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Immigration Restriction and The Transfer of Cultural Norms Over Time and Boundaries: The Case of Religiosity

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Immigration Restriction and The Transfer of Cultural Norms Over Time and Boundaries: The Case of Religiosity

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Abstract
We study the effect of an immigration ban on the self-selection of immigrants along cultural traits, and the transmission of these traits to the second generation. We show theoretically that restricting immigration incentivizes to settle abroad individuals with higher attachment to their origin culture, who, under free mobility, would rather choose circular migration. Once abroad, these individuals tend to convey their cultural traits to their children. As a consequence, restrictive immigration policies can foster the diffusion of cultural traits across boundaries and generations. We focus on religiosity, which is one of the most persistent and distinctive cultural traits, and exploit the 1973 immigration ban in West Germany (*Anwerbestopp*) as a natural experiment. Through a diff-in-diff analysis, we find that second generations born to parents treated by the *Anwerbestopp* show higher religiosity.

JEL Classification: D91, F22, J15, K37, Z13.

Keywords: second-generation immigrants, religiosity, immigration policy, cultural transmission.

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1 Introduction

An increasing literature studies the transfer of cultural and institutional norms to the countries of origin of returning immigrants (Beine and Sekkat, 2013; Beine et al., 2013; Tuccio and Wahba, 2018; Lodigiani and Salomone, 2020). However, the dissemination of norms and habits is a two-way process, which involves both the sending and receiving countries (Rapoport et al., 2020). In this paper, we study the transfer of norms from the *sending* to the *receiving* country with the help of a major natural experiment. Specifically, we exploit the immigration ban in West Germany (henceforth Germany) following the 1973 oil shock to assess how immigration policies affect the transmission of religiosity across countries and between generations of immigrants.[1]

The Lucas critique suggests that immigration policies —just like any policy— affect the individual behavior. But how does the critique applies to immigrants? We argue that it shows up in the self-selection process. Self-selection is the crucial mechanism that makes emigrants a non-random sample of the population. As a consequence, immigration policies introduce potential distortions into the very fundamental mechanism that determines the characteristics and the structure of the pool of immigrants, which, in turn, is central to the process of norms dissemination (Wahba, 2021).

For instance, in the literature it is known that restrictions on labor mobility alter the optimal duration of immigration. More precisely, authors like Vernon and Zimmermann (2021), Galli and Russo (2019), and Magris and Russo (2009) show theoretically and empirically that restrictions on international mobility incentivize individuals who would otherwise prefer circular or return migration to settle *and reproduce* in the destination countries.[2] To the extent that these individuals show higher commitment to their origin culture, they are more inclined to convey their cultural traits to their children, spreading their culture across space and time. We describe this process through a simple, micro-founded theoretical model, which proceeds in two steps: 1) self-selection: restrictions on immigration force many individuals with higher commitment to their origin culture to settle in the destination country; 2) cultural transmission: these immigrants tend to convey their customs (including religiosity) to the second generation. This transmission mechanism is, in principle, testable. Unfortunately, finding causal evidence is hard, because it requires an exogenous source of variation in the immigra-

[1] Notice that, in our data, religiosity is a self-reported measure of *intensity* of religious devotion on a 1-10 scale.

[2] This mechanism is confirmed *a contrario* by Bazillier et al. (2023), who show that free labor mobility agreements incentivize returns to the origin countries.

tion policy. The 1973 immigration ban in Germany (*Anwerbestopp*) provides us with a suitable natural experiment, which we use to study the transmission of religiosity to the second generation. In order to understand the functioning of the experiment, let us remark that, before 1973, Germany was very open to immigration. However, after the oil shock, concerns for mass unemployment among immigrants led the government to swiftly reverse this policy through the *Anwerbestopp*; namely, a ban on the recruitment of workers *who did not belong in the European Economic Community* (henceforth EEC).[3] Thus, EEC workers were still allowed free mobility in and out of Germany. This makes it possible to identify a treatment group and a control group, and treat the event as the quasi-experiment that is required to test our theory. Specifically, we expect that: 1) the treated group is more religious than the control group; 2) religiosity, in turn, is conveyed to the second generation, so that children born to treated immigrants show higher religiosity.

In other words, we hypothesize a spillover of the *Anwerbestopp* treatment to the second generation. Notice that this application of our theoretical model requires that higher commitment to the origin culture is associated with higher religiosity. If replacing a religious good is difficult, we should observe a negative relationship between the level of religiosity and the probability of migrating. This is confirmed in the literature: higher religiosity is usually associated with lower propensity to migrate (Docquier et al., 2020; Neudörfer and Dresdner, 2014).

In order to study the effect of the *Anwerbestopp* on the religiosity of second-generation immigrants, we use European Social Survey data; namely, the answer to the question "How religious are you", on a scale from one to ten. Our results display an increase in the level of religiosity for the treatment group, and hold under several robustness checks. Alternative measures of religiosity provide similar outcomes. These conclusions are in line with our prediction that the *Anwerbestopp* 'forced' to settle in Germany many first-generation immigrants who, on their own, would have preferred circular or return migration. Generally, our findings illustrate that immigration policies not only affect the share of permanent vs. return immigrants, but also that they influence the characteristics of the second generation. These long-run effects are crucial for the integration

[3]The European Economic Community was the free-trade agreement replaced by the European Union in 1993.

of the minorities, but can easily be overlooked by electorally-concerned, short-sighted governments.
Our paper is organized as follows: after this introduction, Section 2 presents our theoretical model; Section 3 reports the natural experiment; Section 4 describes our data; Section 5 discusses the identification strategy and the results; Section 6 is devoted to the robustness checks; Section 7 concludes.

2 Theory

Our theoretical approach is made of two steps. In the first step, we describe the self-selection into permanent or temporary migration, and illustrate how the immigration policy biases this choice. This part of the model is as in Galli and Russo (2019). In the second part, we improve on Galli and Russo (2019) by presenting a micro-founded model of intergenerational cultural transmission, which shows how the bias induced on the first generation can be conveyed to the second generation.

2.1 Self-selection

We use a simple two-period, two-country model with risk-neutral migrants. The model is extremely simplified in order to focus the attention only on the choice between permanent migration and return migration.[4] We consider two countries -Origin and Destination- denoted as O and D, respectively. Individuals are endowed with one unit of labor they supply inelastically when young (namely, in the first period). In the second period, individuals are old and do not produce. In D, one unit of labor produces one unit of a storable good. In O, production is normalized to zero. This shortcut is a convenient way to simplify the algebra without loss of generality, giving everybody an incentive to migrate for at least one period.[5] However, labor productivity is not

[4]In general, time spent abroad may vary: an individual may decide to migrate for a year, 10 years, or for her whole life; from this point of view, permanent migration is a corner solution. We refer to Hill (1987), Magris and Russo (2009), and Kirdar (2012) for more general models of circular migration.

[5]For our results to hold, we only need labor productivity to be higher in D.

the only difference between D and O. Destination and origin countries also differ in economic and political stability. Indeed, economic crises, political turmoils, and climate change are evermore important push factors (Naudé, 2009; Drabo and Linguère, 2015; Beine and Parsons, 2015; Coniglio and Pesce, 2015). We account for this effect by assuming that in O the state of the world is good with probability p, and bad with probability $(1-p)$. The bad shock drives to zero the utility of staying in O and causes re-migration to D, where consumption of the stored good yields positive utility.[6] Thus, in our model, the incentive to migrate depends both on the productivity differential and the economic stability. However, entry to D is rationed and requires an entry permit, which is distributed through a lottery that grants a permit with probability $\pi \in (0,1)$. Only one application per person is allowed. This concludes the description of the incentives to migrate. Now, we introduce a motive for return migration; namely, a preference for consuming at home, which we denote as 'home-bias'.[7] The home bias is summarized by the individual parameter $\theta_j \in [1, \theta_{\max}]$, which rescales the utility of consuming in O. Thus, consuming at home weakly dominates consuming abroad for any j. Intuitively, for θ_j close to unity, there is no reason to return to O; however, when θ is sufficiently high, permanent migration is unlikely.[8] θ_j is distributed according to the continuous pdf $f(\theta_j)$. The integral of $f(\theta_j)$ over its support gives the total population of O, which is normalized to unity. Since labor is unproductive in O, everybody is willing to migrate for at least one period, and the optimization problem boils down to compare permanent migration to return migration.

For simplicity, the future is not discounted and returning migrants observe the shock

[6]Since the crisis drives utility to zero, only returning migrants re-migrate (those who were unable to migrate in the first period are now old and do not produce; thus, their utility would be zero in both countries).

[7]Introducing a home bias is common in the literature (see, for instance, Dustmann and Kirchkamp (2002); Li (2016)). According to Borjas (1999), important non-economic factors, such as differences in language, culture, and the costs of entering an alien environment reduce migration flows.

[8]We have chosen unity as the lower bound of θ_j. $\theta_j < 1$ would indicate a preference for consuming abroad, and we would simply observe permanent emigration for all $\theta_j < 1$.

in O only *after* their return.[9] The expected utility of a permanent migrant is given by

$$E[u_{PM}] = \pi + (1 - \pi)0 \tag{1}$$

(The migrant is successful with probability π. In that case, she produces and consumes one unit over her lifetime. If the migrant is unsuccessful, she spends both periods in O and consumes zero). The expected utility of returning to O and consuming at home the good produced in D is given by:

$$E[u_{RM}] = \pi\{\underbrace{\theta_j p}_{\text{good shock}} + \underbrace{\pi(1-p)}_{\text{bad shock}}\} \tag{2}$$

Equation 2 means that, if the shock is good, return migration makes it possible to enjoy home-bias augmented consumption. If the shock is bad, re-migration to D is uncertain. In this simplified world, the choice between permanent and temporary migration only depends on the home bias θ_j.

2.1.1 Permanent and temporary migration

By comparing the utility under temporary and permanent migration, it is straightforward to find a cut-off value

$$\theta^* \equiv \frac{(1 - \pi(1-p))}{p}, \tag{3}$$

such that individuals for whom $\theta_j < \theta^*$ will be permanent migrants, and individuals for whom $\theta_j \geq \theta^*$ will be temporary migrants.[10]

[9] This assumption is only used for simplicity, and can be dropped by using a three-period model. This would complicate the algebra without changing our results. The intuition is as follows: consider a three-period model, and suppose that a migrant wants to return after just one period. Such an immigrant exists because it is always possible to find θ_j high enough to prompt an individual to migrate for a single period. This immigrant observes a good state of the world in O and wants to return for the remaining two periods. However the possibility of a bad shock in the *third* period and the uncertainty about her ability to re-migrate will bias her decision exactly as it happens in the two-period model.

[10] This is proved by solving the condition $E[u_{RM}] \geq E[u_{PM}]$ with respect to θ_j.

In other words, there exists a critical value of the home-bias θ^* that separates permanent migrants from temporary migrants. It is crucial to note that θ^* depends on the immigration policy π. As we show in the comparative statics analysis below, this is the central finding of our theoretical analysis, and shows how the Lucas critique applies to the immigration policy.We now present some comparative statics results.

2.1.2 Comparative statics

In this section, we show the comparative statics properties of the model. Computing the derivatives is straightforward. We have

$$\frac{\partial \theta^*}{\partial \pi} < 0 \tag{4}$$

and

$$\frac{\partial \theta^*}{\partial p} < 0. \tag{5}$$

Derivative (4) shows that, as π grows, the share of temporary migrants increases. This happens because freedom of immigration makes it easier to harbor abroad in the bad state; thus, return migration occurs at a lower θ. Put differently, *a restrictive immigration policy fosters permanent migration of immigrants with higher home-bias*. This application of the Lucas critique to the self-selection of immigrants is the basis of our empirical analysis.

Derivative (5) shows that improved economic conditions at home incentivize return migration. It is interesting to note that substituting $\pi = 1$ into θ^* is equivalent to setting $p = 1$. In both cases, we have $\theta^* = 1$. This means that, in presence of free mobility, our simplified model produces no permanent migration at all.[11] This happens because labor mobility also provides insurance against the risk of a crisis in O.

[11] In a more realistic setting, $\theta^* = 1$ would produce the lowest possible level of permanent migration, i.e., a corner solution.

2.2 Cultural Transmission

Notably, attempts to curb immigration are mostly targeted at *permanent* immigration. Temporary immigration is rarely considered a source of concern. What is so special about permanent immigration? There are many obvious differences between temporary and permanent immigration. For instance, the net fiscal impact of immigration can be quite different in the short term than in the long tem. However, for our purposes, we argue that what makes permanent immigration important is *procreation*. Procreation has crucial implications because families carry cultural and ethnic traits from one generation to another. The resilience of cultural traits across generations and the persistence of ethnic minorities are indeed some of the most common observations in heterogeneous societies (see Bisin and Verdier, 2010).[12] In the following, we identify a mechanism through which restrictive immigration policies can strengthen the persistence of the foreign culture in the second generation. Our idea is a simple one: according to equation (4), restrictions on immigration push individuals who are more committed to their native culture to settle in the destination country; then, they tend to convey their cultural preferences to their children.[13] In practice, this aim is pursued through educational and socialization effort, which will be the choice variable in our model of cultural transmission. In what follows, we show a simple example of such a mechanism.

Let us suppose that parents value cultural transmission to their children. Thus, we assume that cultural transmission (CT) is a good, which is produced through a Cobb-Douglas technology, with $\alpha \in (0,1)$, whose inputs are educational effort ($e \geq 0$), and cultural capital, which is proxied by the home-bias θ_j.

$$CT = \theta_j^a e^{1-a} \tag{6}$$

[12] According to Borjas (1994) (p.1711), 'the evidence suggests that the ethnic skill differentials will persist into the third generation and perhaps even into the fourth.[. . .] Ethnicity matters, and it seems to matter for a very long time'.

[13] Notice that parents may be willing to convey their cultural values despite the costs their children may suffer from a weaker commitment to the majority culture. This is the 'imperfect empathy' mechanism pointed out by Bisin and Verdier (2000).

Employing convex costs of the effort, the parents' utility can be described as

$$U_j = \theta_j^a e^{1-a} - \frac{e^2}{2} \tag{7}$$

Maximization yields the optimal effort:

$$e_j^* = [(1-a)\theta_j^a]^{\frac{1}{1+a}} \tag{8}$$

It is easy to verify that

$$\frac{\partial e_j^*}{\partial \theta_j} > 0. \tag{9}$$

In other words, the equilibrium educational effort increases as the parental home bias increases.

Let $\theta^m(\pi)$ be the average level of cultural capital of permanent immigrants, and let $e_j^{*m}(\theta^m(\pi))$ be the average level of equilibrium educational effort. Then, we have

$$\frac{\partial e_j^{*m}}{\partial \pi} = \frac{\partial e_j^{*m}}{\partial \theta_m} \frac{\partial \theta^m}{\partial \pi} < 0. \tag{10}$$

Equation (10) summarizes the transmission mechanism from immigration policy to second-generation cultural formation; namely, restrictions on immigration incentivize immigrants with higher home-bias to settle in the destination country. In turn, higher home-bias incentivizes cultural transmission.

Religion and its practice, as a set of beliefs and routines, is a major component of the cultural identity. Consequently, it is a preeminent indicator of cultural transmission. If our model is correct, the intergenerational transmission of religiosity can be detected, provided that we find appropriate data and an exogenous source of variation. While data on religious affiliation and practice are available, finding a proper source of variation that ensures causality is harder. We found a suitable natural experiment in the 1973 immigration ban in Germany, which we describe in the next section.

3 The natural experiment

Currently, Germany is the top destination country in the EU for immigrants and for asylum seekers, and the second in the world. In January 2021, according to the Central Register of Foreign Nationals (AZR), around 11.4 million foreign nationals were living in Germany. In addition, 22.3 million people had a migration background, representing 27.2 per cent of the population. However, after World War II, Germany was already the main destination in Europe. The economic boom (*Wirtschaftswunder*) generated a severe labour shortage, especially for low-skilled workers in construction and industry. At first, immigrants from East Germany and ethnic Germans from Eastern Europe (*Aussiedler*) were admitted.[14] The recruitment of foreign workers continued via agreements with several countries: first Italy (1953), then Spain, Greece (1960), and Turkey (1961). The foreign population rapidly increased, and, in 1964, the arrival of the millionth guest worker was even celebrated.[15] The building of the Berlin wall in 1961 stopped the flow of immigrants from East Germany, and led to further agreements: Morocco (1963), Portugal (1964), Tunisia (1965), and Yugoslavia (1968). During this period, immigration was considered a resource to support economic growth, albeit permanent settlements were preferably prevented. Recruitment programs were based on a rotation principle: migrants would enter Germany for a period of at most two years, returning to their origin country to make room for other guest workers. Between 1961 and 1973, about 14 million foreign workers entered Germany, of whom about 11 million left the country. The oil crisis of the 1970s marked a major change. It ended a period of unprecedented economic growth and opened the new era of stagflation. In order to preserve jobs for natives a halt on recruitment of non-EEC workers (*Anwerberstopp*) was declared on November 23, 1973. Voluntary return was incentivized, but family reunions (with spouses and children under sixteen years old) were allowed (Heckmann, 1995). At that time, Germany had 2.6 million of foreign workers, with Turks (23%),

[14] In particular, until the building of the Berlin Wall in 1961, around 3.5 million Germans coming from East Germany settled in the Federal Republic of Germany.

[15] This worker was Armando Rodrigues de Sá, a 38-year-old Portuguese carpenter. A bouquet of carnations, a certificate of honor and a Zündapp Sport Combinette moped awaited him at the Cologne-Deutz station.

Yugoslav (18%) and Italians (16%) representing the main minorities. This fostered the creation of a large second-generation. In terms of the theoretical model presented in section 2, the *Anwerberstopp* fostered permanent settlement, pushing immigrants with stronger commitment to their native culture to stay in Germany, and possibly convey their cultural traits to the second generation.[16] Galli and Russo (2019) find evidence of lower cultural integration of second-generation children whose parents were subject to the *Anwerberstopp*. We now want to test if the *Anwerberstopp* has affected one of the most relevant aspects of the cultural identity, namely, the religiosity *of the second generation*.

4 Data

In order to assess the effect of the Anwerbstopp on the religiosity of second-generation immigrants, we use data from the European Social Survey, waves 2-10[17]. This research initiative, established in 2001, is committed to undertaking cross-national surveys through face-to-face interviews every two years,[18] with newly selected samples that represent diverse European populations aged 15 and above. To date, a total of 38 countries have participated in at least one round of the survey. This comprehensive survey addresses a wide spectrum of topics, encompassing living conditions, social structures, public opinions, attitudes, and behavioral tendencies. Furthermore, it collects variables related to ethnicity and religiosity, which are particularly relevant and useful for our analysis. In particular, individuals were asked to rate their religiosity ("How religious are you") on a scale of 1 to 10, where 1 represents the lowest level and

[16]Notice that similar bans were enforced in Austria, France, Luxembourg, Switzerland, and the Nordic countries, albeit under different rules and degrees of enforcement. These measures, together with the border controls that in the 1970s still restricted the movement of workers, minimize the risk of immigrants flowing from Germany to the neighboring countries, and that the immigrant pools in Germany before and after 1973 are affected by policies put in place by other countries.

[17]The first wave does not contain information on the origin of the parents.

[18]The COVID-19 pandemic disrupted face-to-face fieldwork for Round 10. Out of the 31 participating countries, 22 adhered to the conventional face-to-face methodology, while 9 countries, including Germany, transitioned to a self-completion approach that incorporated web-based and paper surveys.

10 the highest level. We use this question to assess the level of religiosity. Figure (1) illustrates the methodology employed to generate our sample.

The ban imposed by Germany specifically targeted non-EEC (European Economic Community) immigrants, allowing EEC immigrants to freely travel between Germany and their home countries. Therefore, on the basis of father's country of origin, we distinguish a treatment and a control group. The control group includes Italy, France, United Kingdom, Austria, Netherlands, Belgium, Ireland, Denmark and Luxembourg.[19]

Figure (2) reports the major source countries of immigrants to Germany. Individuals are assigned to the control or treatment group depending on the origin of their fathers. Poland and Turkey are the countries with the largest number of immigrants. The descriptive statistics for our sample are included in Table (1). Our proxy for the level of religiousness exibits a mean value of 4.16, significantly below the hypothetical sufficiency threshold of 6. Furthermore, the standard deviation of 3.01 indicates a notable degree of variability in religiosity scores across the sample. The majority of individuals, on average 80%, consists of second-generation individuals with non-EEC fathers. Approximately 44% of the individuals were born after the policy year. Gender distribution is relatively balanced, with an average of 49% males.

5 Identification strategy and results

To capture the effect of the immigration policy on the second-generation immigrants, we use a diff-in-diff model[20]:

$$Y_{it} = \alpha + \gamma * BornAfter_{it} + \delta * extraEEC_{it} + \beta * Treatment_{it} + \theta * X_{it} + \epsilon_{it} \quad (11)$$

Where Y_{it} is our proxy of religiosity, "Born after" refers to being born after 1973, "extraEEC" indicates the treated group, "Treatment" is the interaction between "Born

[19]The countries in the control group were members of the EEC in 1973, with the exception of Austria. However, in 1973, Austria became a member of the European Free Trade Association (EFTA), which promoted unrestricted movement of workers (article 20).

[20]For simplicity, we present the linear specification in equation 11. An ordered probit model will be estimated too in the rest of the paper.

after" and "extraEEC", thus the parameter of interest is β. The specificaton is completed by ϵ_{it}, the error term, and a vector of exogenous controls X_{it}; namely, gender, year of birth of respondents,[21] and dummies for the round of ESS individuals were interviewed. It is important to remark that the treatment group may include individuals born to immigrants who settled in Germany *before* the *Anwerbestopp* but possibly chose to have children *after* 1973. Unfortunately, with our data we cannot address this problem, which can bias our estimates downwards. Consequently, our estimates can be considered as a lower bound of the true effect.

To establish support for the parallel trends assumption, we examine the average religiosity based on the year of birth in figure (3), where the averages of religiosity for EEC and extra EEC countries are interpolated nonparametrically using Loess[22]. Before the policy year, both groups exhibit declining trends. After 1973, the trend of the treatment (extra EEC) group is reversed, supporting our identification. The observed declining trend in the control (EEC) group aligns with the overall decrease in religiosity observed in all countries represented in our sample. In figure (4), we illustrate the average religiosity of the natives, along with the corresponding fitted linear trends, for the main countries included in the analysis. The increasing trend in the religiosity of the treatment group contrasts starkly with the pervasive decline we can observe elsewhere. However, it is consistent with the theoretical framework we have outlined and suggests that the *Anwerbestopp* had quite remarkable effects on the self-selection of immigrants.

For our analysis, our favorite time window is 1963-83. Naturally, we run several checks for symmetric and asymmetric windows around 1973. However, we think that the 1963-83 window gives the best trade-off in terms of closeness to the policy year and sample size (namely, 545 observations). The results of our favorite estimation of equation (11) are presented in table (2). In column (1), we employ an ordered probit model, while in column (2), we use ordinary least squares for a more straightforward interpretation. The reported results include standard errors clustered by the father's country of origin. In the ordered probit model, the treatment demonstrates a positive and statistically

[21] This variable can be interpreted as a linear trend, the purpose of which is to control for assimilation due to time-varying confounders, such as longer exposure to German culture or different skill levels in immigrant cohorts.

[22] We used the default smoothing parameter $\alpha = 0.75$ of the Loess function in R.

significant impact at the 1% level, while in the linear model, it is significant at the 5% level. In the linear model, we observe that belonging in the second generation born to non-EEC fathers implies a marginal effect of approximately 1.5 points on the level of religiosity.[23] This outcome is in line with our prediction, namely, the *Anwerbestopp* 'forced' to settle in Germany many first-generation immigrants who would have preferred circular or return migration based on their own cultural tastes. These immigrants were characterized by a higher religiosity, which was conveyed to the second generation. This finding shows that immigration policies may have very long-run effects.

6 Robustness

6.1 Alternative time frames

To ensure the robustness of our findings and demonstrate their independence from the chosen time frame, we estimate Equation (11) applying different window configurations (symmetric and asymmetric) around 1973. Again, we use our baseline regression model, incorporating clustered standard errors based on the father's country of origin. Table (3) shows a matrix with symmetric windows positioned along the main diagonal. Each cell presents the parameter of interest, sample size, and standard errors. We employ a color-coding system to indicate the significance level (1%, 5%, 10%). It is worth noting that, with a few exceptions, the magnitudes of these parameters remain consistently stable. Most of them exhibit high or medium statistical significance, as indicated by the blue shading.

6.2 Placebo regressions

To assess the significance of the policy year, we conduct placebo regressions by changing the policy year. The results are presented in Table (4). In column (1) we employ

[23]It is also interesting to note that males exhibit significantly lower levels of religiosity compared to females.

a symmetric window of ± 10 years around the counterfactual policy year 1963. In Column (2), we restrict our sample to focus on the period before 1973 and use a symmetrical window spanning ± 6 years around 1967. This year provides a suitable alternative, because it corresponds to a recession, which caused a notable decrease in arrivals to Germany (Jennissen, 2014). The estimates on the coefficients of interest are not significant; generally, signs are even negative for the two counterfactual policy years before 1973.

6.3 Religious affiliation and contextual effects

As an additional robustness check, we estimate Equation (11) by including variables for the region of residence (länder), religious affiliation, and their interactions with the policy year. The classification of the treatment and control groups remains based on the father's country of origin. The findings for the coefficient of interest, as presented in Table (5), consistently align with those in Table (2).

In Column (1), we introduce region-specific interview dummies to account for unobserved regional heterogeneity. Notably, the coefficient associated with the treatment closely resembles our baseline regression in both sign and statistical significance (5%).

Column (2) presents the coefficients for religious affiliations, with 'non-religious' as the reference category. Remarkably, all coefficients of religious affiliations are positive and statistically significant at the 1% level.

In Column (3), we add region of residence dummies to the religious affiliations. The results remain consistent in terms of sign and significance, keeping significance at the 1% level.

Column (4) examines the interaction between religious affiliation and dummy variables indicating birth before and after 1973. All coefficients are positive and statistically significant at the 1% level, except for 'other religion', which is insignificant.

Finally, Column (5) replicates the estimations from Column (4) while incorporating residence dummies. Once again, sign and significance of the coefficients are preserved.

6.4 Alternative rules of inclusion and ethnic Germans

In Table (6), we introduce alternative criteria for defining the treatment and control groups. In Column (1), we distinguish second-generation immigrants on the basis of the mother's country of origin. The coefficient of interest keeps the same sign, though the statistical significance decreases to the 10% level.

In Column (2), we further refine our analysis by restricting the sample to households with both parents coming from the same country. Despite a considerable reduction in the sample size, the results are confirmed, and still 1% significant.
In column (3), we exclude children born to migrants from countries with sizable German minorities. Once again, the coefficient of interest preserves its sign and statistical significance (1%).

6.5 Removing Poland and Turkey

As shown in Figure (2), the majority of individuals in the treated group are children of Polish and Turkish fathers. To ensure that our results are not influenced by immigration from a single country, we removed each of these countries from the control group at time. In Columns (1) and (2) of Table (7), we reaffirm our previous findings, though the statistical significance is reduced, along with the sample size. These results are particularly interesting, as Poland is mainly a Catholic country, while Turkey is mainly Muslim. This analysis suggests as well that our results do not depend on a specific religious affiliation.

6.6 Alternative measures of religiosity

Finally, we used questions about participation in religious events and the frequency of pray to obtain two alternative measures of religiosity. On a scale ranging from 1 to 7, individuals were asked two questions: "how often do you attend religious services?" and "how often do you pray?". The response options are: never (1); less often (2); only on special holy days (3); at least once a month (4); once a week (5); more than

once a week (6); every day (7). The alternative measures are named, respectively, "Participation" and "Pray".

In Table (8), we present the correlation coefficients (Spearman's correlation) among the three indicators of religiosity. There exists a moderate positive relationship between personal religiosity and the frequency of participation in religious events, with a correlation coefficient of 0.633. Furthermore, the correlation between religiosity and the frequency of prayer is even stronger, measuring 0.740.

Table (9) presents estimations of equation (11) with 'Participation' and 'Pray' as dependent variables, using the same format as in the baseline estimation (Table 2). The coefficients of interest show positive and statistically significant results at the 10% level for both variables. The loss of significance can possibly stem from an increased difficulty in attending religious services or collective prayer (when required by the religious affiliation) in the destination country. Overall, the results obtained with our alternative measure of religiosity are less significant, but they never contradict our findings on the other measure; rather, they offer additional support to the hypothesis that the *Anwerbestopp* had an impact on the second generation of migrants through the first generation.

7 Conclusions

The socioeconomic integration of the second generations is crucial for supporting the welfare state, the economic growth, and the long-term social cohesion of the multicultural societies of modern destination countries. In this view, cultural integration is not only a necessary complement of economic integration, but even a prerequisite. What is the effect of immigration policies on this process? The cultural integration of foreign-born children crucially depends on parental decisions. By a straightforward application of the Lucas critique, we showed that immigration policies affect the size and the characteristics of the pool of immigrants. In particular, theoretical and empirical findings show that restrictions on immigration push individuals with a stronger commitment to their native culture to settle and reproduce abroad. To the extent that

these individuals convey their culture to the second generation, restrictive immigration policies foster the diffusion of cultural traits and bias the intergenerational process of cultural integration. We exploited the major natural experiment occurred in Germany in 1973, which provides a unique opportunity to investigate the consequences of immigration restriction. We found that the descendants of treated immigrants show higher religiosity. This adds further evidence to the initial results in Galli and Russo (2019) and is important for two reasons: 1) in the literature, religiosity is associated with lower propensity to migrate (Docquier et al., 2020; Neudörfer and Dresdner, 2014). Higher religiosity in the second generation confirms that first-generation immigrants who suddenly lost the possibility of moving back and forth were somewhat 'forced' to settle in Germany. 2) Religiosity is a major component of the cultural identity, and its transmission confirms the immigrants' will to preserve the origin culture. Though this does not imply any antagonism with the receiving society, it shows a distortionary long-term effect of restrictive immigration policies.

Our results demonstrated robustness to several checks, and suggest that, in a globalized labor market, more open immigration can reduce distortions in the self-selection of immigrants and, possibly, in the intergenerational integration process. Similar policies were successfully used in the past, and include for instance, free movement agreements between countries,[24] dual citizenship, and permanent or indefinitely renewable residence permits.

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[24] See Constant et al. (2013) for a survey of major mobility partnerships worldwide.

Competing interests

The authors declare none.

Table 1: Descriptive statistics, window 1963-1983.

	Mean	Std Dev	Min	Max
Religiosity	4.16	3.01	0	10
Born after	0.44	0.497	0	1
Extra EEC	0.80	0.403	0	1
Male	0.49	0.500	0	1
Year of birth	1972.70	6.153	1963	1983
Round 2	0.07	0.264	0	1
Round 3	0.07	0.252	0	1
Round 4	0.09	0.299	0	1
Round 5	0.12	0.326	0	1
Round 6	0.09	0.283	0	1
Round 7	0.12	0.319	0	1
Round 8	0.12	0.319	0	1
Round 9	0.07	0.251	0	1
Round 10	0.25	0.444	0	1
N	545			

Source: authors' elaborations on ESS, waves 2 to 10.

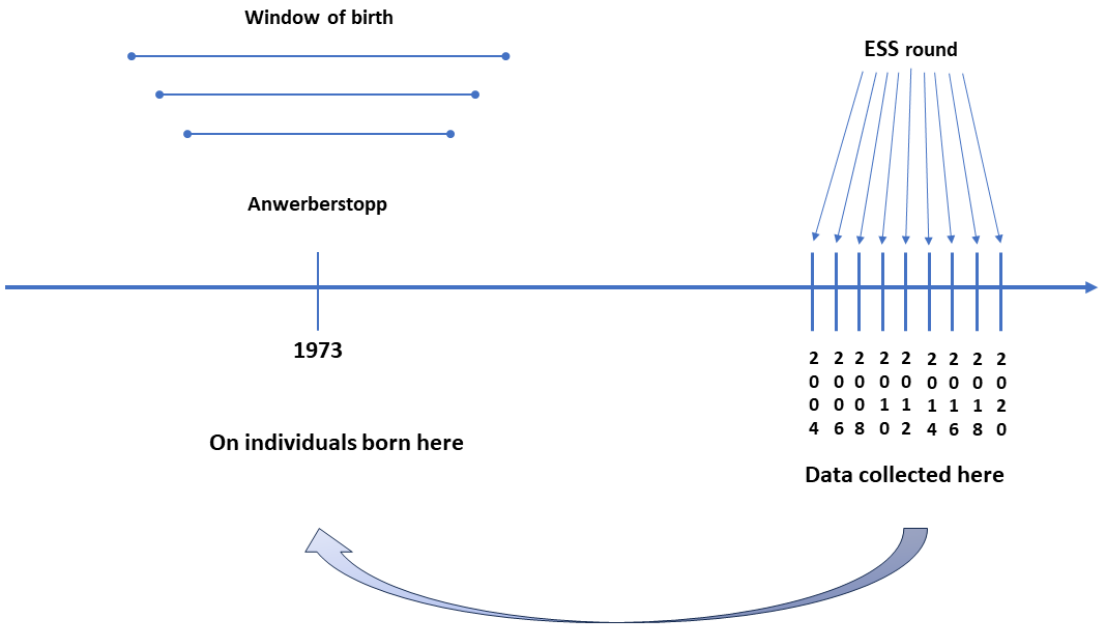

Figure 1: Timeline of natural experiment and data collection.

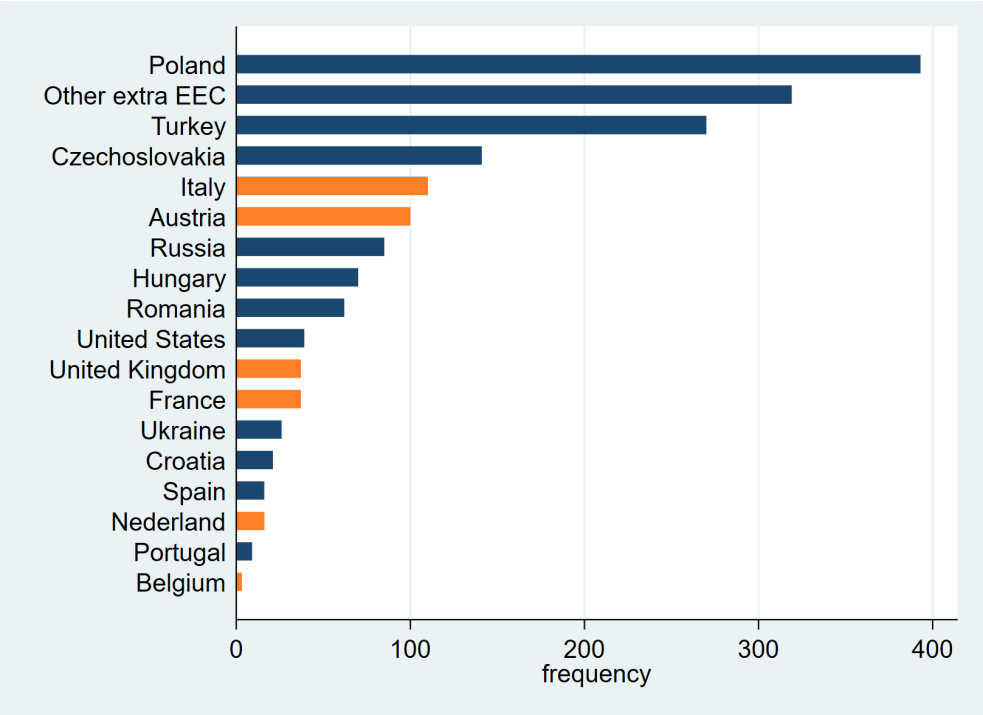

Figure 2: Father's country of origin, whole sample (ESS waves 2-10).

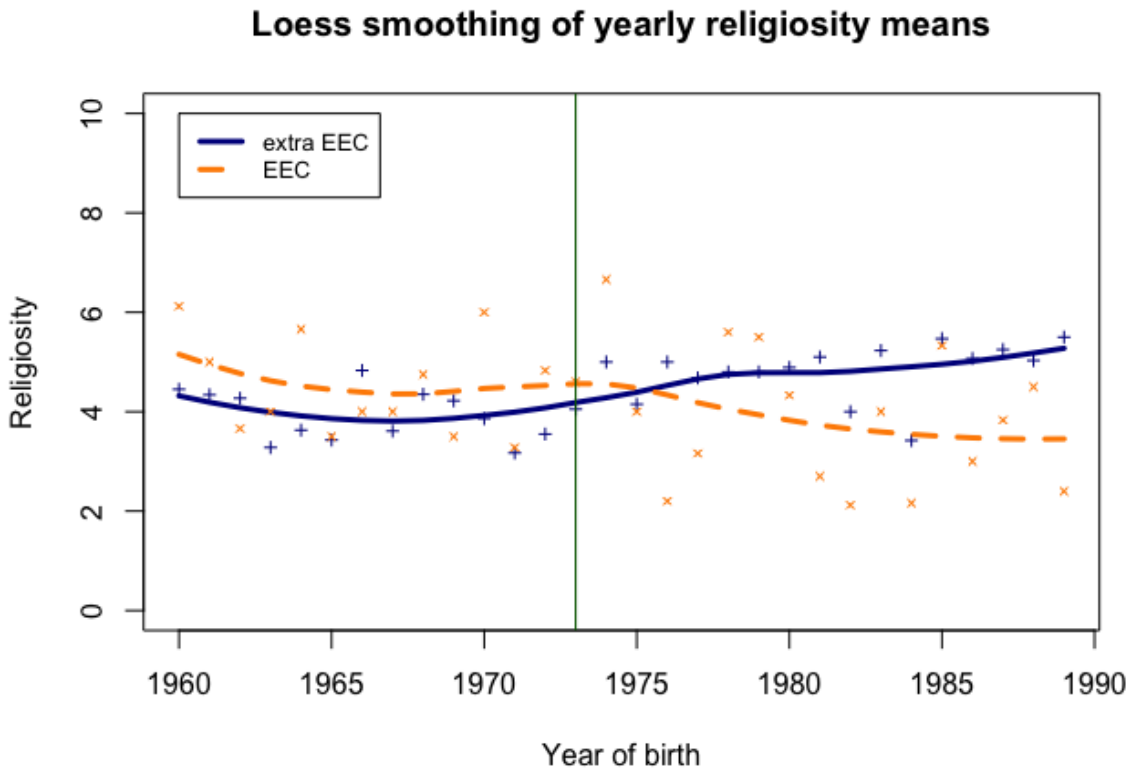

Figure 3: Loess smoothing of mean religiosity by year of birth, window 1960-1989 (Source: ESS, waves 2-10). Control group: orange, dashed, $\times$. Treatment group: blue, solid, $+$.

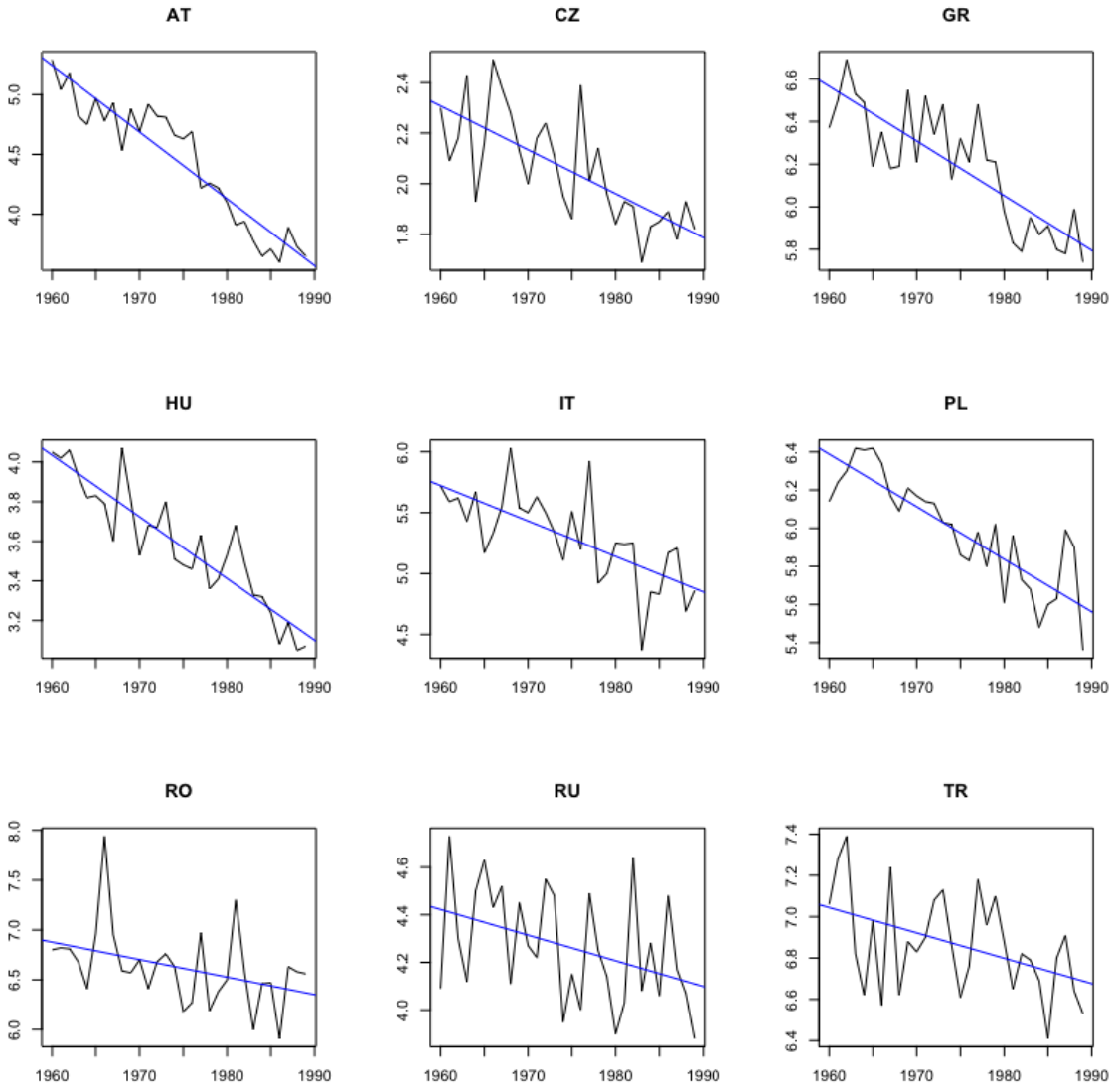

Figure 4: Average religiosity of natives of different origin countries, by year of birth, window 1960-1989 (Source: ESS, waves 2-10). Linear trend in blue.

Table 2: DID analysis. Dependent variable: Religiosity. Time window: 1963-1983. Estimation methods: Ordered probit and ordinary least squares with classical, robust and clustered standard errors on father's country of origin.

	Religiosity			
	(1)	(2)	(3)	(4)
	oprobit	ols	oprobit	ols
	classic SE	robust SE	clustered SE	clustered SE
Treatment	**0.545****	**1.484****	**0.545*****	**1.484****
	(0.223)	(0.600)	(0.209)	(0.572)
Born after	-0.143	-0.369	-0.143	-0.369
	(0.255)	(0.679)	(0.212)	(0.584)
Extra EEC	-0.140	-0.433	-0.140	-0.433
	(0.155)	(0.427)	(0.192)	(0.512)
Male	-0.323***	-0.869***	-0.323***	-0.869***
	(0.0900)	(0.252)	(0.0777)	(0.226)
Year of birth	-0.00501	-0.0110	-0.00501	-0.0110
	(0.0153)	(0.0423)	(0.0132)	(0.0358)
Intercept		26.46		25.81
		(83.41)		(70.49)
Round	Yes	Yes	Yes	Yes
N	545	545	545	545
Pseudo R^2 / R^2	0.0159	0.0677	0.0159	0.0677

Standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

Table 3: DID analysis. Dependent Variable: Religiosity. Symmetric and asymmetric time windows centered around 1973. Treatment group based on the father's country of origin. Ordered probit with standard errors clustered on father's country of origin.

	1975	1977	1979	1981	**1983**	1985	1987
	0.144	0.798	0.566	0.671	0.816	0.841	0.856
1971	0.455	0.321	0.291	0.254	0.201	0.245	0.238
	125	159	208	275	321	372	427
	-0.016	0.629	0.41	0.519	0.633	0.671	0.695
1969	0.362	0.299	0.253	0.217	0.180	0.222	0.212
	180	214	263	330	376	427	482
	-0.074	0.614	0.390	0.495	0.603	0.641	0.660
1967	0.404	0.321	0.275	0.235	0.189	0.228	0.218
	234	268	317	384	430	481	536
	-0.142	0.507	0.295	0.412	0.501	0.548	0.570
1965	0.406	0.334	0.295	0.251	0.21	0.254	0.244
	291	325	374	441	487	538	593
	-0.121	0.535	0.324	0.45	**0.545**	0.592	0.609
1963	0.407	0.327	0.3	0.251	**0.209**	0.266	0.256
	349	383	432	499	**545**	596	651
	-0.222	0.475	0.285	0.407	0.498	0.542	0.557
1961	0.408	0.338	0.327	0.266	0.22	0.279	0.265
	417	451	500	567	613	664	719
	0.088	0.472	0.297	0.422	0.514	0.563	0.589
1959	0.393	0.311	0.297	0.234	0.198	0.256	0.248
	483	517	566	633	679	730	785

Cell colour: * p<0.1, ** p<0.05, *** p<0.01

Contents: Coefficient, standard error, sample size

Table 4: Placebo Regressions. Dependent Variable: Religiosity. Counterfactual Years: 1963, 1967. Ordered probit with clustered standard errors based on father's country of origin.

	Religiosity	
	(1)	(2)
	1953-1973	1961-1973
	1963	1967
Treatment	-0.0603	-0.223
	(0.137)	(0.245)
Born after	-0.000617	0.342
	(0.140)	(0.264)
Extra EEC	-0.0697	0.0172
	(0.148)	(0.307)
Male	-0.126*	-0.155
	(0.0679)	(0.116)
Year of birth	-0.00232	-0.0250
	(0.00998)	(0.0300)
Round	Yes	Yes
N	584	374
Pseudo R^2	0.00745	0.00931

Standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

Table 5: DID analysis. Dependent variable: Religiosity. Ordered probit with standard errors clustered on father's country of origin. Column (1): estimates with Länder dummy variables. Column (2): with religious affiliation. Column (3) with religious affiliation and Länder. Column (4) with interaction of affiliation with pre- and post-1973 dummy variables. Column (5) with interaction of affiliation with pre- and post-1973 dummy variables and Länder.

	Religiosity				
	(1)	(2)	(3)	(4)	(5)
	Land	Religion	Religion and Land	Interaction	Interaction and Land
Treatment	0.495**	0.512***	0.607***	0.527**	0.670***
	(0.226)	(0.153)	(0.222)	(0.241)	(0.244)
Born after	-0.0982	-0.111	-0.108	-0.530*	-0.575**
	(0.244)	(0.165)	(0.186)	(0.289)	(0.238)
Extra EEC	-0.0835	-0.131	-0.177	-0.160	-0.196
	(0.214)	(0.0904)	(0.133)	(0.155)	(0.139)
Male	-0.339***	-0.285***	-0.258***	-0.272***	-0.273***
	(0.0776)	(0.0816)	(0.0955)	(0.0903)	(0.0951)
Year of birth	-0.0196	-0.0123	-0.0256	0.00685	-0.0118
	(0.0180)	(0.0133)	(0.0168)	(0.0158)	(0.0157)
Christian		1.399***	1.363***		
		(0.144)	(0.194)		
Protestant		1.323***	1.318***		
		(0.177)	(0.171)		
Orthodox		1.538***	1.694***		
		(0.252)	(0.439)		
Jewish		2.222***	2.162***		
		(0.184)	(0.306)		
Islam		1.583***	1.490***		
		(0.121)	(0.140)		
Other		0.732*	0.582		
		(0.441)	(0.442)		
Christian after				1.471***	1.591***
				(0.202)	(0.203)
Christian before				1.196***	1.144***
				(0.152)	(0.244)
Protestant after				1.409***	1.633***
				(0.205)	(0.220)
Protestant before				1.121***	1.027***
				(0.166)	(0.243)
Orthodox after				1.419***	1.312**
				(0.408)	(0.597)
Orthodox before				2.401***	2.390***
				(0.176)	(0.325)
Jewish after				2.176***	2.038***
				(0.224)	(0.316)
Jewish before				2.021***	2.223***
				(0.200)	(0.307)
Islam after				1.685***	1.607***
				(0.178)	(0.137)
Islam before				1.141*	1.354***
				(0.619)	(0.246)
Other after				0.0991	0.219
				(0.628)	(0.656)
Other before				0.760	0.531
				(0.469)	(0.609)
Round	Yes	Yes	Yes	Yes	Yes
Länder	Yes	No	Yes	No	Yes
N	413	545	413	545	413
Pseudo R^2	0.0273	0.0998	0.102	0.0942	0.102

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Table 6: DID analysis. Dependent variable: Religiosity. Time window: 1963-1983. Ordered probit. Different rules of inclusion into the control and treatment groups: column (1): Mother's birth country. Standard errors clustered on mother's origin. Column (2): both parents from the same country. Standard errors clustered on parent's origin. Column (3): excluding countries with German minorities from the sample (Czechoslovakia, Austria, Russian Federation, Ukraine, Belarus, Latvia, Lithuania, Kazakhstan, Czech Republic, Slovakia, United States, and Brazil). Standard errors clustered on father's origin.

	Religiosity		
	(1)	(2)	(3)
	Mother	Parents	Ethnic Minorities
Treatment	**0.472***	**0.996*****	**0.800*****
	(0.286)	(0.267)	(0.283)
Born after	-0.378	-0.529**	0.0143
	(0.252)	(0.220)	(0381)
Extra EEC	-0.417	-0.627**	-0.0274
	(0.269)	(0.276)	(0.285)
Male	-0.387***	-0.322*	-0.437***
	(0.0967)	(0.173)	(0.147)
Year of birth	0.0225*	0.0125	-0.00759
	(0.0130)	(0.0249)	(0.0269)
Round	Yes	Yes	Yes
N	410	170	405
Pseudo R^2	0.0169	0.0326	0.0208

Standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

Table 7: DID analysis. Dependent variable: Religiosity. Time window: 1963-1983. Ordered probit model with standard errors clustered by father's country of origin, excluding data from Poland and Turkey.

	Religiosity	
	(1)	(2)
	Without Poland	Without Turkey
Treatment	**0.480****	**0.390***
	(0.226)	(0.201)
Born after	-0.217	-0.145
	(0.211)	(0.228)
Extra EEC	-0.0559	-0.156
	(0.193)	(0.190)
Male	-0.350***	-0.387***
	(0.0947)	(0.0679)
Year of birth	0.00235	-0.00471
	(0.0138)	(0.0160)
Round	Yes	Yes
N	436	466
Pseudo R^2	0.0192	0.0178

Standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

Table 8: Spearman's Correlation: Religiosity, Participation and Pray.

	Religiosity	Partecipation	Pray
Religiosity	1		
Partecipation	0.6331	1	
Pray	0.7402	0.6335	1

Table 9: DID analysis for the 1963-1983 period. Dependent Variables: Participation and Pray. Ordered probit with standard errors clustered on father's origin.

	Participation	Pray
	(1)	(2)
Treatment	**0.536***	**0.571***
	(0.291)	(0.306)
Born after	-0.258	-0.247
	(0.259)	(0.308)
Extra EEC	-0.00363	-0.336**
	(0.172)	(0.145)
Male	-0.135	-0.347***
	(0.134)	(0.0911)
Year of birth	-0.00278	-0.00585
	(0.0156)	(0.0135)
Round	Yes	Yes
N	545	540
Pseudo R^2	0.0233	0.0204

Standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

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