed with — and ultimately undermined — the GDR's earlier social norms. This case highlights how media can serve as a powerful agent of behavioral change, particularly in societies undergoing institutional transition.

[5] A 1989 Philip Morris market study openly acknowledged that "most of the strong, positive images for cigarettes and smoking are created by cinema and television" (Kelly Weedon Shute Advertising, 1989).

3. EMPIRICAL STRATEGY AND DATA

3.1 Identification Strategy

This paper estimates the causal effect of exposure to West German television on smoking prevalence in East Germany. To address potential endogeneity in self-reported television viewership, we exploit a natural experiment created by exogenous geographic and topographic variation in broadcast signal reach across the GDR. Specifically, natural terrain features such as hills and valleys determined whether residents in certain regions could receive West German television signals, independent of individual preferences or regional characteristics. Our identification strategy hinges on the assumption that, absent access to West German television, regions with and without signal coverage would have exhibited similar trends in smoking prevalence over time. We assess the plausibility of this parallel trends assumption through several complementary checks.

First, we evaluate baseline comparability across treatment (TV-accessible) and control (non-accessible) regions using historical administrative data. Table A.6 presents differences in observable characteristics drawn from the GDR's statistical yearbooks. Panel A, based on data from 1955 — the earliest available year — shows no systematic differences between treatment and control districts (*Verwaltungsbezirke*) prior to the introduction of West German broadcasts.[6] Panel B replicates this exercise using data from 1989, just at the end of the GDR era, again finding no statistically significant disparities. In Panel C, we examine trends in key socioeconomic and demographic variables between 1955 and 1989, and find that these evolved in parallel across the two groups. These findings are consistent with prior work documenting a high degree of homogeneity across East German regions during the GDR era (Kern and Hainmueller, 2009, Hyll and Schneider, 2013, Bursztyn and Cantoni, 2016).

Second, we address the possibility of endogenous residential sorting, which could violate the assumption of exogenous treatment assignment. Specifically, one concern is that individuals with strong preferences for Western media may have selectively relocated to areas with signal access. However, internal migration in the GDR was extremely limited due to institutional and structural constraints. From 1970 to 1988, the average rate of migration across county borders was only 2.5 per 100 residents annually (Ehmer, 2004), implying that the average East German moved between counties roughly once in a lifetime (Grundmann, 1998). This low mobility reflected a combination of state-imposed restrictions on labor mobility and chronic housing shortages that limited the feasibility of residential relocation (Hyll and Schneider, 2013). These factors collectively suggest that spatial sorting into West German TV-accessible regions is unlikely to bias our estimates.

To further mitigate concerns about post-reunification migration, we restrict our analysis to individuals for whom we can observe pre-reunification residence and assign treatment status based on their location prior to the fall of the Berlin Wall. The data sources and construction of treatment variables are discussed in detail in Section 3.2.

[6] 1955 marks the first year for which detailed district-level information is available in the GDR statistical yearbook.

In summary, our identification strategy is supported by multiple strands of evidence. The absence of systematic differences in pre-treatment characteristics, the similarity in long-run regional trends, and the institutional barriers to internal migration all reinforce the credibility of our approach. These factors provide a strong foundation for interpreting the estimated effects of West German television exposure on smoking behavior as causal.

3.2 Data and empirical approach

To analyze the effect of West German TV exposure on smoking prevalence, we first utilize survey data collected by Zentralinstitut für Jugendforschung (1989) shortly before the fall of the Berlin Wall, between late 1988 and early 1989. This dataset contains responses from 3,564 individuals aged 15 to 50 across eight of the fourteen districts (*Verwaltungsbezirke*) in the GDR.[7] During the GDR era, studies conducted by this institute were classified as confidential. After reunification, however, these records were declassified, enabling their use for scholarly research (Kern and Hainmueller, 2009). Surveys were administered in group settings, with participants completing anonymous questionnaires that were collected in sealed urns (Friedrich, 1990). While the possibility of preference falsification cannot be entirely ruled out, there is no evidence of systematic differences in reporting behavior between individuals with and without West German TV exposure (Kern and Hainmueller, 2009). Moreover, any bias in the treatment effect is likely minimal, as our analysis focuses on comparing differences between these groups rather than estimating absolute levels of smoking prevalence.

The survey collected standard socio-demographic characteristics and information on smoking habits, enabling the analysis of both the extensive and intensive margins of smoking. We identify the former through a variable equal to one if a respondent identified as a smoker. To analyze the latter, we use the answers to the following question, which was asked to a subsample of the total participants (33% of the entire sample): *How many cigarettes do you smoke, on average, per day?* Answers are based on the following scale: (1) *none*, (2) *up to 5 cigarettes*, (3) *up to 10 cigarettes*, and (4) *over 10 cigarettes*.

When examining the likelihood of smoking, we estimate the following probit model:

$$Y_i = \alpha + \beta_1 TV_i + \beta_2 X_i + \epsilon_i, \tag{1}$$

where Y_i is the binary variable indicating whether a participant smokes. For the number of cigarettes consumed, we estimate the same equation using an ordered probit model. X_i is a vector of controls including age, age^2, gender, marital status, parenthood, cohabitation with parents, employment status, and education level. In preliminary analyses, TV_i is defined based on the survey question about the frequency of watching West German TV programs. Specifically, TV_i equals one if a respondent reported watching West German TV at least once a week. Summary statistics for these variables are presented in Table A.1.

To address the issue of self-selection in survey responses, we exploit geographic variation in West German TV signal strength, as discussed in Section 3.1. Similarly to previous studies,

[7] Since the legal smoking age in the GDR was 16, our analysis focuses on respondents aged 16 and above.

we use the fact that in one of the eight GDR districts included in the survey — specifically, the southeastern district of Dresden — the West German TV signal was generally too weak for reception (Kern and Hainmueller, 2009, Hyll and Schneider, 2013, Hennighausen, 2015, Friehe et al., 2020, Hornuf et al., 2023).[8] This allows us to re-estimate equation (1), defining TV_i as one if the respondent resided in a district with TV access and zero if they lived in Dresden. Figure A.1a illustrates the covariate balance between the treatment and control groups, revealing minimal differences except for a slightly higher proportion of females in the control group (51%) compared to the treatment group (48%). An interesting feature of this survey is that it uniquely links exogenous TV signal variation to self-reported viewing frequency. A limitation, however, is that signal strength can only be measured at the district level, introducing potential measurement error. Figure A.2 compares self-reported TV habits with place of residence. While 82.5% of Dresden respondents reported almost never watching West German TV (compared to 5.3% in the treatment group), 17.4% stated they watched it at least weekly.

To address this limitation, we then analyze data from the German Socio-Economic Panel (SOEP), which enables more granular allocation of TV signal information. The SOEP is a nationally representative longitudinal survey of private households in the Federal Republic of Germany (from 1984) and the eastern German states (from 1990) (Goebel et al., 2019, SOEP v38, 2021). To identify exposure to West German TV before the fall of the Berlin Wall, we focus on the restricted sample of 4,453 individuals — from 2,179 households — who had already been interviewed in East Germany in 1990, a few months before reunification. From this set of respondents, we further restrict our attention to the 2,288 individuals who were part of the 2002 wave of SOEP — the first wave to include specific questions on smoking behavior. A key advantage of the SOEP is that it provides county-level residence information for 1990, allowing for finer signal strength allocation.

When considering the SOEP data, we re-estimate equation (1), where Y_i is the binary indicator for smoking — the extensive margin — or the number of cigarettes smoked daily — the intensive margin. Since SOEP participants reported exact cigarette counts, we use a Poisson model for the intensive margin. Here, TV_i equals one if a respondent lived in a county with West German TV signal strength above -86.5dBm, following the methodology of Crabtree et al. (2015).[9] Figure 1 visualizes this classification.

The parameter of interest, β_1, captures the difference in smoking behavior between individuals residing in counties with and without access to West German television. The control vector, X_i, includes standard demographic and socioeconomic variables: age, age^2, gender, marital status, household size, employment status, education level, household income, and dummy variables for having a religious affiliation, and migration background.

Summary statistics are reported in Table A.2, with detailed variable definitions in Table B.1. Covariate balance between treatment and control groups is illustrated in Figure A.1b.

[8] The northeastern GDR, which also had limited access to West German TV, is not part of the survey and cannot be included in this first analysis.

[9] Crabtree et al. (2015) use a Longley-Rice signal propagation model to estimate signal strength, incorporating terrain data and the location and technical specifications of West German TV transmitters. Treatment classification aligns with Bursztyn and Cantoni (2016), though we can only assign treatment at the county rather than municipal level because our SOEP dataset does not contain information on individuals' municipality of residence in 1990.

While the groups are broadly comparable, small differences in age, education, and part-time employment rates warrant further robustness checks.[10] To address these imbalances, we apply entropy balancing and coarsened exact matching, as detailed in Section 4.2. We also employ a geographic regression discontinuity (GRD) design, described in Section 4.1, which compares adjacent counties along the TV signal exposure boundary.

4. West German TV and East German Smoking

4.1 Main Results

Table 1 presents our initial findings based on a survey conducted shortly before German reunification (late 1988 to early 1989). This dataset includes both smoking behavior and self-reported viewership of West German television. In Panel A, we define a binary treatment variable equal to one if a respondent reported watching West German TV at least once per week. Our primary outcome variables are smoking prevalence (columns 1-3) and the number of cigarettes consumed (columns 4-6). We begin with a baseline specification that excludes any controls (columns 1 and 4). In the next specifications (columns 2 and 5), we add demographic controls, including age, age squared, gender, relationship status, cohabitation with parents, and presence of children. Finally, columns 3 and 6 incorporate socio-economic controls, including employment status and educational attainment.

The results in Panel A suggest that exposure to West German TV is associated with a 7.8 percentage point increase in the probability of smoking — a 15% increase relative to the sample mean of 51.7% in the sample of 3,347 East German respondents. We also find that television exposure increases cigarette consumption: marginal effects show a rise in the likelihood of smoking up to five cigarettes per day by 0.6 percentage points, five to ten by 2.1 percentage points, and more than ten cigarettes per day by 6.2 percentage points.[11]

Panel B reports estimates using our preferred measure of exposure — based on exogenous geographic variation in West German TV signal reception. This instrument addresses potential endogeneity in self-reported viewership due to unobserved preferences. While this measure may imperfectly capture actual viewership — either by overstating exposure in areas lacking TV sets or understating it where coverage was underestimated — the results are remarkably consistent with Panel A. Exposure to a West German TV signal increases the probability of smoking by 7.5 percentage points, also representing a 15% increase relative to the sample mean. We again observe an effect on cigarette consumption: exposure increases the probability of smoking up to five cigarettes per day by 0.3 percentage points, five to ten by 1.3 points, and more than ten by 4.0 points.

We interpret these results as robust evidence of a causal relationship between West German

[10] The average age is 50.7 in the control group versus 52.9 in the treatment group; mean years of education are 12.7 and 12.3, respectively; the share of part-time employment is 12% in the control group and 8% in the treatment group; and the share of retirees is 24% and 33%, respectively.

[11] Respondents reported cigarette consumption using categorical responses: 1) none, 2) up to 5 cigarettes/day, 3) up to 10, and 4) more than 10.

television exposure and increased smoking in East Germany during the final years of the GDR. Importantly, the observed effects precede the political changes of 1989, suggesting that cultural diffusion was already reshaping health behaviors before formal reunification.

However, this dataset has limitations. First, it primarily samples younger individuals (ages 15-50, mean age 23), raising questions about generalizability to older cohorts.[12] Second, the survey covers only eight of the GDR's fourteen districts. Among these, only one district — Dresden in the South-East of East Germany — serves as a control in Panel B, limiting geographic variation.[13] Finally, geographic identifiers in this survey are only available at the district level, potentially masking finer spatial variation in signal exposure. For these reasons, we complement our analysis with data from a second source: the German Socio-Economic Panel (SOEP).[14]

We turn next to the 2002 wave of SOEP — the first to include smoking behavior — and focus on 2,218 respondents who had been surveyed in East Germany in 1990, prior to reunification.[15]

Table 2 reports our main results. The coefficient of interest, β_1 in equation (1), captures the treatment-control difference in smoking behavior across regions with differing levels of West German TV exposure. Panel A estimates β_1 for the full sample, while Panels B and C report results separately for women and men. We begin with unadjusted models (columns 1 and 5), then sequentially add demographic controls (columns 2 and 6), and finally include full socio-economic controls (columns 3 and 7).[16] We take the model with both demographic and socio-economic controls as our preferred specification for all forthcoming tables.

Panel A shows that West German TV exposure increased smoking probability by 6.3 percentage points — a 22% increase relative to the sample mean. While the effect on cigarette quantity (increasing by 18%) is not statistically significant, the pattern is consistent. Panel B presents our key finding: among women, exposure raised smoking likelihood by 10.7 percentage points (49% relative to the mean) and daily cigarette consumption by 68%. Panel C shows no effect for men, aligning with historical evidence that smoking was already socially acceptable among GDR men and thus less responsive to new cultural cues.

While the evidence supporting our empirical design thus far is compelling, and although the fully saturated model addresses numerous observable differences between treatment and

[12] See Table A.1. We restrict analysis to respondents aged 16 and above, consistent with the legal smoking age in the GDR.

[13] Although the sample is fully balanced between treatment and control districts (Figure A.1a), we may still be concerned that including only one control group might not fully capture the counterfactual of how smoking patterns would have evolved without West German TV.

[14] The striking similarity in results obtained when using the self-reported measure of TV viewership (Panel A) and our preferred measure of TV exposure (Panel B) makes us confident in focusing on our preferred measure of TV exposure throughout the remainder of the paper.

[15] We validate comparability by restricting the SOEP sample to ages 28-62 (reflecting that twelve years have elapsed since the GDR survey), to approximate the earlier survey's 16-50 age range. Results (not shown for brevity) closely mirror those from Table 1, with a 7.2 percentage point increase in smoking likelihood (compared to 7.8 percentage points in column 3 of Table 1). Unfortunately, we cannot restrict by district, as GDR districts were dissolved post-reunification and do not map cleanly onto modern administrative units. The former GDR districts are in size between today's federal state (NTUS1) and county (NUTS3) regions.

[16] Demographic controls include age, age squared, household size, gender (Panel A only), relationship status, religious affiliation, and migration background. Socio-economic controls include employment status, years of education, and household income. Full regressions are shown in Tables A.3-A.5.

control groups, there may still be concerns regarding potential biases arising from any remaining disparities between regions with and without West German TV. These differences have the potential to exacerbate sensitivity to biases arising from unobservable factors. Thus, to further strengthen causal inference, we implement a geographic regression discontinuity (GRD) design, focusing on individuals living within 100 km of the border between signal and non-signal areas. This helps control for unobserved regional heterogeneity.[17] Results, shown in columns 4 and 8 of Table 2, confirm the main findings: among women, TV exposure increases smoking probability by 47% and cigarette consumption by 63%, closely tracking the estimates from the full sample.

Taken together, these findings provide strong evidence that pre-reunification exposure to West German television drove significant cultural change in smoking behavior — especially among women — through shifts in social norms. This interpretation aligns with qualitative accounts of the era, which emphasize the symbolic association between smoking and masculinity in the GDR (Hinote et al., 2009). Notably, the 2002 gender gap in smoking prevalence was 16.6 percentage points. Our estimated effect — an increase of 12.3 points — implies that West German TV exposure closed approximately 74% of this gap.

While overall smoking rates increased, the pattern of convergence raises important questions about differential uptake across subgroups. In the following section, we explore heterogeneity in treatment effects across age, education, income, and urban-rural divides. Before doing so, we assess the robustness of our identification strategy and further validate our empirical design.

4.2 Robustness Checks

Testing for pre-trends in regional characteristics. A central requirement of our identification strategy is that regions with and without access to West German television were comparable along key socio-economic and demographic dimensions prior to reunification. To assess this, we test for systematic differences in pre-determined characteristics — including population density, gender composition, age structure, economic activity, and educational indicators such as student-teacher ratios and class sizes — all of which are relevant predictors of health behaviors and structural conditions (Casetta et al., 2016, Schaap et al., 2009, Sreeramareddy and Pradhan, 2015). As discussed in Section 3.1, Panel A of Table A.6 compares treatment and control regions using data from the 1955 GDR Statistical Yearbook, the earliest source with comprehensive county-level information. We do not find systematic differences between the two groups. Panel B performs the same comparison using data from 1989, immediately prior to reunification. Again, no statistically significant differences emerge between exposed and non-exposed regions. To rule out differential trends, Panel C compares changes in these variables from 1955 to 1989. We find that the evolution of socio-economic and demographic characteristics was parallel across the two groups. These findings reinforce the validity of the parallel trends assumption and suggest that any post-reunification divergence in smoking behavior is unlikely to be driven by pre-existing differences.

[17] Figure A.3 presents a formal balancing test on all controls included in our baseline specification of Table 2.

Additional robustness checks. While the GRD estimates in columns 4 and 8 of Table 2 already address potential concerns about unobserved regional heterogeneity, we further assess the robustness of our results through a series of additional checks, summarized here and reported in detail in Appendix C. First, in Table C.1, we apply the entropy balancing method proposed by Hainmueller (2012) to reweight the control group so that its covariate distribution matches that of the treatment group along the first three moments (mean, variance, and skewness). The results remain virtually unchanged, confirming that observed differences in covariates are not driving our main findings. We also replicate the analysis using coarsened exact matching, again finding consistent treatment effects. Next, in Table C.2, we test the sensitivity of our results to sample composition. We sequentially exclude: i) individuals living in counties bordering the former inner-German divide, ii) residents of Berlin and its surrounding areas, iii) respondents who changed residence in the two years prior to the 1990 interview, and iv) individuals who migrated to West Germany post-reunification. In all cases, the estimates remain stable. In Table C.3, we show that our results are robust to the exclusion of potential outliers and alternative functional form specifications. We also re-estimate the models using spatially clustered standard errors to account for possible geographic correlation in the error terms. Finally, in Table C.4, we verify the sensitivity of our findings to the construction of the West German TV exposure variable. We re-estimate our main models using alternative thresholds for classifying counties as exposed or not exposed based on signal strength. Across all alternative definitions, the estimated effects on smoking prevalence and cigarette consumption remain highly consistent with our baseline results. Collectively, these robustness checks provide strong support for the internal validity of our empirical strategy and the credibility of our causal interpretation.

4.3 Heterogeneity of the Main Results

Our findings indicate that exposure to West German television played a significant role in shifting cultural norms surrounding female smoking in East Germany. To better understand the differential impact of this cultural transmission, we explore heterogeneity in the treatment effect across key socio-demographic groups. Figure 2 presents the estimated effects of TV exposure on both smoking prevalence and cigarette consumption among women, disaggregated by i) age cohort, ii) education level, iii) income group, and iv) place of residence (urban vs. rural).

Age Cohorts. We find substantial heterogeneity by age. Women born after 1955 — who were in their formative or early adult years during the period of West German TV exposure — exhibit significantly larger increases in smoking rates than older cohorts. This pattern suggests that younger women were more impressionable and responsive to Western media influences, consistent with developmental psychology literature emphasizing the susceptibility of younger individuals to shifts in social norms. Older women, whose behaviors were likely more established prior to TV exposure, showed limited behavioral change.

Education. The impact of West German TV exposure is also more pronounced among women with lower educational attainment (high school education or less). This group experienced both higher increases in smoking initiation and greater cigarette consumption. These results align with prior research showing that individuals with lower education levels are more vulnerable to persuasive media messaging and may have less access to health-related information or critical media literacy. In contrast, the effect among women with tertiary education is significantly smaller and not statistically distinguishable from zero in some specifications.

Income. Interestingly, the patterns by income are mixed. While higher-income women were somewhat more likely to initiate smoking, lower-income women showed a greater increase in cigarette consumption. This suggests that although initiation may be broadly influenced by social visibility or aspiration dynamics in higher-income groups, the economic and social stressors associated with lower income may drive higher intensity of use once smoking is adopted.

Urban vs. Rural Residence. The magnitude of the effect also varies by place of residence. Women living in urban areas were more likely to start smoking and consumed more cigarettes than their rural counterparts. This finding is consistent with literature on cultural diffusion and behavioral change, which suggests that urban environments — characterized by greater exposure to external influences, higher media penetration, and weaker traditional constraints — facilitate faster and more pronounced norm shifts.

In contrast, Figure A.4 shows no significant heterogeneity in smoking behavior among men, regardless of age, education, income, or place of residence. This stability across subgroups reinforces our interpretation that male smoking behaviors were already culturally normalized and saturated prior to reunification, and thus relatively immune to additional external media influences.

Taken together, these subgroup analyses underscore the gender-specific nature of cultural norm diffusion and reveal how individual and contextual characteristics mediate the impact of media exposure on health behaviors. The findings highlight the importance of tailoring public health interventions to account for these differential susceptibilities, especially in transitional societies where norms are rapidly evolving across demographic lines.

4.4 Alternative Channels

Our results point to a cultural shift in social norms surrounding female smoking, driven by exposure to West German TV. However, alternative mechanisms may also explain the observed increase in smoking rates among East German women. That is, it is possible that regions with West German TV access differed systematically from those without, in ways that could independently influence smoking behavior. In this section, we examine five such alternative explanations: i) reduced exposure to East German anti-smoking propaganda; ii) heightened

economic concerns driven by media coverage; *iii*) changes in risk-taking and patience; *iv*) changes in leisure behavior; and, *v*) geographic proximity to the West German border, which may have facilitated access to Western cigarettes.

We find no empirical support for these alternative channels. Across a range of robustness checks, the coefficient on West German TV exposure remains stable and statistically significant, reinforcing our interpretation that cultural transmission via television — rather than these confounding factors — was the primary driver of increased smoking among East German women.[18]

Crowding out of propaganda exposure. One possibility is that the observed effects stem not from exposure to Western cultural norms, but from reduced exposure to East German state propaganda. The GDR discouraged smoking through state-controlled television, which promoted public health messaging without coercive enforcement. Smoking was absent from television portrayals — television commissioners were barred from depicting smoking — and there was a de facto ban on tobacco advertising due to budgetary restrictions (Hong, 2002, German Historical Museum, 2016).

Residents in areas with West German TV access may have substituted away from East German programming, thus reducing their exposure to state-led health messaging. This is confirmed by survey data from Zentralinstitut für Jugendforschung (1989), which show that only 35% of individuals in West German TV-exposed regions watched East German programming daily, compared to 67% in non-exposed areas.

To test whether reduced propaganda exposure explains our results, we examine three proxies for alignment with GDR ideology, which would plausibly correlate with propaganda exposure (Campa and Serafinelli, 2019). First, we use survey data on satisfaction with the GDR's political system using a four-point Likert scale, ranging from 1 (very dissatisfied) to 4 (very satisfied). Second, we construct a binary variable indicating support for the Party of Democratic Socialism (PDS) — the successor to the ruling Socialist Unity Party — based on 1992 survey responses.[19] Third, we identify individuals who worked for the government or in the public sector during the GDR period, a group likely to have higher exposure to state narratives. In our sample, this applies to 22% of men and 34% of women.

As shown in Table 3, incorporating these proxies — either individually or jointly — has no meaningful effect on the West German TV coefficient. This suggests that the results are not driven by a reduction in exposure to East German propaganda but by the content and normative cues introduced by West German television.

Economic concerns. Another potential channel is that West German TV influenced smoking by amplifying concerns about economic insecurity, rather than through cultural messaging

[18]For brevity, we focus this analysis on women. As shown in prior sections, there is no evidence of a treatment effect among men. All robustness tests conducted for male respondents yield null results.

[19]Founded in 1990 as the successor to the Socialist Unity Party of Germany, the ruling party of the GDR, the PDS retained ideological continuity with the former regime.

alone. Anxiety about job prospects, firm viability, or broader labor market shifts could increase smoking rates as a stress-coping mechanism (Khubchandani and Price, 2017). West German broadcasts, unlike their East German counterparts, frequently covered the economic risks of reunification — forecasts of rising unemployment and labor market restructuring — thus potentially raising stress levels among East German viewers.

To test this channel, we control for individuals' subjective economic expectations using SOEP survey data. In Table 4, we first include a general measure of optimism about future life satisfaction, followed by expectations regarding four specific career risks: *i*) job loss, *ii*) demotion, *iii*) occupational change, and *iv*) downsizing in one's current firm. Across all specifications, we find no evidence that these variables attenuate the estimated effect of West German TV exposure. The coefficient on TV exposure remains stable, and none of the economic concern variables significantly predict smoking behavior. This suggests that the smoking increase is not primarily driven by economic stress or labor market pessimism.

Change in risk-taking and patience. A potential alternative explanation for the observed rise in smoking is a broader shift in general risk-taking behavior, rather than a norm-specific response. To assess this, we first examine whether West German TV exposure affected individuals' self-reported risk preferences. Columns (1) and (2) of Table 5 reveal no significant relationship — regardless of whether risk attitudes are measured continuously or via a binary indicator — suggesting no systematic change in risk tolerance.

Next, we explore whether the effect reflects an overall increase in risky behaviors by analyzing alcohol consumption. Unlike smoking, alcohol use among GDR women was not socially stigmatized, so any impact of TV exposure on drinking would indicate a broader behavioral shift. However, columns (3), (4), and (5) of Table 5 show no significant changes in beer, wine, or spirits consumption. This strengthens our interpretation that the rise in smoking reflects a targeted change in gender-specific norms, not a general increase in risky behaviors.

We also examine whether differences in time preferences — another factor known to influence smoking, particularly among women (Miura, 2019) — could explain the results. Friehe and Pannenberg (2020) document persistent differences in time preferences between East and West Germans, raising the possibility that media exposure influenced patience or impulsivity. Yet, as shown in columns (6) and (7), we find no significant effects of TV exposure on either continuous or binary measures of impatience. Taken together, these results suggest that neither general risk preferences nor time discounting changed in response to West German TV, reinforcing the interpretation of a norm-specific shift in smoking behavior.

Change in leisure behavior. Another possible mechanism is that West German TV exposure altered how individuals allocated their leisure time — specifically, increasing time spent watching television, an activity often compatible with smoking. In this scenario, smoking might have risen not because of exposure to Western values, but due to a reallocation away from less smoke-friendly activities like sports or socializing.

To investigate this, Table 6 examines whether women's leisure habits changed following TV exposure. Drawing on Hartmann (2024), who finds no overall shift in leisure behavior in the broader GDR population, we focus on four activity categories. Across all measures — frequency of social interactions (columns 1 and 2), participation in entertainment activities like cinema or dance events (columns 3 and 4), attendance at cultural events such as theater and concerts (columns 5 and 6), and engagement in sports (columns 7 and 8) — we find no significant effects of West German TV exposure. These null findings indicate that TV access did not meaningfully displace other leisure activities. As such, it is unlikely that increased smoking among women resulted from a shift in how leisure time was spent. Instead, the evidence supports the view that television shaped behavior by transmitting new cultural norms, particularly those challenging the GDR's stigmatization of female smoking.

Proximity to the West German border. A final alternative explanation is that the observed treatment effects reflect physical proximity to the West rather than cultural exposure via television. Counties near the West German border may have had better access to smuggled Western goods — including cigarettes — during periods of GDR scarcity. If easier access to cigarettes drove the increase in smoking, then distance to the border, rather than television content, would be the relevant explanatory variable.

To evaluate this, we exclude all counties adjacent to the West German border from our analysis. As shown in Table C.2, the results are virtually unchanged. We then incorporate continuous measures of border proximity by calculating the distance from each county centroid to the nearest West German border point and including this as a control variable. Table 7 shows that distance has no statistically significant effect on either smoking prevalence or cigarette consumption.

Finally, we implement a placebo test following Bursztyn and Cantoni (2016), restricting the sample to counties with West German TV access and testing whether distance to the border predicts variation in smoking within the treated group. If border proximity, rather than media exposure, drove the treatment effect, we would expect to see systematic variation in smoking outcomes within the treated region. As shown in columns 3 and 6 of Table 7, no such pattern emerges.

Collectively, these robustness checks strengthen our interpretation that the primary mechanism behind increased female smoking is the cultural transmission of Western norms via television. Neither diminished propaganda exposure, economic anxiety, nor border proximity can account for the observed patterns. The weight of the evidence supports the view that media exposure shaped behaviors by altering normative perceptions of smoking, particularly among women previously subject to strong social taboos under the GDR.

5. HEALTH, MORTALITY TRENDS, AND HEALTHCARE COSTS

This paper has demonstrated that exposure to West German TV led to an increase in smoking prevalence and cigarette consumption among women in East Germany, with no comparable effect among men. Using exogenous variation in broadcast signal availability and survey data on smoking behavior, we estimate that West German TV exposure increased the likelihood of smoking by 10.7 percentage points — a 49% increase relative to the sample mean — and weekly cigarette consumption by 68%. In this section, we explore the broader demographic and economic implications of this behavioral shift by examining its impact on health outcomes, mortality, and healthcare expenditures.

Health Outcomes. The rise in smoking among East German women raises important questions about downstream health consequences. Drawing on epidemiological evidence that links smoking to both physical and mental health deterioration, we examine the effects of West German TV exposure on various health indicators at the time of the survey in 2002.

As shown in Panel A of Table 8, women exposed to West German TV during the GDR period report significantly poorer health across several dimensions. In columns (1) and (2), they report lower self-rated health and reduced satisfaction with their health status. They are also 7.8 percentage points more likely to express concern about their health (column 3) and 8.6 percentage points more likely to have had at least one doctor visit in the past three months (column 4). Additionally, they report a significantly higher number of doctor visits (column 5), with the effect size amounting to approximately 21% of the sample mean. Column (6) further shows a significant reduction in reported mental well-being, consistent with literature linking smoking to adverse psychological outcomes (Plurphanswat et al., 2017, Taylor and Munafò, 2019).

In contrast, Panel B of Table 8 shows no significant effects of West German TV exposure on any of these health outcomes among men. This gender-specific pattern reinforces our interpretation that cultural transmission via media shifted smoking norms specifically among women, for whom smoking had previously been socially stigmatized.

Mortality Trends. Smoking is a leading cause of preventable mortality, with well-established links to cardiovascular disease, cancer, and respiratory illnesses. Women who smoke face higher relative risks (RR) of several smoking-related conditions than men, particularly for lung cancer and coronary heart disease (CHD) (Freedman et al., 2008, Bain et al., 2004, Prescott et al., 1998). A meta-analysis by Huxley and Woodward (2011), covering over 2.4 million individuals and 44,000 CHD events, found that female smokers have a 25% higher RR of CHD compared to male smokers.

In Germany, lung cancer mortality among women has risen sharply in recent decades, even as male cancer mortality has declined (Islami et al., 2015). In 2012, the lung cancer mortality rate for women was 14.5 per 100,000. Given that female smokers are estimated to have a 10-15 times higher risk of dying from lung cancer than female non-smokers (Doll et al., 2004, Pirie

et al., 2013), we use this figure to estimate the public health burden of increased smoking due to media exposure.

To quantify the potential public health consequences of increased female smoking in East Germany, we combine our estimated increase in smoking prevalence with these risk multipliers. Using a baseline smoking prevalence of 21.5% and our estimated increase of 10.7 percentage points, we apply the following formula:

$$\text{Excess deaths per 100,000 women} = \Delta p \times (RR - 1) \times \text{baseline mortality rate}, \tag{2}$$

where $\Delta p = 0.107$, $RR = 10$, and the baseline mortality rate is 14.5 per 100,000. This yields an additional 13.96 deaths per 100,000 women.[20] With an East German female population of approximately 8.689 million at the time, this corresponds to roughly 1,213 excess lung cancer deaths annually. This estimate is conservative, as it does not include other major smoking-related conditions such as stroke, CHD, and chronic obstructive pulmonary disease (COPD), nor does it account for secondhand smoke exposure or morbidity.

Per Capita Healthcare Costs. The economic consequences of increased smoking extend beyond mortality, placing sustained pressure on healthcare systems. Smokers utilize more healthcare services and face higher treatment costs over their lifetimes. According to Cowan and Schwab (2011), female ever-smokers aged 18-64 in the U.S. spend approximately $551 more annually on healthcare than female never-smokers, with cost differentials increasing substantially with age. For individuals age 40 and younger, the difference in costs is $115 for female smokers, while for those above age 40, it increases to $623 women.

Applying cost estimates relevant to Germany, studies suggest that smokers aged 40-60 incur approximately 40% higher annual healthcare costs than non-smokers, averaging €3,500 versus €2,500 per year (Leidl and Reitmeir, 2011, Devaux and Sassi, 2015, Jarvis et al., 2009). Applying this differential $(C_s - C_{ns}) = (3,500 - 2,500)$, and assuming 3 million East German women aged 40-60 in the early 2000s, our estimated increase in smoking prevalence (10.7 percentage points) implies an additional annual cost of:

$$\text{Additional annual cost} = \Delta p \times N \times (C_s - C_{ns}) = €321{,}000{,}000 \tag{3}$$

This figure excludes indirect costs such as lost productivity, disability insurance, or long-term caregiving — factors that would significantly raise the full economic burden.

To contextualize this figure, total national health expenditure in Germany in 2002 was approximately €223 billion, or €2,700 per capita. Our estimate of additional smoking-related costs among East German women aged 40-60 thus amounts to approximately 0.14% of national health spending and implies a €107 per capita increase in healthcare costs for this group —

[20] We subtract 1 from the relative risk (RR) to isolate the excess risk attributable to smoking, beyond the baseline risk faced by non-smokers. The relative risk includes both the baseline risk and the additional risk from exposure. Thus, $(RR - 1)$ represents the proportionate increase in risk due to smoking alone.

roughly a 4% increase in per capita healthcare costs.[21]

These findings underscore the substantial and unintended public health costs of cultural integration through mass media. While much of the literature on reunification emphasizes economic convergence and political democratization, our results highlight how the transmission of Western lifestyle norms — via West German TV — carried significant adverse consequences for women's health in the East.

The estimates of this section are necessarily approximate and rest on several simplifying assumptions, including constant relative risks, stable healthcare cost differentials, and immediate translation of smoking prevalence into health outcomes. They also do not capture smoking cessation, the effect of tobacco control measures post-reunification, or longer-term impacts such as disability and lost life-years. Nonetheless, they offer a first-order approximation of the magnitude of health and fiscal burdens that can arise from norm shifts triggered by media exposure during periods of institutional transition.

6. Conclusions

The fall of the Berlin Wall on November 9, 1989, and the reunification of Germany on October 3, 1990, marked a profound turning point in European political, economic, and social history. While a large literature has documented the economic gains and institutional transformations that followed reunification, less attention has been paid to the long-run health consequences of cultural integration — particularly the diffusion of Western lifestyle norms into a society shaped by decades of socialist ideology.

In this paper, we estimate the causal effect of pre-reunification exposure to West German TV on smoking behavior in East Germany. Leveraging survey data from 1990 and 2002 and exploiting quasi-random variation in signal reception due to topography, we show that exposure to West German TV substantially increased smoking prevalence and cigarette consumption — an effect driven entirely by women. Our results indicate a 10.7 percentage point increase in the probability of smoking among women — a 49% increase relative to the sample mean — and a 68% rise in cigarette consumption. We provide additional evidence that this increase in smoking is associated with adverse health outcomes, rising healthcare utilization, and a likely future convergence in gender-specific mortality rates.

These findings reveal an important but often overlooked dimension of cultural assimilation: the transmission of behavioral norms through mass media. While reunification brought significant improvements in material well-being and political freedoms, it also introduced new public health challenges. The normalization of smoking among East German women — previously discouraged by GDR-era social norms — illustrates how rapid cultural shifts can produce unintended health costs. Our study highlights broader questions about the health and social consequences of norm convergence. How does exposure to external cultural values

[21] Using survey data, health-related costs of smoking in Germany have been estimated to amount to more than €30 billion per year (Wacker et al., 2013). Our estimate for this specific demographic subgroup thus represents approximately 1% of the national smoking-related healthcare burden, a plausible figure given that East German women aged 40-60 comprised around 4% of Germany's total population at the time.

shape health behaviors beyond smoking — such as diet, exercise, or alcohol consumption? What are the long-term psychological and social effects of lifestyle assimilation in societies undergoing institutional transition? And how can public health interventions be designed to mitigate the risks that arise when long-standing norms are rapidly overturned? Addressing these questions will be critical not only for understanding the legacy of German reunification but also for informing policy in other contexts where cultural integration intersects with health behavior. As global migration, media access, and institutional transitions continue to reshape societies, recognizing and managing the health consequences of cultural change remains a pressing challenge for public policy and health economics alike.

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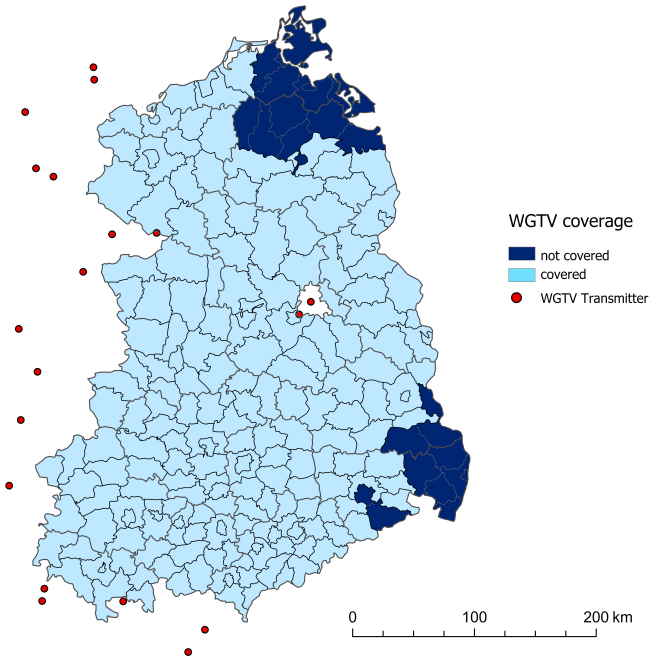
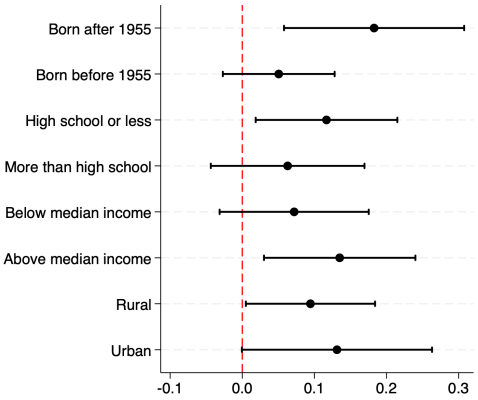
FIGURE 1: Reception of West German TV across GDR counties



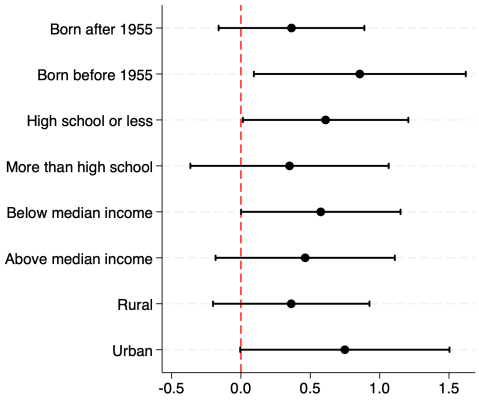
Notes: East German counties with and without access to West German TV before reunification based on a -86.5 dBm cutoff. Darker counties represent the control area with no reception (25 counties) and lighter counties represent the treatment area with sufficient signal strength (192 counties). County boundaries are shown as gray lines and West German TV transmitters are illustrated by red dots.

FIGURE 2: West German TV and smoking prevalence among women: Heterogeneity

(A) Likelihood of smoking



(B) Number of cigarettes



Note: The confidence intervals shown are set at the 95% level of statistical significance. Additional controls include age, age^2, single, household size, religious affiliation, migration background, years of education, employment status, and household income. Standard errors are clustered at the individual level. Data source: SOEP v38 (2021), survey year 2002.

TABLE 1: West German TV and smoking prevalence before reunification (1989)

Dep. variable:	Smoking					
	Likelihood of smoking			Number of cigarettes		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Self-reported West German TV exposure						
West German TV (self-reported)	0.089***	0.078***	0.078***	1.286***	1.260**	1.268**
	(0.021)	(0.021)	(0.020)	(0.116)	(0.116)	(0.120)
Demographic controls	No	Yes	Yes	No	Yes	Yes
Socio-economic controls	No	No	Yes	No	No	Yes
Summary statistics:						
Dep. variable	0.517	0.517	0.517	2.078	2.078	2.078
	(0.500)	(0.500)	(0.500)	(1.199)	(1.199)	(1.199)
West German TV (self-reported)	0.782	0.782	0.782	0.797	0.797	0.797
	(0.413)	(0.413)	(0.413)	(0.402)	(0.402)	(0.402)
Pseudo R^2	0.004	0.032	0.052	0.003	0.021	0.041
Observations	3347	3347	3347	1031	1031	1031
Panel B: Reception of West German TV						
West German TV	0.083***	0.075***	0.075***	1.186*	1.170*	1.166*
	(0.021)	(0.021)	(0.020)	(0.103)	(0.104)	(0.105)
Demographic controls	No	Yes	Yes	No	Yes	Yes
Socio-economic controls	No	No	Yes	No	No	Yes
Summary statistics:						
Dep. variable	0.517	0.517	0.517	2.078	2.078	2.078
	(0.500)	(0.500)	(0.500)	(1.199)	(1.199)	(1.199)
West German TV (self-reported)	0.787	0.787	0.787	0.792	0.792	0.792
	(0.409)	(0.409)	(0.409)	(0.406)	(0.406)	(0.406)
Pseudo R^2	0.003	0.031	0.052	0.001	0.020	0.039
Observations	3347	3347	3347	1031	1031	1031

Notes: In Panel A and B, columns (1) to (3) report probit average marginal effects, while columns (4) to (6) shows results based on ordered probit models. Information on the number of cigarettes is only available for a subsample of the participants. In Panel A, the West German TV variable equals one if an individual watches West German TV at least once a week. In Panel B, the West German TV variable equals one if an individual lives in a district where the reception of West German TV is technically feasible. Demographic controls include: Age; Age^2; Gender; Single; Children; Living together with parents. Socio-economic controls include: Employment; Education. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: Zentralinstitut für Jugendforschung (1989).

TABLE 2: West German TV and smoking prevalence after reunification (2002)

Dep. variable:	Smoking							
	Likelihood of smoking				Number of cigarettes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Total								
West German TV	0.053*	0.068**	0.063**	0.051*	1.171	1.212	1.181	1.125
	(0.031)	(0.028)	(0.028)	(0.028)	(0.160)	(0.155)	(0.148)	(0.146)
Demographic controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Socio-economic controls	No	No	Yes	Yes	No	No	Yes	Yes
GRD design	No	No	No	Yes	No	No	No	Yes
Summary statistics:								
Dep. variable	0.282	0.282	0.282	0.269	4.055	4.055	4.055	3.847
	(0.450)	(0.450)	(0.450)	(0.443)	(7.816)	(7.816)	(7.816)	(7.479)
West German TV	0.884	0.884	0.884	0.814	0.884	0.884	0.884	0.814
	(0.321)	(0.321)	(0.321)	(0.389)	(0.321)	(0.321)	(0.321)	(0.389)
Pseudo R^2	0.001	0.105	0.124	0.150	0.001	0.147	0.164	0.183
Observations	2218	2218	2218	1388	2218	2218	2218	1388
Panel B: Female								
West German TV	0.090**	0.106***	0.107***	0.095***	1.535*	1.708**	1.688**	1.632**
	(0.040)	(0.038)	(0.037)	(0.037)	(0.372)	(0.392)	(0.385)	(0.380)
Demographic controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Socio-economic controls	No	No	Yes	Yes	No	No	Yes	Yes
GRD design	No	No	No	Yes	No	No	No	Yes
Summary statistics:								
Dep. variable	0.215	0.215	0.215	0.201	2.656	2.656	2.656	2.549
	(0.411)	(0.411)	(0.411)	(0.401)	(5.832)	(5.832)	(5.832)	(5.796)
West German TV	0.880	0.880	0.880	0.810	0.880	0.880	0.880	0.810
	(0.325)	(0.325)	(0.325)	(0.393)	(0.325)	(0.325)	(0.325)	(0.393)
Pseudo R^2	0.004	0.120	0.142	0.172	0.004	0.145	0.164	0.204
Observations	1161	1161	1161	731	1161	1161	1161	731
Panel C: Male								
West German TV	0.012	0.029	0.021	0.009	1.012	1.062	1.035	0.955
	(0.047)	(0.044)	(0.043)	(0.044)	(0.161)	(0.161)	(0.155)	(0.149)
Demographic controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Socio-economic controls	No	No	Yes	Yes	No	No	Yes	Yes
GRD design	No	No	No	Yes	No	No	No	Yes
Summary statistics:								
Dep. variable	0.355	0.355	0.355	0.344	5.590	5.590	5.590	5.291
	(0.479)	(0.479)	(0.479)	(0.475)	(9.295)	(9.295)	(9.295)	(8.770)
West German TV	0.887	0.887	0.887	0.819	0.887	0.887	0.887	0.819
	(0.316)	(0.316)	(0.316)	(0.385)	(0.316)	(0.316)	(0.316)	(0.385)
Pseudo R^2	0.000	0.074	0.098	0.133	0.000	0.111	0.139	0.159
Observations	1057	1057	1057	657	1057	1057	1057	657

Notes: Columns (1) to (4) report probit average marginal effects, while columns (5) to (8) show incident rate ratios based on poisson models. Demographic controls include: Age; Age^2; Gender (only in Panel A); Single; Household size; Religious affiliation; Migration background. Socio-economic controls include: Education; Employment; Household income. In columns (4) and (8), we use a geographic regression discontinuity (GRD) design that only includes individuals who lived in counties without West German TV reception or in counties with reception that are within a radius of 100km the control regions. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

TABLE 3: Propaganda

Dep. variable:	Smoking									
	Likelihood of smoking					Number of cigarettes				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
West German TV	0.107***	0.108***	0.112***	0.104***	0.109***	1.688**	1.710**	1.854***	1.701**	1.870***
	(0.037)	(0.038)	(0.038)	(0.038)	(0.039)	(0.385)	(0.388)	(0.424)	(0.401)	(0.439)
Satisfaction with GDR		−0.041**			−0.032*		0.824**			0.871
		(0.017)			(0.017)		(0.077)			(0.083)
PDS support			0.158***		0.124**			2.122***		1.724*
			(0.059)		(0.062)			(0.579)		(0.509)
Public sector				0.009	−0.002				1.051	1.014
				(0.024)	(0.024)				(0.140)	(0.139)
Summary statistics:										
Dep. variable	0.215	0.216	0.214	0.211	0.209	2.656	2.659	2.621	2.603	2.562
	(0.411)	(0.411)	(0.410)	(0.408)	(0.407)	(5.832)	(5.834)	(5.780)	(5.777)	(5.717)
West German TV	0.880	0.880	0.879	0.881	0.880	0.880	0.880	0.879	0.881	0.880
	(0.325)	(0.325)	(0.327)	(0.324)	(0.325)	(0.325)	(0.325)	(0.327)	(0.324)	(0.325)
Pseudo R^2	0.142	0.147	0.147	0.144	0.151	0.164	0.169	0.166	0.173	0.176
Observations	1161	1160	1122	1119	1081	1161	1160	1122	1119	1081

Notes: Columns (1) to (5) report probit average marginal effects, while columns (6) to (10) show incident rate ratios based on poisson models. Demographic controls include: Age; Age^2; Single; Household size; Religious affiliation; Migration background. Socio-economic controls include: Education; Employment; Household income. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

TABLE 4: Economic concerns

Dep. variable:	Smoking						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Likelihood of smoking							
West German TV	0.107***	0.106***	0.129***	0.123***	0.127***	0.128***	0.126***
	(0.037)	(0.038)	(0.043)	(0.042)	(0.042)	(0.043)	(0.042)
Optimistic about own future		−0.005					−0.007
		(0.014)					(0.017)
Expecting job loss			−0.006				−0.031
			(0.018)				(0.023)
Expecting career deterioration				0.000			−0.001
				(0.016)			(0.018)
Expecting change of occupation					0.014		0.016
					(0.015)		(0.017)
Expecting mass layoffs						0.004	0.011
						(0.015)	(0.018)
Summary statistics:							
Dep. variable	0.215	0.215	0.225	0.222	0.223	0.225	0.223
	(0.411)	(0.411)	(0.418)	(0.416)	(0.417)	(0.418)	(0.416)
West German TV	0.880	0.879	0.875	0.874	0.875	0.875	0.872
	(0.325)	(0.326)	(0.331)	(0.332)	(0.331)	(0.331)	(0.334)
Pseudo R^2	0.142	0.143	0.141	0.143	0.142	0.137	0.144
Observations	1161	1127	870	863	869	871	853
Panel B: Number of cigarettes							
West German TV	1.688**	1.679**	1.730**	1.694*	1.704*	1.730**	1.705**
	(0.385)	(0.379)	(0.469)	(0.460)	(0.464)	(0.469)	(0.463)
Optimistic about own future		1.018					1.050
		(0.082)					(0.093)
Expecting job loss			0.896				0.852
			(0.079)				(0.096)
Expecting career deterioration				0.926			0.954
				(0.077)			(0.085)
Expecting change of occupation					0.968		1.018
					(0.077)		(0.088)
Expecting mass layoffs						0.989	1.066
						(0.075)	(0.099)
Summary statistics:							
Dep. variable	2.656	2.660	2.720	2.705	2.694	2.716	2.720
	(5.832)	(5.842)	(5.744)	(5.734)	(5.718)	(5.742)	(5.758)
West German TV	0.880	0.879	0.875	0.874	0.875	0.875	0.872
	(0.325)	(0.326)	(0.331)	(0.332)	(0.331)	(0.331)	(0.334)
Pseudo R^2	0.164	0.167	0.174	0.173	0.173	0.170	0.175
Observations	1161	1127	870	863	869	871	853

Notes: Panel A reports probit average marginal effects, while Panel B shows incident rate ratios based on poisson models. Demographic controls include: Age; Age^2; Single; Household size; Religious affiliation; Migration background. Socio-economic controls include: Education; Employment; Household income. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

TABLE 5: Risk preferences, risky behaviors, and time preferences

Dep. variable:	Risk preferences		Risky behaviors			Time preferences	
	Continuous measure	Risk seeking dummy	Alcohol consumption: Beer	Wine	Spirits	Continuous measure	Impatience dummy
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
West German TV	−0.137	−0.014	0.018	−0.054	−0.010	0.209	0.006
	(0.200)	(0.047)	(0.034)	(0.047)	(0.020)	(0.214)	(0.055)
Summary statistics:							
Dep. variable	4.128	0.468	0.124	0.376	0.049	6.270	0.490
	(2.097)	(0.499)	(0.330)	(0.485)	(0.216)	(2.020)	(0.500)
West German TV	0.886	0.886	0.884	0.885	0.885	0.890	0.890
	(0.317)	(0.317)	(0.321)	(0.319)	(0.319)	(0.313)	(0.313)
Pseudo R^2	0.083	0.045	0.019	0.040	0.036	0.026	0.012
Observations	1083	1083	953	968	955	847	847

Notes: Columns (1) and (6) report results from OLS regressions, while columns (2) to (5) report probit average marginal effects. In column (1), the dependent variable is the self-reported risk preferences ranging on a scale from 0 (very risk-averse) to 10 (very risk-seeking). The dependent variable in column (2) is a dummy variable equal to one if the respondent is risk-seeking, defined by a risk score above the sample median. In columns (3) to (5), the dependent variables are dummy variables equal to one if a respondent consumes the respective beverage regularly or occasionally and equal to zero if they only rarely or never consume these beverages. In column (6), the dependent variable is the self-reported patience, ranging on a scale from 0 (very patient) to 10 (very impatient). The dependent variable in column (7) is a dummy variable equal to one if the respondent is impatient, defined by a impatience score above the sample median. Demographic controls include: Age; Age^2; Single; Household size; Religious affiliation; Migration background. Socio-economic controls include: Education; Employment; Household income. We report the R^2 in columns (1) and (6). Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021). Columns (1) and (2) use information from the survey year 2004, columns (3) to (5) from 2006, and columns (6) and (7) from 2008.

TABLE 6: Leisure activities

	Socializing with friends, relatives, or neighbors		Going to the cinema, dances, or sporting event		Attending cultural events		Practice sports	
	ordinal (1)	dummy (2)	ordinal (3)	dummy (4)	ordinal (5)	dummy (6)	ordinal (7)	dummy (8)
West German TV	−0.058	−0.024	−0.030	−0.019	−0.012	−0.003	−0.112	−0.156
	(0.066)	(0.041)	(0.051)	(0.027)	(0.054)	(0.026)	(0.097)	(0.124)
Summary statistics:								
Dep. variable	2.860	0.666	1.768	0.131	1.818	0.123	1.757	0.209
	(0.792)	(0.472)	(0.706)	(0.337)	(0.661)	(0.328)	(1.146)	(0.407)
West German TV	0.876	0.876	0.877	0.877	0.877	0.877	0.876	0.876
	(0.329)	(0.329)	(0.329)	(0.329)	(0.329)	(0.329)	(0.329)	(0.329)
Pseudo R^2	0.046	0.028	0.328	0.145	0.132	0.102	0.169	0.122
Observations	1238	1238	1240	1240	1239	1239	1236	1236

Notes: Columns (1), (3), (5), and (7) show results from OLS regressions, while the remaining columns report probit average marginal effects. For each activity listed, individuals were asked how regularly they engaged in it. They could answer on the following scale: *never*, *less than once a month*, *every month*, or *every week*. For each activity, we use the ordnial measure and a dummy that equals one if a person reports doing the corresponding activity at least once a month. The exact wording of these categories are: *Meeting with friends, relatives or neighbors. Going to the movies, pop music concerts, dancing, disco, sports event. Going to cultural events such as concerts, theater, lectures, etc. Doing sports yourself.* Demographic controls include: Age; Age^2; Single; Household size; Religious affiliation; Migration background. Socio-economic controls include: Education; Employment; Household income. We report the R^2 in columns (1), (3), (5), and (7). Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2001.

TABLE 7: Proximity to West German market

Dep. variable:	Smoking					
	Likelihood of smoking			Number of cigarettes		
	Baseline (1)	Whole sample (2)	Treatment region (3)	Baseline (4)	Whole sample (5)	Treatment region (6)
West German TV	0.107***	0.102***		1.688**	1.773**	
	(0.037)	(0.039)		(0.385)	(0.423)	
Distance to West Germany (log.)		−0.005	−0.001		1.052	1.070
		(0.012)	(0.013)		(0.068)	(0.071)
Summary statistics:						
Dep. variable	0.215	0.215	0.225	2.656	2.656	2.772
	(0.411)	(0.411)	(0.418)	(5.832)	(5.832)	(5.932)
West German TV	0.880	0.880	1.000	0.880	0.880	1.000
	(0.325)	(0.325)	(0.000)	(0.325)	(0.325)	(0.000)
Pseudo R^2	0.142	0.142	0.144	0.164	0.164	0.160
Observations	1161	1161	1022	1161	1161	1022

Notes: Columns (1) to (3) report probit average marginal effects, while columns (4) to (6) show incident rate ratios based on poisson models. Columns (1) and (4) repeat our baseline results. In columns (2) and (5), we expand the set of control variables to include the log. distance between each county and the border to West Germany. In column (3) and (6), we restrict the sample to individuals living in the treatment region and repeat the estimates from columns (2) and (5). Demographic controls include: Age; Age^2; Single; Household size; Religious affiliation; Migration background. Socio-economic controls include: Education; Employment; Household income. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

TABLE 8: West German TV and individuals' health after reunification (2002)

Dep. variable:	Health			Doctor visit		Mental health
	satisfaction	status	concerns	dummy	number	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Female						
West German TV	-0.539^{***}	-0.143^{*}	0.078^{**}	0.086^{**}	0.595^{**}	-2.194^{**}
	(0.183)	(0.079)	(0.032)	(0.042)	(0.244)	(0.907)
Summary statistics:						
Dep. variable	5.940	3.152	0.228	0.755	2.748	46.986
	(2.100)	(0.905)	(0.420)	(0.431)	(3.672)	(10.009)
West German TV	0.880	0.880	0.881	0.880	0.880	0.881
	(0.325)	(0.325)	(0.324)	(0.325)	(0.325)	(0.324)
R^2	0.124	0.180	0.099	0.083	0.047	0.032
Observations	1159	1160	1156	1161	1161	1127
Panel B: Male						
West German TV	-0.195	0.010	0.037	0.059	0.317	-1.131
	(0.184)	(0.074)	(0.031)	(0.045)	(0.264)	(0.955)
Summary statistics:						
Dep. variable	6.013	3.172	0.187	0.687	2.371	49.322
	(2.053)	(0.841)	(0.390)	(0.464)	(3.633)	(9.463)
West German TV	0.889	0.888	0.887	0.887	0.887	0.892
	(0.314)	(0.315)	(0.317)	(0.316)	(0.316)	(0.311)
R^2	0.135	0.189	0.123	0.136	0.093	0.028
Observations	1053	1055	1050	1057	1057	1033

Notes: This table shows results from OLS regressions. The dependent variable in column (1) is an individual's self-reported satisfaction with their health, measured on an 11-point Likert scale. In column (2), the dependent variable captures overall health status on a 5-point Likert scale ranging from bad to very good. Column (3) uses a binary dependent variable equal to one if the respondent had at least one doctor visit in the past three months. In column (4), the dependent variable reflects the number of doctor visits within the last three months. Column (5) uses a dependent variable measuring the respondent's mental health status. Demographic controls include: Age; Age^2; Single; Household size; Religious affiliation; Migration background. Socio-economic controls include: Education; Employment; Household income. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

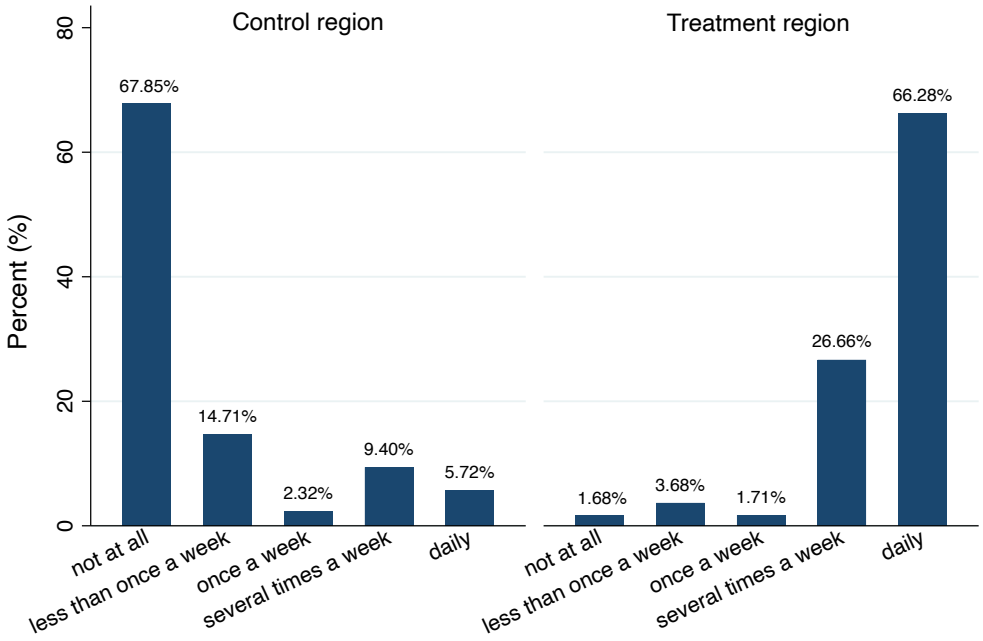
APPENDIX

A. Additional Figures and Tables

FIGURE A.1: Balance in covariate values before and after reunification

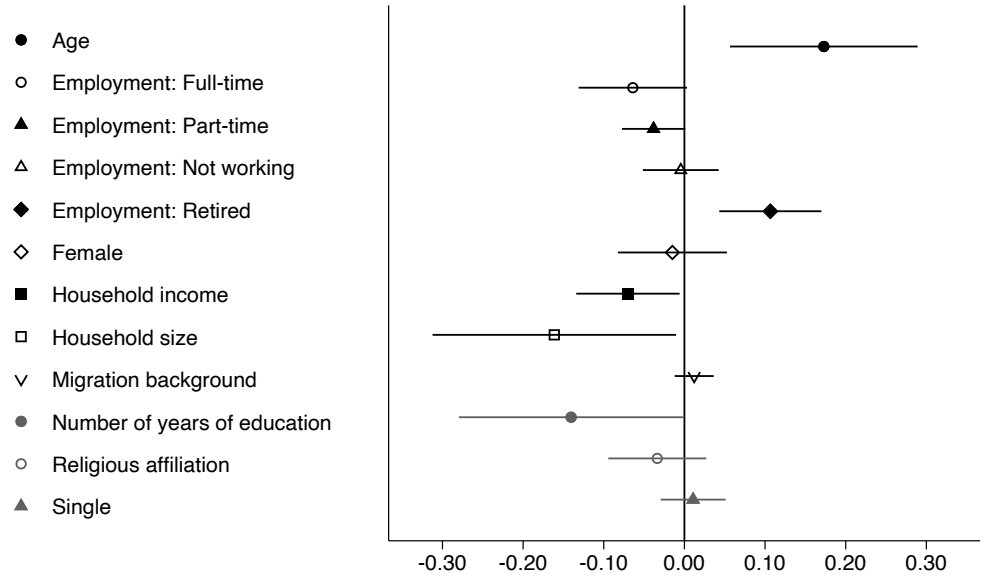
Note: Balance in the values of the covariates. The figure presents the estimated coefficients from bivariate regressions in which the treatment indicator is used as independent variable. The variables age and years of education are standardized in this figure for presentation reasons. The confidence intervals shown are set at the 95% level of statistical significance. Data source of panel A: Zentralinstitut für Jugendforschung (1989). Data source of panel B: SOEP v38 (2021), survey year 2002.

FIGURE A.2: West German TV consumption in treatment and control districts (1988/89)



Notes: This figure shows how regularly individuals in the treatment (with West German TV reception) and control (without West German TV reception) districts watched West German TV. Data source: Zentralinstitut für Jugendforschung (1989).

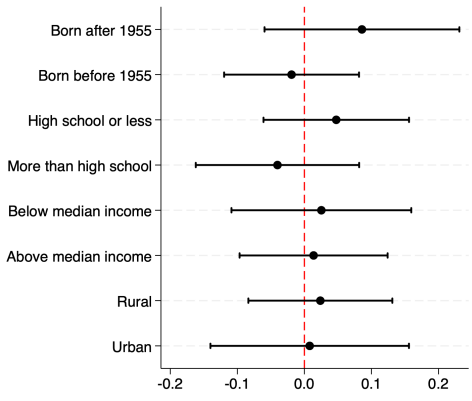
FIGURE A.3: Balance in covariate values: Geographic Regression Discontinuity (GRD) design



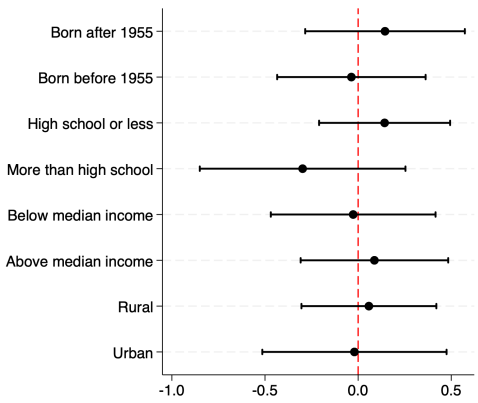
Note: Balance in the values of the covariates for the sample used in the GRD design. The figure presents the estimated coefficients from bivariate regressions in which the treatment indicator is used as independent variable. The variables age and years of education are standardized in this figure for presentation reasons. The confidence intervals shown are set at the 95% level of statistical significance. Data source: SOEP v38 (2021), survey year 2002.

FIGURE A.4: West German TV and smoking prevalence among men: Heterogeneity

(A) Likelihood of smoking



(B) Number of cigarettes



Note: The confidence intervals shown are set at the 95% level of statistical significance. Additional controls include age, age^2, single, household size, religious affiliation, migration background, years of education, employment status, and household income. Standard errors are clustered at the individual level. Data source: SOEP v38 (2021), survey year 2002.

TABLE A.1: Smoking prevalence before reunification (1989): Summary statistics

	Mean	Std. dev.	Min	Max	Obs.
Dependent variables					
Likelihood of smoking	0.52	0.50	0.00	1.00	3350
Number of cigarettes per day	2.08	1.20	1.00	4.00	1031
Explanatory variables					
West German TV (self-reported)	3.92	1.49	1.00	5.00	3350
West German TV (self-reported)	0.78	0.41	0.00	1.00	3350
West German TV	0.79	0.41	0.00	1.00	3350
Control variables					
Age	23.13	6.36	15.00	50.00	3350
Children	0.19	0.39	0.00	1.00	3350
Education: Below 8th grade	0.03	0.17	0.00	1.00	3350
Education: 8th grade	0.06	0.23	0.00	1.00	3350
Education: 10th grade	0.81	0.39	0.00	1.00	3350
Education: 12th grade	0.10	0.09	0.00	1.00	3350
Employment status: Full time	0.72	0.45	0.00	1.00	3350
Employment status: Part time	0.04	0.20	0.00	1.00	3350
Employment status: Vocational training	0.23	0.42	0.00	1.00	3350
Female	0.48	0.50	0.00	1.00	3350
Living with parents	0.47	0.50	0.00	1.00	3350
Marital status: Single	0.68	0.47	0.00	1.00	3350

Note: This table shows descriptive statistics of our variables: mean, standard deviation, minimum value, maximum value, and number of observations. Data source: Zentralinstitut für Jugendforschung (1989).

TABLE A.2: Smoking prevalence after reunification (2002): Summary statistics

	Mean	Std. dev.	Min	Max	Obs.
Dependent variables					
Likelihood of smoking	0.28	0.45	0.00	1.00	2218
Number of cigarettes per week	4.05	7.82	0.00	60.00	2218
Explanatory variable					
West German TV	0.88	0.32	0.00	1.00	2218
Control variables					
Age	52.68	13.69	28.00	97.00	2218
Employment: Full-time	0.45	0.50	0.00	1.00	2218
Employment: Part-time	0.09	0.28	0.00	1.00	2218
Employment: Not working	0.14	0.35	0.00	1.00	2218
Employment: Retired	0.32	0.47	0.00	1.00	2218
Female	0.52	0.50	0.00	1.00	2218
Household income	7.56	0.47	5.30	8.85	2218
Household size	2.61	1.13	1.00	7.00	2218
Migration background	0.03	0.18	0.00	1.00	2218
Number of years of education	12.33	2.32	7.00	18.00	2218
Religious affiliation	0.29	0.46	0.00	1.00	2218
Single	0.09	0.29	0.00	1.00	2218

Note: This table shows descriptive statistics of our variables: mean, standard deviation, minimum value, maximum value, and number of observations. Data source: SOEP v38 (2021), survey year 2002.

TABLE A.3: West German TV and smoking prevalence in the population

Dep. variable:	Smoking							
	Likelihood of smoking				Number of cigarettes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Total								
West German TV	0.053*	0.068**	0.063**	0.051*	1.171	1.212	1.181	1.125
	(0.031)	(0.028)	(0.028)	(0.028)	(0.160)	(0.155)	(0.148)	(0.146)
Female		−0.125***	−0.137***	−0.135***		0.506***	0.497***	0.509***
		(0.018)	(0.018)	(0.022)		(0.040)	(0.041)	(0.054)
Age		0.007	0.005	−0.002		1.109***	1.100**	1.067
		(0.007)	(0.007)	(0.009)		(0.041)	(0.046)	(0.065)
Age^2		−0.000**	−0.000*	−0.000		0.999***	0.999***	0.999
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.001)
Single		−0.071*	−0.077**	−0.098**		0.809	0.803	0.736*
		(0.037)	(0.037)	(0.043)		(0.116)	(0.114)	(0.128)
Household size		−0.029***	−0.017	−0.045***		0.848***	0.896**	0.858***
		(0.010)	(0.011)	(0.013)		(0.034)	(0.041)	(0.047)
Religious affiliation		−0.095***	−0.096***	−0.119***		0.597***	0.600***	0.513***
		(0.021)	(0.021)	(0.027)		(0.066)	(0.067)	(0.080)
Migration background		−0.048	−0.051	0.005		0.993	1.001	1.135
		(0.052)	(0.051)	(0.061)		(0.252)	(0.252)	(0.303)
Number of years of education			−0.013***	−0.010*			0.932***	0.951**
			(0.004)	(0.005)			(0.021)	(0.024)
Part-time			0.044	0.021			1.064	1.061
			(0.032)	(0.038)			(0.152)	(0.192)
Not working			0.082***	0.080**			1.224*	1.219
			(0.027)	(0.034)			(0.130)	(0.165)
Retired			−0.043	−0.060			0.820	0.793
			(0.038)	(0.048)			(0.165)	(0.223)
Household income			−0.059**	−0.047			0.819*	0.794*
			(0.026)	(0.031)			(0.088)	(0.096)
GRD design	No	No	No	Yes	No	No	No	Yes
Summary statistics:								
Dep. variable	0.282	0.282	0.282	0.269	4.055	4.055	4.055	3.847
	(0.450)	(0.450)	(0.450)	(0.443)	(7.816)	(7.816)	(7.816)	(7.479)
West German TV	0.884	0.884	0.884	0.814	0.884	0.884	0.884	0.814
	(0.321)	(0.321)	(0.321)	(0.389)	(0.321)	(0.321)	(0.321)	(0.389)
Pseudo R^2	0.001	0.105	0.124	0.150	0.001	0.147	0.164	0.183
Observations	2218	2218	2218	1388	2218	2218	2218	1388

Notes: Columns (1) to (4) report probit average marginal effects, while columns (5) to (8) show incident rate ratios based on poisson models. Omitted variables: Full-time. In columns (4) and (8), we use a geographic regression discontinuity (GRD) design that only includes individuals who lived in counties without West German TV reception or in counties with reception that are within a radius of 100km the control regions. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

TABLE A.4: West German TV and smoking prevalence among women

Dep. variable:	Smoking							
	Likelihood of smoking				Number of cigarettes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Total								
West German TV	0.090**	0.106***	0.107***	0.095***	1.535*	1.708**	1.688**	1.632**
	(0.040)	(0.038)	(0.037)	(0.037)	(0.372)	(0.392)	(0.385)	(0.380)
Age		−0.007	−0.006	−0.011		0.984	0.970	0.946
		(0.008)	(0.008)	(0.011)		(0.058)	(0.061)	(0.104)
Age^2		−0.000	−0.000	0.000		1.000	1.000	1.000
		(0.000)	(0.000)	(0.000)		(0.001)	(0.001)	(0.001)
Single		−0.006	−0.004	−0.039		1.002	1.026	0.841
		(0.047)	(0.046)	(0.051)		(0.218)	(0.221)	(0.229)
Household size		−0.021*	−0.007	−0.032*		0.867**	0.931	0.882
		(0.013)	(0.014)	(0.017)		(0.060)	(0.077)	(0.086)
Religious affiliation		−0.087***	−0.093***	−0.106***		0.523***	0.512***	0.367***
		(0.026)	(0.026)	(0.033)		(0.090)	(0.089)	(0.089)
Migration background		−0.143	−0.144*	−0.065		0.491	0.529	0.923
		(0.092)	(0.087)	(0.091)		(0.357)	(0.369)	(0.620)
Number of years of education			−0.005	0.005			0.965	1.020
			(0.006)	(0.007)			(0.035)	(0.043)
Part-time			0.058*	0.051			1.197	1.193
			(0.031)	(0.037)			(0.184)	(0.232)
Not working			0.054	0.047			1.126	0.984
			(0.034)	(0.041)			(0.202)	(0.220)
Retired			−0.063	−0.099*			0.534*	0.403*
			(0.046)	(0.059)			(0.177)	(0.221)
Household income			−0.083***	−0.085**			0.709**	0.578***
			(0.031)	(0.036)			(0.124)	(0.103)
GRD design	No	No	No	Yes	No	No	No	Yes
Summary statistics:								
Dep. variable	0.215	0.215	0.215	0.201	2.656	2.656	2.656	2.549
	(0.411)	(0.411)	(0.411)	(0.401)	(5.832)	(5.832)	(5.832)	(5.796)
West German TV	0.880	0.880	0.880	0.810	0.880	0.880	0.880	0.810
	(0.325)	(0.325)	(0.325)	(0.393)	(0.325)	(0.325)	(0.325)	(0.393)
Pseudo R^2	0.004	0.120	0.142	0.172	0.004	0.145	0.164	0.204
Observations	1161	1161	1161	731	1161	1161	1161	731

Notes: Columns (1) to (4) report probit average marginal effects, while columns (5) to (8) show incident rate ratios based on poisson models. Omitted variables: Full-time. In columns (4) and (8), we use a geographic regression discontinuity (GRD) design that only includes individuals who lived in counties without West German TV reception or in counties with reception that are within a radius of 100km the control regions. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

TABLE A.5: West German TV and smoking prevalence among men

Dep. variable:	Smoking							
	Likelihood of smoking				Number of cigarettes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Total								
West German TV	0.012	0.029	0.021	0.009	1.012	1.062	1.035	0.955
	(0.047)	(0.044)	(0.043)	(0.044)	(0.161)	(0.161)	(0.155)	(0.149)
Age		0.025**	0.022**	0.013		1.201***	1.206***	1.143**
		(0.010)	(0.011)	(0.014)		(0.051)	(0.057)	(0.071)
Age^2		−0.000***	−0.000***	−0.000*		0.998***	0.998***	0.998***
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.001)
Single		−0.138**	−0.147***	−0.166***		0.713*	0.721*	0.658**
		(0.054)	(0.053)	(0.063)		(0.128)	(0.126)	(0.139)
Household size		−0.048***	−0.041**	−0.074***		0.813***	0.845***	0.806***
		(0.015)	(0.016)	(0.020)		(0.041)	(0.048)	(0.054)
Religious affiliation		−0.092***	−0.082**	−0.104**		0.657***	0.676***	0.663**
		(0.034)	(0.033)	(0.042)		(0.092)	(0.095)	(0.129)
Migration background		0.038	0.031	0.087		1.295	1.284	1.399
		(0.077)	(0.078)	(0.097)		(0.343)	(0.351)	(0.437)
Number of years of education			−0.023***	−0.025***			0.916***	0.910***
			(0.007)	(0.008)			(0.026)	(0.031)
Part-time			−0.169	−0.331**			0.207**	0.147**
			(0.120)	(0.151)			(0.143)	(0.142)
Not working			0.119***	0.133**			1.250*	1.426**
			(0.044)	(0.054)			(0.167)	(0.243)
Retired			−0.012	−0.014			1.029	1.079
			(0.058)	(0.072)			(0.229)	(0.320)
Household income			−0.014	0.025			0.914	1.032
			(0.040)	(0.050)			(0.126)	(0.162)
GRD design	No	No	No	Yes	No	No	No	Yes
Summary statistics:								
Dep. variable	0.355	0.355	0.355	0.344	5.590	5.590	5.590	5.291
	(0.479)	(0.479)	(0.479)	(0.475)	(9.295)	(9.295)	(9.295)	(8.770)
West German TV	0.887	0.887	0.887	0.819	0.887	0.887	0.887	0.819
	(0.316)	(0.316)	(0.316)	(0.385)	(0.316)	(0.316)	(0.316)	(0.385)
Pseudo R^2	0.000	0.074	0.098	0.133	0.000	0.111	0.139	0.159
Observations	1057	1057	1057	657	1057	1057	1057	657

Notes: Columns (1) to (4) report probit average marginal effects, while columns (5) to (8) show incident rate ratios based on poisson models. Omitted variables: Full-time. In columns (4) and (8), we use a geographic regression discontinuity (GRD) design that only includes individuals who lived in counties without West German TV reception or in counties with reception that are within a radius of 100km the control regions. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

TABLE A.6: Differences between districts: Pre-trends

	With West German TV	Without West German TV	Difference		
	Mean	Mean	Difference	Std. err.	P-value
Panel A: Balance in district characteristics in 1955: values					
Population density	207.17	203.18	3.99	74.20	0.96
Share of females *(%)*	57.20	57.04	0.16	0.93	0.87
Share of population below 18 *(%)*	26.89	28.50	−1.62	1.65	0.41
Share of females below 18 *(%)*	23.92	25.48	−1.56	1.75	0.46
Suicides per 100,000 inhabitants	26.01	24.87	1.14	4.46	0.80
Retail sales per capita	1680.42	1684.31	−3.89	80.86	0.96
Students per teacher	16.83	16.93	−0.10	0.37	0.78
Students per class	24.78	25.33	−0.55	0.57	0.35
Panel B: Balance in district characteristics in 1989: values					
Population density	176.14	181.24	−5.10	58.65	0.93
Share of females *(%)* share of women *(%)*	52.11	51.90	0.21	0.53	0.70
Share of population below 18 *(%)*	22.42	23.82	−1.40	1.01	0.19
Share of females below 18 *(%)*	20.99	22.36	−1.37	1.19	0.27
Share of foreigners *(%)*	1.13	1.12	0.01	0.28	0.98
Suicides per 100,000 inhabitants	27.70	26.37	1.33	1.70	0.45
Hospital beds per 1,000 inhabitants	9.85	9.63	0.22	0.46	0.64
Medical doctors per 1,000 inhabitants	2.24	2.45	−0.21	0.23	0.38
Retail sales per capita	7544.16	7836.19	−292.03	188.77	0.15
Students per teacher	12.29	12.91	−0.57	0.28	0.07
Students per class	20.30	20.89	−0.59	0.37	0.13
Panel C: Balance in district characteristics 1955-1989: trends					
Population density	−24.77	−17.32	−7.45	15.75	0.65
Share of females *(%)*	−5.00	−5.03	0.03	0.61	0.96
Share of population below 18 *(%)*	−4.31	−3.72	−0.59	0.75	0.44
Share of females below 18 *(%)*	−2.78	−2.09	−0.69	0.72	0.35
Suicides per 100,000 inhabitants	1.97	1.83	0.14	3.42	0.97
Retail sales per capita	5869.42	6147.95	−278.53	193.05	0.18
Students per teacher	−4.71	−4.09	−0.62	0.49	0.23
Students per class	−4.90	−4.64	−0.26	0.81	0.75

Notes: Differences between districts (*Verwaltungsbezirke*) with and without exposure to West German TV. Population-weighted averages. East Berlin, as the capital of the GDR, is excluded from this analysis. In contrast to the other districts, East Berlin was the only city district, which made the demographic composition of the district not comparable to that of other districts. Moreover, East Berlin was not an officially independent district and was only equalized with the other districts in 1961. Results are robust to including East Berlin. Data sources: Statistical Yearbook of the German Democratic Republic (1955) and Statistical Yearbook of the German Democratic Republic (1990)

B. VARIABLE DEFINITIONS AND SOURCES

TABLE B.1: Variable description

Variable	Description	Source
Main Outcome Variables		
Likelihood of smoking (1989)	Dummy indicator equal to 1 if an individual smokes.	GDR survey 1988/1989.
Number of cigarettes (1989)	Ordinal variable that indicates the number of cigarettes consumed per day in four brackets: (1) none, (2) up to 5 cigarettes, (3) up to 10 cigarettes, and (4) over 10 cigarettes.	GDR survey 1988/1989.
Likelihood of smoking (2002)	Dummy indicator equal to 1 if an individual smokes.	SOEP 2002.
Number of cigarettes (2002)	Number of cigarettes smoked per day.	SOEP 2002.
Main Regressors		
West German TV (self-reported)	Dummy indicator equal to 1 if an individual watches West German TV at least once a week.	GDR survey 1988/1989.
West German TV (signal)	Dummy indicator equal to 1 if an individual lived during the GDR period in an area where West German TV was technically accessible. In the analysis of the GDR survey data, this variable is one if an individual lived in a GDR district (*Verwaltungsbezirk*) with West German TV access. In the analysis of the SOEP data, this variable is one if an individual lived in a county (*Kreis*) with West German TV access. A county is considered to receive West German TV when the average West German TV signal surpasses the threshold of -86.5 dBm.	GDR survey 1988/1989, SOEP 2002, and Crabtree et al. (2015).
Control Variables: Demographic		
Age	This variable measures the age of the respondent.	GDR survey 1988/1989 and SOEP 2002.
Children	Dummy indicator equal to 1 if an individual has children.	GDR survey 1988/1989.
Female	Dummy indicator equal to 1 if an individual is female.	GDR survey 1988/1989 and SOEP 2002.
Household size	This variable measures the number of people living in the respondent's household.	SOEP 2002.
Living with parents	Dummy indicator equal to 1 if an individual lives together with their parents.	GDR survey 1988/1989.
Migration background	Dummy indicator equal to 1 if an individual has a direct or indirect migration background and 0 if an individual is a native.	SOEP 2002.
Religious affiliation	Dummy indicator equal to 1 if an individual has a religious affiliation.	SOEP 2002.
Single	Dummy indicator equal to 1 if an individual is single.	GDR survey 1988/1989 and SOEP 2002.
Control Variables: Socio-economic		
Education	In the analysis of the GDR survey data, this variable consists of four dummy indicators equal to 1 if an individual finished education i) below 8th grade, ii) after 8th grade, iii) after 10th grade, and iv) after 12th grade. In the analysis of the SOEP data, the variable measures the number of years of education.	GDR survey 1988/1989 and SOEP 2002.

Employment status	In the analysis of the GDR survey data, this variable consists of three dummy indicators equal to 1 if an individual is i) full-time employed, ii) part-time employed, and iii) in vocational training. In the analysis of the SOEP data, this variable consists of four dummy indicators equal to 1 if an individual is i) full-time employed, ii) part-time employed, iii) not working, and iii) retired.	GDR survey 1988/1989 and SOEP 2002.
Household income	This variable measures the logarithm of the monthly net income of the household.	SOEP 2002.
Additional Variables: Survey data		
Alcohol consumption: Beer	Dummy indicator equal to 1 if an individual consumes beer regularly or occasionally and 0 if rarely or never.	SOEP 2006.
Alcohol consumption: Spirits	Dummy indicator equal to 1 if an individual consumes spirits regularly or occasionally and 0 if rarely or never.	SOEP 2006.
Alcohol consumption: Wine	Dummy indicator equal to 1 if an individual consumes wine regularly or occasionally and 0 if rarely or never.	SOEP 2006.
Attending cultural events	The variable measures how often an individual attends cultural events such as concerts, theater, or lectures on a four-point Likert scale ranging from never to at least once a week. We also construct a dummy indicator equal to one if an individual attends cultural events such as concerts, theater, or lectures at least once a month.	SOEP 2001.
Distance to West Germany	This variable measures the logarithm of the distance between an individual's county of residence before reunification and the closest point on the West German border.	Authors' own calculation using SOEP 1990 and ArcGIS.
Doctor visits (number)	This variable measures the number of doctor visits of an individual within the last three months. We also construct a dummy indicator equal to one if an individual had at least one doctor visit within the last three months.	SOEP 2002.
Expecting career deterioration	Dummy indicator equal to 1 if an individual expects a career deterioration to happen within the next two years.	SOEP 1990.
Expecting change of occupation	Dummy indicator equal to 1 if an individual expects a change of their occuption to happen within the next two years.	SOEP 1990.
Expecting job loss	Dummy indicator equal to 1 if an individual expects a job loss to happen within the next two years.	SOEP 1990.
Expecting mass layoffs	Dummy indicator equal to 1 if an individual expects mass layoffs at their current firm to happen within the next two years.	SOEP 1990.
Going to the cinema, dances, or sporting event	The variable measures how often an individual goes to the cinema, dances, or sporting events on a four-point Likert scale ranging from never to at least once a week. We also construct a dummy indicator equal to one if an individual goes to the cinema, dances, or sporting events at least once a month.	SOEP 2001.
Health concerns	Dummy indicator equal to 1 if an individual is highly concerned about their health.	SOEP 2002.
Health satisfaction	This variable measures an individual's satisfaction with their health on a eleven-point Likert scale.	SOEP 2002.
Health status	This variable measures an individual's health status on a five-point Likert scale.	SOEP 2002.
Mental health	This variable measures an individual's mental health status. It is calculated using an explorative factor analysis of four subscales, each consisting of one to two variables capturing different aspects of an individual's mental health. Andersen et al. (2007) provides a detailed description of the mental health variable.	SOEP 2002.
Optimistic about own future	This variable measures an individual's optimism about their future on a four-point Likert scale.	SOEP 1990.
PDS support	Dummy indicator equal to 1 if an individual supports the political party PDS.	SOEP 1992.

Practice sports	The variable measures how often an individual practices sports on a four-point Likert scale ranging from never to at least once a week. We also construct a dummy indicator equal to one if an individual practices sports at least once a month.	SOEP 2001.
Public sector	Dummy indicator equal to 1 if an individual was employed in the GDR's state apparatus or public service.	SOEP 1990.
Risk preferences	This variable measures an individual's risk preference on a eleven point Likert scale ranging from 0 (very risk-averse) to 10 (very risk-seeking). We also construct a dummy indicator equal to 1 if an individual is risk-seeking, defined by a risk score above the sample median.	SOEP 2004.
Satisfaction with GDR	This variable measures an individual's satisfaction with the democracy in the GDR on a four-point Likert scale.	SOEP 1990.
Socializing with friends, relatives, or neighbors	The variable measures how often an individual meets with friends, relatives, or neighbors on a four-point Likert scale ranging from never to at least once a week. We also construct a dummy indicator equal to 1 if an individual meets with friends, relatives, or neighbors at least once a month.	SOEP 2001.
Time preferences	This variable measures an individual's time preference on a eleven point Likert scale ranging from 0 (very patient) to 10 (very impatient). We also construct a dummy indicator equal to 1 if an individual is impatient, defined by a impatient score above the sample median.	SOEP 2008.
Additional Variables: District level data		
Hospital beds	This variable measures the number of hospital beds per 1,000 inhabitants.	Statistical yearbook of the GDR 1989.
Medical doctors	This variable measures the number of medical doctors per 1,000 inhabitants.	Statistical yearbook of the GDR 1989.
Population density	This variable measures the number of inhabitants per km^2.	Statistical yearbook of the GDR 1955/1989.
Retail sales per capita	This variable measures the retail sales per capita.	Statistical yearbook of the GDR 1955/1989.
Share of females	This variable measures the shar of females.	Statistical yearbook of the GDR 1955/1989.
Share of females below 18	This variable measures the share of females among all residents below the age of 18.	Statistical yearbook of the GDR 1955/1989.
Share of foreigners	This variable measures the share of foreigners.	Statistical yearbook of the GDR 1989.
Share of population below 18	This variable measures the share of the population aged below 18.	Statistical yearbook of the GDR 1955/1989.
Students per class	This variable measures the average number of students per class.	Statistical yearbook of the GDR 1955/1989.
Students per teacher	This variable measures the average number of students per teacher.	Statistical yearbook of the GDR 1955/1989.
Suicides	This variable measures the number of suicides per 100,000 inhabitants.	Statistical yearbook of the GDR 1955/1989.

C. Robustness Checks

In the following tables, we replicate the structure of our preferred specification of Table 2, and report the estimated coefficients separately for total respondents (Panel A), female respondents (Panel B), and male respondents (Panel C).

C.1 Heterogeneity

We first test whether heterogeneity based on either observable or unobservable factors may be driving our estimates. In the main text, we have already shown that, both in the GDR survey (Figure A.1a) and in the SOEP survey (Figure A.1b), the sample is fully balanced between areas with and without exposure to West German TV. In this section, we corroborate these results in several ways. First, we construct a sample from entropy balancing.[22] After verifying that, once we apply entropy balancing, treatment and control groups are fully balanced on the set of control variables (Figure C.1), we report the estimated coefficients of West German TV exposure on our main two outcomes of smoking behavior in columns (1) and (3) of Table C.1. Second, in columns (2) and (4), we present results based on a sample obtained from the coarsened exact matching (CEM) algorithm, which reduces the potential imbalance in covariates between covered and non-covered counties.[23]

C.2 Sample Selection Bias

While our setting is unlikely to be affected by sample selection bias, we provide evidence to counter this potential threat. First, one concern may arise regarding whether our results stem from West German TV exposure or from other channels of cultural norms transmission, such as migration patterns between West and East Germany. Second, there may be a worry that our findings could be influenced by the Berlin area – given the unique division of the capital city into West and East Berlin, the transmission of norms could have occurred independently of exposure to West German TV. Although we view both these scenarios as unlikely, due to strict migratory restrictions through both the imaginary line of the Iron Curtain and the physical barrier of the Berlin Wall, it remains crucial to verify the robustness of our results to these potential biases.

In columns (1) and (5) of Table C.2, we replicate our baseline specification of Table 2 excluding the respondents living along the inner German border, who were more likely to be exposed to West German values (e.g., by means of frequent interactions with West Germans or direct migration to and from the West). Even though we lose 36% of the SOEP 2002 sample (from 1,985 to 1,271 respondents), the coefficients that we estimate remain virtually unchanged when compared to our preferred specification of Table 2. Then, in columns (2) and

[22] This method attains balance in the set of controls by assigning weights to each observation in the control group, ensuring that the moments of the covariates of the reweighted control group match those of the treatment group in terms of mean, variance, and skewness (Hainmueller, 2012).

[23] The algorithm first temporarily coarsens the data and then computes exact matches on these coarsened data. The analysis is run on the uncoarsened, matched data.

(6), we omit all East German respondents living in the Berlin area. Their close proximity to West Berlin might influence them to adopt more West German values, even without any direct exposure to West German TV. While excluding these respondents reduces the sample by 22% (1,558 respondents), it does not affect the estimated coefficients. We determine whether a person had West German TV reception in the GRD period by using their place of residence in 1990. To reduce the risk of incorrect assignments, we remove respondents from columns (3) and (8) who changed their place of residence within the last two years before the interview in 1990.[24] Again, our results remain unchanged. Finally, we check whether our results are maintained if we exclude people from our analysis who moved to West Germany after reunification. Compared to our baseline specification of Table 2, the results are reassuringly robust to this change. West German TV continues to have a positive impact on both the likelihood of smoking and the number of cigarettes in the East German regions exposed to this signal during separation. This effect is large and highly statistically significant for women (Panel B), while it is indistinguishable from zero for male respondents (Panel C).

C.3 Alternative Specifications, Outliers, and Standard Errors

In Table C.3, column (1), we verify that results are robust to estimating the effect of West German TV exposure on the probability of smoking using a logit model, instead of the probit model that is considered in the rest of the paper. Results are virtually identical to those presented in column (3) of Table 2. Using the logit model, living in a region with pre-reunification exposure to West German TV increases the likelihood of smoking by 6.1 percentage points for all individuals (Panel A) and by 10.9 percentage points for women (Panel B). Relative to the sample means, these are increases of 21% and 50%, respectively. For men (Panel C), the effect continues to be indistinguishable from zero. Then, in column (3), we demonstrate that the results remain robust when the dependent variable, which measures the number of cigarettes smoked, is defined using a logistic function: the log of (number of cigarettes + 0.01).

Although the results remain robust when using the logistic function, there is still a concern that the findings for the dependent variable measuring the number of cigarettes smoked could be influenced by outliers. Specifically, respondents who smoke significantly more cigarettes than the sample mean (4.06 for the entire population, 2.66 for women, and 5.59 for men) might be driving the estimated effect. In columns (4) and (5) of Table C.3, we address this by excluding outliers, defined as respondents who smoke above the 99^{th} or 95^{th} percentiles of the distribution, respectively. Even with these exclusions, the coefficients remain consistent. In particular, for women (Panel B), exposure to West German TV increases the number of cigarettes smoked by 59% (column 4) and 58% (column 5). Importantly, results remain in line with those from our baseline specification: in column (7) of Table 2, we find that West German TV exposure increases the number of cigarettes smoked by 69%.

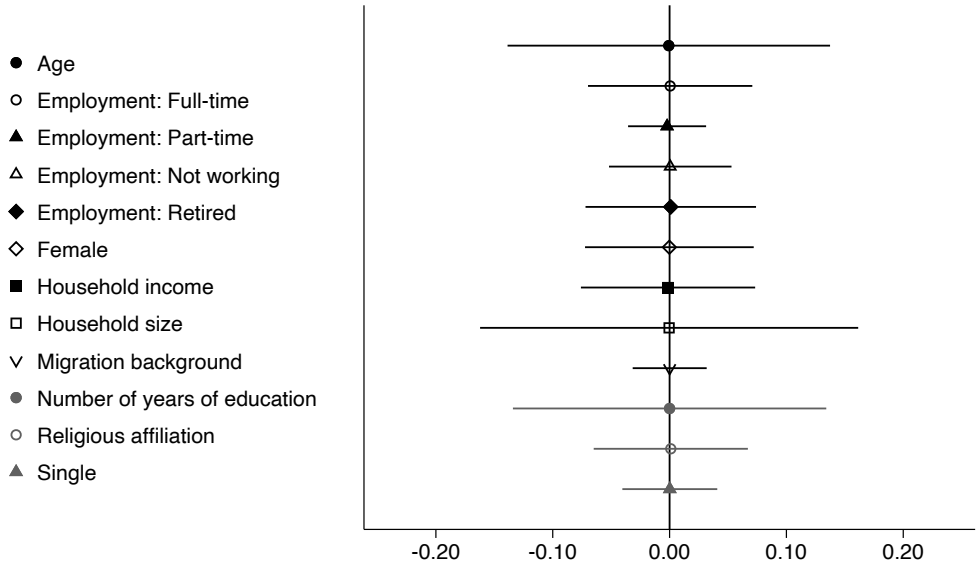
In columns (2) and (6) of Table C.3, we address the possibility of spatial correlation in the error term, by clustering standard errors at the county level (in the paper, we cluster standard errors at the individual level). Reassuringly, the precision of the results is virtually unchanged

[24] This also includes moves within the same municipality.

to considering this alternative level of clustering.

Finally, in Table C.4, we employ alternative specifications of the West German TV variable. In our main specification, we define a county to be exposed by West German TV if the average TV signal level surpasses the cutoff of -86.5 dBm. As shown in Table C.4, our main findings remain consistent when applying different signal strength thresholds, specifically -85.0 dBm, -82.5 dBm, and -80.0 dBm.

FIGURE C.1: Balance in covariate values: Entropy balancing



Note: Balance in the values of the covariates. The figure presents the estimated coefficients from bivariate regressions in which the treatment indicator is used as independent variable. The variables age and years of education are standardized in this figure for presentation reasons. The confidence intervals shown are set at the 95% level of statistical significance. Entropy balancing is implemented by using the Stata package *ebalance* (Hainmueller and Xu, 2013). Data source: SOEP v38 (2021), survey year 2002.

TABLE C.1: Robustness: Matching

Dep. variable:	Smoking			
	Likelihood of smoking		Number of cigarettes	
	Entropy balancing (1)	CEM (2)	Entropy balancing (3)	CEM (4)
Panel A: Total				
West German TV	0.061**	0.047	1.230	1.213
	(0.028)	(0.046)	(0.170)	(0.235)
Summary statistics:				
Dep. variable	0.282	0.276	4.055	3.850
	(0.450)	(0.448)	(7.816)	(7.597)
West German TV	0.884	0.720	0.884	0.720
	(0.321)	(0.449)	(0.321)	(0.449)
Observations	2218	515	2218	515
Panel B: Female				
West German TV	0.093***	0.130**	1.671**	1.819
	(0.029)	(0.053)	(0.339)	(0.816)
Summary statistics:				
Dep. variable	0.215	0.185	2.656	2.359
	(0.411)	(0.389)	(5.832)	(5.669)
West German TV	0.880	0.733	0.880	0.733
	(0.325)	(0.443)	(0.325)	(0.443)
Observations	1161	273	1161	273
Panel C: Male				
West German TV	0.043	−0.049	1.151	0.946
	(0.047)	(0.069)	(0.192)	(0.222)
Summary statistics:				
Dep. variable	0.355	0.322	5.590	4.897
	(0.479)	(0.468)	(9.295)	(8.836)
West German TV	0.887	0.738	0.887	0.738
	(0.316)	(0.441)	(0.316)	(0.441)
Observations	1057	263	1057	263

Notes: The table replicates the findings from Table 2 using entropy balancing as described in Hainmueller and Xu (2013) in columns (1) and (3) and a coarsened exact matching sample on the distribution of the sample in columns (2) and (4). Demographic controls include: Age; Age^2; Gender (only in Panel A); Single; Household size; Religious affiliation; Migration background. Socio-economic controls include: Education; Employment; Household income. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

TABLE C.2: Robustness: Sample definition

Dep. variable:	Smoking							
	Likelihood of smoking				Number of cigarettes			
	Excluding inner German border (1)	Excluding Berlin area (2)	Excluding flat movings (3)	Excluding moving to the West (4)	Excluding inner German border (5)	Excluding Berlin area (6)	Excluding flat movings (7)	Excluding moving to the West (8)
Panel A: Total								
West German TV	0.067**	0.059**	0.062**	0.046	1.208	1.162	1.212	1.121
	(0.028)	(0.028)	(0.029)	(0.029)	(0.153)	(0.148)	(0.176)	(0.146)
Summary statistics:								
Dep. variable	0.284	0.279	0.265	0.271	4.141	3.990	3.851	3.916
	(0.451)	(0.449)	(0.442)	(0.445)	(7.913)	(7.803)	(7.741)	(7.723)
West German TV	0.871	0.868	0.886	0.889	0.871	0.868	0.886	0.889
	(0.335)	(0.338)	(0.318)	(0.314)	(0.335)	(0.338)	(0.318)	(0.314)
Pseudo R^2	0.127	0.129	0.122	0.121	0.168	0.179	0.163	0.167
Observations	2002	1958	1983	2060	2002	1958	1983	2060
Panel B: Female								
West German TV	0.111***	0.101***	0.086**	0.089**	1.746**	1.636**	1.685**	1.585*
	(0.037)	(0.037)	(0.038)	(0.038)	(0.401)	(0.376)	(0.402)	(0.386)
Summary statistics:								
Dep. variable	0.217	0.212	0.199	0.199	2.733	2.576	2.457	2.430
	(0.412)	(0.409)	(0.399)	(0.399)	(5.953)	(5.737)	(5.621)	(5.567)
West German TV	0.868	0.865	0.881	0.884	0.868	0.865	0.881	0.884
	(0.339)	(0.342)	(0.324)	(0.320)	(0.339)	(0.342)	(0.324)	(0.320)
Pseudo R^2	0.148	0.146	0.147	0.126	0.169	0.181	0.166	0.150
Observations	1052	1026	1035	1070	1052	1026	1035	1070
Panel C: Male								
West German TV	0.027	0.020	0.044	0.006	1.051	1.032	1.090	1.004
	(0.044)	(0.044)	(0.046)	(0.045)	(0.158)	(0.157)	(0.194)	(0.155)
Summary statistics:								
Dep. variable	0.359	0.353	0.338	0.349	5.701	5.547	5.373	5.522
	(0.480)	(0.478)	(0.473)	(0.477)	(9.389)	(9.333)	(9.298)	(9.257)
West German TV	0.875	0.872	0.890	0.894	0.875	0.872	0.890	0.894
	(0.331)	(0.334)	(0.313)	(0.308)	(0.331)	(0.334)	(0.313)	(0.308)
Pseudo R^2	0.102	0.100	0.091	0.094	0.148	0.147	0.138	0.137
Observations	950	932	948	990	950	932	948	990

Notes: Columns (1) to (4) report probit average marginal effects, while columns (5) to (8) show incident rate ratios based on poisson models. In columns (1) and (5), we exclude individuals living in the eight spatial planning regions that are located directly on the inner German border. Columns (2) and (6) omit respondents residing in Berlin and in the six spatial planning regions that surround Berlin. In columns (3) and (7), we exclude individuals that changed their residence in the two years before reunification. Columns (4) and (8) omit individuals who moved to West Germany after 1990. Demographic controls include: Age; Age^2; Gender (only in Panel A); Single; Household size; Religious affiliation; Migration background. Socio-economic controls include: Education; Employment; Household income. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

TABLE C.3: Robustness: Outliers and model specification

Dep. variable:	Smoking					
	Likelihood of smoking		Number of cigarettes			
	Logit	Clustering SE on county level	Log(#+0.01)	Excluding 99th percentile	Excluding 95th percentile	Clustering SE on county level
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Total						
West German TV	0.061**	0.063*	0.366*	1.142	1.297	1.181
	(0.028)	(0.036)	(0.190)	(0.145)	(0.215)	(0.177)
Summary statistics:						
Dep. variable	0.282	0.282	−2.653	3.539	1.981	4.055
	(0.450)	(0.450)	(3.198)	(6.731)	(4.432)	(7.816)
West German TV	0.884	0.884	0.884	0.883	0.883	0.884
	(0.321)	(0.321)	(0.321)	(0.321)	(0.322)	(0.321)
Pseudo R^2	0.125	0.124		0.156	0.120	0.164
R^2			0.137			
Observations	2218	2218	2218	2181	2001	2218
Panel B: Female						
West German TV	0.109***	0.107***	0.711***	1.587**	1.580*	1.688**
	(0.038)	(0.040)	(0.223)	(0.360)	(0.385)	(0.427)
Summary statistics:						
Dep. variable	0.215	0.215	−3.108	2.529	1.819	2.656
	(0.411)	(0.411)	(2.879)	(5.509)	(4.267)	(5.832)
West German TV	0.880	0.880	0.880	0.880	0.878	0.880
	(0.325)	(0.325)	(0.325)	(0.325)	(0.328)	(0.325)
Pseudo R^2	0.144	0.142		0.176	0.153	0.164
R^2			0.136			
Observations	1161	1161	1161	1156	1112	1161
Panel C: Male						
West German TV	0.019	0.021	0.033	0.972	1.093	1.035
	(0.043)	(0.052)	(0.317)	(0.149)	(0.244)	(0.150)
Summary statistics:						
Dep. variable	0.355	0.355	−2.154	4.677	2.182	5.590
	(0.479)	(0.479)	(3.449)	(7.732)	(4.624)	(9.295)
West German TV	0.887	0.887	0.887	0.887	0.889	0.887
	(0.316)	(0.316)	(0.316)	(0.317)	(0.315)	(0.316)
Pseudo R^2	0.099	0.098		0.130	0.106	0.139
R^2			0.131			
Observations	1057	1057	1057	1025	889	1057

Notes: Column (1) reports logit average marginal effects. Column (2) reports probit average marginal effects. Columns (3) contains estimates based on OLS regressions. Columns (4) to (6) show incident rate ratios based on poisson models. Demographic controls include: Age; Age^2; Gender (only in Panel A); Single; Household size; Religious affiliation; Migration background. Socio-economic controls include: Education; Employment; Household income. In columns (2) and (6) of each panel, standard errors are clustered at the county level and shown in parentheses. In the remaining columns, standard errors are clustered at the individual level. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

TABLE C.4: Robustness: Variation of the TV-signal threshold

Dep. variable:	Smoking					
	Likelihood of smoking			Number of cigarettes		
	-85.0dBm (1)	-82.5dBm (2)	-80.0dBm (3)	-85.0dBm (4)	-82.5dBm (5)	-80.0dBm (6)
Panel A: Total						
West German TV	0.062**	0.057**	0.058**	1.176	1.138	1.210*
	(0.028)	(0.026)	(0.024)	(0.147)	(0.131)	(0.129)
Summary statistics:						
Dep. variable	0.283	0.283	0.283	4.064	4.064	4.064
	(0.451)	(0.451)	(0.451)	(7.812)	(7.812)	(7.812)
West German TV	0.884	0.868	0.841	0.884	0.868	0.841
	(0.321)	(0.338)	(0.366)	(0.321)	(0.338)	(0.366)
Pseudo R^2	0.122	0.122	0.123	0.164	0.163	0.164
Observations	2225	2225	2225	2225	2225	2225
Panel B: Female						
West German TV	0.104***	0.098***	0.078**	1.652**	1.600**	1.545**
	(0.037)	(0.035)	(0.031)	(0.365)	(0.317)	(0.274)
Summary statistics:						
Dep. variable	0.218	0.218	0.218	2.673	2.673	2.673
	(0.413)	(0.413)	(0.413)	(5.831)	(5.831)	(5.831)
West German TV	0.880	0.865	0.840	0.880	0.865	0.840
	(0.325)	(0.341)	(0.367)	(0.325)	(0.341)	(0.367)
Pseudo R^2	0.138	0.138	0.137	0.161	0.161	0.161
Observations	1167	1167	1167	1167	1167	1167
Panel C: Male						
West German TV	0.021	0.016	0.040	1.034	0.990	1.094
	(0.043)	(0.040)	(0.038)	(0.155)	(0.137)	(0.143)
Summary statistics:						
Dep. variable	0.355	0.355	0.355	5.599	5.599	5.599
	(0.479)	(0.479)	(0.479)	(9.295)	(9.295)	(9.295)
West German TV	0.888	0.871	0.842	0.888	0.871	0.842
	(0.316)	(0.335)	(0.365)	(0.316)	(0.335)	(0.365)
Pseudo R^2	0.099	0.099	0.099	0.140	0.140	0.140
Observations	1058	1058	1058	1058	1058	1058

Notes: Columns (1) to (3) report probit average marginal effects, while columns (4) to (6) show incident rate ratios based on poisson models. The cutoff level in column (1) and (4) is -85.0 dBm, in columns (2) and (5) -82.5 dBm, and in columns (3) and (6) -80.0 dBm. Demographic controls include: Age; Age^2; Gender (only in Panel A); Single; Household size; Religious affiliation; Migration background. Socio-economic controls include: Education; Employment; Household income. Standard errors are clustered at the individual level and shown in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Data source: SOEP v38 (2021), survey year 2002.

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