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Journal of Comparative Economics

journal homepage: www.elsevier.com/locate/jce

The minority ethic: Rethinking religious denominations, minority status, and educational achievement across the globe

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ARTICLE INFO

Keywords:

Religion
Education
Minority

JEL Classification:

I2
O5
Z1

ABSTRACT

We test whether major religious denominations correlate with education in a uniform way across the world and the extent to which minority status contributes to the correlation. Using individual data from the World Values Survey for 77 countries, we first find that no denomination is consistently associated with education and, in fact, for each denomination we study there are countries where its correlation with education is significantly positive, significantly negative, or statistically insignificant. To explain this unexpected result, we relate our first finding to minority status and find that denominations that are a minority in a given country positively correlate with the level of education of their followers in that country. Both findings uphold a series of robustness checks, including changing the definition of minority religions, excluding outliers, and changing the measure of education.

1. Introduction

Nearly one century after the publication of [Weber's \(1904/1905\)](#) classic and after spending decades in the purgatory of economics, religion has once again resurfaced as an explanation of economic performance, as the two surveys published eighteen years apart by [Iannaccone \(1998\)](#) and [Iyer \(2016\)](#) show. To this end, [Barro and McCleary \(2003, 2006\)](#) have econometrically established a link between religiosity and growth in contemporary economies. [Becker and Wössmann \(2009\)](#) have, moreover, reported a cross-country association between per capita GDP and the share of Protestants in 1900. Various channels have been investigated to account for the correlation between specific religious denominations and economic performance including, the role of financial and commercial institutions, as argued by [Kuran \(1996, 1997, 2004\)](#), the role of the state, as [Platteau \(2008\)](#) suggested, or the impact of religion on values and attitudes towards economic activities, which is [Weber's \(1904/1905\)](#) argument and was recently illustrated by [Guiso et al. \(2003\)](#) and [Hillman \(2007\)](#).

One implication of this impact of religion on attitudes concerns education, which directly promotes development. While the impact of education on development is uncontroversial, as [Hannushek and Woessmann's \(2008\)](#) survey shows, some denominations put more emphasis on education than others. Some denominations even promote literacy as a religious duty. For instance, [Botticini and Eckstein \(2005, 2007, 2012\)](#) recall that male Jews must be able to read the Torah in the Synagogue and teach it to their sons. Similarly, the principle of the priesthood of all believers implies that each Protestant should be able to read the Holy Scriptures.

Most arguments relating specific denominations to education share a common feature: they assume that denominations carry universal messages resulting in a universal incentive to acquire more, or less, education. They therefore imply that the impact of each

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<https://doi.org/10.1016/j.jce.2018.11.001>

Received 28 November 2016; Received in revised form 1 November 2018; Accepted 23 November 2018
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denomination should be the same across countries. We refer to this contention as the “universal message hypothesis.” Yet, religion is also a social activity that could be considered as a club good (Iannaccone, 1992), hence we may assume that the same denomination may prompt its members to adopt different behaviors in different social contexts. A denomination may be dominant in one country and persecuted in others. It may be a majority in some countries and a minority in others. As a result, one may expect the impact of religious denominations to be context-dependent. We refer to this contention as the “context-dependence hypothesis.”

Unfortunately, that contention has received little attention so far. Most existing studies of the impact of religion on education are either country-specific or based on cross-country regressions. This is the case of Chiswick (1988) and Glaeser and Sacerdote (2008) for the United States, Brown and Taylor (2007) for the United Kingdom, or Blunch (2007) for Ghana. By construction, they cannot compare the effect of religious denominations across countries. Some studies take a more macroeconomic standpoint and are based on cross-country comparisons. This is what Guiso et al. (2003), Schaltegger and Torgler (2010), or Arruñada (2010) do, although they focus on attitudes rather than on education. In such regressions, however, one runs the risk of attributing to religion differences that are related to other country-specific traits, such as geography or institutional quality. Most of all, those regressions force the effect of religious denominations to be the same across countries.

In this paper, we specifically allow the correlation with education of religious denominations to differ across countries and factor in the minority status of each denomination. To do so, we follow Guiso et al. (2003) and use the World Values Survey, which provides individual data on educational attainment, religious denomination, and religiosity in a large sample of countries. Unlike Guiso et al. (2003), we take advantage of the two-level structure of the World Values Survey to separately estimate the role of religious denominations in all countries.

Our first key finding is that no single religious denomination has a universal correlation with education. Each denomination correlates at the same time positively and statistically significantly in some countries, and negatively and statistically significantly in other countries, while the correlation is statistically insignificant elsewhere. In other words, we find the role of religious denominations to be country-specific. The finding is robust to controlling for individuals' level of religiosity or not, and to focusing on individuals born in their country of residence. It holds equally for individuals below and over forty years old, and for male and female respondents.

Next, we investigate what determines the positive, negative or neutral correlation with education of an individual's religious denomination in a country. We, more specifically, test the role of the denomination's minority status. We expect that being a minority religion is a key determinant of the impact of a denomination on educational outcomes, although the sign of the effect on education of being a minority is ambiguous a priori. On the one hand, if minority denominations are discriminated against by teachers (Coate and Loury, 1993; Hannah and Linden, 2012), internalize negative stereotypes (Hoff and Pandey, 2006), have a limited access to social capital (Coleman, 1988), or oppose the values of the majority to avoid a loss in self-image (Akerlof and Kranton, 2000, 2002), then they should be more likely to result in lower educational outcomes. On the other hand, if investing in education is a way to cope with discrimination (Brenner and Kiefer, 1981), or if members of minority denominations compensate for their lack of connections with the majority by stronger ties within their community (Coleman, 1988), benefit from positive stereotypes (Shih et al., 2002), or develop an identity that emphasizes academic effort (Akerlof and Kranton, 2002), then minority denominations may be associated with better educational outcomes.

To determine which effect prevails, we regress respondents' educational level on a dummy variable capturing whether their denomination is a minority in their country. We find that denominations that are a minority in a country correlate positively with the level of education of their followers in that country. The finding is robust to considering alternative thresholds to define religious minorities, to dropping observations that correspond to very small minorities, to coding education as a binary variable, and to allowing the correlation of minority status with education to be denomination-specific.

Those results directly contribute to our understanding of the relation between religious denominations and education, by emphasizing that their role is context-dependent and highlighting that it depends on being a minority. These results more broadly contribute to our knowledge of the impact of culture, surveyed in Alesina and Giuliano (2015), and identity, surveyed by Kranton (2016). We show that the same cultural trait or identity characteristic, religious denomination, can play different roles across countries depending on the context.

Our paper is, to our knowledge, the first to jointly analyze the nexus between religion, education, and minority status by exploiting the within- and cross-country dimensions of the World Values Survey. Admittedly, using cross-country analysis comes at a cost, as clean identification is difficult to achieve. Our results should therefore be interpreted as measuring conditional correlations rather than causal effects.

The rest of this paper is organized as follows. In the next section, we survey the literature on the impact of religious denominations on education. In the following section, we perform a country-by-country study of the correlation of individual denominations with education. We observe unexpected differences across countries regarding the effect of religious denominations on education that are hidden by cross-country regressions. In the third section, we investigate the role of belonging to a religious minority. The final section offers a conclusion and suggests apertures for future research.

2. The impact of religious denominations on education

In this section, we first present the case for the universal message hypothesis, then put forward the context-dependence hypothesis.

2.1. The implication of religious denominations for education

Judaism is often associated with an emphasis on education. Brenner and Kiefer (1981) argue that Jews have invested in education instead of more permanent forms of capital because of historical discrimination and the risk of property confiscation. This may have tilted the trade-off between the quantity and the quality of children towards quality (Chiswick, 1988). Botticini and Eckstein (2005, 2007, 2012) stress the obligation for male Jews to read the Torah in the Synagogue and teach it to their sons. Berman (2000) however argues that if the attendance to religious schools (*yeshiva*) signals commitment to the Ultra-Orthodox community it comes at the cost of valuable human capital. Likewise, Hollander et al. (2003) recall that specific interpretations of the Bible, known as *Midrashim*, claim that Jews should engage only in studies of the Torah, and not secular studies.

Bobrick (2001) argues that *Islam* is based on a more oral tradition than Judeo-Christian religions and deemphasizes literacy. The observance of Ramadan may also lower educational outcomes. Oosterbeek and van der Klaauw (2013) find that, in years when Ramadan falls during a course in microeconomics at the University of Amsterdam, one additional week of Ramadan exposure reduces the final grade of Muslim students for the course.

Islam does offer education in religious schools called *madrasas* and *maktabs* (Borooah and Iyer, 2005; Chaudhury and Rubin, 2011). The impact of religious schools on non-religious education is however ambiguous. On the one hand, they may teach religious subjects at the expense of secular subjects. Chaudhary and Rubin (2011) thus observe that a greater prevalence of Muslim religious schools results in a wider Muslim–Hindu literacy gap in India. On the other hand, Muslim schools can provide a complementary educational system (Borooah and Iyer, 2005). In Bangladesh, state-registered and -financed madrasas called *aliyah* teach Bengali, English, mathematics and sciences, and their curricula are nationally defined (Asadullah and Chaudhury, 2010). A similar system exists in Indonesia (Newhouse and Beegle, 2006) and India (Borooah and Iyer, 2005). Chaudhury and Rubin (2016) argue that Muslim rulers in the Indian Princely States could economize on public education, because madrasas and maktabs provided their coreligionists with a private substitute.¹ Students of Muslim religious secondary schools have been found to perform as well as those of secular schools in Indonesia (Newhouse and Beegle, 2006), and Bangladesh (Asadullah et al., 2007). Finally, Sander (2010) observes that Muslims in the US exhibit higher education than Protestants and Catholics.

Protestantism is usually believed to make education a religious duty, because each believer should have an unmediated access to the Holy Scriptures, according to the principle of the priesthood of all believers. Becker and Woessmann (2008, 2009) recall that Martin Luther advocated education for both boys and girls. He made it an obligation for rulers to build schools and urged parents to keep their children in school (Luther, 1524, 1530). Woodberry (2011) moreover argues that Protestant missionaries exported literacy by starting schools and pioneering forms of writing accessible to a larger population.

Interestingly, although his main argument focused on work ethics, Weber (1904/1905) cited his student Offenbacher's (1900) study on secondary school choices in the first chapter of his book, pointing to an over-representation of Protestants in institutions that prepared for technical and commercial occupations (*Realgymnasium* and *Realschulen*), while Catholics preferred a more general type of education (*Gymnasium*). Becker and Woessmann (2009) even argue that the impact of Protestantism on literacy accounts for most of the higher affluence of Protestants in XIXth century Prussia.

Greater literacy rates among Protestants than Catholics have been observed in various countries and times, such as in the US in the mid-XIXth and early XXth century (Go and Lindert, 2010; Goldin and Katz, 2000), Ireland in the late XIXth century (Cipolla, 1969), or Finland (Markussen, 1990). Glaeser and Glendon (1998) find a stronger connection between religiosity and education among Calvinist Protestants than among Catholics, with contemporary US data. Blunch (2007) finds that Protestant denominations are associated with higher levels of education than Catholicism in Ghana.

Some Protestant denominations, however, hold conservative views on the teaching of scientific disciplines, perceived as hostile to their faith and to the conviction that the Bible is inerrant, as Darnell and Sherkat (1997) or Beyerlein (2004) argue. Accordingly, Darnell and Sherkat (1997), Lehrer (1999), or Beyerlein (2004) have observed lower educational levels among conservative Protestant denominations than among other Protestant and non-Protestant denominations, using various surveys in the US.²

Roman Catholicism constitutes the implicit reference group in Weber's (1904/1905) book, and probably in most works devoted to the educational advantage of Protestants.³ It is implicitly assumed that Catholicism does not promote education. Literacy rates were indeed lower among Catholics than Protestants and more generally in Catholic countries. West and Woessmann (2010) observe that even today Catholic students achieve lower scores on PISA tests.

The Catholic Church had nevertheless developed an intellectual tradition on education, going back to the early church fathers. That tradition recognized that faith and reason were compatible, but considered that secular matters were subordinate to the Church's religious teaching. A specificity of the Catholic Church is that it has a central authority that can establish an official doctrine. Catholic authorities took a negative stance on state-provided education in the XIXth century, when the subordination of secular to religious knowledge was put at risk by the development in industrializing countries of mass education systems. West and Woessmann (2010)

¹ A consequence of this possibility is that Hindus had lower literacy rates in Muslim-ruled states, because they had access to neither Muslim nor public schools.

² Conservative Protestants are defined in those studies as three denominations: Fundamentalists, Pentecostal/Charismatic, and Evangelical Christians. Beyerlein (2004) observes that the result that conservative Protestants are less educated is driven by Fundamentalist and Pentecostal Protestants, while Evangelicals exhibit above-standard educational attainments.

³ Weber's (1904/1905) comments of Offenbacher's (1900) figures on the secondary school choices of Catholics, Protestants and Jews, for instance essentially focus on the difference between Protestants and Catholics.

recall that Pope Pius IX condemned the approval by Catholics of an education system unconnected with the Church in his 1864 *Syllabus Errorum* (Pius IX, 1864). The Catholic Church's suspicion of state-provided education was emphasized, at least until the 1929 encyclical *Divini illius magistri* published by Pope Pius XI (McClelland, 1996; Pius XI, 1929), which recalled that secular education was subordinate to religious education and forbade Catholic children to attend public schools. The Church's opposition to state interference in education led to the development of a network of Catholic schools in countries where Catholicism was not the state religion (West and Woessmann, 2010).

The Second Vatican Council's Declaration on Christian Education, entitled *Gravissimum educationis* and promulgated in 1965 by Pope Paul VI (Paul VI, 1965), took a more moderate stance and emphasized the positive roles of education and science while featuring no explicit ban on secular education (McClelland, 1996).

The position of the Roman Catholic Church on education therefore evolved over time, and its overall impact is ambiguous, especially as the Catholic Church developed a network of Catholic schools. Moreover, the official doctrine may be applied and interpreted in different ways in different countries or by different institutions.

The impact on education of other religions has, to our knowledge, received less attention, at least in the economics literature. One may contend that *Buddhism* has a positive impact on education, because it emphasizes the universal access to the teaching of the Buddha. Ling (1984) argues that Buddhism is essentially a matter of teaching. The Buddha is portrayed as a teacher with an aim to address everyone without discrimination. As a result, some Buddhist traditions stress the need to teach the largest number of people to read and write. In both Burma and Thailand monasteries were instrumental in spreading literacy to males, Ling (1984) argues, resulting in high literacy rates. Secular governments even worked with those monasteries to spread education. Sander (2010) reports evidence that Buddhists having lived in the US at least since the age of 16 exhibit higher educational achievements than Protestants and Catholics. Ling (1984) stresses that Buddhism's emphasis on universal access to the teaching of the Buddha stands in stark contrast with *Hinduism*, which envisions parts of the non-Brahman population as unfit for education.

2.2. The role of minority status

The views surveyed above imply that the impact of a religious denomination on education is independent from the context where it occurs. Religion, however, is a social activity. Its impact on individual believers is therefore likely affected by their environment, and the behavior of others. In this section, we argue that being a minority religion is likely a key factor in explaining the link between any denomination and the educational outcome of its followers, although the impact may be either negative or positive. To our knowledge, the role of minority status has rarely been addressed in this context.

Followers of minority religions may acquire less education because they have access to more limited opportunities. Coleman (1988) alludes to this when he introduces the notion of social capital, defines it as the social structures that facilitate certain actions and emphasizes its role for the accumulation of human capital. Children from families that are integrated in a network may thus benefit from their families' network when acquiring human capital. Conversely, children who lack such a network would be disadvantaged. Coleman (1988) thus observes that children from families who have moved more frequently tend to drop out of school more often. Because the networks of families belonging to minority denominations are smaller, one may contend that their children have fewer opportunities to benefit from interactions with the rest of the population than children from the majority, and therefore acquire less human capital.

Certain underprivileged groups have suffered discrimination in educational settings. In their research exploring discrimination in Indian classrooms, Hannah and Linden (2012) report that instructors tend to give lower grades to exams allegedly written by students from a lower caste. This finding may be extended to students whose religious denomination is stigmatized.

Part of the effect of following a minority religion may also be driven by the reaction of discriminated followers. Investing less in education may be a rational response to discrimination, as Coate and Loury (1993) argue, if discriminated-against students face a larger cost of acquiring education. This reaction may be reinforced by behavioral mechanisms. The Pygmalion effect initially documented by Rosenthal and Jacobson (1968) may prompt pupils to conform to their teachers' expectations. Accordingly, pupils belonging to minority religions may suffer from their teachers' lower expectations. They may also erroneously internalize a negative stereotype of inferiority. Hoff and Pandey (2006) observed that simply revealing that pupils belonged to a disadvantaged caste reduced their expectations and their performance in solving mazes. Accordingly, membership in a minority religion may lower the performance of pupils and students.

Akerlof and Kranton's (2000, 2002) theory of identity and its application to education provide a similar rationale. Akerlof and Kranton (2002) assume that students get utility from the pecuniary payoffs of education and from identifying with a group. Students will identify with the group that gives them the largest utility. However, identifying with a group is costly if one does not share the attributes of the group and conform to its norms in terms of effort. The leading group is the one that best conforms to the school's ideal. Students who identify with that group therefore exert effort to reach the school's ideal and achieve academic success. Students who do not share the leading group's attributes, for instance in terms of looks or social network, will however be better off identifying with another group that rejects the school's ideal, emphasizes low effort, and obtains lower academic success. Belonging to a minority religion may be the type of attributes that prevents conforming to the ideal of the leading group, who typically belongs to the majority. Minority students may therefore choose to identify with a group that opposes the school's ideal and lower their academic achievements.

While the mechanisms discussed so far suggest that members of minority religions may acquire less education, they could also result in the opposite conclusion. First, Coleman's (1988) concept of social capital is not only quantitative. Families belonging to minority denominations may compensate their lack of connections with the rest of society by cultivating stronger relationships within the family and a larger commitment to education. Coleman (1988) recalls the case of Asian immigrant families who purchased two

copies of textbooks, so that the mother would be able to help her child. In addition, the minority group may collectively compensate for its minority status by developing stronger community ties, resulting in more social capital, not less, and better educational outcomes. Coleman (1988) relates the superior performance of Catholic schools in the US to the role of the adult community around those schools.

Investing in education may also be a way to compensate for discrimination. A minority facing persecution would have an incentive to invest in education, because human capital, unlike physical capital, cannot be seized and is easily transferred across countries. Brenner and Kiefer (1981) use that line of reasoning to explain that the level of education of Palestinians living in Arab countries after 1948 increased and resembled that of Jews living in the US.

Stereotypes and identities may also encourage the acquisition of human capital, because stereotypes can be positive. If a minority group is for instance perceived as “good at math” or “hard-working”, then teachers may raise their expectations, resulting in a positive Pygmalion effect. Shih et al. (2002) report experimental evidence that positive stereotypes can enhance academic performance of the target group if they are activated subtly.⁴

Akerlof and Kranton's (2000, 2002) model could also imply that a minority group acquires more education. Not being able to identify with the leading group may prompt students to identify with a group that lacks the attributes of the leading group but values academic performance. The 2002 model applied to academic performance considers three groups of students (referred to as the “jocks”, the “nerds”, and the “burnouts”) and two types of attributes, i.e., look and academic ability. Jocks are the leading group, insofar as they get the largest utility from identifying with the group, followed by nerds, and burnouts. The key group attribute is look for jocks and academic ability for nerds, while burnouts have no specific attribute. The model implies that a student whose look does not conform to those of jocks will opt to identify with one of the two other groups. Only if his/her ability is too small will he/she identify with burnouts. With sufficient ability, he/she will identify with nerds. As that group emphasizes academic performance, students identifying with it will increase academic effort, thereby improving their performance. The model therefore implies that if students from a religious minority are prevented from identifying with the leading group, they may increase academic effort. Their minority status would thus result in the acquisition of more human capital.

In a similar way, Iannaccone (1992) and Berman (2000) emphasize that religion is a club good, insofar as the benefit from religious participation depends not only on individuals' own inputs but also on the inputs of others. The impact of a given denomination on behavior in general therefore depends on the size of the religious community or the need to distinguish its members from the rest of society. Berman (2000) accordingly argues that the lengthening of yeshiva attendance among ultra-orthodox Jews in Israel is a rational reaction to the difficulty to signal commitment to the ultra-orthodox community in a predominantly Jewish society. He remarks that ultra-orthodox Jews who live in countries that are not predominantly Jewish stop attending yeshiva earlier than in Israel. Berman's (2000) interpretation of this finding is that sending a signal that one belongs to the ultra-orthodox community is easier in predominantly non-Jewish societies than in a society that is predominantly Jewish. Belonging to the ultra-orthodox denomination has therefore a context-dependent effect on religious education.⁵ It is weaker in countries where Jews are a minority. As attending yeshiva comes at the cost of secular education, one should expect ultra-orthodox Jews to acquire more secular education in countries where Judaism is a minority religion. The same line of reasoning may apply to other denominations elsewhere.

Chaney (2011) suggests a final mechanism associating minority religions and a greater emphasis on education, based on the reaction of religious elites, at least in the case of Islam. He argues that fostering logical methods poses a dilemma to Islamic elites: on the one hand, the art of discussion, *ilm al-kalam*, can attract converts. On the other hand, it may also lead some Muslims to question the authority of religious elites. Choosing between the two therefore depends on the context. Where Islam is still a minority or recently established as a religious option, Muslims leaders may prioritize attracting converts. Conversely, where Islam is an established majority, further securing the position of religious elites is more important. Chaney (2011) claims that the policies of the Ottoman Empire in Anatolia provide evidence of this. He argues that when the Ottoman Empire conquered this formerly Christian region in the XIVth and XVth centuries, religious elites encouraged *ilm al-kalam*, leading to a period of scientific progress. Once the region had become predominantly Muslim, they supported a move away from rational sciences. The stance of the Muslim elites *vis-à-vis* education in the Ottoman Empire therefore depended on whether Islam was a minority in the region or not.

The notion that the impact on education of a denomination depends on its minority status has received little direct empirical attention, but indirect evidence based on country-specific analyses suggests that minority religions obtain better academic achievements. Sander (2010) reports that Jewish, Muslim, and Buddhist residents in the US have higher educational achievements than Protestant and Catholics, while their religions only represent 1.4, 0.5, and 0.5% of the population. By the same token, Chaudhary and Rubin (2011) report that Muslims living in India in districts with more Muslims have lower literacy rates. Borooah and Iyer (2005) offer similar findings. None of these studies, however, compare within-country differences between denominations across several countries at the same time. Our paper attempts to fill this gap by exploiting the homogeneity of the series of country surveys collected in the World Value Survey.

⁴ Positive stereotypes are, however, no unmitigated blessing. Shih et al. (2002) report that positive stereotypes can reduce academic performance if they are blatantly imposed on their targets. See Czopp et al. (2015) for a survey of the effects of positive stereotypes.

⁵ Carvalho and Koyama (2016) complement Berman's (2000) argument by relating the schism between Reform Judaism and Ultra-Orthodox Judaism to the economic context at the time of emancipation. Where emancipation occurred in a sufficiently well-off country, it was optimal for Jewish communities to emphasize money contributions and let their members participate in the rest of society, as Reform Judaism did. In less well-off countries, Jewish communities emphasized time contributions, and imposed new prohibitions to maintain a distinction with outsiders, leading to Ultra-Orthodox Judaism.

3. Data

Our key data was retrieved from the World Values Survey. The survey has been carried in a large number of countries since 1981. It results in a two-level dataset, where the country of individual respondents can be identified.

The World Values Survey covers a lot of issues, and more specifically contains questions about education, religion, and religiosity. Respondents are asked to indicate their level of education. It results in a variable that can assume three values: lower education, middle education, and higher education. An individual is considered to have a lower education if he/she inadequately completed elementary education, completed elementary education, or has not completed secondary school. The individual falls in the middle category if he/she has completed secondary school or has some university-preparatory type or secondary intermediate general qualification. The individual will be considered as having received higher education if he/she has a university degree or at least a higher education with a lower-level tertiary certificate.

The World Values Survey also contains information about respondents' religious denominations. As there are many denominations across the world, which would result in many denominations appearing only in one country, we pooled denominations together following Guiso et al.'s (2003) classification: Catholic, Christian-Protestant, Christian-Orthodox, Buddhist, Muslim, Jewish, and Hindu. Other less frequent religions were pooled under the label "other religions", and we kept a separate category for respondents reporting no religious affiliation.

Table 1 presents statistics of our final sample of 147,049 respondents, distributed across 77 countries and 3 waves of the World Values Survey.⁶ Observations are weighted by the 4-digit weight provided by the World Value Survey to correct country samples to reflect national distributions on key variables. The top of the table reports the worldwide distribution of religious denominations. It appears that more than 40% of the individuals in our sample are affiliated with one of the Christian denominations, i.e. Catholicism, Protestantism and Orthodox Christianity. More than 50% attend religious services once a year or less, while 30% attend services at least once a week. The rest of the table provides for the distribution across education levels and for different demographics.

Table 1
Descriptive statistics: education level, religious affiliation, religiosity and demographics.

Religious Denomination:	
Catholic	0.277
Christian, Protestant	0.158
Christian, Orthodox	0.003
Buddhist	0.204
Muslim	0.132
Jewish	0.024
Hindu	0.028
Other affiliations	0.042
No religious affiliation	0.133
Religiosity:	
Religious Person (yes)	0.699
Goes to Religious Services at least once a Week	0.329
Goes to Religious Services once a Month	0.118
Goes to Religious Services once a year / only on Special Holidays	0.247
Goes to Religious Services less than once a year	0.306
Education:	
Lower (elementary education and below)	0.358
Middle (intermediate & full secondary)	0.421
Higher (lower & upper-level tertiary certificate)	0.221
Demographic Characteristics:	
Age (years)	41.217 (15.971)
Female (yes)	0.508
Married (yes)	0.591
Social Class	3.356
Income (decile)	4.546 (2.383)
Number of Observations	147,049

Notes: Weighted Sample, 77 countries, 3 waves (1994–1999, 1999–2004, 2005–2007). Observations are weighted by the 4-digit weight provided by the World Value Survey to correct country sample to reflect national distributions on key variables. Standard deviations reported in parentheses.

4. The cross-country heterogeneity of the correlation of religious denominations with education

In this section, we investigate the correlation of specific religious denominations with education. Instead of regressing individuals' levels of education on a dummy variable capturing their confession, like standard cross-country studies (Guiso et al., 2003; Schaltegger and Torgler, 2010, or Arruñada, 2010), we allow the correlation of each denomination to be country-specific, and report major differences across countries. We then test the robustness of that finding.

⁶ See Table A1 in the Appendix for details on the sample composition broken down by country.

4.1. Baseline results on the heterogeneity of the correlation between religious denominations and education

To test the hypothesis that the effect of religious denominations may differ across countries, we regress the level of education achieved by individual respondents on their religious denomination and a series of control variables, but instead of pooling all countries together like in the standard literature, we run the following regression for each country j :

$$\text{Prob}(\text{Education}_i = y)_j = f_j(\text{Denomination}_i, C_i, \text{Year}_i) \quad (1)$$

Where:

- Education_i is the ordered variable measuring respondent i 's level of education;
- $y \in$ (lower education, middle education, and higher education);
- Denomination_i is a vector of dummy variables capturing respondent i 's religious denomination (Catholic, Christian-Protestant, Christian-Orthodox, Buddhist, Muslim, Jewish, and Hindu, Other religions), no religious affiliation being the reference category;
- C_i is a vector of control variables controlling for respondent i 's demographics and religiosity: Age, gender, marital status, income (by decile), and social class. We include a dummy variable set to one if respondent i declares to be a religious person, and three dummy variables controlling for respondent i 's church attendance: one capturing whether the respondent goes to church once a week, another if he/she goes to church once a month, and a third if he/she goes to church once a year;
- Year_i is a dummy variable controlling for the survey year in which the respondent filled in the questionnaire.

We control for religiosity to distinguish its role from that of denominations. In this way, we distinguish the intensity of religious practice, which potentially has an impact on education (Mocan and Pogorelova, 2014), from the affiliation to a given denomination.

As the dependent variable is an ordered discrete variable, we estimate the relationship between education and religious denomination using an ordered logit model. As we considered one country at a time, we ran 72 regressions. Reporting all those regressions would be tedious and impossible to interpret. What really matters, is the distribution of coefficients across countries for each denomination. We therefore report coefficients according to their sign and significance.⁷ Those coefficients must be interpreted as capturing the conditional correlation between education and a given denomination in a country, as opposed to the global correlation estimated in the rest of the literature.⁸ When interpreting this first-time comparison of country level correlations, one must bear in mind that they are correlations. One must therefore remain agnostic as to their interpretation in terms of endogeneity.

Fig. 1 summarizes the distribution of the coefficients of religious denominations resulting from the estimation of Eq. (1), where the level of education is explained by the respondent's religious denomination, and individual demographic characteristics, namely age, gender, marital status, income, social class, and religiosity when significance is set at the ten-percent threshold.⁹ A simple glance at the figure reveals that, compared to declaring no religious affiliation, each religious denomination correlates significantly negatively with education in some countries, and significantly positively in some countries, while the correlation is insignificant in others.

To be more specific, Fig. 1 shows that Catholicism correlates significantly negatively with education in 18.1% of the countries in our sample where there are Catholics, and significantly positively in 13.9% of those countries. Being Protestant correlates significantly negatively in 23.2% of countries, and significantly positively in 14.5% of countries. This finding is at odds with the view that Protestant ethics should give an incentive to acquire more education everywhere. Being an Orthodox Christian is associated with a lower level of education in 24.5% of countries and a higher level of education in 17% of countries. Buddhism correlates negatively with education in 20.9% of countries and positively in 23.3% of countries. Being Muslim is associated with a lower level of education in 30% of countries, but higher level in 13.3% of countries. Being Jewish is associated with lower education in 15.2% of countries but a higher education in 17.4% of countries. Again, this is at odds with the view that Judaism provides a universal incentive to acquire education. Being Hindu is associated with a lower level of education in 14.8% of countries but a higher level in 29.6% of countries. Finally, the other denominations category also splits almost evenly between a negative and a positive correlation, which is somewhat unsurprising, as this category is by definition heterogeneous.

Table 2 complements Fig. 1 by considering the three standard levels of statistical significance. The top panel of the table considers statistical significance at the one-percent level, the middle panel statistical significance at the five-percent level, and the bottom panel statistical significance at the ten-percent level. The first three columns report the share of coefficients corresponding to each sign, and the fourth column the number of regressions run for each denomination. This number varies across denominations, because a denomination has to be present in a country for the regression to be included as a regressor in that country. For instance, the difference between being Hindu and declaring no religion could not be assessed in Algeria, simply because there were no respondents identifying as Hindu in that country.

A cursory look at Table 2 reveals that no cell in the table features a zero. This confirms the finding of Fig. 1 that each religious denomination can have a significantly negative, significantly positive, or insignificant effect depending on the country under consideration. Moreover, the finding holds regardless of the level of significance. It even holds in the top panel of Table 2, where the level of significance is set at the one-percent level, and the number of insignificant coefficients is therefore mechanically larger than in the other two panels.

⁷ As the estimated model is a logit model, we cannot interpret their magnitude.

⁸ In the appendix, Table A2 showcases the results of a cross-country regression based on the World Value Survey and aligns with previous works on similar topics (e.g., Guiso et al., 2003). One must however bear in mind that the regression in that table is likely mis-specified, as it assumes that denominations have the same effect in all countries, whereas we precisely find the opposite.

⁹ Table A3 in the appendix exhaustively reports the specific sign and significance of the coefficient of each denomination in each country.

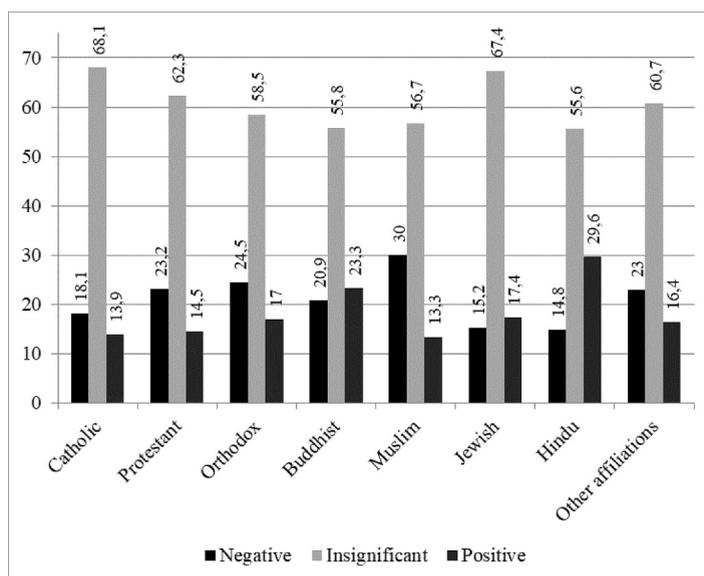


Fig. 1. The distribution of estimates across countries controlling for religiosity (10% significance).

Table 2

The distribution of estimates across countries.

Religious Affiliation	Significant and negative at (Row %) 2.1.	Not significant at (Row %) 2.2	Significant and positive at (Row %) 2.3	Number of countries 2.4
1% level				
Catholic	7.0	88.7	4.2	71
Protestant	14.7	79.4	5.9	68
Christian Orthodox	19.2	69.2	11.5	52
Buddhist	14.3	66.7	19.0	42
Muslim	16.9	72.9	10.2	59
Jewish	11.1	77.8	11.1	45
Hindu	15.4	57.7	26.9	26
Other Affiliations	10.0	76.7	13.3	60
5% level				
Catholic	11.3	77.5	11.3	71
Protestant	22.1	66.2	11.8	68
Christian Orthodox	21.2	63.5	15.4	52
Buddhist	19.0	59.5	21.4	42
Muslim	23.7	66.1	10.2	59
Jewish	13.3	71.1	15.6	45
Hindu	15.4	53.8	30.8	26
Other Affiliations	16.7	66.7	16.7	60
10% level				
Catholic	18.3	67.6	14.1	71
Protestant	23.5	61.8	14.7	68
Christian Orthodox	25.0	57.7	17.3	52
Buddhist	19.0	57.1	23.8	42
Muslim	30.5	55.9	13.6	59
Jewish	13.3	68.9	17.8	45
Hindu	15.4	53.8	30.8	26
Other affiliations	23.3	60.0	16.7	60

Notes: This table shows the distribution of country-denomination-specific marginal effects, $Effect_{jk}$ according to their sign and significance. They are the result of estimating Eq. (2) in the 72 countries of the sample using respondents declaring no religion as the reference category. The top panel of the table considers statistical significance at the one-percent level, the middle panel statistical significance at the five-percent level, and the bottom panel statistical significance at the ten-percent level. The first three columns report the share of coefficients corresponding to each sign, and the fourth column reports the number of regressions that include the denomination reported in the row.

4.2. Robustness checks

In this section we apply different robustness checks to test the validity of our main finding that the correlations of religious denominations with education are heterogeneous across countries. In this regard, we also try to confirm signs and significances across denominations and countries.

Table 3 therefore reports not only the distribution of coefficients for various alternative specifications, but also the percentage of coefficients that are categorized in the same way as with the baseline specification. To facilitate comparisons, the first column of the table, Column 3.1, reports the distribution of coefficients obtained with the baseline specification. All the results reported in the table use the ten-percent level of significance.

Table 3

Distribution of estimates across countries by specification.

	Baseline	No religiosity	No income	Age ≤ 40	Age > 40	Female	Male	Natives only (wave 3)	Raised religiously (wave 3)
	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9
Catholic									
% Significant and negative	18.3	19.4	19.4	6.9	20.8	6.9	20.8	17.5	18.2
% Significant and positive	14.1	16.7	12.5	18.1	12.5	20.8	16.7	2.5	4.5
% Not significant	67.6	63.9	68.1	75	66.7	72.2	62.5	80	77.3
Identical to benchmark at:		91.0%	92.3%	70.5%	74.4%	70.5%	71.8%	87.2%	96.2%
Protestant									
% Significant and negative	23.5	27.5	23.2	14.5	26.1	26.1	24.6	15	25
% Significant and positive	14.7	14.5	11.6	15.9	17.4	26.1	13	7.5	6.8
% Not significant	61.8	58	65.2	69.6	56.5	47.8	62.3	77.5	68.2
Identical to benchmark at:		93.6%	94.9%	76.9%	65.4%	71.8%	75.6%	91.0%	93.6%
Orthodox									
% Significant and negative	25	32.1	30.2	20.8	30.2	15.1	22.6	10.3	18.8
% Significant and positive	17.3	17	13.2	20.8	24.5	24.5	24.5	20.7	25
% Not significant	57.7	50.9	56.6	58.5	45.3	60.4	52.8	69	56.3
Identical to benchmark at:		94.9%	93.6%	84.6%	76.9%	83.3%	83.3%	92.3%	97.4%
Buddhist									
% Significant and negative	19	20.9	18.6	16.3	16.3	20.9	18.6	8	11.1
% Significant and positive	23.8	25.6	25.6	34.9	58.1	44.2	46.5	68	66.7
% Not significant	57.1	53.5	55.8	48.8	25.6	34.9	34.9	24	22.2
Identical to benchmark at:		98.7%	97.4%	80.8%	74.4%	76.9%	82.1%	94.9%	98.7%
Muslim									
% Significant and negative	30.5	33.3	28.3	21.7	36.7	31.7	30	20.7	22.6
% Significant and positive	13.6	15	13.3	23.3	26.7	26.7	21.7	34.5	9.7
% Not significant	55.9	51.7	58.3	55	36.7	41.7	48.3	44.8	67.7
Identical to benchmark at:		96.2%	96.2%	73.1%	75.6%	66.7%	80.8%	85.9%	97.4%
Jewish									
% Significant and negative	13.3	13	15.2	13	23.9	28.3	17.4	10	8.8
% Significant and positive	17.8	19.6	17.4	43.5	23.9	30.4	43.5	56.7	58.8
% Not significant	68.9	67.4	67.4	43.5	52.2	41.3	39.1	33.3	32.4
Identical to benchmark at:		97.4%	97.4%	75.6%	79.5%	82.1%	71.8%	92.3%	97.4%
Hindu									
% Significant and negative	15.4	14.8	11.1	22.2	7.4	14.8	11.1	6.7	12.5
% Significant and positive	30.8	33.3	29.6	40.7	59.3	48.1	51.9	53.3	56.3
% Not significant	53.8	51.9	59.3	37	33.3	37	37	40	31.3
Identical to benchmark at:		98.7%	97.4%	91.0%	88.5%	88.5%	92.3%	94.9%	96.2%
Other Affiliations									
% Significant and negative	23.3	23	24.6	16.4	23	19.7	14.8	10	12.1
% Significant and positive	16.7	16.4	16.4	24.6	23	27.9	19.7	16.7	21.2
% Not significant	60	60.7	59	59	54.1	52.5	65.6	73.3	66.7
Identical to benchmark at:		97.4%	96.2%	80.8%	76.9%	74.4%	82.1%	94.9%	94.9%
No Religious Affiliation (Ref.)									

Notes: The table reports the distribution of country-denomination-specific marginal effects, $Effect_{jk}$, according to their sign and significance. These marginal effects are the results of running Eq. (2) for various alternative specifications. To facilitate comparisons, Column 4.1 reports the distribution of coefficients obtained with the baseline specification. Also, the table presents for each specification and denomination the percentage of coefficients that are categorized in the same way as the baseline specification.

One may argue that, by controlling for religiosity, the baseline specification may strip denominations of their effect, because it operates through religiosity. To make sure that it is not the case, [Table 3](#) reports the results of estimating the baseline specification, but without controlling for religiosity. The outcome of this robustness check is reported in the second column of the table. Again, each denomination can have either a significantly negative impact, an insignificant impact, or a significantly positive impact in at least some countries of the sample. Moreover, for all religious denominations, the share of coefficients that are categorized in the same way exceeds 91% of countries.

One may be concerned that income is endogenous to education, and that it correlates with both the level of education and the religious denomination of an individual. To make sure that our results are not driven by the inclusion of income in the set of independent variables, we estimate another specification that does not control for income. The third column of [Table 3](#) reports the distribution of coefficients when income is not controlled for in [Eq. \(1\)](#). It again confirms our key result that no denomination has the same marginal effect across countries. Furthermore, the sign and significance of coefficients is identical to those obtained with the benchmark specification in 92% of countries or more for all denominations.

As the role of religion may have changed over time, we also distinguish individuals by age. Hence, we run all the country-denomination regressions separately for respondents below and above the age of 40. The outcomes of the two series of regressions are reported in Columns 3.4 and 3.5 of [Table 3](#). The distribution of coefficients in the two columns is similar. Additionally, in both columns the distribution of coefficients remains similar to the benchmark distribution.

Because some religions ascribe different roles to men and women, our results may in fact capture a gender gap, as [Norton and Tomal \(2009\)](#) have observed.¹⁰ To check whether it is the case, we consider two subsamples made up of only female or male respondents in Columns 3.6 and 3.7 of [Table 3](#). Again, the distribution of coefficients is similar across the two columns and, more importantly, identical to the benchmark categorization in 66.7 to 92.3% of all countries.

Because in some countries, followers of a particular denomination may have migrated in the country, our results may capture the effect of migration rather than denominations. The third wave of the World Values Survey allows distinguishing respondents who are not native of their country of residence. We therefore dropped non-natives from the sample to run the benchmark specification only on natives. Although the size of the sample substantially shrinks and the period of observation is different, Column 3.8 of [Table 3](#) reports that a majority of coefficients are identical to those obtained using the benchmark specification.

Finally, higher education may result in, or be the outcome of, religious conversions. To make sure that our results are not driven by the impact of education on the choice of a religious denomination, we focus on the subset of respondents who were raised religiously. The information is only available in the third wave of the World Values Survey, which is why we run our regressions on that specific wave. The results are reported in the last column of [Table 3](#). They are very close to those of the benchmark. Coefficients fall in the same category as for the benchmark regression in at least 93.6% of countries for each denomination.

The robustness tests run above confirm that no religious denomination has a homogeneous effect on education globally. In other words, the effect of religious denominations is country-specific. Admittedly, some denominations, e.g., Islam, exhibit a negative effect more frequently, and others, like Hinduism, exhibit a more frequent positive effect. However, Islam is associated with more education at the ten-percent level of significance in 13.6% of countries in our sample, and Hinduism is associated with less education in 14.8% of countries ([Table 2](#), bottom panel).

If the correlation with education of religious denominations is not universal but country-specific, the key question then becomes to determine what may drive the correlation to be negative in one country, positive in another, and plainly insignificant elsewhere. The next section turns to this question.

5. Minority status as a source of heterogeneity

[Section 2.2](#)'s emphasizes that belonging to a religious minority likely shapes the effect of religious denominations on education. In this section, we therefore investigate how belonging to a religious minority correlates with education and may contribute to explaining the cross-country heterogeneity observed in the previous section. With this goal in mind, the next sub-section reports the baseline results of regressions estimating the impact of religious minorities, the following sub-section provides a series of robustness checks, and the final sub-section looks at the interaction of minority status with each denomination.

5.1. Baseline results

To investigate the role of minority status may have on education, we estimate the following model:

$$\text{Prob}(\text{Education}_i = \gamma) = f(\text{Minority}_i, \text{Denomination}_i, C_i, \text{Country}_i, \text{Year}_i) \quad (2)$$

Where Minority_i is a dummy variable that is set to one whenever respondent i 's religious denomination is a minority in his/her country. Denomination_i is a vector of dummy variables capturing respondent i 's religious denomination. Country_i is a country fixed effect. All the other variables are defined as in [Eq. \(1\)](#).

¹⁰ They observe that female educational attainment is lower in countries where the proportion of ethnoreligions, Hindu, and Muslim adherents are larger. In the extreme case of radical Islam, [Noury and Speciale \(2016\)](#) report that exposure to Taliban occupation while of school age reduces a woman's probability to complete basic education.

Table 4
Minority religions in our sample.

	Number of countries where the denomination is present	Number of countries where the denomination is a minority	Percentage of countries where the denomination is a minority
Catholic	72	26	36.11
Protestant	69	32	46.38
Muslim	60	31	51.67
Orthodox	53	34	64.15
Jewish	46	46	100
Buddhist	43	36	83.72
Hindu	27	24	88.89
Other Affiliations	61	47	77.04
No Religious Affiliation	74	28	38.83

Notes: A denomination is considered as a minority in a country if its share of followers in the country is smaller or equal to five-percent according to the World Values Survey.

Our key explanatory variable of interest is the minority status of respondent i 's denomination in his/her country. The variable captures the difference in terms of education between respondents belonging to a religious minority and other respondents. It implies that we allow the same denomination to play a different role in countries where it is a minority and in countries where it is not.

As there is no standard threshold to define a minority religion, we define a denomination as a minority if the share of its followers in a country's respondents is smaller than or equal to five-percent in our sample according to the World Values Survey.¹¹ Table 4 reports the number of countries in our sample where each denomination is present, and the number and shares of countries where each denomination is a minority. While the frequency varies across denominations, each denomination is a minority in some countries. Judaism proves exceptional as it is a minority in every country in our sample.

We estimate Eq. (2) as an ordered logit model since the dependent variable is ordered. Table 5 reports the different estimations based on that equation. We first only control for the minority status of the respondent's religious denomination, then control for all denominations at the same time, using respondents who declare no religion as the baseline category. All regressions control for respondents' individual characteristics as well as country- and year- fixed effects.¹²

Table 5 separately reports marginal effects for each education category.¹³ The first three columns of Table 5 report the result of estimating the most parsimonious specification of Eq. (2), where we only control for minority status and not for the denomination of the individual. Conversely, the last three columns of the table report the result of the estimation when all denominations are controlled for together, using respondents declaring no religion as the reference category.

The result of the two regressions concur. Minority status is associated with a lower probability to belong to the lower education category both in Column 5.1 and 5.4. Conversely, belonging to a religious minority is associated with a higher probability to belong to the middle and higher education categories. In a nutshell, members of minority denominations are more likely than other respondents to have completed secondary education or acquired some tertiary education, everything else equal.

Moreover, the marginal effect of belonging to a minority denomination is quantitatively stable across specifications. The marginal effect of the minority dummy on the probability to belong to the lower education category revolves around minus three percentage points (Column 5.1 and 5.4). The marginal effect of belonging to a minority increases the probability to belong to the middle education category by a little less than one percentage point (Column 5.2 and 5.5). Finally, belonging to a minority is associated with a probability to belong to the higher education category that is about two percentage points higher (Column 5.3 and 5.6).

Table 5 also allows us to observe the correlation with education of religious denominations independent of their minority status. As the marginal effects are computed relative to respondents who declare no religion status, they must be interpreted as effects on the probability to acquire more or less education than respondents who report no religion. The striking result is that all denominations have similar marginal effects qualitatively. Specifically, they are all associated with an increased probability to belong to the first category and lower probabilities to belong to the middle and higher categories. Those effects are statistically significant beyond the five-percent level, except for Christian orthodoxy and Judaism for which they cannot be distinguished from zero. Those results must be interpreted as the effect of denominations net of the effect of minority status, because we control for the minority status of denominations in each country in all regressions. If the effect of a religion on education is driven by its minority status, then that effect is captured by the minority dummy.

All in all, the results of this sub-section show that the followers of a religion that is a minority in a country tend to acquire more education.

¹¹ We test the robustness of our results to the threshold used to define a minority in the robustness check subsection. As an extra robustness check, we also used the denomination shares reported in the dataset maintained by the Association for Religious Data Archive, which left our results unaffected.

¹² They include a vector of control variables controlling for respondent i 's demographics and religiosity: Age, gender, marital status, income (by decile), and social class. It also includes a dummy variable set to one if the respondent declares to be a religious person, and three dummy variables controlling for the respondent's church attendance: one capturing whether he/she goes to church once a week, another if he/she goes to church once a month, and a third if he/she goes to church one a year.

¹³ We refer to marginal effects here for clarity and to be in line with standard econometric practice but must stress that those marginal effects must be interpreted as conditional correlations. We must therefore remain agnostic as to the effect of endogeneity.

Table 5

Education level, minority status and religious affiliation: Ordered logit model (marginal effects).

Education	5.1 Lower	5.2 Middle	5.3 Higher	5.4 Lower	5.5 Middle	5.6 Higher
Minority	−0.035*** (0.010)	0.008*** (0.002)	0.027*** (0.008)	−0.026** (0.011)	0.006** (0.003)	0.020** (0.009)
Catholic				0.024** (0.011)	−0.004** (0.002)	−0.020** (0.010)
Protestant				0.033** (0.015)	−0.005** (0.002)	−0.027** (0.013)
Orthodox				0.021* (0.013)	−0.003* (0.002)	−0.018 (0.011)
Buddhist				0.037** (0.016)	−0.006** (0.003)	−0.031** (0.013)
Muslim				0.125*** (0.020)	−0.034*** (0.006)	−0.091*** (0.014)
Jewish				−0.019 (0.022)	0.002 (0.002)	0.017 (0.020)
Hindu				0.064*** (0.016)	−0.013*** (0.004)	−0.051*** (0.013)
Other Affiliations				0.027** (0.013)	−0.004* (0.002)	−0.023** (0.011)
LR Chi-Square		33,609.052			33,771	
Pseudo R squared		0.172			0.173	
Observations		143,826			143,826	

Notes:* $p < 0.10$ ** $p < 0.05$

*** $p < 0.01$. A denomination is considered as a minority in a country if its share of followers in the country is smaller or equal to five-percent according to the World Values Survey. The reported coefficients are marginal effects. Each regression controls for country fixed effects and year fixed effects. Standard errors clustered at the country level in parentheses. Observations are weighted by the 4-digit weight provided by the World Value Survey to correct country sample and reflect national distributions on key variables.

5.2. Robustness checks

As there exists no standard threshold to define a minority religion, we estimate Eq. (2) using alternative definitions of the minority dummy variable. Specifically, we first replace the five-percent threshold to define minorities by a six-percent threshold. We then raise the threshold up to ten percent by increments of one percentage point. Table 6 reports the results of the baseline regressions with the alternative minority thresholds. We replicate the two regressions reported in Table 5, and each panel of Table 6 corresponds to an alternative definition of the minority dummy variable. To save on space, we only report the marginal effects of the minority dummy variables.

The minority dummy variables all bear the same signs across Table 6, regardless of the threshold used to define minority status, and those signs correspond to the signs that appeared in Table 5. Specifically, the marginal effect of the minority dummy is negative in the lower education category and positive in the other two categories. Moreover, the marginal effects of the minority dummies are in general statistically significant at conventional levels for at least one category with each definition of minority status, thus reinforcing the conclusion of the benchmark results presented in Table 5.

One may observe that the absolute magnitudes of the marginal effects of the minority dummies tend to decrease as one considers larger minority thresholds, hence as one goes down the panels of Table 6. Moreover, the marginal effect is statistically insignificant when minorities are defined according to the ten-percent threshold and religious denominations are controlled for. By the same token, the t-statistics are smaller when the minority dummies are defined according to larger thresholds. Those findings suggest that the effect that we observe pertains to minorities that do not exceed nine percent of the population and is best identified for minorities that tally about five percent of the population.

Another factor that could diminish the relevance of our benchmark results relates to the cases of very small religious minorities. The number of followers of a given denomination may not exceed a few individuals in some countries. Despite this reality, our regressions treat such a denomination like other minorities amounting to several percent of the population. To make sure that those very small minorities do not drive our results, we dropped individual observations belonging to very small minorities in our sample. First, we dropped all observations belonging to a minority amounting to less than one percent of the population and estimated each specification of Table 5 on the reduced sample. The result is reported in the top panel of Table 7. It shows that the results are unaffected, either qualitatively or quantitatively. We repeated the operation dropping individuals belonging to minorities representing between one and two percent of the population.¹⁴ The bottom panel of Table 7 again shows the results were only

¹⁴ We also simply dropped observations belonging to minorities amounting to less than two percent of the population. Because the number of

Table 6

Education level, minority status and religious affiliation (ordered logit): Alternative minority thresholds (marginal effects).

Education	6.1 Lower	6.2 Middle	6.3 Higher	6.4 Lower	6.5 Middle	6.6 Higher
Minority (< 5%, baseline))	−0.0319*** (0.010)	0.00705*** (0.002)	0.0248*** (0.008)	−0.025** (0.011)	0.006** (0.002)	0.020** (0.008)
LR Chi-Square		33,609			33,771	
Pseudo R squared		0.172			0.173	
Observations		143,826			143,826	
Minority (< 6%)	−0.032*** (0.009)	0.007*** (0.002)	0.025*** (0.007)	−0.025*** (0.009)	0.006*** (0.002)	0.020*** (0.007)
LR Chi-Square		33,617			33,781	
Pseudo R squared		0.172			0.173	
Observations		143,826			143,826	
Minority (< 7%)	−0.025*** (0.009)	0.006*** (0.002)	0.020*** (0.007)	−0.017* (0.010)	0.004* (0.002)	0.013* (0.007)
LR Chi-Square		33,591			33,765	
Pseudo R squared		0.172			0.173	
Observations		143,826			143,826	
Minority (< 8%)	−0.023*** (0.009)	0.005*** (0.002)	0.018*** (0.007)	−0.016* (0.009)	0.003* (0.002)	0.012* (0.007)
LR Chi-Square		33,587			33,762	
Pseudo R squared		0.172			0.173	
Observations		143,826			143,826	
Minority (< 9%)	−0.025*** (0.009)	0.006*** (0.002)	0.020*** (0.007)	−0.016* (0.010)	0.003 (0.002)	0.012* (0.007)
LR Chi-Square		33,585			33,759	
Pseudo R squared		0.172			0.173	
Observations		143,826			143,826	
Minority (< 10%)	−0.021** (0.009)	0.005** (0.002)	0.016** (0.007)	−0.010 (0.010)	0.002 (0.002)	0.008 (0.008)
LR Chi-Square		33,609			33,759	
Pseudo R squared		0.172			0.173	
Observations		143,826			143,826	
Controlling for denominations	no	no	no	yes	yes	yes

Notes:* $p < 0.10$ ** $p < 0.05$

*** $p < 0.01$. A denomination is considered as a minority in a country if its share of followers in the country is smaller or equal to the number between brackets in the first column of the table according to the World Values Survey. The reported coefficients are marginal effects. Each regression controls for all religious denominations, for country fixed effects and year fixed effects. Standard errors clustered at the country level in parentheses. Observations are weighted by the 4-digit weight provided by the World Value Survey to correct country sample and reflect national distributions on key variables.

marginally affected. Our baseline results were not driven by outlying groups with very small religious shares.

Another concern related to the fact that the variation in average education across countries may correlate with both economic development and the dominant religion, resulting in a spurious correlation. This concern should be alleviated by the fact that cross-country differences in development are captured by country-fixed effects in our baseline specifications. However, to make sure that our results are not driven by cross-country differences in education, we use an alternative definition of individual attainments. Specifically, we code the level of education of each respondent as below or above the mean level of education in his/her country in the wave where he/she was interviewed.¹⁵ The model is then estimated with a linear probability model. Because the binary coding of education results in a loss of information and merges categories across which previous regressions showed an effect, this robustness

(footnote continued)

observations belonging to a minority was too small, the coefficient of the minority dummy turned out statistically insignificant in the specification controlling for all denominations at the same time, although its sign and magnitude were little affected. To save on space, we do not report those tests here.

¹⁵ We thank an anonymous referee for this suggestion.

Table 7

Education level, minority status and religious affiliation (ordered logit): dropping small minorities.

	7.1 Lower	7.2 Middle	7.3 Higher	7.4 Lower	7.5 Middle	7.6 Higher
Dropping observations belonging to a minority < 1%						
Minority	-0.032** (0.013)	0.007** (0.003)	0.025** (0.010)	-0.022*** (0.007)	0.005*** (0.002)	0.017*** (0.005)
LR Chi-Square		33,300.095			33,455.971	
Pseudo R squared		0.172			0.173	
Observations		142,636			142,636	
Dropping observations belonging to a minority ∈ [1%, 2%]						
Minority	-0.033*** (0.011)	0.008*** (0.002)	0.025*** (0.008)	-0.022 (0.013)	0.004* (0.003)	0.015* (0.009)
LR Chi-Square		33,390.134			33,552.689	
Pseudo R squared		0.171			0.173	
Observations		142,923			142,923	
Controlling for denominations	no	no	no	yes	yes	yes

Notes:* $p < 0.10$ ** $p < 0.05$

*** $p < 0.01$. A denomination is considered as a minority in a country if its share of followers in the country is smaller or equal to five-percent according to the World Values Survey. The reported coefficients are marginal effects. Standard errors clustered at the country level in parentheses. Observations are weighted by the 4-digit weight provided by the World Value Survey to correct country sample to reflect national distributions on key variables.

Table 8

Education level, minority and religious affiliation: interaction of religious affiliation with minority status (LPM): binary coding of education.

	8.1	8.2	8.3a	8.3b
Minority	0.031*** (0.007)	0.024*** (0.008)	-0.032 (0.030)	
Catholic		-0.030*** (0.006)	-0.036** (0.016)	0.052 (0.033)
Protestant		-0.035*** (0.007)	-0.039* (0.020)	0.010 (0.039)
Orthodox		-0.022*** (0.008)	-0.021 (0.020)	-0.065* (0.037)
Buddhist		-0.060*** (0.012)	-0.063*** (0.019)	0.050 (0.054)
Muslim		-0.141*** (0.008)	-0.157*** (0.022)	0.156*** (0.044)
Jewish		-0.023 (0.029)	0.028 (0.038)	-
Hindu		-0.081*** (0.015)	-0.107*** (0.023)	0.172*** (0.070)
Other affiliations		-0.039*** (0.009)	-0.040* (0.023)	0.012 (0.027)
Minority* Catholic			0.084* (0.044)	
Minority* Protestant			0.042 (0.053)	
Minority* Orthodox			-0.033 (0.048)	
Minority* Buddhist			0.082 (0.057)	
Minority* Muslim			0.188*** (0.060)	
Minority* Hindu			0.204*** (0.075)	
Minority* Other Affiliation			0.044 (0.040)	
Observations	143,826	143,826	143,826	
R squared	0.236	0.238	0.239	

Notes:* $p < 0.10$ ** $p < 0.05$

*** $p < 0.01$. A denomination is considered as a minority in a country if its share of followers in the country is smaller or equal to five-percent according to the World Values Survey. Standard errors clustered at the country level in parentheses. Observations are weighted by the 4-digit weight provided by the World Value Survey to correct country sample to reflect national distributions on key variables.

check is particularly demanding. The results of those estimations are reported in [Table 8](#).

Like [Table 5](#), [Table 8](#) first only controls for the minority dummy then for all denominations together. The marginal effect of the minority dummy is positive and statistically significant in both specifications (Columns 8.1 and 8.2). This means that our baseline result should be considered as robust to how education is coded.

5.3. Are all religious minorities alike?

The baseline results show that members of religious minorities in general tend to acquire more education, regardless of their denomination. However, different denominations may behave differently when they are a minority in a given country. As an extension to the main results, we let the correlation of minority status differ across denominations. To do so, we complement the regressions reported in [Table 8](#) by regressions where the minority dummy variable is interacted with the dummy coding each denomination.¹⁶ The outcome of those regressions is reported in the third column of [Table 8](#).

Because Column 8.3a of [Table 8](#) reports raw regression coefficients, the implied marginal effect of being a minority when that minority corresponds to a specific denomination must be computed by combining the coefficient of the denomination with the coefficient of the interaction terms. The marginal effects are reported in Column 8.3b.

With one exception, the marginal effect of being a religious minority is either positive and statistically significant or statistically insignificant. Specifically, belonging to a minority statistically increases the probability to have above average education when that minority is either Muslim or Hindu. When the minority is Catholic, the effect is positive but marginally fails to be significant at the ten-percent level. The effect is positive but statistically insignificant at standard levels of significance when the minority is Protestant or belongs to another affiliation. This suggests that the positive correlation of religious minorities with education depends little on the denomination of the minority. The only exception is Orthodox Christian minorities, for which we observe a negative marginal effect.¹⁷

An interesting finding is that the marginal effect of some denominations changes sign when they are not a minority and when they are. The raw coefficient of a denomination in Column 8.3a corresponds to its marginal effect when it is not a minority. Accordingly, the marginal effect of being Muslim or Hindu is statistically significantly negative when the denomination is not a minority but turns statistically significantly positive when it is. A similar finding appears for Catholics, Protestants, Buddhists, and other affiliations. Their effect on education is statistically significantly negative when they are not a minority but turns positive, though statistically insignificant, when they are a minority. This finding again underlines the role of minority status in shaping the correlation of a religious denomination with education.

6. Concluding remarks

We have used the World Values Surveys to identify how major religious denominations and minority status correlate with the level of education of individuals across a large number of countries. Two main results emerge from our analysis.

First, no denomination correlates with the education of its members in a uniform way across countries. In other words, we find that each denomination correlates positively with education in some countries, negatively in other countries, and does not correlate with education in others. In short, no denomination has a universal association with education.

Secondly, we provide robust evidence that denominations that are a minority in a country have a positive effect on the level of education of their followers in that country. We therefore find support for the context-dependence hypothesis. This important new finding echoes theories that emphasize the role of religions as a club good. It also echoes theories which suggest that members of minority religions must invest in education to compensate for their minority status. That being said, the reality of our dataset demands that we interpret our findings as conditional correlations and remain agnostic about the direction of causality. Establishing the extent to which our results reflect a causal impact should consequently feature high on the research agenda.

A related point is that we have defined minorities at the country level because our dataset does not allow us to work at a more disaggregated level. We can therefore not determine whether minority status operates in a similar way at the regional or local level. Further research comparing various levels of disaggregation may thus be useful.

As a final note, we recognize that our results might mask important nuances. In our attempt to include what some consider major religions, we blend seemingly similar religions into one category. For instance, Calvinists and Lutherans are lumped together under the label Protestantism, and Shia and Sunni Muslims constitute the Islam category more generally. While we cannot fully account for these nuances, this caveat only applies to a subset of religious denominations. For instance, it does not apply to Catholicism, that is more homogenous. We leave this question to future researchers interested in the intricate relationship between religion, education, and minority status.

¹⁶ We could not interact the Jewish dummy with the minority dummy, as Judaism is a minority in all countries in our sample, preventing the estimation of the model.

¹⁷ A tentative explanation could be related to the specificities of immigration out of former socialist countries in Western Europe and North America. We leave this point for future research.

Acknowledgments

We thank the editors, three anonymous referees, Sarah Cramsey, François Facchini, Raphaël Franck, Victor Ginsburgh, Erich Gundlach, Jerg Gutmann, Timur Kuran, Niklas Potrafke, Petros Sekeris, participants of the European Public Choice Society conference in Cambridge, participants of the European Workshop in Political Macroeconomics, in Mainz, participants of the Association for the Study of Religion, Economics, and Culture (ASREC) conference in Boston (MA), and participants of the Silvaplana workshop on Political Economy, for helpful comments and suggestions, as well as participants in seminars at Tulane University, the University of Hamburg, the University of Portsmouth, the University of Liège, and Université libre de Bruxelles. The authors claim the sole responsibility for remaining errors and approximations.

Appendix A: Additional Tables

Table A1

Sample composition.

Europe		Africa		Asia / Oceania		Americas	
Country	Obs.	Country	Obs.	Country	Obs.	Country	Obs.
Albania ^{a,b}	1,811	Algeria ^b	378	Armenia ^a	1622	Argentina ^{a,b}	1929
Andorra ^c	878	Burkina Faso ^c	1,087	Australia ^{a,c}	2780	Brazil ^{a,c}	2360
Belarus ^a	1409	Egypt ^{b,c}	5,628	Azerbaijan ^a	1545	Canada ^{b,c}	2919
Bosnia and Herzegovina ^{a,b}	1847	Ethiopia ^c	1,337	Bangladesh ^{a,b}	2680	Chile ^{a,b,c}	2580
Bulgaria ^{a,b,c}	1518	Ghana ^c	1,379	China ^{b,c}	1091	Colombia ^a	2866
Cyprus ^c	1012	Mali ^c	894	Hong Kong ^c	1043	Dominican Republic	282
Czech Republic ^a	783	Morocco ^b	568	India ^{a,b,c}	4711	El Salvador ^a	926
Estonia ^a	802	Nigeria ^{a,b}	3,402	Indonesia ^{b,c}	2274	Mexico ^{a,b}	2629
Finland ^{a,c}	1554	Rwanda ^c	1,331	Iran ^{b,c}	4112	Peru ^{a,b,c}	3509
Georgia ^{a,c}	3223	South Africa ^{a,b,c}	6,745	Iraq ^{b,c}	4227	Puerto Rico ^{a,b}	1483
Germany ^{a,c}	3000	Tanzania ^b	975	Japan ^{b,c}	1687	Trinidad and Tobago ^c	921
Italy ^c	602	Uganda ^b	520	Jordan ^b	1095	United States ^{a,b,c}	3054
Latvia ^a	906	Zambia ^c	1,023	Kyrgyzstan ^b	921	Uruguay ^{a,c}	1202
Lithuania ^a	816	Zimbabwe ^b	748	New Zealand ^{a,c}	1463	Venezuela ^{a,b}	1866
Macedonia ^{a,b}	1329			Pakistan ^b	1168		
Moldova ^{a,b,c}	2634			Philippines ^b	1082		
Norway ^{a,c}	1766			Saudi Arabia ^b	1198		
Poland ^{a,c}	1777			South Korea ^c	1191		
Romania ^{a,c}	2581			Taiwan ^{a,c}	1175		
Russian Federation ^a	1441			Thailand ^c	1480		
Serbia ^c	974			Vietnam ^{b,c}	2215		
Serbia and Montenegro ^{a,b}	2770						
Slovakia ^a	859						
Slovenia ^c	764						
Spain ^{a,b,c}	2644						
Sweden ^{a,b,c}	2306						
Switzerland ^{a,c}	1837						
Turkey ^{a,b,c}	5360						
Ukraine ^{a,c}	2545						
Total	51,748	Total	26,015	Total	40,760	Total	28,526

Note: Sample Wave:

^a 1994–1999

^b 1999–2004

^c 2005–2007

Table A2 reports cross-country regressions similar to those used by Guiso et al. (2003), Schaltegger and Torgler (2010), and Arruñada (2010). More precisely, it reports the results of estimating the following ordered logit model for each denomination:

$$Prob(Education_i = y) = f(Denomination_i, C_i, Country_i, Year_i) \quad (A1)$$

Where:

- $Country_i$ is a fixed country effect;
- All the other variables are defined like in the main text.

Table A2
Standard cross-country regression: education level and religious affiliation, by religion.

Education	(A2.1) lower	(A2.2) middle	(A2.3) higher
Catholic	0.025** (0.011)	-0.004** (0.002)	-0.021** (0.010)
Protestant	0.034** (0.015)	-0.005** (0.002)	-0.028** (0.013)
Orthodox	0.023* (0.013)	-0.003* (0.002)	-0.019* (0.011)
Buddhist	0.035** (0.015)	-0.006** (0.003)	-0.029** (0.012)
Muslim	0.127*** (0.020)	-0.035** (0.006)	-0.092*** (0.014)
Jewish	-0.041** (0.020)	0.002* (0.001)	0.039* (0.020)
Hindu	0.065*** (0.016)	-0.013*** (0.004)	-0.052*** (0.012)
Other Affiliations	0.022* (0.013)	-0.003 (0.002)	-0.018* (0.011)
LR Chi-Square,		33,757.2	
Pseudo R2		0.173	
Observations		143,826	

Note: Absolute standard errors are reported between brackets.

* $p < 0.10$

** $p < 0.05$

*** $p < 0.01$. The reported coefficients are marginal effects. The regression controls for the denominations reported in the second row of the table, for country fixed effects, and year fixed effects. Standard errors clustered at the country level in parentheses. Observations are weighted by the 4-digit weight provided by the World Value Survey to correct country sample to and reflect national distributions on key variables.

Table A3
Country-denomination-specific coefficients: sign and statistical significance at 10%.

Country / Denomination	Catholic	Protestant	Orthodox	Buddhist	Hindu	Jewish	Muslim	Others
Albania	+	+	+	Not Pres.	Not Sign.	Not Sign.	Not Pres.	+
Algeria	Not Pres.	Not Pres.	Not Pres.	Not Pres.	Not Pres.	Not Pres.	Not Pres.	Not Pres.
Andorra	Not Sign.	Not Sign.	+	Not Pres.	Not Sign.	Not Sign.	Not Sign.	+
Azerbaijan	-	Not Sign.	Not Sign.	Not Pres.	-	Not Sign.	Not Pres.	Not Pres.
Argentina	Not Sign.	-	+	Not Sign.	Not Pres.	Not Sign.	+	Not Sign.
Australia	-	-	Not Sign.	Not Sign.	Not Sign.	Not Sign.	+	Not Sign.
Bangladesh	Not Sign.	Not Sign.	-	Not Sign.	Not Sign.	+	Not Sign.	Not Pres.
Armenia	Not Sign.	+	Not Sign.	Not Pres.	Not Pres.	Not Pres.	Not Pres.	Not Sign.
Bosnia and Herzegovina	Not Sign.	Not Sign.	Not Sign.	Not Pres.	Not Sign.	Not Sign.	Not Pres.	Not Pres.
Brazil	Not Sign.	-	-	Not Sign.	Not Pres.	+	Not Pres.	Not Sign.
Bulgaria	Not Sign.	Not Sign.	Not Sign.	-	-	+	Not Sign.	+
Belarus	-	Not Sign.	Not Sign.	Not Pres.	Not Sign.	Not Pres.	Not Pres.	Not Pres.
Canada	Not Sign.	Not Sign.	Not Sign.	+	Not Sign.	Not Sign.	Not Sign.	Not Sign.
Chile	Not Sign.	-	Not Pres.	Not Pres.	Not Pres.	Not Sign.	-	Not Sign.
China	+	Not Sign.	-	Not Sign.	Not Sign.	Not Pres.	Not Pres.	Not Pres.
Taiwan	+	Not Sign.	Not Pres.	Not Sign.	Not Sign.	Not Pres.	Not Pres.	-
Colombia	Not Sign.	Not Sign.	Not Pres.	Not Pres.	Not Pres.	+	Not Pres.	Not Sign.
Cyprus	Not Sign.	Not Sign.	Not Sign.	Not Pres.	-	Not Sign.	Not Pres.	Not Sign.
Czech Republic	Not Sign.	Not Sign.	Not Pres.					
Dominican Republic	Not Sign.	Not Sign.	Not Pres.	Not Sign.				
El Salvador	Not Sign.	Not Sign.	Not Pres.	Not Sign.	Not Pres.	Not Pres.	Not Pres.	Not Pres.
Ethiopia	Not Sign.	Not Sign.	Not Sign.	-	Not Sign.	Not Sign.	Not Pres.	Not Sign.
Estonia	+	Not Sign.	+	+	Not Sign.	Not Pres.	Not Pres.	Not Pres.
Finland	Not Sign.	-	Not Sign.	Not Pres.	-	Not Sign.	Not Pres.	Not Sign.
Georgia	Not Sign.	Not Sign.	Not Sign.	-	Not Sign.	-	Not Sign.	Not Sign.
Germany	-	-	Not Sign.	Not Pres.	-	Not Pres.	Not Pres.	Not Sign.
Ghana	Not Sign.	Not Sign.	Not Sign.	Not Sign.	Not Sign.	Not Pres.	Not Pres.	Not Sign.
Hong kong	+	+	Not Pres.	Not Sign.	+	Not Pres.	+	+
India	+	+	+	-	Not Sign.	Not Sign.	Not Sign.	Not Sign.
Indonesia	Not Sign.	Not Sign.	Not Pres.	Not Pres.	Not Sign.	Not Pres.	Not Pres.	Not Sign.
Iran	Not Sign.	Not Pres.	+	Not Pres.	Not Sign.	Not Pres.	Not Pres.	Not Sign.
Iraq	Not Sign.	Not Pres.	-	Not Pres.	-	Not Pres.	Not Pres.	Not Sign.

(continued on next page)

Table A3 (continued)

Country / Denomination	Catholic	Protestant	Orthodox	Buddhist	Hindu	Jewish	Muslim	Others
Italy	–	Not Pres.	Not Pres.	Not Sign.	Not Pres.	Not Pres.	–	–
Japan	+	+	Not Sign.	Not Sign.	Not Pres.	Not Sign.	Not Pres.	Not Sign.
Jordan	+	Not Pres.	Not Pres.	Not Pres.	+	Not Pres.	Not Pres.	+
South Korea	Not Sign.	Not Sign.	+	Not Sign.	+	–	+	+
Kyrgyzstan	Not Sign.	Not Sign.	–	Not Sign.	–	Not Sign.	+	–
Latvia	Not Sign.	Not Sign.	Not Sign.	–	+	Not Sign.	Not Pres.	Not Pres.
Lithuania	Not Sign.	Not Sign.	Not Sign.	Not Pres.	Not Sign.	Not Sign.	Not Sign.	Not Pres.
Mali	Not Sign.	Not Sign.	–	Not Pres.	Not Sign.	Not Sign.	Not Sign.	+
Mexico	–	–	Not Pres.	+	Not Sign.	–	+	Not Sign.
Moldova	–	–	–	Not Pres.	–	Not Sign.	Not Pres.	–
Morocco	Not Pres.	Not Pres.	Not Pres.	Not Pres.	+	Not Pres.	Not Pres.	Not Pres.
New Zealand	–	–	Not Pres.	Not Sign.	Not Sign.	Not Sign.	Not Sign.	–
Nigeria	Not Sign.	Not Sign.	Not Pres.	Not Pres.	Not Sign.	Not Sign.	Not Pres.	Not Sign.
Norway	Not Sign.	–	–	Not Sign.	–	–	Not Pres.	–
Pakistan	Not Pres.	Not Pres.	Not Pres.	Not Pres.	–	Not Pres.	Not Pres.	Not Pres.
Peru	Not Sign.	–	Not Pres.	+	Not Pres.	Not Sign.	Not Sign.	Not Sign.
Philippines	+	+	Not Pres.	Not Pres.	+	Not Pres.	Not Pres.	+
Poland	–	Not Sign.	Not Sign.	–	Not Pres.	–	Not Pres.	Not Sign.
Puerto Rico	Not Sign.	Not Sign.	Not Pres.	Not Sign.	Not Pres.	Not Sign.	Not Pres.	Not Sign.
Romania	Not Sign.	Not Sign.	Not Sign.	+	–	Not Sign.	Not Pres.	Not Pres.
Russian federation	+	+	Not Sign.	+	Not Sign.	+	Not Pres.	Not Pres.
Rwanda	Not Sign.	Not Sign.	–	Not Sign.	Not Sign.	–	Not Pres.	–
Saudi Arabia	Not Pres.	Not Pres.	Not Pres.	Not Pres.	+	Not Pres.	Not Sign.	+
Slovakia	Not Sign.	Not Sign.	Not Sign.	Not Pres.	Not Pres.	Not Pres.	Not Pres.	Not Sign.
Vietnam	–	–	–	–	Not Pres.	–	Not Pres.	–
Slovenia	–	–	–	+	–	Not Pres.	Not Pres.	Not Sign.
South Africa	Not Sign.	Not Sign.	Not Sign.	Not Sign.	Not Sign.	+	Not Sign.	Not Sign.
Zimbabwe	Not Sign.	Not Sign.	Not Sign.	Not Pres.	Not Sign.	Not Pres.	Not Pres.	Not Sign.
Spain	Not Sign.	Not Sign.	Not Pres.	Not Sign.	–	Not Pres.	Not Pres.	Not Sign.
Sweden	Not Sign.	–	Not Sign.	–	Not Sign.	Not Sign.	Not Pres.	Not Sign.
Switzerland	–	Not Sign.	+	+	Not Sign.	Not Sign.	+	–
Thailand	Not Pres.	–	Not Pres.	Not Sign.	Not Sign.	Not Pres.	Not Pres.	–
Trinidad and Tobago	Not Sign.	Not Sign.	Not Sign.	Not Sign.	Not Sign.	Not Pres.	Not Sign.	–
Turkey	–	Not Sign.	Not Sign.	Not Pres.	–	Not Sign.	Not Pres.	–
Uganda	Not Sign.	Not Sign.	Not Pres.	Not Pres.	Not Sign.	Not Pres.	Not Pres.	Not Sign.
Ukraine	Not Sign.	Not Sign.	–	+	Not Sign.	Not Sign.	–	Not Pres.
Macedonia	Not Sign.	+	Not Sign.	Not Pres.	–	Not Sign.	Not Pres.	–
Egypt	Not Pres.	Not Pres.	Not Pres.	Not Pres.	–	Not Pres.	Not Pres.	+
Tanzania	Not Sign.	Not Sign.	Not Sign.	Not Pres.	Not Sign.	Not Sign.	Not Pres.	Not Sign.
United states	Not Sign.	+	Not Sign.	Not Sign.	+	+	Not Sign.	Not Sign.
Burkina Faso	Not Sign.	Not Sign.	–	Not Pres.	Not Sign.	+	–	–
Uruguay	Not Sign.	–	Not Pres.	Not Sign.	Not Pres.	Not Sign.	Not Pres.	Not Sign.
Venezuela	Not Sign.	Not Sign.	Not Sign.	+	Not Pres.	Not Pres.	+	Not Sign.
Serbia and Montenegro	Not Sign.	Not Sign.	Not Sign.	–	–	Not Sign.	Not Pres.	Not Sign.
Zambia	Not Sign.	+	+	Not Sign.	Not Sign.	Not Pres.	Not Sign.	Not Sign.
Serbia	Not Sign.	Not Sign.	Not Sign.	Not Pres.	–	Not Sign.	Not Pres.	Not Pres.
Number of Countries/Regressions (by denomination):	73	69	53	43	60	46	27	61

In all regressions, the reference category is "no religion". "Not sign.": coefficient insignificant at the 10% level. "Not Pres.": Denomination not present in the country.

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