

The God Relinquished: Quasi-Experimental Evidence on Religious Beliefs and Smoking from the German Separation

Very preliminary version

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March 30, 2012

Abstract

We analyse the role of culture on individual behavior by focusing on the link between religiousness and smoking in a quasi-experimental setting. Our research design exploits the exogenous switch to Atheism that took place in East Germany after the separation adopting a Conditional Difference-in-Difference strategy. Our analysis on data from the German Socio-Economic Panel (SOEP) for the period 1998 - 2006 suggests that Atheists are consistently more likely to smoke than Religious individuals, by about 13 – 20%. We interpret our results on the basis of a restraining effect of religious on vices.

Keywords: Smoking, Religion, Culture, Atheism, German Separation.

JEL Classification: I10, D8, Z12, Z13

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“Or do you not know that your body is a temple of the Holy Spirit within you, which you have from God, and that you are not your own? For you were bought with a price; therefore glorify God in your body”

(Corinthians:6:19-20 New Revised Standard Version).

“You may say, ‘I am allowed to do anything.’ But I reply, ‘Not everything is good for you.’

And even though ‘I am allowed to do anything,’ I must not become a slave to anything”

(Corinthians:6:12 New Living Translation).

1 Introduction

Understanding the effect of culture on individual behavior has recently attracted great attention in the economic literature. It is widely recognized that cultural norms might explain differences in redistribution preferences ([Luttmer and Singhal, 2011](#)), social capital ([Guiso, Sapienza, and Zingales, 2009](#)), household living arrangements ([Giuliano, 2007](#)), women’s attitude toward work and fertility ([Alesina and Giuliano, 2010](#), [Fernandez and Fogli, 2009](#)).

This paper aims at analyzing the role of culture on economic outcomes focusing on the causal link between religiousness and smoking. Of all cultural dimensions religion is one of the most pervasive and influential. Almost all individuals in their lifetime have to face the problem of the existence of God, and the beliefs and cultural implications associated to the answer given to this question are likely to have important consequences as regards their attitude towards life in general and economic behavior in particular. Our analysis investigates whether religion have a causal effect on smoking. The theoretical framework we have in mind can be traced to the seminal paper by [Becker and Murphy](#) where smoking is a consumer choice decision, in which individuals maximize their utility or pleasure by keeping into account the associated health risks and costs and decide whether to smoke or

not. In this sense, religion, with its emphasis on leading a "good" and ethical life and the need of exercising a restraint on vices, provides a set of incentives that may significantly affect individual smoking behavior. On the other hand, internalizing the idea of God and of an after-life may change the individual attitude towards death, and consequently towards all risky habits that may affect the length of the life span.

Our aim is to assess whether the ethical norms attached to religion may affect smoking. Our emphasis is on causality, i.e. on the estimation of a relationship between religion and smoking that may go beyond a simple empirical correlation.

Since [Miller and Hoffmann](#), most empirical evidence highlights a positive link between religiousness and risk-aversion. The rationale behind this relationship might be due to fear of God's punishment in the after-life emphasized by many religions ([Miller, 2000](#), [Miller and Hoffmann, 1995](#)) as well as to the psychological traits that are usually associated to religiousness, such as anxiety ([Ahmad, 1973](#)) which is strictly correlated with risk-aversion ([Gasper and Clore, 1998](#), [Lerner and Keltner, 2000](#)). [Osoba \(2004\)](#) shows that people who attend church less frequently appear to be more risk-lover by about 1%. Likewise, [Diaz \(2000\)](#) finds evidence of the no-independence between gambling and religiosity. However, most of the existing literature has failed to solve the problem of the potential endogeneity of religion with respect to many of the investigated outcomes. Therefore, most of the existing findings on the economic implications of religion may be plagued by biasedness. [Hilary and Hui \(2009\)](#) try to approach the question using 2SLS but their analysis is an evaluation of how companies perform in a religious environment rather than an assessment of the management's religiosity on company performance. [Nunziata and Rocco \(2011\)](#)'s emphasis is on causality. They exploit the exogenous historical minority patterns of Christian creeds across European regions in order to evaluate the causal impact of Protestantism versus Catholicism on the propensity to

be entrepreneurs. However, they focus on religious individuals only and do not examine the causal impact of religiousness and atheism.

Differently from previous works, the aim of this paper is to provide the first contribution where the causal behavioral impact of religiousness versus atheism is investigated under a proper quasi-experimental setting. Germany represents, indeed, an exceptional breeding ground for this issue. The country is commonly known as a melting-pot of different cultures: Germans, Italians, Spanish, Greeks and Turkish and likewise a mixture of religions - even among Germans: Protestants (more widespread in the North of Germany), Catholics (more widespread in the South), high percentage of Atheists (in particular in the former German Democratic Republic). In this setting, we exploit the German separation after World War II as a unique natural experiment of history. Indeed, simple descriptive statistics from the German Socio-Economic Panel (SOEP) after re-unification reveal an impressive difference in the patterns of Atheism across former Eastern German Democratic Republic (GDR, henceforth) in the East with respect to the Federal German Republic (FGR, henceforth) in the West. Today, even after more than twenty years from German re-unification, Atheists are almost 70% of total population in the East, and only 10% in the West. This divergence can be imputed to the dramatic differences in the public attitude versus religion between the two regimes. While in the FGR religion was essentially free¹, the political system in the GDR strongly opposed religion in many ways under the influence of the Marxist ideology that was at the core of the leading Socialist Unity Party (SED, henceforth). This large divergence in religiousness was not present before the separation. Froese and Pfaff (2005) report that over 92% of Eastern Germans were affiliated with a religious denomination in 1950. The persistent shift towards Atheism in GDR can therefore be attributed to the exogenous shift in

¹Freedom of religion was explicitly mentioned by Article 4 of the Basic Law.

the political regime, providing a unique quasi-experimental setting for investigating whether Atheism might play a role in shaping individual behavior.

The main idea behind our research design is to identify those individuals on the East who declare themselves Atheists but would have been religious under different political circumstances. The idea is to match them with those individuals on the West who share a similar family background but chose to be religious since they were not exposed to an atheist-biased education and set of incentives. The choice of atheism versus religion by the specific group of individuals identified by the matching procedure is therefore entirely due to the exogenous shock experienced under the Communist regime. We can therefore compare the economic behavior of atheists versus religious where their difference in religiosity is entirely due to an exogenous shock and not to other latent individual characteristics.

However, in doing so we need to separate the direct effect of the Eastern regime on the outcome of interest from the indirect regime effect through atheism. One strategy aimed at identifying the direct "regime effect" is matching those individuals who were resiliently religious in the East, despite any external influence, with similar individuals on the West who freely chose to be religious. The difference in outcomes between the two groups have therefore to be related to the differences in treatments induced by the two different German political systems and not to religiousness.

By focusing on smoking we analyze a health related risky behavior that is not affected by past differences in the political system between East and the West in an obvious way. Other outcomes related to attitude towards risk, like the propensity of being an entrepreneur or direct answers to questions related to risk, are not immune from being potentially influenced by the pedagogy of the past Communist regime. Under this identification strategy, we aim at distinguishing between a regime-induced "atheism effect" vis-à-vis a direct "regime effect", not related to religion. Using SOEP data for the period 1998-2006, we compare the smoking

behavior of those individuals who embraced atheism because of the regime’s pedagogy and incentive structure and those individuals in FGR with similar family background, who freely chose to be religious. Our empirical findings consistently show that atheists are more prone to be smokers by around 7%-14%. These results suggest that simple OLS estimates of the effect of religion on smoking suffer from a non negligible bias.

The rest of this paper is structured as follows. Section 2 explains how atheism and religiousness develop in a free environment and SED state’s policy toward religion in the GDR. Section 3 reviews the literature. The data are described in section 4. The identification strategy is presented in section 5. Section 6 provides the estimation results including a large battery of robustness checks. Finally section 7 concludes.

2 Religion and Atheism Between Freedom of Choice and Repression

2.1 The Intergenerational Transmission of Religion

Religion is mostly acquired within the family through inter-generational transmission (Nunziata and Rocco, 2011). Individuals choose whether to be Atheists or Religious according to individual latent characteristics. Those individuals who choose to be religious tend to inherit the religion of their parents. This explains the historical persistence of geographical distribution of religious minorities in Europe across centuries. This also suggest how the individual choice of Atheism is likely to be endogenous when modeling economic outcomes. If we are interested in estimating the behavioral causal implications of religious beliefs we therefore need to adopt a research design that eliminates the bias induced by omitted latent individual characteristics. The dramatic switch to Atheism in East Germany induced by the separation constitutes an ideal natural experiment of history that can be exploited to this end.

2.2 Religious Policies in the Former GDR

Since the end of the II World War, the East German Church's religious autonomy was severely affected by the SED policies. Since the 1940s, religion started to be openly criticized by the state for its negative influence upon the population and especially upon "the hearts and minds of the next generations" (Ross, 2002). The conflict between the government and the Church led to the repression of various Church events by the police, and to the limitation of access or even exclusion of Christian students from education and the professions.

Among the religious organizations, especially the *Junge Gemeinde*² was considered a key obstacle to the to the supremacy of the Communist Free German Youth (Freie Deutsche Jugend, FDJ) that was intended to introduce the citizens between 14 and 25 to the Marxist-Leninist doctrine. It then came under attack from the government in the late 1940s and the 1950s³. Since 1953 the relationship between the *Junge Gemeinde* and the SED got worse. A series of new measures against the religious organization were implemented, such as the expulsion of the leaders and most active members from schools and higher institutions, and the ban of all public activities. In 1954, the SED introduced a secular rival ritual to the Christian confirmation, the *Jugendweihe*, that became compulsory for all students in East Germany after 1958. The distance between Christians and SED widened. The confrontation between the Church and the SED party increased further when the government tightened the admission requirements to the University-path high schools *Erweiterte Oberschulen* in May 1971. Since then the principle of admitting pupils to the University on the basis of their political curriculum was particularly emphasized, to the point that selection criteria were

²The *Junge Gemeinde* was the Protestant Youth Congregation. Board members of this religious organization were accused to be members of the supposed terrorist West German Youth Organization (BDJ) (Ostermann, 2001) .

³Wappler (Peperkamp and Rajtar, 2010) defines the period after the resolution of the II SED party congress in September 1947 the "transition from anti-fascist democratic school to the socialist school"

openly based on "political attitude".⁴

After the meeting between the leader of the SED party, Erich Hocknecker, and the representatives of the Church League (*Kirchenbund*) held on 6 March 1978, the confrontation between the two parties steadily improved, leading to a common declaration. The declaration explicitly stated that "young Christians were not to be discriminated against in any area, that the church would be provided with television time and that the church workers would receive state pension, providing that the state felt forced to accept the church as independent social factor" (Peperkamp and Rajtar, 2010). Even though, from 1978 the relationship between the church and the SED party was indeed more peaceful, the end of the confrontation and the discrimination against Christians ended with the peaceful revolution in November 1989.

3 Literature Review

Two strands of the economic literature appear closer to our analysis. On the one hand we contribute to the literature on the determinants of smoking (section 3.1). On the other hand, we provide one of the first attempt at estimating the causal effect of religiousness on individual behavior in general, and on risky conducts in particular (section 3.2).

3.1 The Decision to Smoke

Since Becker and Murphy (1988)'s seminal paper, the economic literature views smoking as a rational consumer choice decision, in which individuals maximize their utility by keeping into account the associated health risks and costs.

A strand of the literature show that smoking is a discount rate question: smokers prefer having the instantaneous pleasure of the smoke puff, rather than a future better health

⁴Before 1971 admission to universities was determined on the basis of the pupil's academic curriculum and "social" activity. The commission in charge of the enrollment procedure was composed by representatives of the unions (FDGR), the youth organization (FDJ) and teachers.

(Laffert von, 1998, Munasinghe and Sicherman, 2000).⁵ Nevertheless this theoretical assumption has been tested by some empirical works (Chaloupka, 1991, Labeaga, 1993), and some authors cast some doubts on the actual rationality of smokers (Gruber, 2000b, Laux, 2000).

Under the two assumptions of consumer rationality and stability of individual preferences, Laux (2000) tests whether the individual discount rates in consumption of additives are a proxy of the ones used by saving and investment decisions. The conclusion is that either the consumer behavior is myopic or preferences are unstable. Beyond confirming the hypothesis of “bounded rationality”, Gruber (2000a) introduces the so-called “projection bias” (i.e. “The youths may inappropriately project the current moment’s preferences onto their future tastes” (Gruber, 2000a).)

In addition to well-known serious health-damages (e.g. lung cancer, cardiovascular diseases), Lopez reports that most adolescents remember the first time they smoked as an uncomfortable experience (i.e. they felt sick, developed an headaches or felt unaccustomed foul taste) and they forced themselves not to quit. So why do people smoke? The literature have investigated the individual environment (e.g. parental smoking behavior, taxes) and whether smoking represents a symbol for non-verbal communication.

The literature documents a negative correlation between education and propensity to smoke (Kenkel, 1991, Sander, 1995), and finds that higher educated people are more likely to quit, compared with low educated counterparts (Chassin, Presson, Sherman, and Edwards, 1992). Concerning the effect of parental smoking on the future individual attitude to smoking, the literature have found mixed results. Many empirical studies reject the hypotheses of a causal link from parental smoking to future children smoking (Conrad, Flay, and Hill, 1992, Tyas and Pederson, 1998). Avenevoli and Merikangas (2003) find a negligible effect

⁵Laffert von also discuss the relevance of the well-known “it won’t happen to me” attitude.

of the parents' propensity to smoke on adolescents future smoking addiction. Lopez (1983) concludes that parents may influence their offspring propensity to smoke in their early age, but around the age of twelve, the children are more likely to be influenced by their peers. However, Lillard and Fumagalli (2010) conclude that these findings may be driven by the extremely small sample size.

As regards non-verbal communication, smoking is a channel for identification - especially in the case of adolescents - as members of a group (Charlton and Blair, 1989, Laffert von, 1998, Smith and Stutts, 1999). In this respect, since it is well-known that religion might influence individual behavior through peer group effects (Deaton, 2009, Koenig, George, Cohen, Hays, Larson, and Blazer, 1998), hence it could also influence the propensity to smoke.

The activity of smoking is related to risk aversion since it represents a well known source of health risks. Indeed, smokers prefer to trade an immediate pleasure derived from the act of smoking in exchange of an increase in the probability of contracting a disease tomorrow.

The first known concerns about the health consequences of smoking go back to 1604 when King James I of England decided to rise taxation on tobacco by about 1000%. However the health impact of tobacco consumption started to be properly investigated in the 1950s. According to Chaloupka and Warner (2000), the increase in the average life-span of the last decades led people to "reach the age at which tobacco takes its greatest toll". In addition, physicians found evidence of a strong correlation between smoking and diseases. Today the link between smoking and health is not controversial anymore. In 2004, 90% of U.S. men and 80% of women who died from lung cancer were smokers.⁶ Nevertheless, while the health repercussion of smoking are well-known in developed countries, the percentage of smokers in less developed countries is still increasing (WHO, 1999).

⁶For more details see <http://www.cancer.gov/cancertopics/tobacco/smoking>.

Some recent papers have used smoking as a risk-related measure ([Chesson and Viscusi, 2000](#), [Hersch, 1996](#), [Hersch and Viscusi, 1990](#)).

[Hersch \(1996\)](#) investigates whether there is any evidence of gender and ethnicity pattern in terms of safety issues, using six proxies of safety: smoking, seat belt, teeth brushing and flossing, exercise, blood pressure checks, estimating a probit model on data from the National Medical Expenditure Survey in 1987. [Hersch \(1996\)](#)'s results show that gender and ethnicity play a role in explaining risk-aversion. While black males are the riskier ones, white females are the safer ones. Notwithstanding, the ethnicity gap can be purged controlling for the demographics, whereas the gender gap even increases using demographics controls. Likewise, [Barsky, Juster, Kimball, and Shapiro \(1997\)](#) using an experimental setting ⁷ applying a CRRA functional form find that risk aversion is related to demographic characteristics as well as to smoking and drinking behavior.

In addition, the economic literature shows that smokers tend to receive lower monetary compensations with respect to non smokers. The reason behind is that smoking is a time-consuming activity and this might imply lower productivity through job-absenteeism ([Hersch, 1996](#)) and less care in on-the-job decisions([Hersch and Viscusi, 1990](#)).

3.2 Religion and Risky and Addictive Conducts

Religiousness is generally attached to a reduced willingness to take risks ([Miller, 2000](#), [Miller and Hoffmann, 1995](#)).

In addition, religious individuals appear in general to be more anxious than atheists ([Ahmad, 1973](#), [Rokeach, 1968](#)), an attitude which is generally strictly correlated with risky behavior ([Gasper and Clore, 1998](#), [Lerner and Keltner, 2000](#)). Using data from the 1970 and 1972 waves of Panel Study of Income Dynamics (PSID), [Osoba \(2004\)](#) shows that

⁷The authors asked hypothetical situation question to the participants to a Health and Retirement Study

people who attend church less frequently are 1% more likely to love risk⁸. The individual religiousness and its denomination appear to be, also, correlated with differences in gambling and organizational behavior. [Diaz \(2000\)](#), using non parametric estimation on data from a telephone survey conducted in Las Vegas, finds evidence of the no-independence between gambling and religiosity. More recently, [Bartke and Schwarze \(2008\)](#) analyze the role of nationality and religion in explaining risk-taking willingness in Germany. Using the self-assessment question from the 2004 GSOEP wave data the authors compare the risk-aversion of native Germans with that of immigrants, using OLS. They find that while religion is correlated with risk-attitude, nationality is not.

However, in general, it is not clear whether it is the belief in God that affects risk-aversion or the opposite. In addition, both phenomena may be explained by third factors not included in the model. It follows that religious people may be selected according to dimensions related to risk-aversion and therefore the estimates may be biased due to reverse causality and omitted variables. Most of the existing literature has failed to solve the problem of the potential endogeneity of religion with respect to many of the investigated outcomes. Therefore, most of the existing findings on the economic implications of religion are likely to be biased. [Hilary and Hui \(2009\)](#) approach the question using 2SLS but their analysis is an evaluation of how companies perform in a religious environment rather than an assessment of the management's religiosity (or the religiosity of the CEO or the religiosity of the owner) on company performance. Our quasi-experimental setting provides a unique framework to assess the causal effect of religiousness on risky behavior as embodied by smoking.

Our study exploit a unique experiment of history, namely the division of Germany after World War II, in order to provide a rigorous estimation of the causal channel between religion and smoking. Our research design and the data we use are illustrated in the next sections.

⁸The risk-propensity is measured by a specific variable in PSID data. It is derived by other variables such as smoking attitude, seat belt use, car insurance, hospital and medical insurance, reserve funds, etc.

4 The Data

We use the data from the German Socio-Economic Panel (SOEP) for the period 1990 - 2006. The SOEP is an ongoing annual panel. The survey started as a nationally representative survey of private household living in the former Federal German Republic in 1984 and subsequently broadened to the whole Germany in 1990. The current sample consist of 12,000 household (i.e. more than 20,000 people).⁹

In addition to including smoking habits information, the GSOEP provides a wide range of background information on each individual such as: age, gender, education, health, income (both at the individual and the household level), religious affiliation and the former German State of residence (i.e. FDR or GDR) when the reunification took place.

In the years 1998, 1999, 2001, 2002, 2004 and 2006, all individuals aged 16 or more are asked whether they smoke and the amount of smoked cigarettes per day. Our final sample consist of 3,687 males born in Germany aged between 16 and 65, interviewed at least once. From the original sample we drop all the individuals aged 65 or older, to avoid sample selection. As aptly described by [Christopoulou, Han, Jaber, and Lillard \(2011\)](#), the mortality ratio for smokers equals the one for no-smoker up to the age of 65. From 65 onward, the percentage of non-smokers is statistically higher than their smoker peers because of the higher mortality attached to the second group. Likewise, [Luy \(2004\)](#) highlights that life expectancy between the former GDR and the former FGR was significantly different, hence keeping people aged 65 or less would overcome this issue.

Table 1 provides a description of how our final sample is obtained.

TABLE 1 AROUND HERE

⁹For a more detailed description see [Wagner, Frick, and Schupp \(2007\)](#)

Tables 2 - 3 provide some descriptive statistics for our sample. More precisely table 2 compares Western with Eastern Germans along our control dimensions. Table 3 compares smoker with nonsmokers.

TABLES 2 - 3 AROUND HERE

In addition to religiousness and atheism, Eastern and Western Germans appear to be significantly different in terms of education and labour market status in post unification times (Diewald, Goedicke, and Mayer, 2006). Eastern Germans have higher education, although they are less likely to be employed (Luy, 2004).

Germany has a relatively high percentage of smokers and the highest percentage of female teenagers smokers in Europe (WHO, 1999). Smoking bans were introduced in Germany, at federal level, between 2007 and 2008, i.e. outside our sampling time period.

The comparison between smokers and non-smokers reveal that smokers appear to be younger, lower educated, more likely to be unemployed and atheist (Avery, Kenkel, Lillard, and Mathios, 2007, CDC, 2004). Looking at the evolution of smoking habits from 1998 to 2006, we can see that the average percentage of smokers is around 34% in both West and East Germany with a slight tendency to increase in the former GDR and to decrease in the former FGR (See appendix ??).

In 1999, 2001, 2002, 2004 and 2006, all individuals aged 16 or older are asked whether they are currently smokers and if so, the amount of smoked pipes, cigarettes and cigars per day. Our dependent variable is *Smoker* which is equal to one whether the individual is a smoker, zero otherwise.

5 The Identification Strategy

5.1 The Identification Problem in Evaluating the Causal Effect of Religion

In what follows we introduce the identification problem when evaluating the effect of religion (or any other status) on a certain outcome. We discuss the effect of atheism rather than religiousness because our identification strategy is best defined and exposed along these terms. Since atheism is the complement to 1 of religiousness our choice is merely expositional.

Let $Y_i(D|X = x)$ define the potential outcome for the individual i - i.e. whether the individual is a smoker - in the religiousness status D , where $D = 1$ defines the individual as atheist, and $D = 0$ as religious, conditional on a set of observable characteristics $X=x$. Put in other words, $Y_i(1|X = x)$ represents the probability of being a smoker for individual i when Atheist, while $Y_i(0|X = x)$ represents the probability of smoking when religious for the same individual.

Ideally, we may be able to assess the causal effect of atheism (or religiousness) on smoking if we were to observe the same individual in both statuses, i.e. both when ($D = 1$) and ($D = 0$). This way we may easily capture the impact of atheism on smoking, i.e. our parameter of interest:

$$\Delta_D = Y_i(1|X = x) - Y_i(0|X = x) \tag{1}$$

Δ_D states the effect of the "Atheism" belief on smoking versus the smoking attitude that the same individual would have had in case she were Religious.

However, it is not possible to observe a contemporaneous condition of atheism and religiousness for the same individual as each respondent is either atheist or religious ([Holland, 1986](#)). Even if we were to observe a change in religiousness over time (an event which is extremely rare in the data) we could still not be able to define Δ_D as most controls and

confounders would vary over time. The data then reveal:

$$Y_i(1|X = x) = d \cdot Y_i(1|X = x) + (1 - d) \cdot Y_i(0|X = x) \quad (2)$$

where d : represents the probability of being in the "Atheist" status. Our identification problem amounts therefore to identify a counterfactual that need to be as close as possible to the unobserved outcome.

5.2 A Natural Experiment of History: Germany Separation

The German separation experiment provides us with a unique setting for overcoming this identification problem. In the final months of World War II Germany was invaded by Soviet troops from the East, after the retaking of Russia that followed the offensive after the battle of Stalingrad. US and other allies troops invaded from the west as a result of the Normandy invasion. After the capitulation, the country was separated in two political entities. West Germany adopted a democratic political system where citizens were free to profess their religion, if any. The Russian controlled East Germany adopted instead a Communist-style political system where religion was strongly adversed.

As a result, Eastern Germans were exogenously subject to policies aimed at eradicating religion from society. Despite a similar pre-war attachment to religion, the two societies resulted in divergent patterns as regards atheism that survived the collapse of the German regime on the East and the reunification of the country. Today the percentage of Atheists living in former Eastern Germany is almost 70% while the percentage of Atheist living in former Western Germany is less than 10% (Froese and Pfaff, 2005), i.e. similar to the one in the East in the 1950s. The dramatic shift in Atheism in the East is clearly depicted in Figure 11.

FIGURE 11 AROUND HERE

We cannot observe the same individual in both Atheist and Religious states and therefore we cannot infer the causal effect of a certain belief (Atheism) on smoking. However we may assume that German separation and the GDR regime induced some individuals to become Atheists when they would have stayed Religious in absence of regime. We may therefore match Eastern Atheists with Western Religious on the basis of a set of pre-determined family background characteristics and use the latter group as counterfactuals. Note that individuals are asked whether they are Religious or Atheists after reunification, i.e. we observe their true belief in absence of coercion.

Let us assume four types of individuals, each characterized by:

1. a certain attitude towards Religion: i.e. they are Atheist (A) or Religious (R).
2. a certain attitude versus indoctrination and repression: we define “high” (h) types, those whose belief is independent of coercion and “low” (l) types those whose belief is affected by coercion.

We then have 4 possible statuses (A_h , A_l , R_h , R_l) but not all of them are directly observed in each part of Germany¹⁰.

In the West (former FGR) we observe the affiliation that occurs in a free Religious environment, i.e. people are either Atheists (in absence of coercion, A_h) or Religious. But we know that some of these Religious individuals would have been Atheists had they grown up in GDR (R_l).

A_h Atheists “high”, i.e. always Atheists;

R_h Religious “high”, i.e. never Atheists even if coerced to be;

¹⁰Using treatment evaluation notation, and elaborating on the GDR indoctrination in favor of Atheism: the low types are the compliers, A_h are always takers and R_h are never takers.

R_l Religious “low”, i.e. would have been Atheists under coercion.

In former FGR we observe A_h , but we cannot distinguish between R_l and R_h . Note also that $\Pr\{A_l(\text{FGR})\} = 0$.

In the East (former GDR) we observe the affiliation that occurs in a repressed Religious environment, i.e. people are either Religious (even in absence of coercion, R_h) or Atheists. But we know that some of these Atheists individuals would have been Religious had they grown up in FGR (A_l).

R_h Religious “high”, i.e. always Religious despite repression;

A_h Atheists “high”, i.e. always Atheists, independently of coercion;

A_l Atheists “low”, i.e. would have been Religious in absence of coercion.

In former GDR we observe R_h , but we cannot distinguish between A_l and A_h . Note also that $\Pr\{R_l(\text{GDR})\} = 0$

Each of these statuses is summarized in table 4.

TABLE 4 AROUND HERE

Since individuals in the R_h status are observed in former GDR and not in former FGR, we may match the religious individuals in the East (R_h) with their religious counterparts in the West (R_l and R_h), on the basis of some predetermined family background characteristics, in order to distinguish between $R_l(\text{FGR})$ and $R_h(\text{FGR})$.

Similarly, the A_h individuals are only observed in former FGR and not in former GDR. We may therefore match the atheist individuals in the West (A_h) with their religious counterparts in the East (A_l and A_h) in order to distinguish between $A_l(\text{GDR})$ and $A_h(\text{GDR})$.

When doing matching we align the distribution of Eastern and Western German individuals according to parental background information because most evidence suggest that in absence of shocks religiousness is mainly transmitted by parents to children (see [Nunziata and Rocco \(2011\)](#)). The matching procedure is performed using Propensity Score matching (PSM, henceforth)¹¹ ([Dehejia and Wahba, 2002](#), [Rosenbaum and Rubin, 1983](#)) on a set of pre-determined individual and parental background characteristics (cohort of birth, parents' education, parents' cohort of birth) in order to identify those individuals who are in a status that is not directly observed, i.e. $R_l(\text{FGR})$, $R_h(\text{FGR})$ and $A_l(\text{GDR})$, $A_h(\text{GDR})$.

The covariates that we use for the PSM (Year of birth, Mother's year of birth, Father's year of birth, parental education, i.e. whether mother or father is high educated or low educated) are either exogenous (age), or possibly not affected by the differences in the regimes (parents' education), especially if we consider older cohorts of respondents whose parents were likely to have already terminated education before the change in regime. To this end, we focus on a cohort of individuals whose parental education have not been affected by differences in the educational system of the two regimes, i.e. those born before 1952 (or 1961). Robustness estimations are performed on different cohorts.

Our procedure relies on the assumption that the influence of parental education on children's smoking is through children's education only. The OLS estimations presented in section 6.1 clearly show that after controlling for the respondent's education the effect of parental education on smoking is not statistically significant (both in Germany as a whole and in GDR and FGR separately).

In addition, we assume that the degree of religiousness we observe for each respondent at the time of the survey corresponds to the true religiousness of the individual as affected by

¹¹In order to implement the Propensity Score Matching we use the Stata package `psmatch2` [Leuven and Sianesi \(2003\)](#).

the German separation experiment. Since the data was collected after the fall of the GDR regime, this sounds a plausible assumption.

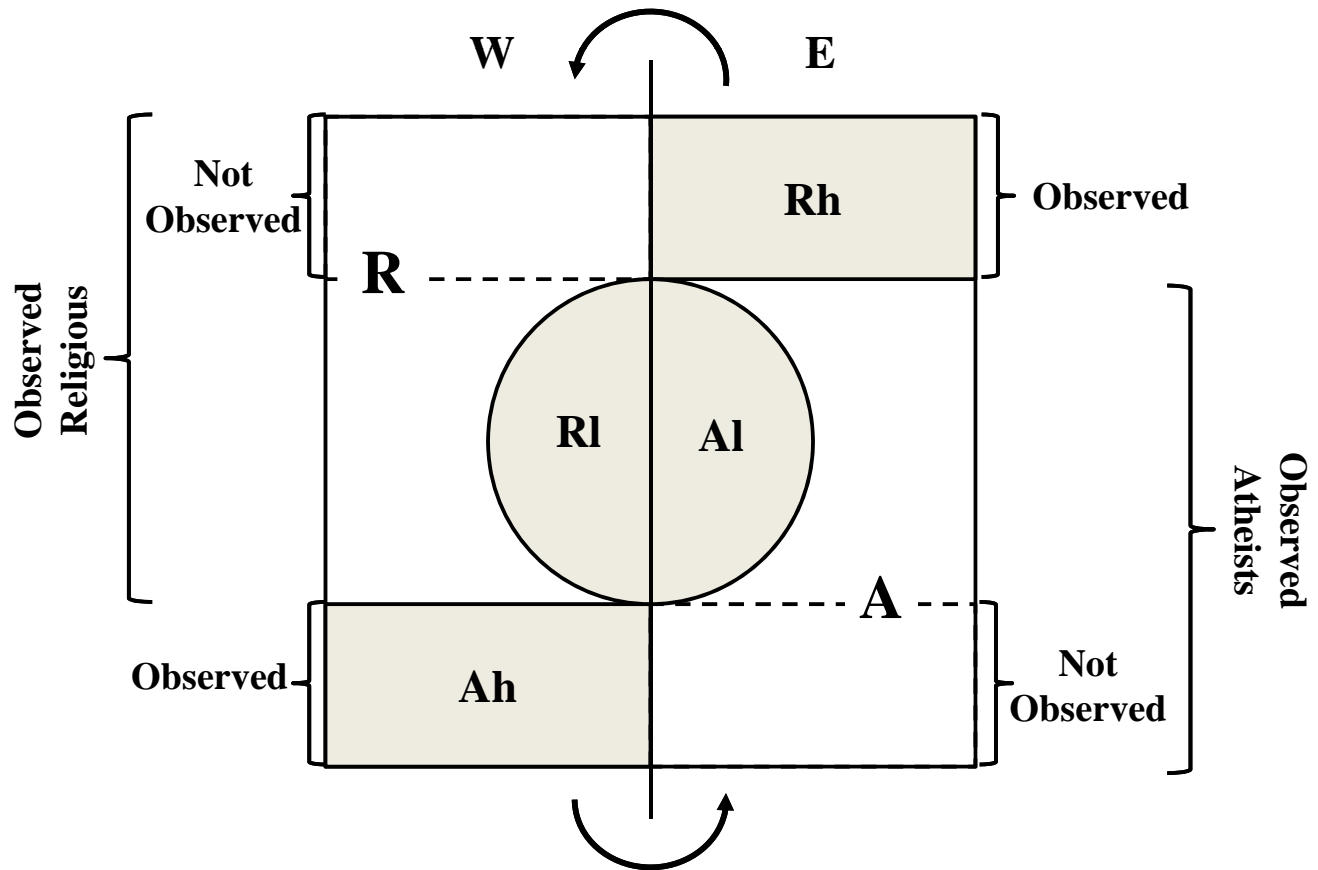
The geographical affiliation to the each of the two former regimes is determined by the place of birth and its correspondence with the place of residence in 1989. All individuals who are found to have migrated across regimes are dropped from the sample.

Finally, in our analysis we focus on smoking behavior of males only. This is because smoking behavior among females is usually related to the question of female emancipation and the role of females in society. Both dimensions are likely to have been affected by the former regimes. In addition, soon after the Reunification the number of female smokers in GDR progressively increased, until the same percentage of female smokers in FGR was reached (Luy, 2004). We therefore prefer to drop the females from our sample in order to avoid possible confounding factors deriving from gender differences. We however report our estimation results for the whole sample in the appendix, showing that our empirical results are reinforced when females are included.

Our procedure is illustrated in figure 1. First we match $R_h(\text{GDR})$ (observed) with $R(\text{FGR})$ and identify $R_h(\text{FGR})$ (not observed). Then we match $A_h(\text{FGR})$ (observed) with $A(\text{GDR})$ and identify $A_h(\text{GDR})$ (not observed). The low types can be identified in two ways. One possibility is to consider the residuals individuals on the West and the East as, respectively, $R_l(\text{FGR})$ and $A_l(\text{GDR})$. Alternatively we may identify $R_l(\text{FGR})$ and $A_l(\text{GDR})$ through Propensity Score matching. In this case the match is more precise but we end up with fewer observations.

Once we have associated each respondent with a specific type we estimate the following

Fig. 1 – The Identification Strategy



model:

$$\begin{aligned}
\text{Smoking} &= \beta_1 \cdot A_l(\text{GDR}) + \beta_2 \cdot R_h(\text{GDR}) + \beta_3 \cdot R_l(\text{FGR}) + & (3) \\
&+ \beta_4 \cdot R_h(\text{FGR}) + \beta_5 \cdot A_h(\text{GDR}) + \beta_6 \cdot A_h(\text{FGR}) + \\
&+ \gamma \cdot X + \mu_i + \theta_t + \epsilon
\end{aligned}$$

where: X are observable individual characteristics, namely marital status, education (2 dummies), employment status, age and the real cigarettes price when the individual was between 15 and 18 years old, i.e. the age at which one usually start smoking (Lillard and Fumagalli, 2010). μ_i are regional dummies and θ_t time dummies¹².

Model (3) is estimated both with and without regional dummies in order to provide two alternative strategies to account for the general equilibrium effect of the regime change, i.e. the induced differences in smoking induced by the regime change through other channels than atheism.

The first strategy is the adoption of a conditional DID-like procedure (Ashenfelter and Card, 1985, Heckman, 1997). In this case we drop the regional dummies from our estimand (3) and the effect of interest becomes:

$$\beta_{\text{CDID}} = \overbrace{E[Y|p(x), A_l(\text{GDR})] - E[Y|p(x), R_l(\text{FGR})]}^{\Delta\text{Atheism}} - \overbrace{E[Y|p(x), R_h(\text{GDR})] - E[Y|p(x), R_h(\text{FGR})]}^{\Delta\text{Regime}} \quad (4)$$

The DID approach allows us to estimate the effect of atheism on smoking disentangling the religious attainment effect from the effect of having lived in GDR (rather than in FGR). The difference between $E[Y|p(x), A_l(\text{GDR})]$ and $E[Y|p(x), R_l(\text{FGR})]$ amounts to the effect of exogenous variation in religiousness plus a fixed effect μ implied by having lived in GDR rather than FGR. This fixed effect μ can be purged using the difference between

¹²To gain efficiency we also include all the variables used in the PSM

$E[Y|p(x), R_n(\text{GDR})]$ and $E[Y|p(x), R_n(\text{FDR})]$, i.e. the difference in the likelihood of smoking for individuals of identical type (the resilient religious).

Alternatively, instead of exploiting the variation between low-type individuals in the East and the West one could adopt a within approach by including larder fixed effects and estimating the model as a conditional difference-in-difference where the within differences between the low types and the religious "high" in the East and the West is then differenced between.

In what follows we presents our empirical findings adopting both approaches.

6 Empirical Findings

6.1 OLS Estimations

We first provide some empirical evidence on the effect of Atheism on smoking by using a simple linear probability model, i.e.:

$$\text{Smoker}_{it} = \beta_0 + \beta_1 \cdot \text{Atheist}_i + \beta_2 \cdot X_{it} + \epsilon_{it} \quad (5)$$

where Smoker_{it} is a dummy variable, which takes value one when the individual i is a smoker at time t . Atheist_i is a dummy variable equal to one when the individual i does not believe in the existence of God and zero when religious, and X_{it} is the usual set of individual characteristics.

We separately estimate model (5) for individuals belonging to the former FGR and GDR and for the whole Germany. In table 5 we consider both males and females. Our findings show that Atheism is positively and significantly correlated with smoking. The probability to smoke increases by around 8% when Atheist. Higher educated individuals and women are less

likely to smoke. As regards employment status, the estimated results confirm the descriptive evidence presented in section 4, i.e. smoking is positively associated with unemployment and negatively associated with being out of labour force.

TABLE 5 AROUND HERE

We also notice that after controlling for the respondent educational attainment, the effect of parental education on smoking is not statistically different from zero.

TABLE 6 AROUND HERE

Looking at males only we find that the effect of Atheism on smoking is pretty much the same as for the aggregate group. However the effect disappears when considering those born in former FGR only. The OLS findings are however likely to be biased, since religion is influenced by omitted latent factors.

6.2 CDID Estimations

Our conditional DID estimates are provided on a sample of German males who at the time of the interview are less than 65. In order to consider individuals whose parental education is not affected by the regime change we focus on two cohorts of individuals defined according to different degrees of stringency, i.e. (i) individuals born before 1952 and (ii) individuals born before 1961¹³. These two dates correspond, respectively, to the time of implementation of stricter anti-religious measures in the former GDR and the start of the construction of the Berlin's wall. Table 16 presents our empirical findings for the cohort of those individuals born between 1933 and 1951. The table contains two panels. The model displayed in the

¹³Since we only consider individuals aged less than 65 the two cohorts are defined, respectively, as those born between 1933 and 1951, and those born between 1933 and 1960

above panel does not control for Länder fixed effects. In this case the direct regime effect is accounted for by the difference in the propensity to smoke between individuals of the same religious type in the West and the East. The panel below presents instead models estimated by including Länder dummies. In this case the fixed effects account for the regime effect and our estimated coefficient of interest is obtained by the difference in the difference between the low types and the highly religious types in the West and the East.

In column (1) we control for the set of covariates described above. In column (2) we also include the real cigarettes price control. In column (3) we only use mother's information for the PSM. In column (4) the High and Low types are defined by PSM with the Low Types never being caught as High types. In column (5) we add real cigarette prices.

Our baseline model in column (1) suggest that the causal effect of atheism on the propensity to smoke is around 13%, i.e. much higher than what found using OLS. This confirms that OLS estimations are significantly biased. In column (2) we include real cigarette prices since the literature have often suggested the relevance of prices and/or tobacco taxation at the age of initiation to smoking ([Chaloupka, 1991](#), [Gruber, 2000a](#)), although without delivering a clear-cut message. Recently, [Lillard and Sfekas \(2011\)](#) have stressed that the no-significant relationship between smoking initiation and cigarettes prices might be due to measurement error issues and to specification bias arising from the failure to properly measure price. In our context, cigarettes might be particularly relevant, since West and East Germany faced two different cigarette price regimes, i.e. a market based system (FGR) and one fixed by the SED regime (GDR). Our estimated effect of atheism is basically unaffected.

When using the mother's background information to do the matching, as in column (3) the findings are similar. However when we identify the low type individuals through matching rather than just considering them as a residual category (as in columns 4 and 5), our estimated effect is much larger and amounts to around 17% or 20%. according to whether

we include or not cigarette prices. here the number of observations drops consistently because of the PSM procedure used to identify the low types. All individuals who do not fall in one of the categories are dropped from the sample. The empirical results obtained using a specification with Länder dummies are very similar and only marginally smaller.

TABLES 16 AND 17 AROUND HERE

Table 16 clearly suggest that religiousness matters in explaining smoking behavior. Atheism is found to increase the probability to smoke by around 12-20%. The effect of Atheism is confirmed by both panels. When using a stricter definition of low individuals (columns (4) and (5)) we find out that Atheism play even a more significant role on the individual attitude toward smoking. Surprisingly, the sign of $Rl(FGR) - Rh(FGR)$ is negative instead of positive, although this may be related to the endogenous selection of high religious types. In other words, we are only interested in the CDID quantity that represents our estimated causal effect of atheism on smoking.

6.3 Robustness Checks

6.3.1 Alternative Cohorts

This section presents our empirical findings when estimating our model on alternative cohorts of individuals. We divide the sample according to the individual's year of birth (4 categories)

born before 1945 i.e. before the German separation;

born before 1952 i.e. before the year in which the borders were sealed ([Peperkamp and Rajtar, 2010](#)) ;

born before 1961 i.e. before the construction of the Berlin's wall;

born before 1973 i.e. before the Basic Treaty (Grundlagenvertrag) between FGR and GDR came into effect, i.e. when each state recognized the other for the first time.

TABLE 18 AROUND HERE

Both 1945 and 1973 cohorts are not ideal. In the first case we end up having few observations for older individuals only. In the second case, respondents may be too young and their parents' educational attainment may have been affected by the differences across regimes and therefore they may not be considered as predetermined. Interestingly, our findings are robust for the two intermediate cohorts only, and the effects are weaker in columns (1) and (4). Interestingly, when we only use the respondent's mother information as parental background in the PSM procedure as in table 19, we estimate an almost identical effect of Atheism for the last three cohorts, including those born before 1973. This may indicate that mothers' educational attainment is less likely to have been affected by the regime and therefore may be more safely considered as predetermined.

6.3.2 Controlling for Income Differences

In addition to education and employment status, income too might play a role in shaping individual smoking preferences (Auld, 2005). In our baseline estimations we do not control for income because of possible structural differences in income support between the West and the East, and because income is missing for a sizable part of our sample (37.20%).

In table 20 we re-estimate our model controlling for income. When income is missing we replace it with zero and we generated a dummy variable (`incomemissing` which is set equal to 1 whether the income was missing and 0 otherwise). In addition we also include the interaction of income with employment status, since we expect the majority of missing

income to be ascribed to people who are not employed. Our results are confirmed even after we control for income.

TABLES 20 AND 21 AROUND HERE

6.4 Regime Specific Cohorts Effects

Our estimation results suggest that the effect of Atheism may be heterogenous across cohorts. This heterogeneity may be due to the fact that the cohorts of those born before 1945 and 1973 are not suitable for our analysis as discussed above. However we test for possible heterogeneity across cohorts including a set of regime-specific cohort dummies. We define 10 5-years cohorts: the first one is defined by those born between 1934 and 1939, the second one by those born between 1940 and 1944, and so on.

7 Conclusions

We exploit the German separation experiment to estimate the causal effect of Atheism on smoking. To our knowledge this is one of the first attempts in the literature to identify a causal effect of religious beliefs on economic behavior. Most of the existing literature, have treated religiousness as exogenous rather than determined by omitted latent factors. Previous empirical findings are therefore likely to be biased. We adopt a conditional DID approach using the exogenous conversion to Atheism in the East that followed German separation. We adopt a two stage procedure. First the potential Religious switchers on the West are matched through Propensity Score Matching techniques with their Atheist counterparts on the East using predetermined parental background variables. Then we estimate the causal effect of Atheism by comparing the smoking attitude of the matched group of religious individuals in the former FGR and their Atheists peers in the former GDR. In addition, by using a DID specification we are able to clean our effect of interest from the direct regime effect identified

by comparing individuals with similar religious propensity in the West and in the East. Our findings obtained using SOEP data for the period 1998-2006, consistently point to Atheists being more likely to smoke around 12%-20% . Finally, by providing a direct comparison of our empirical results with simple OLS estimations, our findings point to a non negligible bias in the latter.

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A Atheism in Germany: Graphical Illustration

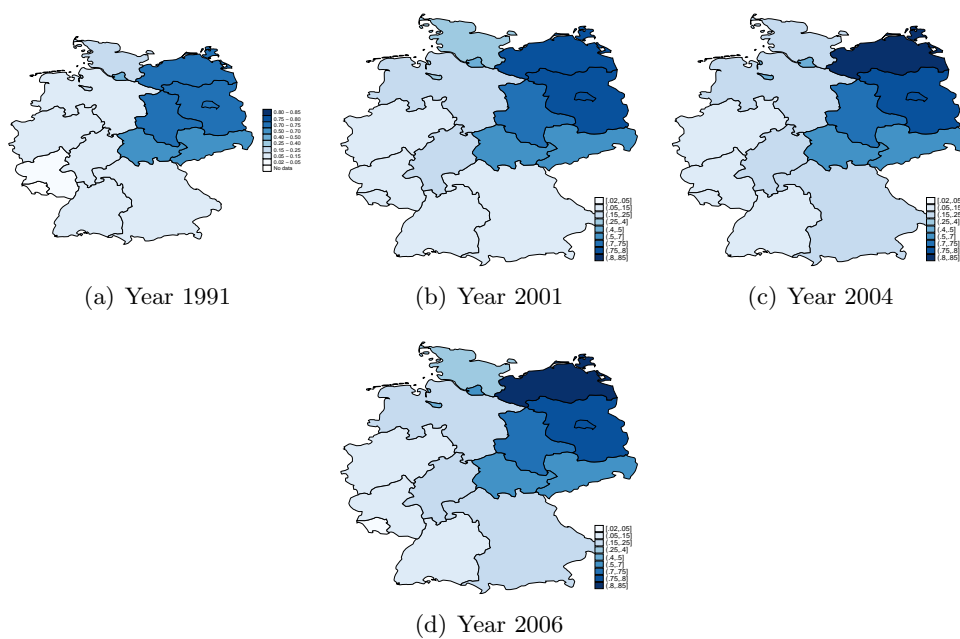


Fig. 2 – Proportion of Atheism by Länder, both Genders

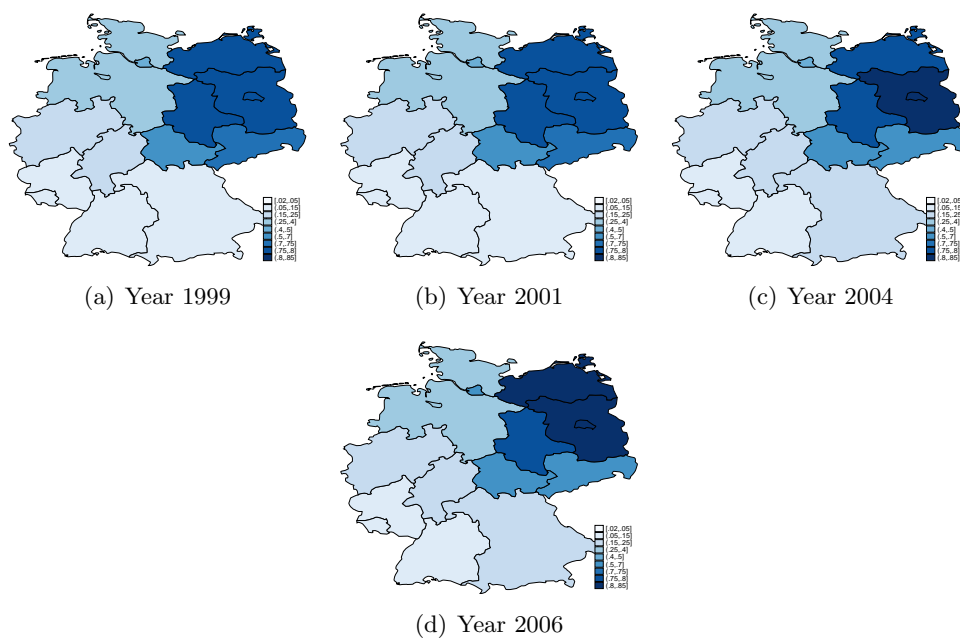


Fig. 3 – Proportion of Atheism by Länder, Males only

Fig. 4 – Proportion of Atheism by Country and Cohort

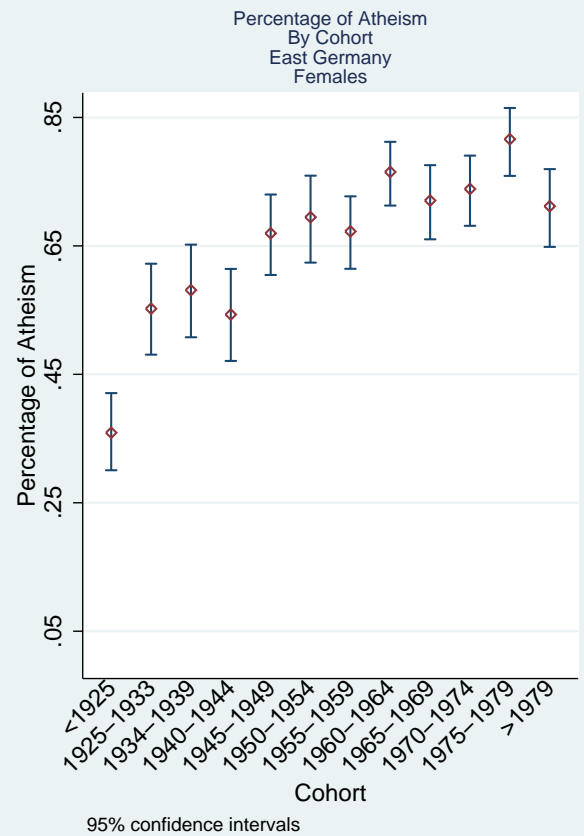
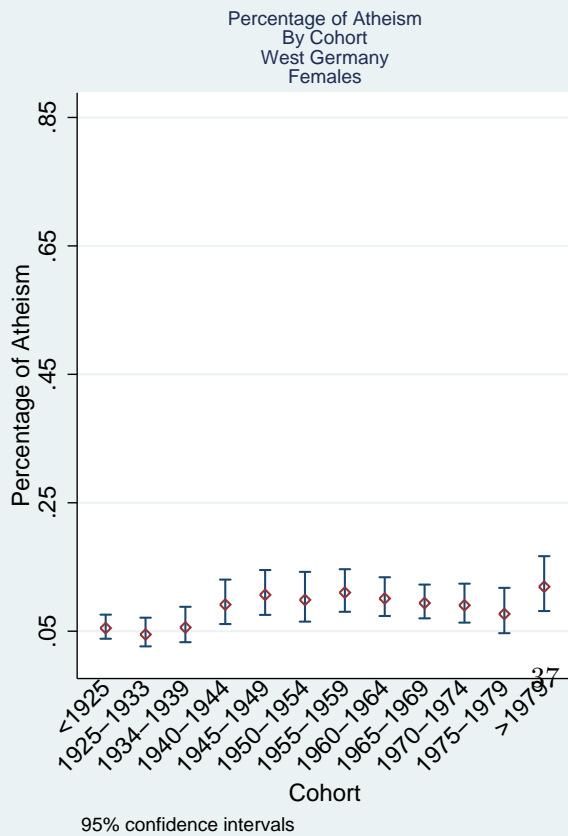
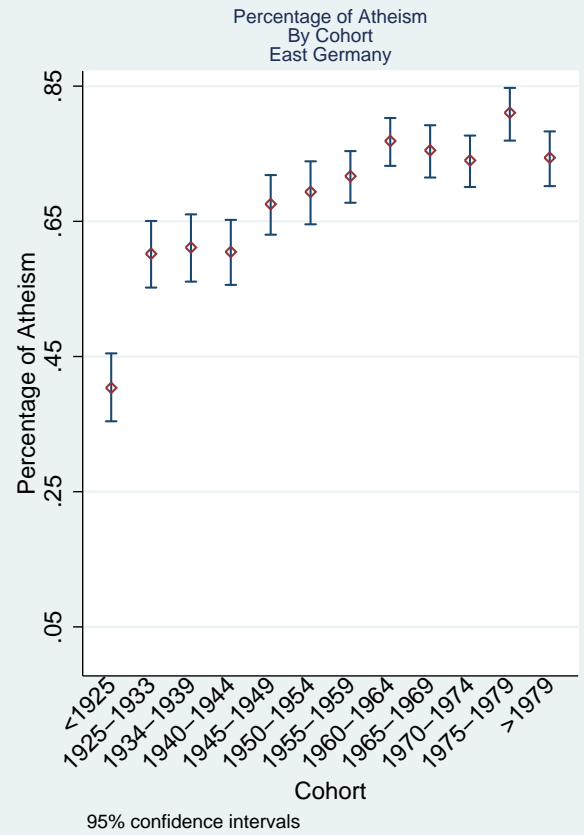
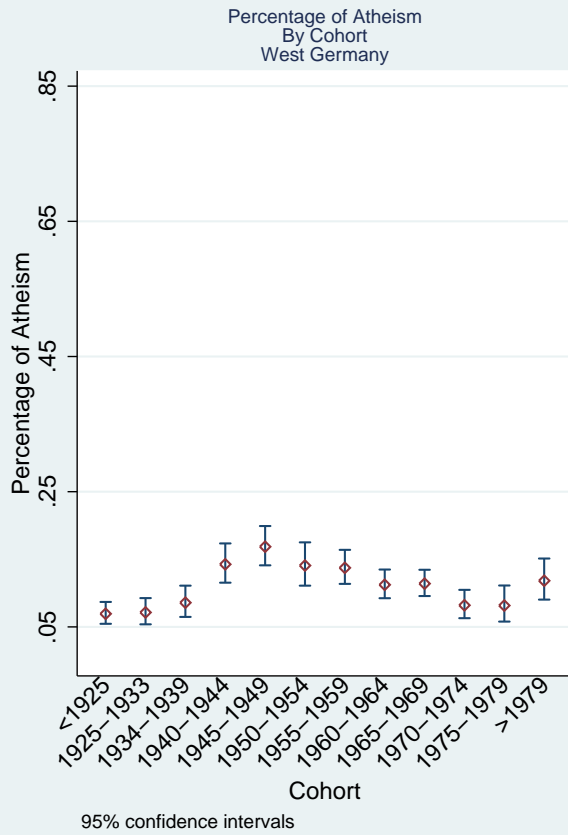


Fig. 5 – Proportion of Atheism by Country and Cohort

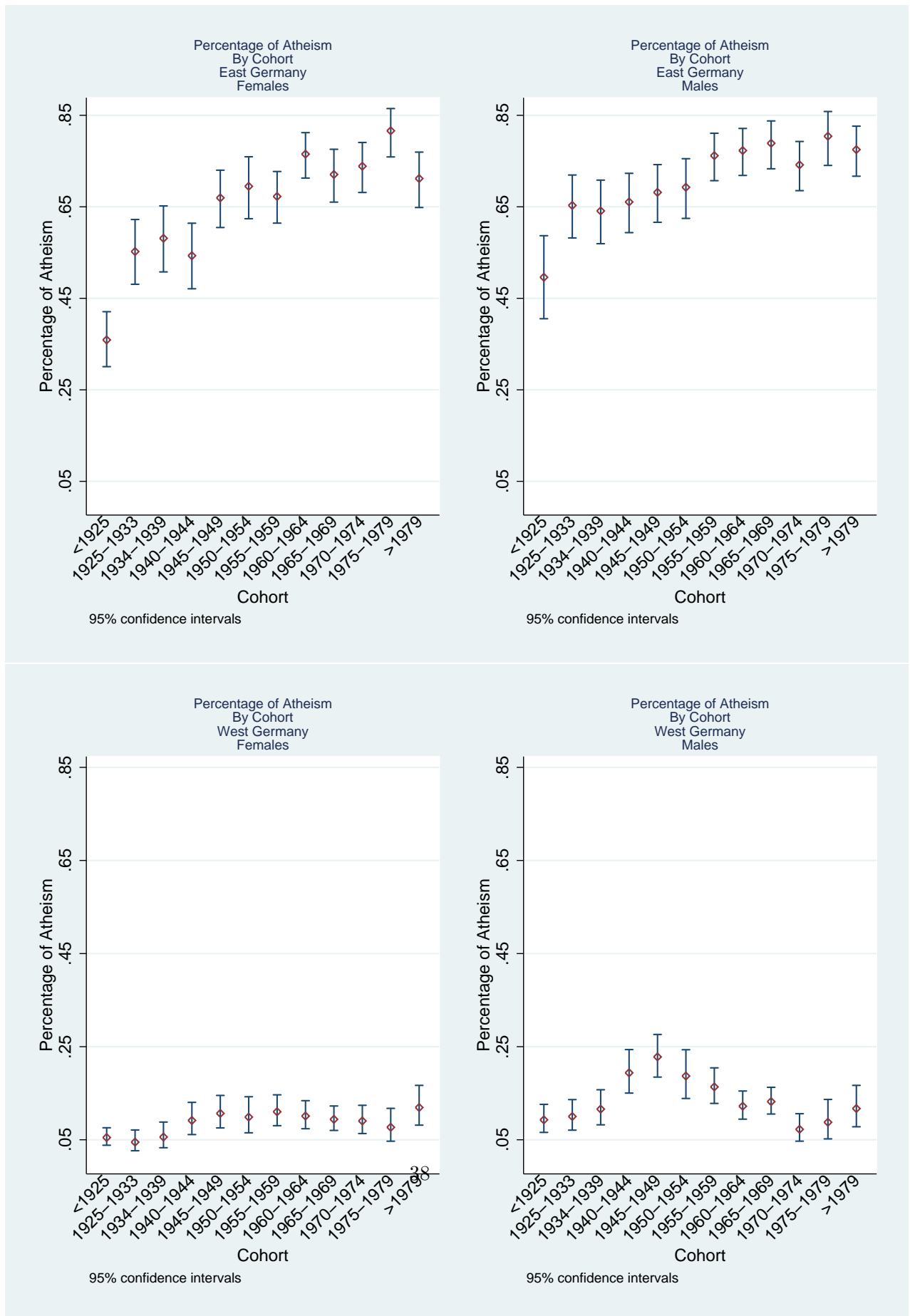
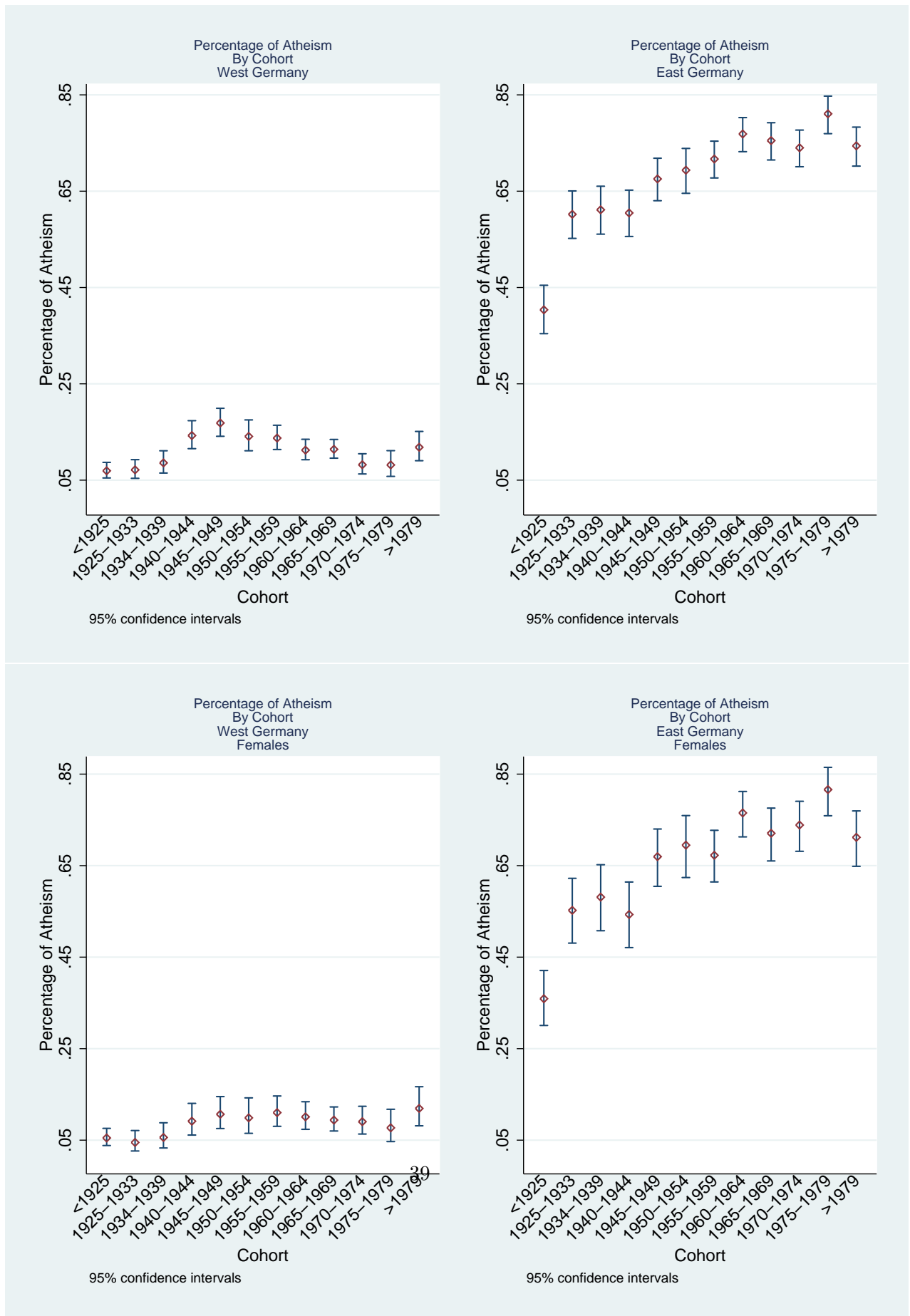


Fig. 6 – Proportion of Atheism by Country and Cohort



B Smoking in Germany: Graphical Illustration

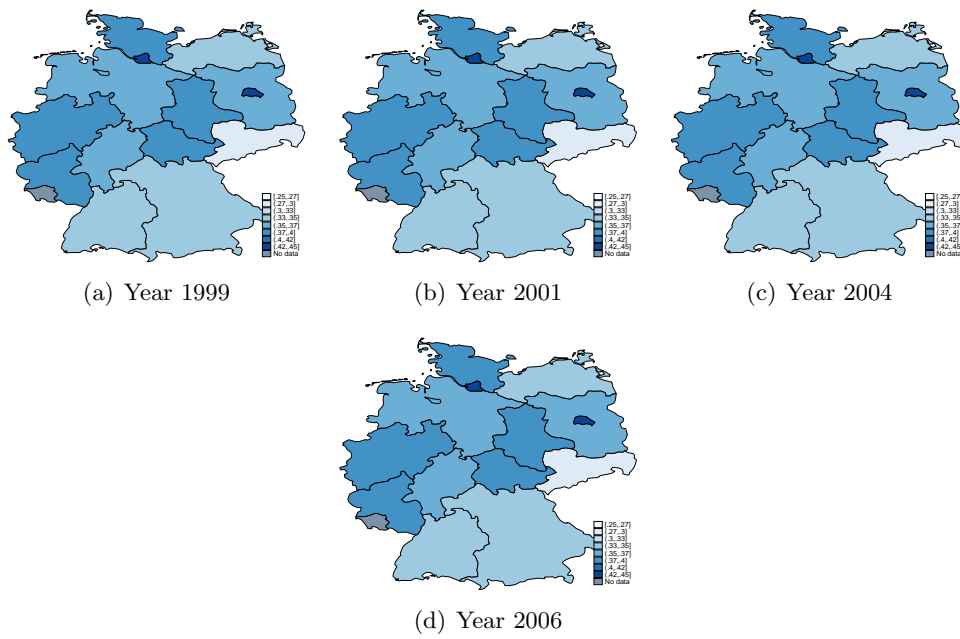


Fig. 7 – Proportion of smokers by Länder, both Gender

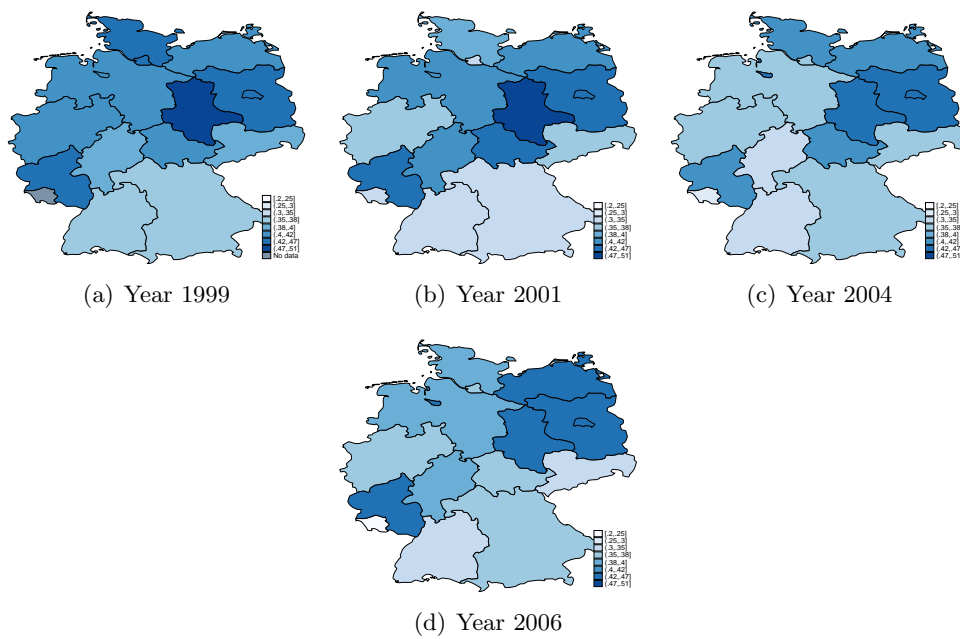


Fig. 8 – Proportion of smokers by Länder, Males only

Fig. 9 – Proportion of Smokers

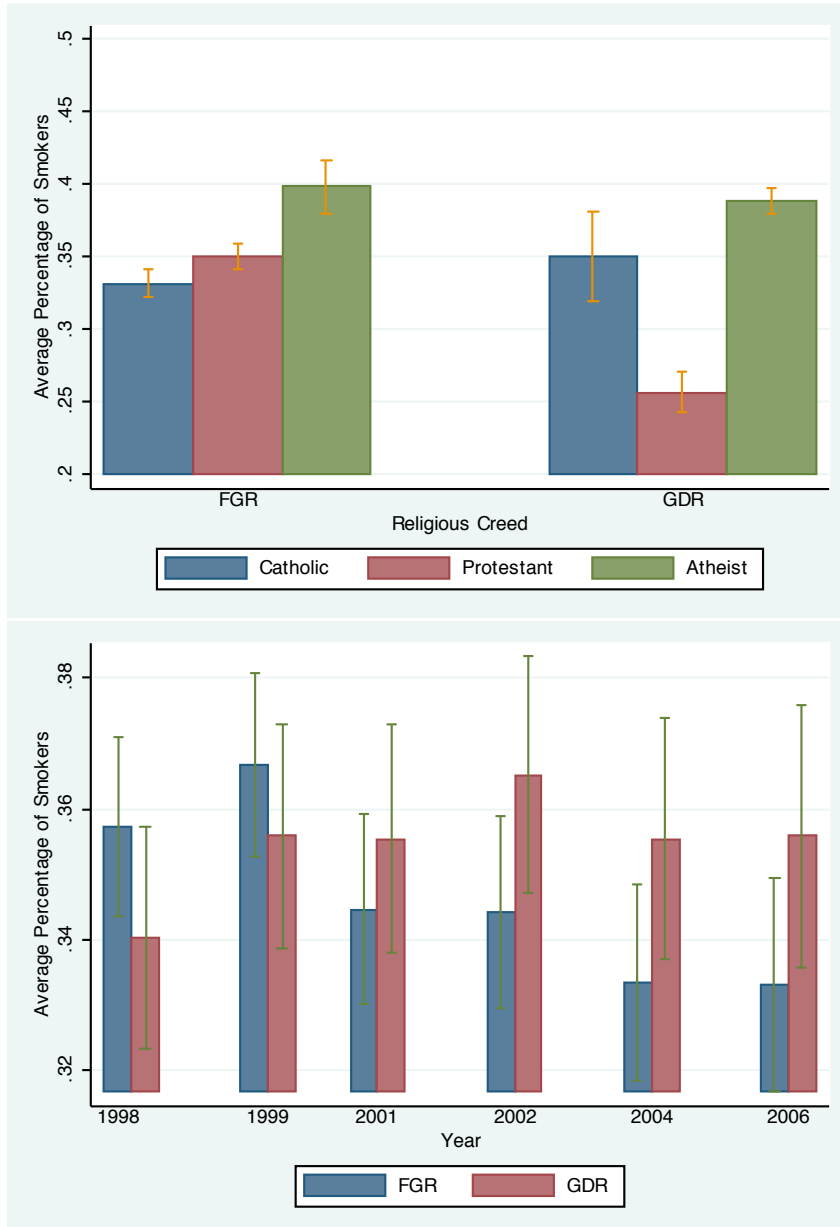


Fig. 10 – Proportion of Smokers: Males only

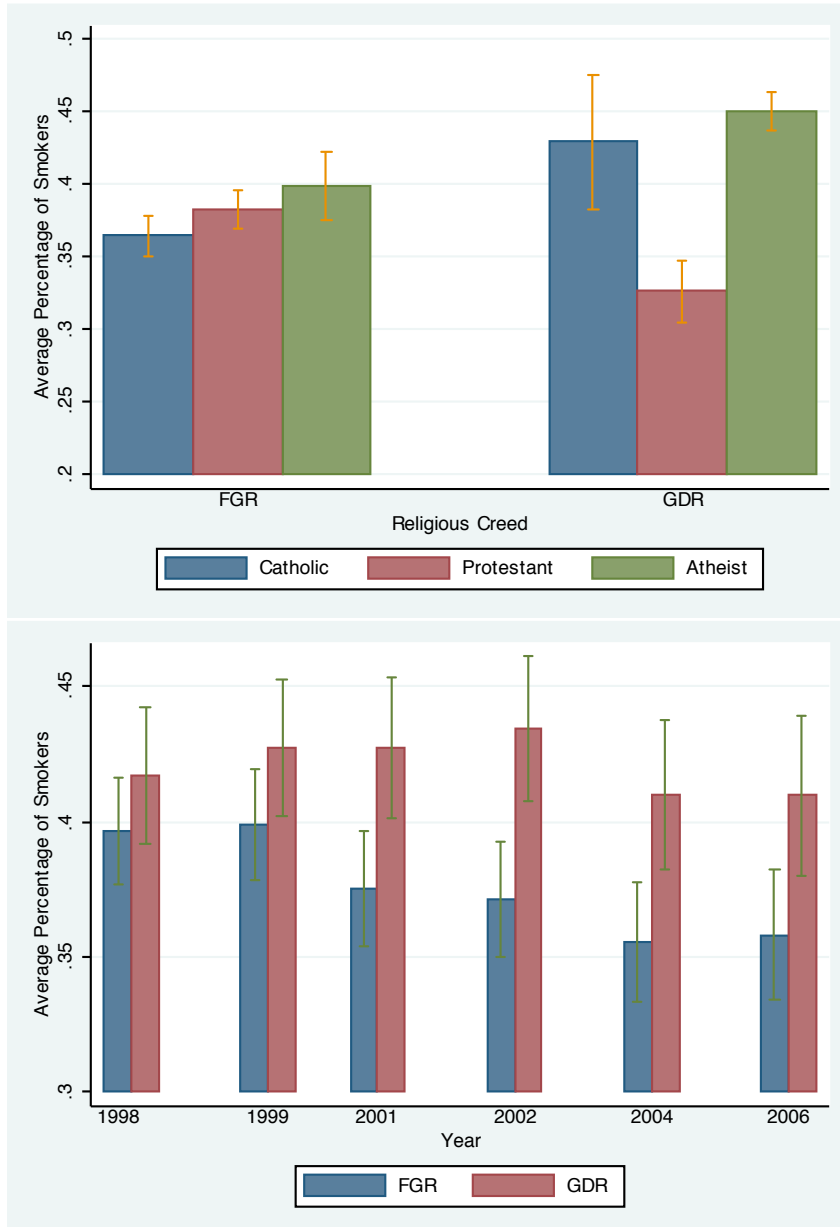
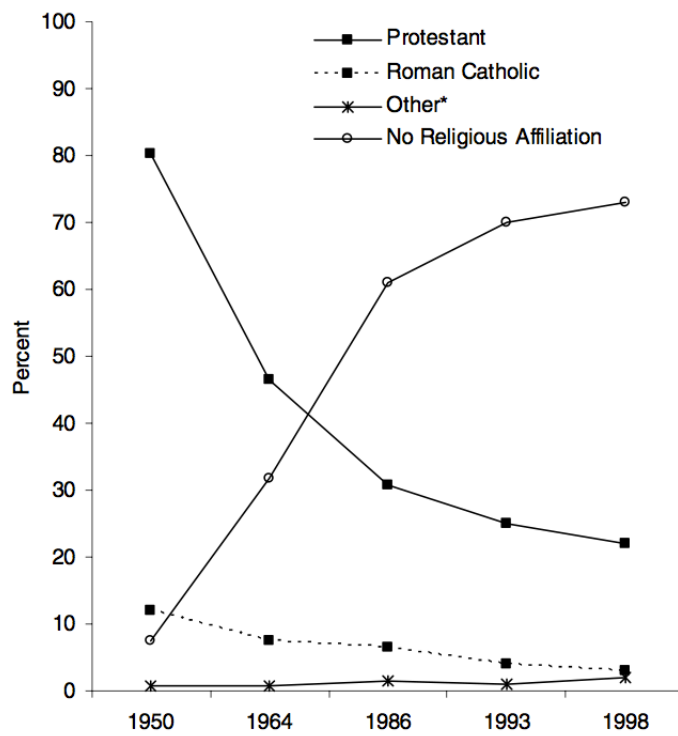


Fig. 11 – Membership in Religious Group in Eastern Germany, 1950 - 1998



* "Other" includes members of Protestant sects, Jews, and new religious movements.
Compiled from Statistisches Bundesamt 1994; Stat. Jahrbuch der DDR 1990; SB 2000B.

These figure is reported in [Froese and Pfaff \(2005\)](#)

C Main Tables

Table 1 – Summary of the main deletions to obtain the final sample

	Individuals	Percentage
Initial Sample (only German born people)	15,685	100%
Individuals whose age is higher than 65	1,518	9.68%
Waves in which there are not information about smoking habits	4,242	27.04
Inconsistencies (i.e. no information about age, gender, parental education etc)	2,326	14.83%
Individuals who do not declare smoking habits	19	0.12%
Final Sample	7,580	48.33%
Males only	3,731	23.79%

Table 4 – Definition of the groups of interest

Group	Description
$A_h(.)$	<i>Atheists “high”</i> . Always Atheists, independently of coercion.
$A_l(.)$	<i>The Atheist “Low”</i> . Would have been Religious in absence of coercion.
$R_h(.)$	<i>The Religious “High”</i> . Always Religious despite repression.
$R_l(.)$	<i>The Religious “Low”</i> . Would have been Atheists under coercion.

(.) refers to former FGR or GDR regime. $R_l(\text{GDR})$ and $A_l(\text{FGR})$ do not exist by definition. We cannot distinguish between $A_l(\text{GDR})$ and $A_h(\text{GDR})$ and between $R_l(\text{FGR})$ and $R_h(\text{FGR})$.

Table 2 – Descriptive Statistics by Country of Origin

Sample	Age	Married	Lower Educated	Secondary School	Higher Educated	Dependant Employee	Self Employed	OLF	Un-Employed	Smokers	Atheism
FGR - mean	38.96	0.57	0.20***	0.53	0.27**	0.63***	0.09***	0.22***	0.06***	0.38*	0.13***
s.d.	13.11	0.49	0.40	0.50	0.44	0.48	0.28	0.41	0.24	0.49	0.34
N	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300
GDR - mean	38.45	0.55	0.16	0.55	0.30	0.52	0.06	0.29	0.13	0.42	0.72
s.d.	14.41	0.50	0.36	0.50	0.46	0.50	0.24	0.45	0.33	0.49	0.45
N	1,431	1,431	1,431	1,431	1,431	1,431	1,431	1,431	1,431	1,431	1,431
Total - mean	38.77	0.56	0.18	0.54	0.28	0.59	0.08	0.25	0.09	0.40	0.36
s.d.	13.63	0.50	0.39	0.50	0.45	0.49	0.27	0.43	0.28	0.49	0.48
N	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731

The stars represent the statistical significance of the t-test with unequal variance

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3 – Descriptive Statistics by Smoking Status

Smoking Attitude	Age	Married	Lower Educated	Secondary Educated	Higher School	Dependent Educated	Self Employee	OLF	Un-employed	Un-Atheism
Non-smoker - mean	40.09***	0.60***	0.17***	0.50***	0.33***	0.59	0.08	0.27***	0.06***	0.33***
s.d.	14.19	0.49	0.37	0.50	0.47	0.49	0.27	0.44	0.23	0.47
N	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252
Smoker - mean	36.74	0.52	0.21	0.59	0.20	0.58	0.08	0.22	0.13	0.40
s.d.	12.46	0.50	0.41	0.49	0.40	0.49	0.26	0.41	0.34	0.49
N	1,479	1,479	1,479	1,479	1,479	1,479	1,479	1,479	1,479	1,479
Total - mean	38.77	0.56	0.18	0.54	0.28	0.59	0.08	0.25	0.09	0.36
s.d.	13.63	0.50	0.39	0.50	0.45	0.49	0.27	0.43	0.28	0.48
N	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731	3,731

The stars represent the statistical significance of the t-test with unequal variance

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 5 – OLS Estimation: All sample

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		
	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	Smoker	
	FGR	GDR	FGR	GDR	FGR	GDR	FGR	GDR	FGR	GDR	FGR	GDR	FGR	GDR	FGR	GDR	FGR	GDR	
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	
Age	-0.00361*** (0.00060)	-0.00307*** (0.00074)	-0.00347*** (0.00046)	0.00033 (0.00144)	0.00168 (0.00181)	0.00075 (0.00113)	0.00075 (0.00113)	0.00075 (0.00113)	0.00075 (0.00113)	0.00075 (0.00113)	0.00075 (0.00113)	0.00075 (0.00113)	0.00075 (0.00113)	0.00075 (0.00113)	0.00075 (0.00113)	0.00075 (0.00113)	0.00075 (0.00113)	0.00075 (0.00113)	0.00093 (0.00114)
Female	-0.05306*** (0.01447)	-0.12160*** (0.01715)	-0.07950*** (0.01102)	-0.05370*** (0.01446)	-0.12164*** (0.01713)	-0.08016*** (0.01100)	-0.05370*** (0.01446)	-0.12164*** (0.01713)	-0.08016*** (0.01100)	-0.12164*** (0.01713)	-0.08016*** (0.01100)	-0.12164*** (0.01713)	-0.08016*** (0.01100)	-0.12164*** (0.01713)	-0.08016*** (0.01100)	-0.12164*** (0.01713)	-0.08016*** (0.01100)	-0.12164*** (0.01713)	-0.07961*** (0.01101)
Lower Educated	0.04843*** (0.01777)	0.05800* (0.02970)	0.04949*** (0.01510)	0.04760*** (0.01778)	0.05511* (0.02972)	0.04791*** (0.01511)	0.04760*** (0.01778)	0.05511* (0.02972)	0.04791*** (0.01511)	0.05511* (0.02972)	0.04791*** (0.01511)	0.05511* (0.02972)	0.04791*** (0.01511)	0.05511* (0.02972)	0.04791*** (0.01511)	0.05511* (0.02972)	0.04791*** (0.01511)	0.05511* (0.02972)	0.04731*** (0.01513)
Higher Educated	-0.10186*** (0.01725)	-0.12227*** (0.01938)	-0.11064*** (0.01287)	-0.09828*** (0.01733)	-0.12151*** (0.01936)	-0.10817*** (0.01289)	-0.09828*** (0.01733)	-0.12151*** (0.01936)	-0.10817*** (0.01289)	-0.12151*** (0.01936)	-0.10817*** (0.01289)	-0.12151*** (0.01936)	-0.10817*** (0.01289)	-0.12151*** (0.01936)	-0.10817*** (0.01289)	-0.12151*** (0.01936)	-0.10817*** (0.01289)	-0.12151*** (0.01936)	-0.10784*** (0.01306)
Married	-0.03533** (0.01694)	-0.02900 (0.02208)	-0.03131** (0.01340)	-0.03734** (0.01695)	-0.02991 (0.02205)	-0.03300** (0.01340)	-0.03734** (0.01695)	-0.02991 (0.02205)	-0.03300** (0.01340)	-0.02991 (0.02205)	-0.03300** (0.01340)	-0.02991 (0.02205)	-0.03300** (0.01340)	-0.02991 (0.02205)	-0.03300** (0.01340)	-0.02991 (0.02205)	-0.03300** (0.01340)	-0.02991 (0.02205)	-0.03300** (0.01341)
Atheist	0.07550*** (0.02403)	0.09385*** (0.01835)	0.08560*** (0.01457)	0.07367*** (0.02397)	0.08764*** (0.01850)	0.08133*** (0.01458)	0.07367*** (0.02397)	0.08764*** (0.01850)	0.08133*** (0.01458)	0.08764*** (0.01850)	0.08133*** (0.01458)	0.08764*** (0.01850)	0.08133*** (0.01458)	0.08764*** (0.01850)	0.08133*** (0.01458)	0.08764*** (0.01850)	0.08133*** (0.01458)	0.08764*** (0.01457)	0.08127*** (0.01457)
Self-employed	0.02570 (0.03046)	0.04463 (0.04175)	0.03069 (0.02462)	0.02642 (0.03039)	0.04420 (0.04179)	0.03130 (0.02457)	0.02642 (0.03039)	0.04420 (0.04179)	0.03130 (0.02457)	0.04420 (0.04179)	0.03130 (0.02457)	0.04420 (0.04179)	0.03130 (0.02457)	0.04420 (0.04179)	0.03130 (0.02457)	0.04420 (0.04179)	0.03130 (0.02457)	0.04420 (0.04185)	0.03190 (0.02456)
OLF	-0.08076*** (0.01612)	-0.10788*** (0.02144)	-0.08597*** (0.01274)	-0.07947*** (0.01622)	-0.10523*** (0.02149)	-0.08447*** (0.01279)	-0.07947*** (0.01622)	-0.10523*** (0.02149)	-0.08447*** (0.01279)	-0.10523*** (0.02149)	-0.08447*** (0.01279)	-0.10523*** (0.02149)	-0.08447*** (0.01279)	-0.10523*** (0.02149)	-0.08447*** (0.01279)	-0.10523*** (0.02149)	-0.08447*** (0.01279)	-0.10523*** (0.02151)	-0.08379*** (0.01282)
Unemployed	0.05593* (0.02932)	0.08668*** (0.02719)	0.07555*** (0.01984)	0.05511* (0.02932)	0.09113*** (0.02722)	0.07753*** (0.01984)	0.05511* (0.02932)	0.09113*** (0.02722)	0.07753*** (0.01984)	0.09113*** (0.02722)	0.07753*** (0.01984)	0.09113*** (0.02722)	0.07753*** (0.01984)	0.09113*** (0.02722)	0.07753*** (0.01984)	0.09113*** (0.02722)	0.07753*** (0.01984)	0.09113*** (0.01984)	0.07737*** (0.01984)
Unemployment rate	0.08148 (0.05560)	0.00432 (0.00784)	0.05512*** (0.01745)	0.08073 (0.05558)	0.00406 (0.00782)	0.05408*** (0.01742)	0.08073 (0.05558)	0.00406 (0.00782)	0.05408*** (0.01742)	0.00406 (0.00782)	0.05408*** (0.01742)	0.00406 (0.00782)	0.05408*** (0.01742)	0.00406 (0.00782)	0.05408*** (0.01742)	0.00406 (0.00782)	0.05408*** (0.01742)	0.00406 (0.00782)	0.05369*** (0.01742)
Year of Mother's Birth				0.00369*** (0.00121)		0.00393*** (0.00094)	0.00369*** (0.00121)		0.00393*** (0.00094)	0.00369*** (0.00121)	0.00393*** (0.00094)	0.00369*** (0.00121)	0.00393*** (0.00094)	0.00369*** (0.00121)	0.00393*** (0.00094)	0.00369*** (0.00121)	0.00393*** (0.00094)	0.00369*** (0.00121)	0.00238 (0.00152)
mother is low educated				-0.03625 (0.06209)		0.02097 (0.07517)	-0.03625 (0.06209)		0.02097 (0.07517)	-0.03625 (0.06209)	0.02097 (0.07517)	-0.03625 (0.06209)	0.02097 (0.07517)	-0.03625 (0.06209)	0.02097 (0.07517)	-0.03625 (0.06209)	0.02097 (0.07517)	-0.03625 (0.06209)	-0.02610 (0.05280)
mother is high educated				-0.00917 (0.03560)		-0.02177 (0.02493)	-0.00917 (0.03560)		-0.02177 (0.02493)	-0.00917 (0.03560)	-0.02177 (0.02493)	-0.00917 (0.03560)	-0.02177 (0.02493)	-0.00917 (0.03560)	-0.02177 (0.02493)	-0.00917 (0.03560)	-0.02177 (0.02493)	-0.00917 (0.03560)	-0.02083 (0.02657)
Year of Father's Birth																			0.00171 (0.00131)
Father is low educated																			0.09877* (0.05069)
Father is high educated																			-0.00276 (0.01854)
_cons	-0.32550 (0.65760)	0.45167*** (0.15637)	0.04167 (0.17626)	-7.60943*** (2.48364)	-8.29622*** (2.98376)	-7.70011*** (1.86976)	-7.60943*** (2.48364)	-8.29622*** (2.98376)	-7.70011*** (1.86976)	-8.29622*** (2.98376)	-7.70011*** (1.86976)	-8.29622*** (2.98376)	-7.70011*** (1.86976)	-8.29622*** (2.98376)	-7.70011*** (1.86976)	-8.29622*** (2.98376)	-7.70011*** (1.86976)	-8.29622*** (2.41125)	-8.00138*** (1.88459)
years	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
regions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
N	4677	2903	7580	4677	2903	7580	4677	2903	7580	4677	2903	4677	2903	7580	4677	2903	7580	4677	7580
R-squared	0.0435	0.0935	0.0604	0.0455	0.0968	0.0627	0.0455	0.0968	0.0627	0.0455	0.0968	0.0455	0.0968	0.0627	0.0455	0.0968	0.0627	0.0455	0.0634
Adjusted R-squared	0.0385	0.0876	0.0566	0.0400	0.0899	0.0586	0.0400	0.0899	0.0586	0.0400	0.0899	0.0400	0.0899	0.0586	0.0400	0.0899	0.0586	0.0400	0.0589
Log-lik	-3072.7	-1824.8	-4908.0	-3067.6	-1819.6	-4898.7	-3067.6	-1819.6	-4898.7	-3067.6	-1819.6	-3071.5	-1817.4	-4895.9	-3071.5	-1817.4	-4895.9	-3071.5	-4895.9
F-statistic	9.525	18.37	18.26	8.870	16.41	17.24	8.870	16.41	17.24	8.870	16.41	9.260	14.75	17.24	9.260	14.75	17.24	9.260	15.98
Robust SE																			

Table 6 – OLS Estimation: Males only

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)			
	Smoker	FGR	Smoker	GDR	Smoker	GDR	Smoker	FGR	Smoker	GDR	Smoker	GDR	Smoker	FGR	Smoker	GDR	Smoker	GDR	Smoker	GDR
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
Age	-0.00427*** (0.00096)	-0.00175 (0.00130)	-0.00363*** (0.00075)	0.00074 (0.00213)	0.00326 (0.00294)	0.00117 (0.00171)	0.00071 (0.00214)	0.00380 (0.00297)	0.00136 (0.00173)											
Lower Educated	-0.00765 (0.02786)	0.06480 (0.04572)	0.01016 (0.02354)	-0.00594 (0.02784)	0.06762 (0.04602)	0.01131 (0.02355)	-0.00806 (0.02784)	0.06905 (0.04599)	0.01071 (0.02361)											
Higher Educated	-0.13840*** (0.02364)	-0.17576*** (0.03035)	-0.14801*** (0.01833)	-0.13377*** (0.02376)	-0.17592*** (0.03045)	-0.14455*** (0.01838)	-0.13296*** (0.02410)	-0.17045*** (0.03091)	-0.14360*** (0.01863)											
Married	0.01785 (0.02616)	-0.01171 (0.03590)	0.00795 (0.02109)	0.01432 (0.02617)	-0.01511 (0.03601)	0.00453 (0.02111)	0.01240 (0.02609)	-0.01928 (0.03604)	0.00408 (0.02113)											
Atheist	0.05146* (0.03074)	0.09499*** (0.02838)	0.07436*** (0.02065)	0.04918 (0.03057)	0.08984*** (0.02855)	0.07079*** (0.02062)	0.04957 (0.03055)	0.08814*** (0.02858)	0.07089*** (0.02061)											
Self-employed	0.02059 (0.03627)	0.04993 (0.05462)	0.02853 (0.03022)	0.02176 (0.03605)	0.04918 (0.05493)	0.02901 (0.03014)	0.02423 (0.03626)	0.05365 (0.05506)	0.03018 (0.03017)											
OLF	-0.09590*** (0.02687)	-0.09883*** (0.03373)	-0.09159*** (0.02073)	-0.09580*** (0.02699)	-0.10066*** (0.03387)	-0.09192*** (0.02078)	-0.09587*** (0.02690)	-0.09998*** (0.03392)	-0.09105*** (0.02083)											
Unemployed	0.18232*** (0.04317)	0.16796*** (0.04111)	0.17732*** (0.02946)	0.18070*** (0.04301)	0.17093*** (0.04113)	0.17899*** (0.02940)	0.17691*** (0.04276)	0.16984*** (0.04119)	0.17861*** (0.02943)											
Unemployment rate	0.12516 (0.07749)	0.01580 (0.01142)	0.05911** (0.02391)	0.12989* (0.07639)	0.01585 (0.01141)	0.05611** (0.02393)	0.02951 (0.01955)	0.01622 (0.01140)	0.05651** (0.02390)											
Year of Mother's Birth					0.00467*** (0.00175)			0.00448* (0.00233)					0.00093 (0.00363)							
Mother is low educated					0.13855 (0.10320)			0.13855 (0.10320)					-0.11829 (0.13719)							
Mother is high educated					-0.04741 (0.05138)			-0.04741 (0.05138)					0.00040 (0.00239)							
Year of Father's Birth													0.00040 (0.00239)							
Father is low educated													0.04615 (0.12270)							
Father is high educated													0.00511 (0.03388)							
_cons	-0.90041 (0.92090)	0.16267 (0.22762)	-0.01147 (0.24158)	-10.18805*** (3.56215)	-8.69006* (4.60499)	-8.77542*** (2.75391)	-8.89334** (3.48150)	-8.77542*** (2.75391)	-9.64178*** (4.65023)											
years	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
regions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2300	1431	3731	2300	1431	3731	2300	1431	1431	3731	2300	1431	1431	2300	3731	1431	3731	2300	3731	1431
R-squared	0.0491	0.0815	0.0602	0.0534	0.0841	0.0634	0.0511	0.0868	0.0639											
Adjusted R-squared	0.0395	0.0698	0.0528	0.0425	0.0704	0.0553	0.0411	0.0712	0.0551											
Lok-lik	-1548.2	-957.2	-2510.3	-1543.0	-955.2	-2503.9	-1545.8	-953.0	-2502.8											
F-statistic	5.760	8.527	9.538	5.646	7.516	9.106	5.783	6.879	8.366											

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Table 7 – Descriptive evidence by group: Born before 1945

Group	Year of Birth		Mother's Year of Birth		Mother's Lower Educated		Mother's Highly Educated		Father's Year of Birth		Father's Lower Educated		Father's Highly Educated	
Atheist in FGR - mean	1939.36		1910.92		0.00**		0.03		1907.70		0.00		0.11*	
s.d.	3.02		6.27		0.00		0.18		7.90		0.00		0.32	
N	61.00		61.00		61.00		61.00		61.00		61.00		61.00	
Atheist in GDR-mean	1938.66		1910.07		0.02		0.00		1907.06		0.02		0.04	
s.d.	3.30		6.98		0.14		0.00		7.04		0.14		0.20	
N	193.00		193.00		193.00		193.00		193.00		193.00		193.00	
Total -mean	1938.83		1910.27		0.02		0.01		1907.22		0.02		0.06	
s.d.	3.25		6.81		0.12		0.09		7.25		0.12		0.24	
N	254.00		254.00		254.00		254.00		254.00		254.00		254.00	
Religious in FGR - mean	1938.76		1909.97		0.00		0.03		1906.80		0.01		0.08**	
s.d.	3.09		6.35		0.00		0.16		6.90		0.09		0.28	
N	371.00		371.00		371.00		371.00		371.00		371.00		371.00	
Religious in GDR - mean	1938.43		1909.45		0.02		0.01		1906.42		0.01		0.03	
s.d.	3.23		6.20		0.14		0.10		6.85		0.10		0.17	
N	100.00		100.00		100.00		100.00		100.00		100.00		100.00	
Total - mean	1938.69		1909.86		0.00		0.02		1906.72		0.01		0.07	
s.d.	3.12		6.31		0.07		0.15		6.89		0.09		0.26	
N	471.00		471.00		471.00		471.00		471.00		471.00		471.00	

Source: Own computation from Gsoep Data

The stars represent the statistical significance of the t-test (between the same religious affiliation in East and West Germany) with unequal variance

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 8 – Descriptive evidence by group: Born before 1952

Group	Year of Birth	Mother's		Father's		Year of Birth	Mother's		Father's	
		Year of Birth	Lower Educated	Higher Educated	Year of Birth		Lower Educated	Higher Educated	Year of Birth	Lower Educated
Atheist in FGR - mean	1943.66***	1915.25*	0.01	0.03	1912.14*	0.00**	0.11	0.00**	0.11	0.11
s.d.	5.19	8.13	0.09	0.18	9.18	0.00	0.32	0.00	0.32	0.32
N	116.00	116.00	116.00	116.00	116.00	116.00	116.00	116.00	116.00	116.00
Atheist in GDR - mean	1942.00	1913.54	0.02	0.01	1910.43	0.02	0.06	0.02	0.06	0.06
s.d.	5.50	8.48	0.13	0.08	8.91	0.13	0.24	0.13	0.24	0.24
N	292.00	292.00	292.00	292.00	292.00	292.00	292.00	292.00	292.00	292.00
Total -mean	1942.47	1914.03	0.01	0.01	1910.92	0.01	0.08	0.01	0.08	0.08
s.d.	5.46	8.41	0.12	0.12	9.01	0.11	0.27	0.11	0.27	0.27
N	408.00	408.00	408.00	408.00	408.00	408.00	408.00	408.00	408.00	408.00
Religious in FGR - mean	1942.23	1913.18	0.00	0.02	1909.87	0.01	0.08	0.01	0.08	0.08
s.d.	5.41	7.77	0.04	0.14	8.17	0.09	0.27	0.09	0.27	0.27
N	574.00	574.00	574.00	574.00	574.00	574.00	574.00	574.00	574.00	574.00
Religious in GDR - mean	1941.67	1913.01	0.01	0.02	1909.71	0.01	0.07	0.01	0.07	0.07
s.d.	5.42	8.16	0.12	0.14	8.61	0.08	0.26	0.08	0.26	0.26
N	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00
Total - mean	1942.11	1913.15	0.00	0.02	1909.83	0.01	0.08	0.01	0.08	0.08
s.d.	5.41	7.84	0.06	0.14	8.25	0.09	0.27	0.09	0.27	0.27
N	724.00	724.00	724.00	724.00	724.00	724.00	724.00	724.00	724.00	724.00

Source: Own computation from Gsoep Data

The stars represent the statistical significance of the t-test (between the same religious affiliation in East and West Germany) with unequal variance

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 9 – Descriptive evidence by group: Born before 1961

Group	Year of Birth	Mother's		Father's		Year of Birth	Mother's		Father's	
		Year of Birth	Lower Educated	Higher Educated	Year of Birth		Lower Educated	Higher Educated	Year of Birth	Lower Educated
Atheist in FGR - mean	1947.81	1919.80	0.01	0.04*	1916.53	0.01**	0.13**	1916.53	0.01**	0.13**
s.d.	7.28	9.82	0.08	0.20	10.52	0.08	0.34	10.52	0.08	0.34
N	176.00	176.00	176.00	176.00	176.00	176.00	176.00	176.00	176.00	176.00
Atheist in GDR - mean	1947.63	1920.28	0.02	0.01	1917.26	0.03	0.06	1917.26	0.03	0.06
s.d.	8.27	11.28	0.13	0.11	11.90	0.17	0.24	11.90	0.17	0.24
N	487.00	487.00	487.00	487.00	487.00	487.00	487.00	487.00	487.00	487.00
Total - mean	1947.68	1920.15	0.02	0.02	1917.07	0.02	0.08	1917.07	0.02	0.08
s.d.	8.01	10.90	0.12	0.14	11.55	0.15	0.27	11.55	0.15	0.27
N	663.00	663.00	663.00	663.00	663.00	663.00	663.00	663.00	663.00	663.00
Religious in FGR - mean	1947.82**	1919.33*	0.00	0.02	1915.96	0.01	0.08	1915.96	0.01	0.08
s.d.	8.29	10.57	0.06	0.15	11.17	0.09	0.27	11.17	0.09	0.27
N	945.00	945.00	945.00	945.00	945.00	945.00	945.00	945.00	945.00	945.00
Religious in GDR - mean	1946.34	1917.97	0.01	0.03	1914.91	0.01	0.07	1914.91	0.01	0.07
s.d.	8.08	10.36	0.11	0.16	11.05	0.09	0.26	11.05	0.09	0.26
N	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00
Total - mean	1947.53	1919.07	0.01	0.02	1915.76	0.01	0.08	1915.76	0.01	0.08
s.d.	8.27	10.54	0.07	0.15	11.15	0.09	0.27	11.15	0.09	0.27
N	1170.00	1170.00	1170.00	1170.00	1170.00	1170.00	1170.00	1170.00	1170.00	1170.00

Source: Own computation from Gsoep Data

The stars represent the statistical significance of the t-test (between the same religious affiliation in East and West Germany) with unequal variance

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 10 – Descriptive evidence by group: Born before 1973

Group	Year of Birth	Mother's		Father's		Year of Birth	Mother's		Father's	
		Year of Birth	Lower Educated	Higher Educated	Year of Birth		Lower Educated	Higher Educated	Year of Birth	Lower Educated
Atheist in FGR - mean	1954.64	1927.21	0.01	0.04	1923.87**	0.01**	0.14**	1923.87**	0.01**	0.14**
s.d.	10.43	12.85	0.10	0.19	13.77	0.08	0.34	13.77	0.08	0.34
N	420.00	420.00	420.00	420.00	420.00	420.00	420.00	420.00	420.00	420.00
Atheist in GDR - mean	1954.59	1928.20	0.01	0.04	1925.51	0.02	0.09	1925.51	0.02	0.09
s.d.	11.16	13.70	0.11	0.19	14.21	0.13	0.29	14.21	0.13	0.29
N	1465.00	1465.00	1465.00	1465.00	1465.00	1465.00	1465.00	1465.00	1465.00	1465.00
Total - mean	1954.60	1927.98	0.01	0.04	1925.14	0.02	0.10	1925.14	0.02	0.10
s.d.	11.00	13.52	0.11	0.19	14.13	0.12	0.30	14.13	0.12	0.30
N	1885.00	1885.00	1885.00	1885.00	1885.00	1885.00	1885.00	1885.00	1885.00	1885.00
Religious in FGR - mean	1955.26***	1927.32***	0.01	0.03	1924.18***	0.01	0.09	1924.18***	0.01	0.09
s.d.	11.40	13.51	0.09	0.16	14.12	0.10	0.29	14.12	0.10	0.29
N	3399.00	3399.00	3399.00	3399.00	3399.00	3399.00	3399.00	3399.00	3399.00	3399.00
Religious in GDR - mean	1951.77	1923.80	0.02	0.04	1920.82	0.01	0.09	1920.82	0.01	0.09
s.d.	11.64	13.91	0.13	0.19	14.34	0.11	0.28	14.34	0.11	0.28
N	690.00	690.00	690.00	690.00	690.00	690.00	690.00	690.00	690.00	690.00
Total - mean	1954.67	1926.73	0.01	0.03	1923.61	0.01	0.09	1923.61	0.01	0.09
s.d.	11.51	13.64	0.10	0.16	14.21	0.10	0.29	14.21	0.10	0.29
N	4089.00	4089.00	4089.00	4089.00	4089.00	4089.00	4089.00	4089.00	4089.00	4089.00

Source: Own computation from Gsoep Data

The stars represent the statistical significance of the t-test (between the same religious affiliation in East and West Germany) with unequal variance

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 11 – Descriptive evidence by group: All sample

Group	Year of Birth	Mother's Year of Birth	Mother's Lower Educated	Mother's Highly Educated	Father's Year of Birth	Father's Lower Educated	Father's Highly Educated
Atheist in FGR - mean	1956.98***	1929.57***	0.01	0.06	1926.38***	0.01	0.15
s.d.	12.96	14.84	0.11	0.24	15.23	0.11	0.35
N	303.00	303.00	303.00	303.00	303.00	303.00	303.00
Atheist in GDR - mean	1961.12	1935.26	0.02	0.08	1932.35	0.02	0.11
s.d.	14.93	17.46	0.14	0.27	17.77	0.15	0.31
N	1035.00	1035.00	1035.00	1035.00	1035.00	1035.00	1035.00
Total - mean	1960.18	1933.98	0.02	0.08	1931.00	0.02	0.12
s.d.	14.60	17.07	0.13	0.26	17.40	0.15	0.32
N	1338.00	1338.00	1338.00	1338.00	1338.00	1338.00	1338.00
Religious in FGR - mean	1959.88***	1932.05**	0.01	0.04	1928.96 *	0.02	0.11
s.d.	13.69	15.53	0.09	0.20	16.02	0.12	0.31
N	1997.00	1997.00	1997.00	1997.00	1997.00	1997.00	1997.00
Religious in GDR - mean	1957.58	1930.18	0.02	0.05	1927.33	0.02	0.11
s.d.	15.06	16.99	0.14	0.22	17.44	0.14	0.31
N	396.00	396.00	396.00	396.00	396.00	396.00	396.00
Total - mean	1959.50	1931.74	0.01	0.04	1928.69	0.02	0.11
s.d.	13.95	15.79	0.10	0.20	16.27	0.13	0.31
N	2393.00	2393.00	2393.00	2393.00	2393.00	2393.00	2393.00

Source: Own computation from Gsoep Data

The stars represent the statistical significance of the t-test (between the same religious affiliation in East and West Germany) with unequal variance

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 12 – Descriptive evidence by group: Born before 1945, after matching

Group	Year of Birth	Mother's		Mother's		Year of Birth	Father's		Father's
		Year of Birth	Lower Educated	Higher Educated	Year of Birth		Lower Educated	Higher Educated	
$A_1(\text{GDR})$ - mean	1938.40**	1909.82	0.00	0.00	1906.78	0.00	0.03*		
s.d.	3.38	7.13	0.00	0.00	7.51	0.00	0.17		
N	141.00	141.00	141.00	141.00	141.00	141.00	141.00		
$A_h(\text{GDR})$ - mean	1939.48	1911.15	0.00	0.00	1908.21	0.00	0.08		
s.d.	2.98	6.59	0.00	0.00	5.52	0.00	0.28		
N	48.00	48.00	48.00	48.00	48.00	48.00	48.00		
$A_h(\text{FGR})$ - mean	1939.36	1910.92	0.00	0.03	1907.70	0.00	0.11		
s.d.	3.02	6.27	0.00	0.18	7.90	0.00	0.32		
N	61.00	61.00	61.00	61.00	61.00	61.00	61.00		
Total - mean	1938.84	1910.34	0.00	0.01	1907.28	0.00	0.06		
s.d.	3.25	6.83	0.00	0.09	7.27	0.00	0.24		
N	250.00	250.00	250.00	250.00	250.00	250.00	250.00		
$R_h(\text{FGR})$ - mean	1938.68	1909.60	0.00	0.01	1906.48	0.00	0.01		
s.d.	3.06	6.33	0.00	0.11	7.15	0.00	0.11		
N	85.00	85.00	85.00	85.00	85.00	85.00	85.00		
$R_h(\text{GDR})$ - mean	1938.43	1909.45	0.02	0.01	1906.42	0.01	0.03		
s.d.	3.23	6.20	0.14	0.10	6.85	0.10	0.17		
N	100.00	100.00	100.00	100.00	100.00	100.00	100.00		
$R_1(\text{FGR})$ - mean	1938.77	1910.08	0.00	0.03	1906.95	0.00	0.11***		
s.d.	3.11	6.33	0.00	0.18	6.72	0.00	0.31		
N	283.00	283.00	283.00	283.00	283.00	283.00	283.00		
Total - mean	1938.68	1909.86	0.00	0.02	1906.75	0.00	0.07		
s.d.	3.12	6.29	0.07	0.15	6.82	0.05	0.26		
N	468.00	468.00	468.00	468.00	468.00	468.00	468.00		

Source: Own computation from Gsoep Data

The stars represent the statistical significance of the pairwise t-test between the treated (i.e. $A_h(\text{FGR})$ when we look at Atheist people or $R_h(\text{GDR})$ when we look at Religious people) and the controls (i.e. the same religious affiliation peers in the other former German country) with unequal variance * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 13 – Descriptive evidence by group: Born before 1952, after matching

Group	Year of Birth	Mother's Year of Birth	Mother's Lower Educated	Mother's Highly Educated	Father's Year of Birth	Father's Lower Educated	Father's Highly Educated
A ₁ (GDR) - mean	1941.38***	1913.37**	0.00	0.01	1910.39*	0.00	0.06
s.d.	5.49	8.24	0.00	0.10	8.87	0.00	0.24
N	204.00	204.00	204.00	204.00	204.00	204.00	204.00
A _h (GDR) - mean	1943.60	1914.14	0.00	0.00**	1910.83	0.00	0.07
s.d.	5.23	8.92	0.00	0.00	9.14	0.00	0.26
N	83.00	83.00	83.00	83.00	83.00	83.00	83.00
A _h (FGR) - mean	1943.66	1915.25	0.01	0.03	1912.14	0.00	0.11
s.d.	5.19	8.13	0.09	0.18	9.18	0.00	0.32
N	116.00	116.00	116.00	116.00	116.00	116.00	116.00
Total - mean	1942.49	1914.07	0.00	0.01	1910.99	0.00	0.08
s.d.	5.46	8.37	0.05	0.12	9.02	0.00	0.27
N	403.00	403.00	403.00	403.00	403.00	403.00	403.00
R _h (FGR) - mean	1941.51	1912.35	0.00	0.03	1908.88	0.00	0.08
s.d.	5.08	7.30	0.00	0.16	7.40	0.00	0.28
N	119.00	119.00	119.00	119.00	119.00	119.00	119.00
R _h (GDR) - mean	1941.67	1913.01	0.01	0.02	1909.71	0.01	0.07
s.d.	5.42	8.16	0.12	0.14	8.61	0.08	0.26
N	150.00	150.00	150.00	150.00	150.00	150.00	150.00
R ₁ (FGR) - mean	1942.41	1913.40	0.00	0.02	1910.12	0.01	0.08
s.d.	5.48	7.88	0.05	0.14	8.34	0.10	0.27
N	455.00	455.00	455.00	455.00	455.00	455.00	455.00
Total - mean	1942.11	1913.15	0.00	0.02	1909.83	0.01	0.08
s.d.	5.41	7.84	0.06	0.14	8.25	0.09	0.27
N	724.00	724.00	724.00	724.00	724.00	724.00	724.00

Source: Own computation from Gsoep Data

The stars represent the statistical significance of the pairwise t-test between the treated (i.e. A_h(FGR) when we look at Atheist people or R_h(GDR) when we look at Religious people) and the controls (i.e. the same religious affiliation peers in the other former German country) with unequal variance
 * p < 0.10, ** p < 0.05, *** p < 0.01

Table 14 – Descriptive evidence by group: Born before 1961, after matching

Group	Year of Birth	Mother's		Father's		Year of Birth	Mother's		Father's	
		Year of Birth	Lower Educated	Higher Educated	Year of Birth		Lower Educated	Higher Educated		
A ₁ (GDR) - mean	1947.41	1920.16	0.03*	0.01*	1917.21	0.04***	0.06**	1917.21	0.04***	0.06**
s.d.	8.45	11.43	0.16	0.11	11.91	0.19	0.24	11.91	0.19	0.24
N	356.00	356.00	356.00	356.00	356.00	356.00	356.00	356.00	356.00	356.00
A _h (GDR) - mean	1948.24	1920.59	0.00	0.02	1917.41	0.01	0.06**	1917.41	0.01	0.06**
s.d.	7.75	10.87	0.00	0.12	11.91	0.09	0.24	11.91	0.09	0.24
N	131.00	131.00	131.00	131.00	131.00	131.00	131.00	131.00	131.00	131.00
A _h (FGR) - mean	1947.81	1919.80	0.01	0.04	1916.53	0.01	0.13	1916.53	0.01	0.13
s.d.	7.28	9.82	0.08	0.20	10.52	0.08	0.34	10.52	0.08	0.34
N	176.00	176.00	176.00	176.00	176.00	176.00	176.00	176.00	176.00	176.00
Total - mean	1947.68	1920.15	0.02	0.02	1917.07	0.02	0.08	1917.07	0.02	0.08
s.d.	8.01	10.90	0.12	0.14	11.55	0.15	0.27	11.55	0.15	0.27
N	663.00	663.00	663.00	663.00	663.00	663.00	663.00	663.00	663.00	663.00
R _h (FGR) - mean	1947.03	1918.75	0.00*	0.03	1915.76	0.00	0.06	1915.76	0.00	0.06
s.d.	8.15	10.35	0.00	0.16	10.79	0.00	0.24	10.79	0.00	0.24
N	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00
R _h (GDR) - mean	1946.34	1917.97	0.01	0.03	1914.91	0.01	0.07	1914.91	0.01	0.07
s.d.	8.08	10.36	0.11	0.16	11.05	0.09	0.26	11.05	0.09	0.26
N	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00	225.00
R ₁ (FGR) - mean	1948.02 ***	1919.47 *	0.00	0.02	1916.01	0.01	0.08	1916.01	0.01	0.08
s.d.	8.32	10.62	0.06	0.14	11.27	0.10	0.28	11.27	0.10	0.28
N	755.00	755.00	755.00	755.00	755.00	755.00	755.00	755.00	755.00	755.00
Total - mean	1947.53	1919.07	0.01	0.02	1915.76	0.01	0.08	1915.76	0.01	0.08
s.d.	8.27	10.54	0.07	0.15	11.15	0.09	0.27	11.15	0.09	0.27
N	1170.00	1170.00	1170.00	1170.00	1170.00	1170.00	1170.00	1170.00	1170.00	1170.00

Source: Own computation from Gsoep Data

The stars represent the statistical significance of the pairwise t-test between

the treated (i.e. A_h(FGR) when we look at Atheist people or R_h(GDR) when we look at Religious people)

and the controls (i.e. the same religious affiliation peers in the other former German country) with unequal variance

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 15 – Descriptive evidence by group: Born before 1973, after matching

Group	Year of Birth		Mother's Year of Birth		Mother's Lower Educated		Mother's Highly Educated		Father's Year of Birth		Father's Lower Educated		Father's Highly Educated	
A _l (GDR) - mean	1954.26	1927.67	0.02*	0.04	1924.94	0.03***	0.06***							
s.d.	11.47	13.81	0.15	0.20	14.33	0.17	0.25							
N	540.00	540.00	540.00	540.00	540.00	540.00	540.00							
A _h (GDR) - mean	1953.50	1926.80	0.00	0.04	1923.70	0.00	0.16							
s.d.	10.85	14.33	0.00	0.21	14.76	0.07	0.37							
N	203.00	203.00	203.00	203.00	203.00	203.00	203.00							
A _h (FGR) - mean	1953.92	1926.47	0.01	0.04	1923.35	0.01	0.14							
s.d.	10.47	12.83	0.09	0.19	13.39	0.09	0.35							
N	267.00	267.00	267.00	267.00	267.00	267.00	267.00							
Total - mean	1954.02	1927.18	0.01	0.04	1924.27	0.02	0.10							
s.d.	11.08	13.66	0.12	0.20	14.18	0.14	0.30							
N	1010.00	1010.00	1010.00	1010.00	1010.00	1010.00	1010.00							
R _h (FGR) - mean	1952.43	1924.80	0.02	0.03	1921.94	0.03	0.08							
s.d.	11.52	13.48	0.12	0.17	14.16	0.16	0.28							
N	259.00	259.00	259.00	259.00	259.00	259.00	259.00							
R _h (GDR) - mean	1952.28	1924.65	0.02	0.05	1921.70	0.02	0.10							
s.d.	11.64	13.98	0.15	0.21	14.46	0.15	0.31							
N	318.00	318.00	318.00	318.00	318.00	318.00	318.00							
R _l (FGR) - mean	1956.24 ***	1928.12 ***	0.01*	0.03	1924.97 ***	0.01	0.10							
s.d.	11.21	13.31	0.08	0.16	13.90	0.10	0.30							
N	1369.00	1369.00	1369.00	1369.00	1369.00	1369.00	1369.00							
Total - mean	1955.09	1927.11	0.01	0.03	1924.03	0.01	0.10							
s.d.	11.46	13.52	0.10	0.17	14.09	0.12	0.30							
N	1946.00	1946.00	1946.00	1946.00	1946.00	1946.00	1946.00							

Source: Own computation from Gsoep Data

The stars represent the statistical significance of the pairwise t-test between

the treated (i.e. A_h(FGR) when we look at Atheist people or R_h(GDR) when we look at Religious people)

and the controls (i.e. the same religious affiliation peers in the other former German country) with unequal variance

* p < 0.10, ** p < 0.05, *** p < 0.01

Table 16 – Estimation Results for those born before 1952

	(1)	(2)	(3)	(4)	(5)
	Propensity to smoke b/se	Propensity to smoke b/se	Propensity to smoke b/se	Propensity to smoke b/se	Propensity to smoke b/se
Males only					
Not using Länder Fixed Effects					
(Al(GDR) - Rl(FGR)) - (Rh(GDR)-Rh(FGR))	0.12983*** (0.02864)	0.12927*** (0.02945)	0.13127*** (0.02370)	0.17474** (0.08359)	0.20762*** (0.07833)
Al(GDR) - Rl(FGR)	0.11870*** (0.02850)	0.14027*** (0.03697)	0.08504*** (0.02384)	0.14442** (0.06534)	0.16569*** (0.06236)
Rh(GDR) -Rh(FGR)	-0.01113*** (0.00357)	0.01100 (0.02664)	-0.04623*** (0.00359)	-0.03031 (0.01908)	-0.04193 (0.04479)
Males only					
Using Länder Fixed Effects					
(Al(GDR) - Rh(GDR)) - (Rl(FGR)-Rh(FGR))	0.12759*** (0.02866)	0.12240*** (0.02947)	0.12966*** (0.02840)	0.16202** (0.07354)	0.17888** (0.08198)
Al(GDR) -Rh(GDR)	0.11505*** (0.02859)	0.11495*** (0.02932)	0.07193*** (0.02757)	0.11146 (0.07353)	0.12416 (0.08146)
Rl(FGR) - Rh(FGR)	-0.01255*** (0.00213)	-0.00745*** (0.00237)	-0.05773*** (0.00386)	-0.05056*** (0.00315)	-0.05472*** (0.01626)
N	1,127	1,084	1,179	648	646
Rh(FGR)	119	114	116	73	72
Rh(GDR)	150	142	155	150	142
Rl(FGR)	455	439	480	148	145
Al(GDR)	204	192	231	138	1,456
Ah(GDR)	83	82	78	23	27
Ah(FGR)	116	115	119	116	115

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Males born between 1933 and 1951

Bootstrapped SE-values in parentheses (100 replications), stratification by country of birth: GDR or FGR.

The individuals distribution are aligned according to year of birth, parental year of birth, parental education.

In the second stage we used as controls education (2 dummies: high or low level), marital status,

employment status (3 dummies: Self-employed, OLF, Unemployed), year dummies,

and according to the estimation with or without regional dummies (15 federal Länder dummies)

In column (1) estimated effect using the covariates above described.

In column (2) estimated effect using as covariate also the real cigarettes prices.

In column (3) estimated effect defined Low as residuals and using in the PSM only mother's information.

In column (4) estimated effect where High and Low types are defined by PSM and Low Types are never caught as High. In column (5) we adopt the same approach as column 4 but controlling for real cigarettes prices.

Table 17 – Estimation Results for those born before 1961

	(1)	(2)	(3)	(4)	(5)
	Propensity to smoke b/se	Propensity to smoke b/se	Propensity to smoke b/se	Propensity to smoke b/se	Propensity to smoke b/se
Males only					
Not using Länder Fixed Effects					
(Al(GDR) - Rl(FGR)) - (Rh(GDR)-Rh(FGR))	0.12956*** (0.02204)	0.12745*** (0.02153)	0.12707*** (0.02281)	0.19512*** (0.06592)	0.20114*** (0.07066)
Al(GDR) - Rl(FGR)	0.05573** (0.02174)	0.01647 (0.02505)	0.05367** (0.02313)	0.08040 (0.05101)	0.07381 (0.05250)
Rh(GDR) -Rh(FGR)	-0.07383*** (0.00249)	-0.11098*** (0.01400)	-0.07340*** (0.00239)	-0.11472*** (0.01546)	-0.12734*** (0.03164)
Males only					
Using Länder Fixed Effects					
(Al(GDR) - Rh(GDR)) - (Rl(FGR)-Rh(FGR))	0.12947*** (0.02229)	0.12696*** (0.02149)	0.17398*** (0.02955)	0.18583** (0.07787)	0.17699*** (0.05888)
Al(GDR) -Rh(GDR)	0.09979*** (0.02229)	0.09975*** (0.02143)	0.12822*** (0.02889)	0.08819 (0.07792)	0.08571 (0.05783)
Rl(FGR) - Rh(FGR)	-0.02968*** (0.00101)	-0.02721*** (0.00099)	-0.04576*** (0.00139)	-0.09764*** (0.00134)	-0.09128*** (0.01357)
N	1,833	1,790	1,916	1,030	1,047
Rh(FGR)	190	184	174	111	110
Rh(GDR)	225	217	233	225	217
Rl(FGR)	755	740	808	246	249
Al(GDR)	356	348	382	241	258
Ah(GDR)	131	126	132	31	38
Ah(FGR)	176	175	187	176	175

* p < 0.10, ** p < 0.05, *** p < 0.01

Males born between 1933 and 1960

Bootstrapped SE-values in parentheses (100 replications), stratification by country of birth: GDR or FGR.

The individuals distribution are aligned according to year of birth, parental year of birth, parental education.

In the second stage we used as controls education (2 dummies: high or low level), marital status,

employment status (3 dummies: Self-employed, OLF, Unemployed), year dummies,

and according to the estimation with or without regional dummies (15 federal Länder dummies)

In column (1) estimated effect using the covariates above described.
 In column (2) estimated effect using as covariate also the real cigarettes prices.
 In column (3) estimated effect defined Low as residuals and using in the PSM only mother's information.
 In column (4) estimated effect where High and Low types are defined by PSM and Low Types are never caught as High.
 In column (5) we adopt the same approach as column 4 but controlling for real cigarettes prices.

Table 18 – *Estimation Results for Different Cohorts*

	(1) Born before 1945 b/se	(2) Born before 1952 b/se	(3) Born before 1961 b/se	(4) Born before 1973 b/se
Males only Not using Länder Fixed Effects				
(Al(GDR) - Rl(FGR)) -(Rh(GDR)-Rh(FGR))	0.05279* (0.03055)	0.12983*** (0.02864)	0.12956*** (0.02204)	0.08186*** (0.01708)
Males only Using Länder Fixed Effects				
(Al(GDR) - Rh(GDR)) - (Rl(FGR)-Rh(FGR))	0.05408* (0.03024)	0.12759*** (0.02866)	0.12947*** (0.02229)	0.07921*** (0.01626)
N	718	1,127	1,833	2,956
Rh(FGR)	85	119	190	259
Rh(GDR)	100	150	225	318
Rl(FGR)	283	455	755	1,369
Al(GDR)	141	204	356	540
Ah(GDR)	48	83	131	203
Ah(FGR)	61	116	176	267

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Bootstrapped SE-values in parentheses (100 replications), stratification by country of birth: GDR or FGR.
 The individuals distribution are aligned according to year of birth, parental year of birth, parental education.
 In the second stage we used as controls education (2 dummies: high or low level), marital status,
 employment status (3 dummies: Self-employed, OLF, Unemployed), year dummies,
 and according to the estimation with or without regional dummies (15 federal Länder dummies)

Table 19 – Estimation Results using only Mother Information in PSM

	(1)	(2)	(3)	(4)
	Born	Born	Born	Born
	before 1945	before 1952	before 1961	before 1973
	b/se	b/se	b/se	b/se
Males only				
Using in the PSM only mother's information				
Not using Länder Fixed Effects				
(Al(GDR) - Rh(GDR)) - (Rl(FGR)-Rh(FGR))	0.09533*** (0.03175)	0.13127*** (0.02370)	0.12707*** (0.02281)	0.12584*** (0.01813)
Males only				
Using in the PSM only mother's information				
Using Länder Fixed Effects				
(Al(GDR) - Rh(GDR)) - (Rl(FGR)-Rh(FGR))	0.09425*** (0.03137)	0.12966*** (0.02840)	0.17398*** (0.02955)	0.11817*** (0.01654)
N	744	1,179	1,916	3,108
Rh(FGR)	76	116	174	239
Rh(GDR)	104	155	233	330
Rl(FGR)	306	480	808	1,466
Al(GDR)	153	231	382	590
Ah(GDR)	43	78	132	200
Ah(FGR)	62	119	187	283

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Bootstrapped SE-values in parentheses (100 replications), stratification by country of birth: GDR or FGR. The individuals distribution are aligned according to year of birth, parental year of birth, parental education. In the second stage we used as controls education (2 dummies: high or low level), marital status, employment status (3 dummies: Self-employed, OLF, Unemployed), year dummies, and according to the estimation with or without regional dummies (15 federal Länder dummies)

Table 20 – Estimation Results Controlling for Income

	(1) Born before 1945 b/se	(2) Born before 1952 b/se	(3) Born before 1961 b/se	(4) Born before 1973 b/se
Low types are defined as Residuals Using as covariate individual income and the real cigarettes prices Males only				
(Al(GDR) - Rh(GDR)) - (Rl(FGR)-Rh(FGR))	0.06531** (0.03237)	0.12648*** (0.02937)	0.12820*** (0.02258)	0.09702*** (0.01898)
N	675	1,084	1,790	2,911
Rh(FGR)	79	114	184	251
Rh(GDR)	92	142	217	310
Rl(FGR)	268	439	740	1,356
Al(GDR)	129	192	348	529
Ah(GDR)	47	82	126	201
Ah(FGR)	60	115	175	264

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Bootstrapped SE-values in parentheses (100 replications), stratification by country of birth: GDR or FGR.

The individuals distribution are aligned according to year of birth, parental year of birth, parental education.

In the second stage we used as controls education (2 dummies: high or low level), marital status,

employment status (3 dummies: Self-employed, OLF, Unemployed), year dummies,

and according to the estimation with or without regional dummies (15 federal Länder dummies) and real cigarettes prices.

Table 21 – Estimation Results using as covariate the cohorts dummies

	(1)	(2)	(3)	(4)
	Born	Born	Born	Born
	before 1945	before 1952	before 1961	before 1973
	b/se	b/se	b/se	b/se
Low types are defined as Residuals Using as covariate the cohort of birth Males only				
(Al(GDR) - Rh(GDR)) - (Rl(FGR)-Rh(FGR))	0.05394*	0.12233***	0.12579***	0.06692***
	(0.03161)	(0.02894)	(0.02284)	(0.01766)
Low types are defined as Residuals Using as covariate the cohort of birth Using a heterogeneous cohort between FGR and GDR Males only				
(Al(GDR) - Rh(GDR)) - (Rl(FGR)-Rh(FGR))	0.05366*	0.12228***	0.13343***	0.07589***
	(0.03142)	(0.02946)	(0.02317)	(0.01744)
N	718	1,127	1,833	2,956
Rh(FGR)	85	119	190	259
Rh(GDR)	100	150	225	318
Rl(FGR)	283	455	755	1,369
Al(GDR)	141	204	356	540
Ah(GDR)	48	83	131	203
Ah(FGR)	61	116	176	267

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Bootstrapped SE-values in parentheses (100 replications), stratification by country of birth: GDR or FGR. The individuals distribution are aligned according to year of birth, parental year of birth, parental education. In the second stage we used as controls education (2 dummies: high or low level), marital status, employment status (3 dummies: Self-employed, OLF, Unemployed), year dummies, and according to the estimation with or without regional dummies (15 federal Länder dummies)

Table 22 – OLS Estimation Results by Cohorts

	(1)	(2)	(3)	(4)	(5)
	Born	Born	Born	Born	All sample
	before 1945	before 1952	before 1961	before 1973	All sample
	b/se	b/se	b/se	b/se	b/se
Age	-0.01882*** (0.00694)	-0.01413*** (0.00390)	-0.00652** (0.00269)	-0.00194 (0.00195)	0.00144 (0.00173)
Lower Educated	-0.02446 (0.06051)	0.00184 (0.05092)	-0.03449 (0.04086)	-0.00200 (0.03112)	0.01174 (0.02365)
Higher Educated	-0.11486*** (0.03626)	-0.15092*** (0.02935)	-0.13357*** (0.02379)	-0.14641*** (0.01932)	-0.14374*** (0.01862)
Married	-0.05385 (0.05600)	-0.03643 (0.04215)	-0.04342 (0.03175)	-0.00408 (0.02187)	0.00322 (0.02111)
Atheist	0.05328 (0.04106)	0.05436* (0.03285)	0.05241* (0.02696)	0.07468*** (0.02248)	0.06997*** (0.02059)
Self-employed	0.01429 (0.06232)	-0.05996 (0.04535)	0.03068 (0.03698)	0.03072 (0.03020)	0.03032 (0.03003)
OLF	0.09505** (0.04272)	0.06342* (0.03765)	0.03793 (0.03422)	-0.00764 (0.02760)	-0.09061*** (0.02084)
Unemployed	0.12826** (0.06217)	0.15409*** (0.05083)	0.18220*** (0.04168)	0.19368*** (0.03377)	0.17822*** (0.02949)
Year of Mother's Birth	0.00451 (0.00455)	0.00414 (0.00367)	0.00511* (0.00299)	0.00433* (0.00242)	0.00299 (0.00220)
Mother is low educated	-0.21256 (0.21772)	-0.12803 (0.17723)	0.02721 (0.14070)	0.10542 (0.09614)	0.04517 (0.07731)
Mother is high educated	-0.05804 (0.12972)	-0.10289 (0.10608)	0.03433 (0.07971)	0.00200 (0.05219)	-0.02873 (0.03824)
Year of Father's Birth	-0.00005 (0.00388)	-0.00034 (0.00323)	-0.00079 (0.00254)	-0.00070 (0.00210)	0.00174 (0.00191)
Father is low educated	0.12908 (0.19711)	0.18007 (0.16210)	0.06135 (0.11335)	-0.01275 (0.08087)	0.07088 (0.06708)
Father is high educated	0.10873 (0.07074)	0.08785 (0.05680)	0.01599 (0.04405)	-0.01530 (0.03151)	-0.00847 (0.02696)
_cons	-7.14256 (5.92391)	-6.16167 (4.54067)	-7.51536** (3.69964)	-6.48095** (3.03603)	-8.73907*** (2.78135)
years	Yes	Yes	Yes	Yes	Yes
regions	Yes	Yes	Yes	Yes	Yes
N	725	1132	1833	2956	3731
R-squared	0.0698	0.0974	0.0766	0.0672	0.0625
Adjusted R-squared	0.0282	0.0703	0.0596	0.0564	0.0539
Lok-lik	-399.3	-668.1	-1176.4	-1963.2	-2505.6
F-statistic	2.067	17.26	34.04	60.98	8.402

Robust SE