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Religious attendance in cross-national perspective

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Published in:
 American Journal of Sociology

DOI:
[10.1086/603536](https://doi.org/10.1086/603536)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
 Publisher's PDF, also known as Version of record

Publication date:
 2009

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Ruiter, S., & van Tubergen, F. A. (2009). Religious attendance in cross-national perspective: a multilevel analysis of 60 countries. *American Journal of Sociology*, 115(3), 863-895. <https://doi.org/10.1086/603536>

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Source: *The American Journal of Sociology*, Vol. 115, No. 3 (November 2009), pp. 863-895

Published by: [The University of Chicago Press](#)

Stable URL: <http://www.jstor.org/stable/10.1086/603536>

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Religious Attendance in Cross-National Perspective: A Multilevel Analysis of 60 Countries¹

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Why are some nations more religious than others? This article proposes a multilevel framework in which country differences in religious attendance are explained by contextual, individual, and cross-level interaction effects. Hypotheses from different theories are simultaneously tested with data from 60 nations obtained from the European/World Values Surveys. Multilevel logistic regression analyses show that religious regulation in a country diminishes religious attendance and that there are only small negative effects of people's own education and average educational level of the country. Religious attendance is strongly affected by personal and societal insecurities and by parental and national religious socialization and level of urbanization. These theories explain 75% of the cross-national variation in religious attendance.

INTRODUCTION

Why do people in some nations attend religious meetings more frequently than people in other nations? One classical answer to this question, known as secularization theory, has fallen on hard times. In two reviews of the

¹ The order of the authors is alphabetical. The authors' contributions are equal. We would like to thank Jos Dessens, Nan Dirk De Graaf, Wim Jansen, Ineke Maas, Ariana Need, Wout Ultee, and the AJS reviewers for their helpful suggestions and comments on an earlier draft of this article. An earlier version of this article was presented at the Dag van de Sociologie, Rotterdam, Netherlands, May 31, 2007, and at the European Survey Research Association 2007 Conference, Prague, Czech Republic, June 25–29, 2007. Direct correspondence to Frank van Tubergen, Department of Sociology/ICS, Utrecht University, Heidelberglaan 2, 3584 CS Utrecht, Netherlands. E-mail: f.vantubergen@uu.nl

secularization thesis, the sociologist Rodney Stark (1999) and the economist Laurence Iannaccone (1998) summarized the ample empirical and theoretical problems to the idea that was once forcefully proposed in the work of Weber ([1922] 1993) and Berger (1967). Reflecting on hypotheses advanced by secularization theory, Iannaccone (1998, p. 1468) remarks that “most people ‘know’ these statements to be true, even though decades of research have repeatedly proved them *false*.” Stark (1999, p. 269) concludes his article by saying that “once and for all, let us declare an end to social scientific faith in the theory of secularization, recognizing that it was the product of *wishful thinking*.”

According to secularization theory, the religiosity of people is an outcome of the modernity of their country. It is said that in modern countries, people have less religious commitment and attend religious meetings less frequently than in more traditional countries. The bulk of evidence against the presumed modernization-secularization link listed by Stark and Iannaccone comes from two sources. First, it has been shown that in one of the most modern nations in the world, the United States, religious attendance is much higher than in less modern nations. Second, despite the modernization process in Europe, there would be “no demonstrable long-term decline in European religious participation” (Stark 1999, p. 254).

As a consequence of the empirical difficulties with secularization theory, an important alternative theory has been developed to understand the cross-national variation in religious attendance. According to the *religious market* theory, people attend religious meetings more frequently in countries with strong religious competition and less religious regulation, because in these countries “religious suppliers” produce more attractive religious products (Stark and Bainbridge 1987; Finke and Stark 1988; Iannaccone 1990, 1991, 1995; Stark and Finke 2000). Many studies have tested the importance of the attractiveness of religious products by looking at the Herfindahl index of religious concentration (e.g., Iannaccone 1991; Chaves and Cann 1992; Verweij, Ester, and Nauta 1997; Smith, Sawkins, and Seaman 1998; North and Gwin 2004; Halman and Draulans 2006; McCleary and Barro 2006), which is computed as the sum of squares of the proportions of each denomination within a particular unit (e.g., country, region).

Although the religious market theory has been labeled “the new paradigm” (Warner 1993), it has also been criticized. Contrary to expectations, there is no negative relationship between religious concentration and religious attendance in predominantly Catholic countries (Chaves and Cann 1992). Voas, Olson, and Crockett (2002) demonstrated that the Herfindahl index mathematically results in a nonzero correlation between religious concentration and religious attendance, even if there exists no substantive relation. Voas et al. concluded that “there is no compelling evidence that

religious pluralism has any effect on religious participation” (2002, p. 212). Likewise, after reviewing the ample empirical studies on the role of religious pluralism, Chaves and Gorski (2001, p. 274) concluded that “the claim that religious pluralism and religious participation are generally and positively associated with one another is not supported.”

As both the secularization theory and the religious market theory have been confronted with empirical difficulties, how should we evaluate them? And, given these empirical limitations, how can we understand the cross-national variation in religious attendance? As we see it, several theoretical and methodological problems have hindered a sound assessment of both theories and, as a consequence, have hindered our understanding of cross-national differences in religious attendance. We highlight five problems, and we try to overcome them in this article.

First, rather than one single theory, there are different theories subsumed under “the secularization theory” and “the religious market theory,” so evidence against one theory need not falsify the more general research paradigm. Although the religious *concentration* theory has been confronted with empirical problems, another theory subsumed under the religious market paradigm can be fruitfully incorporated in cross-national analysis. Thus, the religious *regulation* theory expects that cross-national variation in the degree of religious regulation by the state explains between-country differences in religious attendance (Finke 1990; Chaves and Cann 1992; Stark and Iannaccone 1994; Iannaccone 1995; Stark and Finke 2000), and we test this idea in our study. Furthermore, although the secularization paradigm assumes that modernization (often operationalized as gross domestic product [GDP] per capita) leads to less religious commitment, (at least) three different mechanisms can be identified in the literature. Probably the oldest theory argues that modernization leads to less religious commitment because of the growth of education, science, and a technological worldview. According to this theory, *modernization of ideologies* is the mechanism through which the more traditional religious worldview erodes (Weber [1922] 1993). Another secularization theory focuses instead on the *modernization of social ties*, that is, the diminishing strength and multiplexity of social ties and the decreasing density and homogeneity of social networks. This, in turn, leads to less control of religious communities over their members, resulting in less religious commitment (Durkheim 1912; Kelley and De Graaf 1997). More recently, yet another version of the secularization paradigm has been proposed. According to this theory, cross-national differences in religion can be explained by the *modernization of economies* (Inglehart and Baker 2000; Norris and Inglehart 2004). Modernization generally leads to more financial, social, and political securities for the population, reducing the need for religious reassurance. Hence, instead of confronting

two paradigms in an abstract way, this article empirically examines how well four theories explain cross-national variation in religious attendance.

Second, a substantial number of studies have examined *aggregate-level outcomes* of religiosity. In these analyses, individual measures of religion are aggregated to the national level (Iannaccone 1991; Chaves and Cann 1992; Smith et al. 1998; Gill and Lundsgaarde 2004; Norris and Inglehart 2004; North and Gwin 2004; McCleary and Barro 2006). An important drawback of this macro-oriented research is that inferences about micro-level processes are based on aggregate statistics, possibly leading to “ecological fallacies” (Robinson 1950). Furthermore, these macro-oriented studies do not inform us about the importance of the macrolevel vis-à-vis the microlevel. How important are nations in shaping the religiosity of people? How strongly do people within a single nation differ in their religious attendance? In this study, we study individual religious attendance and reformulate theories in such a way that they fit a multilevel framework that considers contextual, individual, and cross-level interaction effects (Coleman 1990).

Third, the differential role of societal conditions during childhood and at the time of the survey has been understudied in empirical research. For instance, Norris and Inglehart (2004) argue that religious commitment is stronger among those who grew up in less secure conditions. In their empirical analysis, however, they examine the degree of insecurity at the moment of the survey and show that it has the predicted positive effect on religious attendance. Similarly, Kelley and De Graaf (1997) use present measures of national religiosity to capture the role of religious socialization. In these and other studies, there is a mismatch between the hypothesized role of macrolevel conditions at youth and the influence of macrolevel conditions later in life that are examined empirically. In our study, we test the rival theories with information on present and past societal conditions.

Fourth, previous studies have mostly considered one or only a few characteristics of nations, not taking into account alternative theories at the same time. For instance, Chaves and Cann (1992) presented macrolevel evidence in favor of the religious regulation theory but did not include macrolevel variables informed by rival “secularization” theories. Similarly, Norris and Inglehart (2004) concluded that the theory of economic modernization was confirmed in their analysis, but they omitted macrolevel effects informed by “religious market” theories. We study four rival theories simultaneously, yielding a more rigorous empirical test of each.

Finally, most previous cross-national studies of religiosity have relied on a few nations to test their macrolevel hypotheses. The 1981 wave of the European/World Values Surveys, which included 18 countries, was

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used by Iannaccone (1991) and Chaves and Cann (1992). Others, such as Kelley and De Graaf (1997) and Smith et al. (1998), used the 1991 wave of the International Social Survey Program, which was conducted in 18 nations. Testing (rival) hypotheses with a few cases can lead to erroneous conclusions. We expand the comparative scope of the analysis by examining 60 nations. Data are from three waves of the European/World Values Surveys, conducted in the period between 1990 and 2001.

THEORIES AND HYPOTHESES

In order to understand the cross-national variation in religious attendance, researchers have proposed a number of theoretically informed macrolevel variables. Because researchers have often examined aggregate-level outcomes of religion, the relationship mostly studied is that between certain macrolevel predictors and macrolevel measures of religion. In figure 1 this relationship is depicted as arrow *A*. For instance, researchers have argued that a nation's religious attendance is an outcome of the country's level of religious regulation (Chaves and Cann 1992) or socioeconomic inequality (Norris and Inglehart 2004).

However, relationships observed at the macrolevel (i.e., fig. 1, arrow *A*) can be the result of different processes. Adopting a multilevel framework, we argue that macrolevel effects on religious attendance can arise in three different ways. First, macrolevel effects can be compositional in nature. In that scenario, macro differences arise because of the unequal distribution of individual characteristics (relation *B*), which in turn influence religious attendance (*C*). Second, nations can also have a contextual effect on religious attendance. If that is the case, properties of nations have a direct effect on attendance (*E*) over and above individual characteristics. Third, cross-national differences can be the result of cross-level interaction effects. If so, certain characteristics of countries condition the relationship between important individual characteristics and religious attendance (*F*). In all cases, the influence on individual attendance leads to aggregate outcomes in national attendance (*D*). In the following discussion we use this framework to derive our hypotheses.

Religious Regulation

The first theory that could explain cross-national variation in religious attendance focuses on the role of the state in the *regulation* of religion (Finke 1990; Chaves and Cann 1992; Stark and Iannaccone 1994; Iannaccone 1995; Stark and Finke 2000). Regulation of religion includes, for instance, legal relationships between state and religion, governmental de-

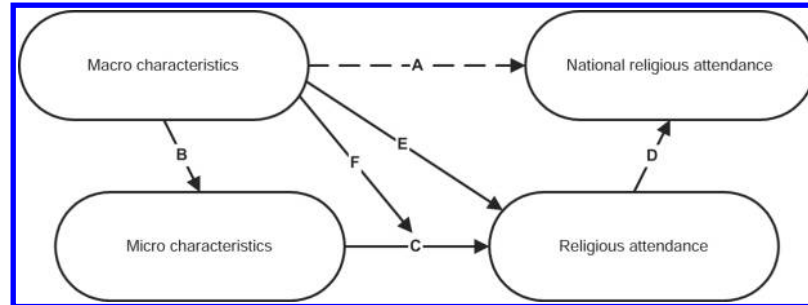


FIG. 1.—Relationship between macro characteristics and religious attendance

partments for handling religious affairs, and state ownership of religious property. Whereas several religious economies are regulated and monopolized by the state, other religious economies are more open. According to the religious regulation theory, religious consumption is expected to be higher in a free, unregulated market than in a market controlled by the state. Lipset (1990) advanced this idea to explain the high religiosity in the United States, which has a long legacy of constitutional division between state and religion. Similarly, Chaves and Cann (1992) argued that this idea should explain the strong variation in religious attendance across predominantly Catholic countries. For instance, religious attendance is higher in Ireland, where religion and the state are more disconnected, than in Belgium (Chaves and Cann 1992). Hence,

HYPOTHESIS 1.—*We expect that the more religious regulation in a country, the lower the religious attendance in that country.*

Note that this is a true contextual effect (i.e., fig. 1, arrow *E*).

Modernization of Ideologies: Scientific Worldview

The second theory argues that cross-national variation in religious attendance is related to science and education. With higher levels of technology, education, and more activist ideologies, principles such as a spirit of free inquiry or freedom of thought are stimulated and an active, mechanistic worldview would become more dominant. Because the scientific rationalism undermines the cognitive basis of religious worldviews, modernity would lead to lower levels of religious commitment (Weber [1922] 1993; Need and De Graaf 1996; Stark, Iannaccone, and Finke 1996).

The modernization of ideologies thesis assumes that at schools people are taught a mechanistic worldview and trained in critical thinking, and this mechanistic, critical worldview is difficult to wed with the traditional, religious worldview. In this way, the theory argues that the modernization-

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religion link occurs because of the positive association between modernization and education and the negative effect of education on religious attendance. This suggests that cross-national differences in religious attendance are partly due to compositional effects:

HYPOTHESIS 2.—The more highly educated people are, the less often they attend religious meetings.

In addition, the cross-national variation in educational expansion should then partly explain cross-national differences in religious attendance (i.e., arrows *B* and *C*, fig. 1). One would expect, however, that over and above people's own education, the level of education in the country affects people's own religious attendance as well. In highly educated nations, it is assumed that people are exposed outside the school setting to a more rational worldview than in less educated nations. Hence,

HYPOTHESIS 3.—People who live in countries with a higher level of education attend religious meetings less frequently.

Modernization of Economies: Security

In their contribution to the secularization debate, Norris and Inglehart (2004) stress that the presumed modernization-secularization link should not be interpreted in terms of increasing rationalized worldviews. They argue that modernization lowers people's religious belief and attendance primarily because it reduces the financial, political, and material insecurities that people face. According to Norris and Inglehart, "the need for religious reassurance becomes less pressing under conditions of greater security. These effects operate at both the societal level (socio-tropic) and the personal level (ego-tropic). Greater protection and control, longevity, and health found in postindustrial nations mean that fewer people in these societies regard traditional spiritual values, beliefs, and practices as vital to their lives, or to the lives of their community" (p. 18). Norris and Inglehart furthermore anticipate that "the declining importance of religious values in postindustrial nations in turn eroded regular attendance in religious practices, exemplified by attendance at services of worship and engagement in regular prayer or meditation" (p. 19).

According to this theory, the modernity-secularization link should be interpreted in terms of (increasing) existential securities. Modern nations are wealthier than traditional nations, and people in these more affluent nations face fewer economic risks and other kinds of insecurities. If there is indeed a linkage between national insecurity and individual religion, this means that cross-national differences in religious attendance should again be partly compositional in nature. Here, we focus on economic insecurities. Thus,

HYPOTHESIS 4.—*People with a less secure (economic) position (e.g., unemployed, low income) attend religious meetings more often.*

We expect that taking people's individual (economic) situation into account partly explains cross-national differences in religious attendance.

Norris and Inglehart (2004) also expect that contextual conditions affect religious attendance. Although they argue that all kinds of insecurities in a country increase religious attendance, they pay special attention to socioeconomic inequalities. In countries with larger income inequalities, the poor have more financial insecurities than in countries with fewer inequalities. However, economic mobility and people's expectations of their own future would also lead the rich to experience more financial insecurities in countries with large income disparities.

On the basis of people's current conditions and their expectations of the future, one would expect the following:

HYPOTHESIS 5.—*In countries with more socioeconomic inequalities, people attend religious meetings more frequently.*

In addition to the impact of present insecurities (and people's expectations of the future), Norris and Inglehart (2004, p. 18) argue that experiences during childhood have an enduring impact on people's religious attendance. They write that "the experiences of growing up in less secure societies will heighten the importance of religious values." In particular, they identify the possibly enduring role of war and argue that people who grew up during a war in their country will remain more religious throughout their life (p. 16). Therefore,

HYPOTHESIS 6.—*People who grew up in times of war attend religious meetings more frequently later in life.*

Modernization of Social Ties: Individualization

The fourth theory examined in this article focuses on the modernization of social relationships. Its basic assumption is that religious behavior is a predominantly social phenomenon, in which people are socialized, controlled, and possibly sanctioned by their parents, family, neighbors, religious community, schoolteachers, and other socializing agents. People who are raised in a religious environment more strongly internalize religious norms and more strongly comply with them later in life (Durkheim 1912; Berger 1967; van Tubergen, te Grotenhuis, and Ultee 2005). According to this theory, modernization leads to secularization because of individualization, that is, diminishing strength and multiplexity of social ties and decreasing social control.

We examine this theory first by looking at urbanization. Social ties in more rural settings are more intense, multiplex, and kin-based, and networks in rural areas are more dense and homogeneous (e.g., Curtis White

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and Guest 2003), conditions that lead to more normative pressures toward conformity (Marsden 1987). Thus, in more rural areas, social ties between people are stronger, leading to a stronger role of the family and the community to socialize people religiously and to control their religious behavior later in life. Thus,

HYPOTHESIS 7.—*People who live in more urban regions attend religious meetings less often.*

One would also expect that over and above the impact of the urbanization of the direct environment in which people live, the level of urbanization of the country plays a role. The reason is that personal social networks are not restricted to the direct living environment (Beggs, Haines, and Hurlbert 1996). In more rural countries, people have more kin-based, intense, and multiplex social relations than in more urban countries (Höllinger and Haller 1990). The relationships people have outside their direct region of living can affect people's religious beliefs and practices. We argue that these social ties are less strong in more urban countries, leading to fewer normative pressures toward religious behavior.

HYPOTHESIS 8.—*People who live in more urban nations attend religious meetings less often.*

Cross-national variation in religious socialization is another important ingredient of country differences in religious attendance. The religious environment in which people grow up is unequally distributed in the world. These contexts during childhood are unchosen and therefore constitute an independent determinant of religious attendance (Kelley and De Graaf 1997). Previous research has suggested and indeed found that parental religiosity plays an enduring role in people's own religious behavior (Myers 1996; Need and De Graaf 1996). Thus,

HYPOTHESIS 9.—*The stronger the religiosity of the parents, the more likely the offspring are to attend religious meetings later in life.*

Over and above the presumed impact of parental religiosity, the national religious context during childhood could be important as well. At school, people are confronted with the norms of the teachers and affected by the religiosity of their peers. When people cohabit, they are influenced by the opinions of their partner (te Grotenhuis and Scheepers 2001), and at work people are exposed to the norms of their colleagues. Hence, people who are socialized in a relatively religious nation will have more religious parents; likewise, their neighbors, teachers, friends, partner, and colleagues will be more religious than in more secular nations. This suggests that the religiosity of the nation in which people were born affects their religious socialization and exposure to religious norms throughout their life.

HYPOTHESIS 10.—*The stronger the religiosity of the nation during a*

person's childhood, the more frequently that person will attend religious meetings later in life .

Possibly there is a cross-level interaction between the religiosity of the nation during childhood and parental religiosity. Kelley and De Graaf (1997) suggested that religious parents become more active in a rather secular environment. According to them, religious parents who live in a rather secular society try to control the religious context of their offspring by "screening potential friends, teachers, and marriage partners; by enrolling their children in church groups or sending them to religious schools to ensure an appropriate pool of potential friends and marriage partners; by socializing their children to reject the irreligious; and in many other ways" (p. 641). Conversely, devout parents in a religious nation do not need to protect their children from the secular beliefs and practices, and they therefore spend less time and effort in controlling their children's religious environment. In view of these ideas,

HYPOTHESIS 11.—The stronger the religiosity of the nation during a person's childhood, the smaller the effect of the religiosity of the parents on religious attendance.

DATA AND METHODS

Data

We use data from the 1990–93, 1995–97, and 1999–2001 waves of the European Values Surveys/World Values Surveys (EVS/WVS) (EVSG and WVSA 2005; WVSG 1999). Together, these three waves of the EVS/WVS contain nationally representative surveys from 82 countries, including rich and poor nations, Christian and non-Christian, religious and secular. Unfortunately, for 22 countries (particularly the poorer, non-Christian nations), information on one or more individual-level or contextual-level variables is missing, and we therefore had to remove these countries from our analysis.² For those countries for which we had some missing information on individual-level variables (i.e., for some respondents, though not all), we use the multiple imputation procedure from SAS 9 to obtain five imputed data sets. After the estimation of our models on these five separate data sets, we apply Rubin's (1987) rules to get the right parameter estimates. We select respondents above 18 years of age and include both

² Because of these missing variables, the following countries were left out of our analyses: Albania, Algeria, Cyprus, Egypt, Indonesia, Iran, Israel, Jordan, South Korea, Montenegro, Morocco, Pakistan, Philippines, Puerto Rico, Serbia, Singapore, South Africa, Taiwan, Tanzania, Uganda, Vietnam, and Zimbabwe.

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men and women. All in all, our analyses include 136,611 respondents (N_1) from 60 countries (N_2).

Dependent Variable

Religious attendance.—In all three waves of EVS/WVS, respondents were asked in the same way about their religious attendance: “Apart from weddings, funerals, and christenings, how often do you attend religious services?” Responses ranged on a seven-point scale from “never” to “more than once a week.” Because some of the contrasts in the original ordinal variable (especially at the lower end) do not clearly differentiate between more and less religious people, we decided to analyze a clear contrast.³ In our analyses we distinguish respondents who attend religious services at least weekly (one) from those who go to church less frequently (zero). This contrast nicely aligns with prescribed frequency of attendance (i.e., at least weekly) in most of the dominant religions in our data set. Averaged over all countries, 24% of the respondents said they attended religious services on a weekly basis.

Independent Variables

Religious regulation.—We measure religious regulation with the Religious Regulation Index, which was constructed by Norris and Inglehart (2004).⁴ This index is an expanded version of the measure developed by Chaves and Cann (1992) of state regulation of religion in 18 Western countries. The Norris and Inglehart index was classified according to 20 criteria of freedom of religion. Norris and Inglehart coded each criterion zero/one, and the total scale was standardized to 10 points, ranging from low to high religious regulation. A potential drawback of this scale is that it includes items measuring “government regulation of religion” (i.e., the restrictions placed on the practice, profession, or selection of religion by the official laws, policies, or administrative actions of the state) and other items reflecting “government favoritism of religion” (i.e., the actions of the state that provide one religion or a small group of religions special privileges, support, or favorable sanctions). The hypothesis tested in this

³ Besides, additional analyses showed that multilevel ordered logit models on the original variable violated the proportional odds assumption (Long and Freese 2006), and consequently, using this technique would potentially lead to estimation bias. Furthermore, multilevel multinomial logit models that simultaneously estimate separate binary logits for all outcome categories compared to a reference category would lead to too many comparisons to see clear patterns. Besides, additional analyses using such models showed that especially the contrasts at the lower end were far less distinct.

⁴ We are grateful to Norris and Inglehart for providing us their data set.

study is concerned with religious regulation, and we therefore rely in an additional analysis on work by Grim and Finke (2006), who constructed a separate measure of government regulation of religion.

Tertiary school enrollment.—To measure the educational expansion in a country, we use figures on tertiary school enrollment (e.g., university) per country in 1999, obtained from the World Bank (2001).

Education.—This is measured by the age at which people left school. The EVS/WVS data provide a variable that indicates at what age people finished school. This variable ranges from younger than 14 years of age to 21 years of age or older.

Gini.—Following Norris and Inglehart (2004), we operationalize income inequality in a country by the Gini index, which theoretically ranges from zero (no inequality) to 100 (perfect inequality). We use 1995 figures (or adjacent years when figures were missing for 1995) obtained from various editions of the *Human Development Report* (United Nations Development Program 2001–4).

War casualties.—To measure the impact of war experienced in childhood, we use war casualties per 1,000 people in a country when people were between 5 and 18 years old. We prefer a measure of the severity of war instead of a measure of only the presence of war. The information on numbers of casualties is obtained from Clodfelter (2002), and we use population statistics from Lahmeyer (2006). We include figures for major conflicts in which at least two countries were involved. The variable is logged to deal with right-hand skewness.

Income.—Following Norris and Inglehart (2004), we examine the role of personal insecurities by looking at people's income. Because income measures were incomparable between countries, we calculated *Z*-scores per country. In this way it becomes impossible to explain country differences in religious attendance based on compositional differences in income. However, it remains possible to test the hypothesis about the presumed negative effect of income on religious attendance, and we include another measure of personal insecurities that differs across countries (i.e., employment status).

Unemployed.—We look at a second individual characteristic that, according to Norris and Inglehart (2004), is indicative of personal insecurities: employment status. It is assumed that people who are unemployed are more at risk financially and economically than people who are employed. We include a dummy variable in our analysis, contrasting those who are unemployed with all others.

National urbanization level.—This measures the share of the total population in a country living in urban areas in 1999, in percentages. Figures are obtained from the World Bank (2001).⁵

⁵ For Bosnia and Herzegovina these figures were unavailable. We used the figures for 874

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Local urbanization level.—To measure urbanization level in the direct environment of the respondent, we use the (natural logarithm of the) number of inhabitants in the community or town of residence of the respondent (truncated at 1,000 and 1 million inhabitants), obtained from information provided in the EVS/WVS data set.

Religious parents.—This measures whether people were raised religiously. We use the question asked in EVS/WVS (“were you raised religiously?”), to which respondents could answer either yes or no. When this variable is missing and retrospective information on church attendance is available (this was the case for all respondents from the EVS part in wave 4), we use the retrospective data on attendance. We categorize someone who attended religious meetings once a year or less (around the age of 12) as not being raised religiously. All others are categorized as being raised religiously. This coding results in a distribution almost identical to the other variable on religious upbringing.

Religiosity cohort.—In order to measure the religious context of respondents when they grew up, we aggregate individual-level data from EVS/WVS. We again use the previous question (“were you raised religiously?”), to which respondents could answer either yes or no. When this variable is missing, we use the retrospective information about church attendance around the age of 12, which we categorize in the way described above. We then used the information in EVS/WVS to calculate trends in the proportion of the population that was raised religiously. For example, when 60-year-olds were asked in 1999 whether they were raised religiously when they were 12 years old, their answer refers to their situation in 1951 (1999 – 60 + 12). On the basis of all 60-year-olds, we calculate figures for 1951. Similarly, 61-year-olds provide information on 1950, and so on. Because this approach often results in too few cases to estimate reliable averages per year, we use an 11-year (the exact year plus and minus five years) weighted moving average to smooth out irregularities. The measure we obtain correlates highly (Pearson’s $R = .95$) with a similar measure constructed by Iannaccone (n.d.).

Appendix table A1 provides an overview of the 60 countries included in our study and their scores on the macrolevel variables. We found no evidence for multicollinearity among the country and cohort variables. Bivariate Pearson correlations are below .50, the Variance Inflation Fac-

Serbia and Montenegro. For some other countries the figures were unavailable for 1999. We used linear interpolation between the years for which we had valid scores to estimate the figure for 1999.

tors (VIF) are below 1.5, and the Condition Indices show no signs of collinearity either.⁶

We extensively checked for influential cases, following a method analogous to the one proposed by Belsley, Kuh, and Welsch (1980) and Snijders and Bosker (1999, p. 134).⁷ More specifically, we calculated the standardized change in the estimates for each of our contextual-level variables (i.e., the standardized dfbetas: DFBETAS) when we removed one country at a time from the 60 countries in our data (the effects of individual-level variables are robust). We identified 12 countries that had a significant impact on our estimates ($||\text{DFBETAS}|| > 2/\sqrt{N_2}$); many of these have a non-Christian dominant religion.⁸ It should be emphasized that of the remaining 48 countries, virtually all countries have a Christian tradition (exceptions are Bangladesh and Japan). We present the results of the analyses based on the full sample, as well as the subsample in which we removed all 12 influential countries at once. We include two control variables:

Marital status.—We distinguish people who are single, divorced, widowed, and married/cohabiting (reference category).

Female.—We control for sex, using *male* as the reference category. Descriptive statistics for the independent variables are presented in table 1.

For various reasons, we do not include several other macrolevel variables that have been examined before. Because of the small number of cases in comparative macro research, we have tried to capture the crucial concepts of each theoretical line of thought.⁹ Hence, an important reason

⁶ More specifically, the highest condition index is 21 (large are those condition indices in the range of 30 or larger), and there are not two or more variables that have large proportions of variance (.50 or more) that correspond to the largest condition indices in our data.

⁷ We used an R macro developed by Nieuwenhuis, Pelzer, and te Grotenhuis (2009) to perform these robustness checks.

⁸ The countries are Azerbaijan, Brazil, China, Ghana, Greece, India, Ireland, Luxembourg, Malta, Moldova, Nigeria, and Turkey. Five of these 12 countries have a non-Christian tradition.

⁹ Per capita GDP is excluded because it is captured by theoretically more meaningful variables. We do not use the Human Development Index, which was examined by Norris and Inglehart (2004), because it is a summary score of education, illiteracy, per capita GDP, and health. The measure does not separate the influence of ideological modernization (i.e., education, illiteracy) vis-à-vis economic modernization (i.e., health). We also exclude a dummy variable indicating whether a country is, or has been, a Communist country (Kelley and De Graaf 1997; North and Gwin 2004; McCleary and Barro 2006) because the characteristic features of Communist countries are already incorporated by three measures adopted in our study. In Communist countries, there is little income inequality, people are socialized in a rather secular context, and they score high on religious regulation. Hence, including a dummy variable for Communism would reduce the influence of variables that have a more meaningful understanding.

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TABLE 1
DESCRIPTIVE STATISTICS OF INDEPENDENT VARIABLES

	Range	Mean	SD	% Imputed
Country:				
Religious regulation ^a	0–10	4.17	2.09	0
Gini ^a	21.70–59.10	35.42	9.27	0
Tertiary school enrollment ^a	2.61–82.42	38.79	18.29	0
Urbanization (%) ^a	22.00–97.00	68.61	17.15	0
Cohort:				
Religiosity ^a	0–1	.66	.26	0
War casualties (ln)	0–3.82	.26	.84	0
Individual:				
Educational level ^a	14.00–21.00	17.80	2.66	4.04
Income (Z-score) ^a	–3.46–13.31	0	1.00	12.6
Unemployed	0/1	.19		2.82
Religious parents ^a	0/1	.65		3.13
Local urbanization (ln) ^a	6.91–13.82	10.09	2.18	0
Female	0/1	.52		.07
Marital status:				
Married/cohabiting	0/1	.63		.36
Single	0/1	.23		
Divorced	0/1	.06		
Widowed	0/1	.08		

^a Variables mean-centered in the analysis.

for not including certain macrolevel variables is that they are already captured by associated variables in our study. Although our study covers more nations than ever studied before in the literature on religious attendance, it is still important to be parsimonious and to avoid problems of multicollinearity.

Methods

We make use of multilevel methods, which take into account the hierarchical nature of our data (Snijders and Bosker 1999; Raudenbush and Bryk 2002). Ignoring the hierarchical structure and the dependence across observations from the same country would lead to an underestimation of the standard errors, possibly leading to wrong conclusions about non-existent relations. Given our dichotomous dependent variable, we estimate multilevel logistic models in which we have 136,611 observations at the

In preliminary analyses, we included dummy variables for religious tradition (i.e., Catholic-Orthodox, Protestant, other), but because these variables were insignificant, we removed them from our models.

individual level and 60 at the country level.¹⁰ For the estimation of these multilevel models we use hierarchical linear and nonlinear modeling (HLM 6).

RESULTS

Using multilevel logistic regression techniques, we find that in the empty model (i.e., without predictors except the intercept), the residual variance at the country level is 1.87. This means that the correlation in religious attendance between two randomly chosen individuals in the same, randomly drawn, country is .36.¹¹ Put differently, 36% of the variation in religious attendance is due to the country in which people live, which seems substantial when compared to the importance of social context in other research areas.¹²

The cross-national variation in religious attendance is due to differences in composition and context. About 23% $([1.87 - 1.44]/1.87)$ of the cross-national variation in religious attendance can be explained by the unequal distribution of individual characteristics across nations. When we add the contextual variables (including the cohort variables), the model explains 75% $([1.87 - 0.46]/1.87)$ of the cross-national variance in religious attendance. The model excluding 12 influential countries explains 84% of the cross-national variance. This means that the full theoretical model explains a substantial part of worldwide patterns of religious attendance. If we look at both the individual and contextual levels, the model explains 36% of the variance.¹³ Given the fact that the R^2 values in the method used here are usually considerably lower than the ordinary least squares

¹⁰ For the period-specific country measures, we used the weighted average of the period-specific scores per country.

¹¹ This so-called intraclass correlation ρ is computed according to the following formula:

$$\rho = \frac{\tau_0^2}{\tau_0^2 + \pi^2/3},$$

where τ_0^2 is the variance at the country level (Snijders and Bosker 1999, p. 224). Note that the logistic distribution for the level 1 residual implies a variance of $\pi^2/3 \approx 3.29$.

¹² For instance, Snijders and Bosker (1999, p. 46) report that values between 5% and 20% are common in educational research, where pupils (level 1) are studied within classes (level 2).

¹³ The proportion of explained variance in the multilevel logistic model was computed with the following formula (Snijders and Bosker 1999, pp. 225–26):

$$R_{\text{dicho}}^2 = \frac{\sigma_F^2}{\sigma_F^2 + \tau_0^2 + \pi^2/3}.$$

Here, σ_F^2 is the variance of the linear predictor of Y , and τ_0^2 is the intercept variance.

R^2 values predicting continuous outcomes (Snijders and Bosker 1999), we believe that our model provides a strong explanation for religious attendance.

Which factors in the model explain cross-national variation in religious attendance? We discuss the empirical evidence for the hypotheses one by one below. The main discussion is based on the total model (i.e., including 60 countries) and the model-based standard errors. To assess the sensitivity of our findings, we also look at “robust standard errors” (Raudenbush and Bryk 2002, p. 276) and at the results of the model excluding influential countries. To examine the size of the effects, we report (for the continuous variables) “standardized effects”: the associated change in the odds of attending religious meetings once a week or more with a one-standard-deviation change in the independent variable.

Religious Regulation

In line with the first hypothesis, we find that religious attendance is negatively related to religious regulation in a country. The conclusion is based on the Norris and Inglehart 20-item scale of religious regulation, and the results hold for the entire sample as well as for the subset of countries excluding influential cases. More specifically, the results (for the entire sample) show that a one-standard-deviation increase in religious regulation (i.e., 2.09; see table 1) is associated with a 17% ($1 - e^{-.091 \times 2.09}$) decline in the odds of attending religious participation (at least) once a week. In additional analyses, we also find that the religious regulation measure of Grim and Finke (2006) is negatively and statistically significantly associated with attendance ($b = -.108$; $SE = .046$).¹⁴ With this measure, we find that a one-standard-deviation increase leads to a decline of 24% in weekly attendance.¹⁵ In summary, we find evidence that worldwide patterns of religious attendance are related to religious regulation.

Modernization of Ideologies

According to the theory on the modernization of ideologies, cross-national variation in religious attendance is partly explained by education. We find some evidence for this theory in our analysis. Table 2 shows that the higher people are educated, the less likely they are to attend religious meetings once a week or more. This confirms hypothesis 2. However, it

¹⁴ Results of additional analyses are available on request from the authors.

¹⁵ The Grim and Finke (2006) measure of “government favoritism of religion” has no significant effect on attendance.

TABLE 2
 MULTILEVEL LOGISTIC REGRESSION OF ATTENDING RELIGIOUS MEETINGS ONCE A
 WEEK OR MORE, EVS/WVS, 1990–2000

	ALL COUNTRIES			INFLUENTIAL CASES EXCLUDED		
	Log Odds Ratio	Model- Based SE	Robust SE	Log Odds Ratio	Model- Based SE	Robust SE
Intercept	-1.773	(.089)**	(.102)**	-2.011	(.067)**	(.072)**
Country:						
Religious regulation	-.091	(.045)*	(.047)*	-.072	(.037)*	(.041)*
Tertiary school enroll- ment (%)	-.013	(.006)*	(.006)*	-.005	(.005)	(.005)
Gini .....	.032	(.010)**	(.009)**	.036	(.008)**	(.008)**
Urbanization (%)	-.012	(.006)*	(.007)*	-.020	(.006)**	(.006)**
Cohort:						
Religiosity	1.324	(.024)**	(.090)**	2.552	(.120)**	(.473)**
War casualties (ln) .....	.060	(.011)**	(.027)*	.057	(.011)**	(.029)*
Individual:						
Educational level	-.011	(.003)**	(.006)*	-.014	(.004)**	(.007)*
Income (Z-score)	-.042	(.009)**	(.013)*	-.037	(.011)**	(.015)*
Unemployed .....	.052	(.019)**	(.045)	.117	(.022)**	(.033)**
Religious parents	1.324	(.024)**	(.090)**	1.408	(.028)**	(.103)**
Urbanization (ln)	-.054	(.004)**	(.012)**	-.061	(.004)**	(.011)**
Female .....	.418	(.016)**	(.052)**	.491	(.018)**	(.044)**
Marital status: ^a						
Single	-.121	(.019)**	(.039)*	-.078	(.022)**	(.049)
Divorced	-.422	(.036)**	(.062)**	-.417	(.040)**	(.072)**
Widowed .....	.232	(.027)**	(.063)**	.239	(.029)**	(.072)**
Interactions:						
Religiosity cohort × religious parents	-.588	(.109)**	(.359)	-.415	(.122)**	(.415)
R ²	36.4			36.3		
Variance country .....	.46			.20		
N ₁	136,611			116,318		
N ₂	60			48		

^a The reference category is married/cohabiting.

* $P < .05$ (one-tailed tests).

** $P < .01$.

should be emphasized that the size of the effect of education is rather small (i.e., the standardized effect is 3%).

The evidence for a contextual effect of education is unclear. Based on the analysis of 60 countries, the multilevel analysis shows that the more people are enrolled in tertiary education in a country, the less often people attend religious meetings in that country. This suggests that over and above people's own education, the educational level of the country plays

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a role in people's religious attendance. However, when we exclude the 12 countries that most strongly affect our estimates, there is no significant effect of the educational level of the country. All in all, we tentatively conclude that there is some, though inconsistent, evidence for the theory on the modernization of ideologies.

Modernization of Economies

The theory on the modernization of economies explains worldwide patterns of religious attendance with the notion of insecurity—whatever its source. In line with this theory, we find that financial insecurities at the individual level lead to more religious attendance (hypothesis 4). The higher the income of people, the less likely they are to attend religious meetings. In standardized terms, we find that income is associated with a 4% lower odds of attendance. We also find that people who are unemployed have a 5% higher odds of weekly participation, compared to employed people.

It was further hypothesized that in countries with more socioeconomic inequalities, people attend religious meetings more often (hypothesis 5). Our results are clearly in line with expectations. Using the Gini measure of income inequality, we find that people who live in countries with larger income disparities are more likely to attend religious meetings frequently. The magnitude of the effect is large. A one-standard-deviation increase in the Gini score is associated with a 35% increase in the odds of weekly religious attendance. In additional analyses, we found, as expected, that the effect of income inequality holds for both the poor and the rich (i.e., the cross-level interactions between Gini and income and unemployment are insignificant). To see whether our conclusions depend on our measure, we performed an additional analysis in which we substituted the Gini index for social welfare expenditure as a percentage of GDP, which can be thought of as measuring the degree to which the state reduces people's insecurities.¹⁶ The bivariate correlation between these contextual measures is $-.57$, and we find a highly significant negative effect of welfare expenditure on religious attendance as well ($b = -.033$; $SE = .014$; standardized effect = 26%).¹⁷

To examine the role of insecurities further, we study possible enduring effects of existential insecurities during childhood. It was hypothesized that people who experienced a war during their childhood attend religious meetings more often later in their life (hypothesis 6). We find that wartime

¹⁶ Information was obtained from International Labour Organization (2007).

¹⁷ We use Gini in our main models because we lack information on social welfare expenditure for several countries.

casualty rates during childhood indeed have a significant positive effect on religious attendance. The magnitude of the effect is small, however (standardized effect = 1%).¹⁸

Modernization of Social Ties

The theory on the role of social ties argues that cross-national variation in religious attendance is an outcome of religious socialization and control. On the basis of this theory, we expect to see lower religious attendance among people who live in more urban regions (hypothesis 7), and this is what we see in our analysis. Interestingly, we also find that, over and above the level of urbanization of people's region of living, the urbanization level of the entire country plays an independent role. People who live in more urban countries are less likely to attend religious meetings on a frequent basis. This confirms hypothesis 8. The standardized effects are 11% (local urbanization level) and 19% (national urbanization level).

The theory also predicts that parental religious socialization affects religious attendance (hypothesis 9). We find strong support for this hypothesis. The effect is highly significant and substantial in magnitude. People who were raised religiously have a 3.8 ($e^{1.32}$) times higher odds of attending religious meetings once a week or more.

Growing up in a religious nation matters as well. It appears that, net of being raised by religious parents, people who were born and socialized in a more religious country attend religious meetings more often later in life than those who grew up in a more secular nation. The cohort effect is highly significant and strong in terms of effect size. A one-standard-deviation increase in the proportion of people who were raised religiously during their childhood increases the odds of weekly attendance by 41%. It suggests that over and above the importance of the religious socialization of the parents, the religious context of the nation during people's childhood has an enduring role in their religious practice. This confirms hypothesis 10. Furthermore, it was hypothesized that there would be a negative interaction between parental religiosity and the effect of national religiosity (hypothesis 11). But when we look at robust standard errors, and especially at the subsample of countries, we do not find a significant effect.

¹⁸ Additional analysis shows that the war effect holds for both men and women, thereby suggesting that wars affect the insecurity of the entire population.

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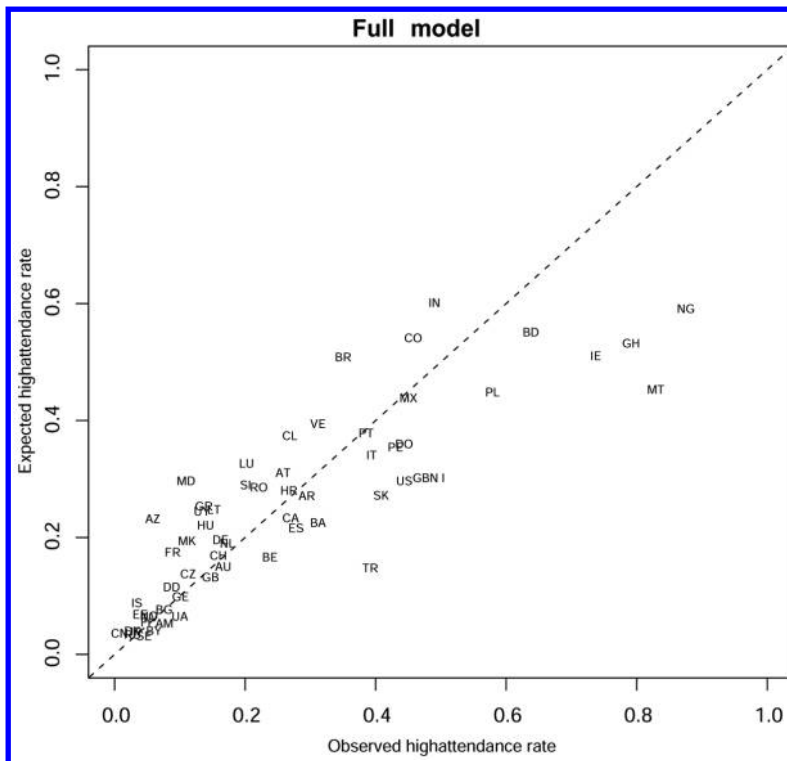


FIG. 2.—Expected and observed probabilities of religious attendance in 60 countries

Model Fit

The theories tested in our study explain a substantial part of variation in religious attendance (table 2), including country differences. Nevertheless, one could wonder whether some nations do not match theoretical expectations. Particular attention has been paid in the literature to the “exceptional situation” of the United States, which is a highly modern though relatively religious society (e.g., Kelley and De Graaf 1997). Does the religious attendance rate in the United States fit the expectations of the theoretical model?

To answer this question, we have to look at figure 2 (based on 60 countries) and figure 3 (48 countries). They present the expected and observed probabilities of religious attendance per country, using the results of the multilevel logistic model presented in table 2. The observed pattern for the United States matches expectations quite well. For the full sample, we see that the observed probability of attending religious meetings weekly (i.e., .44) somewhat exceeds the expected probability (i.e., .30) for

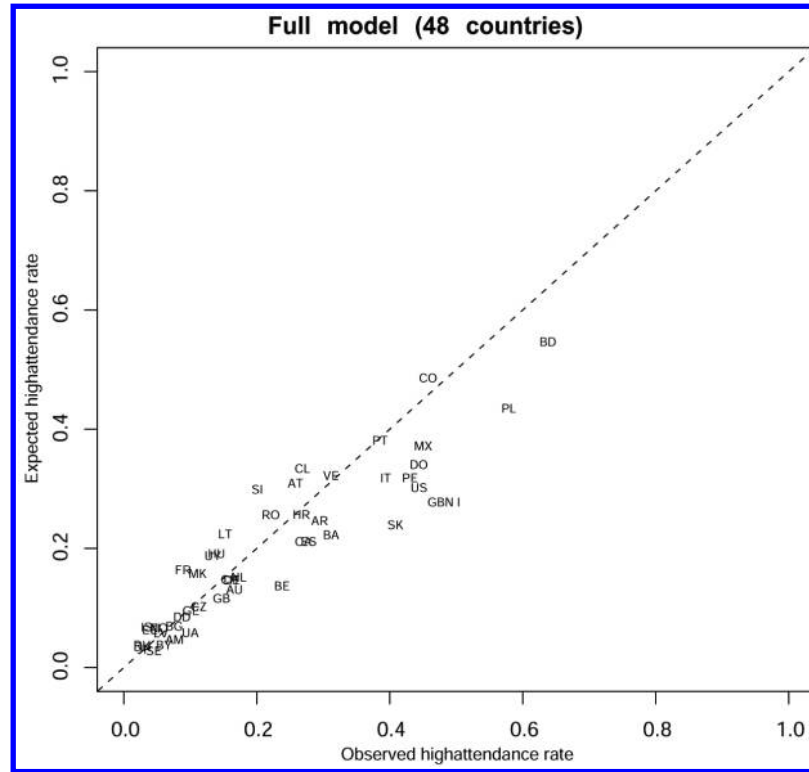


FIG. 3.—Expected and observed probabilities of religious attendance in 48 countries

the United States. This, however, does not provide a strong case for U.S. exceptionalism in worldwide patterns of religious attendance, although the religious attendance is higher than expected. We do find several other countries that are much more exceptional, such as Malta (MA) and Nigeria (NG).

Why is the United States not exceptional according to our model? One common explanation provided in the literature focuses on religious regulation. However, when we *remove* religious regulation from our full model, we see that the expected probability for attending religious meetings in the United States (i.e., .36) comes closer to the observed probability (i.e., .44) as compared to the model including religious regulation (see fig. 4). The theories on existential securities and religious socialization and control, subsumed under the secularization paradigm, seem to provide a better argument. For instance, when we remove Gini from the full model, we see that the expected probability for attending religious meetings in the United States lowers from .30 to .23. This is in strong contrast with

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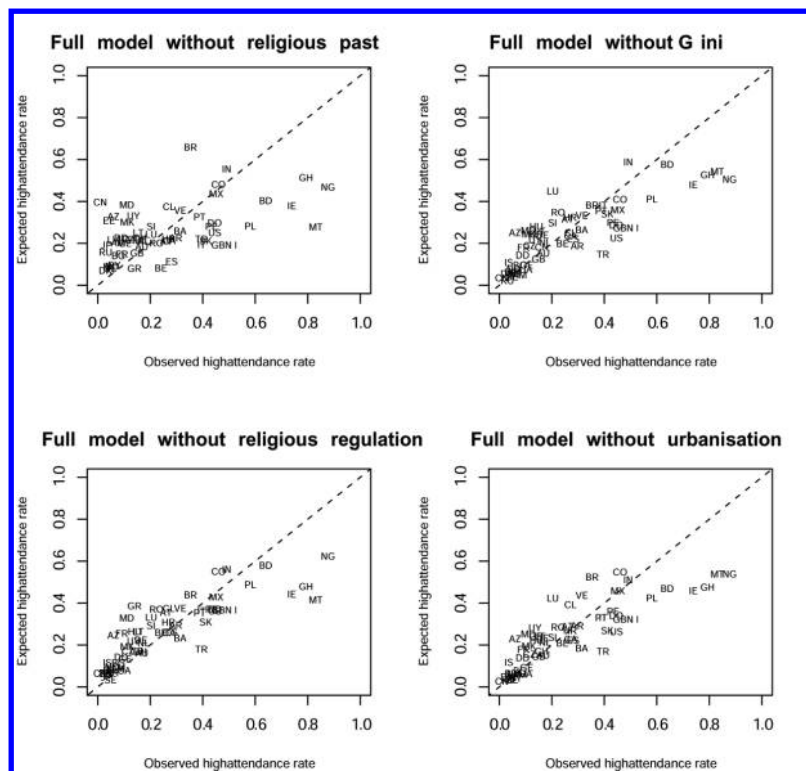


FIG. 4.—Expected and observed probabilities of religious attendance in 60 countries, after excluding selected predictors.

the observed probability (i.e., .44), suggesting that, when we do not take into account the importance of socioeconomic inequalities in a country, the United States is indeed exceptional. The present population of the United States can also be regarded as exceptionally religious when we overlook the importance of the “religious past” (i.e., religiosity of parents and religious context during childhood) and urbanization. When we remove these factors from the model, we see a predicted probability for the United States of .25 and .26, respectively. In sum, these findings suggest that because of the religious past, urbanization, and current socioeconomic conditions, the United States remains highly religious.

CONCLUSIONS

In this article, we showed that almost 40% of the variation in religious attendance is due to the country in which people live. To explain this

cross-national variation, we used four influential theories discussed in the literature. These theories point at different mechanisms, that is, on the role of religious regulation, educational expansion, existential insecurities, and religious socialization and control. We derived a number of hypotheses from these theories within a multilevel framework in which cross-national differences in religion are the result of individual (or “compositional”) effects, contextual effects, and interactions between individual and contextual effects. To test hypotheses rigorously, we examined the theories simultaneously (instead of one by one), analyzed individual religious attendance (instead of country-level religious attendance), used data on 60 nations (instead of a few), and employed hierarchical regression techniques. The theories used in our research explain 75% of the country differences in religious attendance.

Country differences are partly explained by the religious regulation theory. The degree of religious regulation negatively affects religious attendance, which is in line with the idea that stronger state control of religious markets would lead to religious firms producing unattractive religious products. We find little and inconsistent evidence for one of the theories subsumed under the secularization paradigm: the theory on the modernization of ideologies. Although we find, as expected, that higher educated people attend religious meetings less frequently, the impact is small. Moreover, it is unclear whether, over and above people’s own education, the educational level in the country negatively affects religious attendance. More research is needed to test the idea that educational participation and the rise of a scientific worldview are difficult to wed with the more traditional religious worldview. Furthermore, more research is needed to examine whether education is indeed associated with a more scientific worldview, as the theory assumes.

There are two other secularization theories that are empirically supported in our study and that play a substantial role in understanding cross-national variation in religious attendance. Our results are in line with the theory on the modernization of economies. The main mechanism of this theory identifies a positive link between personal or societal insecurities and religious attendance (Gill and Lundsgaarde 2004; Norris and Inglehart 2004). In line with this theory we find that attendance rates are particularly high in countries with more socioeconomic inequalities and fewer social welfare expenditure. This effect equally applies to both poor and rich people, which is in line with the idea that because of economic mobility and the possibility of unemployment in the (nearby) future also, the more affluent population feels more insecure in countries with more inequalities and without a well-developed social welfare system. We also see that people with a lower income and who are unemployed attend religious meetings more often, and we find an enduring effect of

growing up in times of war. In summary, the results of our study suggest that personal and societal insecurities play a crucial role in explaining cross-national variation in religious attendance.

Our study also finds strong evidence for the theory on the modernization of social ties, which connects religious attendance with religious socialization and social control. It assumes that religious behavior is a social phenomenon, in which people are socialized, controlled, and possibly sanctioned by their environment. In line with this theory, we find that cross-national differences are partly caused by differences in levels of urbanization. People who live in urban regions attend religious meetings less frequently than those who live in more rural areas. Over and above local urbanization, the urbanization of the nation in which people live also negatively affects religious attendance. This is in line with the more general idea that in urban settings, people are highly mobile in terms of geographical movements and occupational changes, making it more difficult to socialize and control people.

The theory on the modernization of social ties is further confirmed when looking at parental and national religious socialization. People who were raised religiously by their parents attend religious meetings more frequently. We also find that people who were raised in religious societies have higher attendance rates than people who grew up in more secular nations, and this cohort effect goes over and above the positive effect of being raised by religious parents. This suggests that in religious nations, not only are there more people who were raised by religious parents, but the religious norms people internalize are strongly reinforced and controlled by others, such as family members, neighbors, peers, and colleagues at work.

We see the analysis presented here as just a beginning of more theoretical and empirical work to understand cross-national patterns of religiosity. For example, further research is encouraged to study other dimensions of religion cross-nationally (e.g., religious beliefs), to have a closer look at the non-Christian nations that are underrepresented in our data, and to elaborate on the hypotheses and mechanisms tested in our study (e.g., Why does insecurity apparently affect religious attendance?).

DISCUSSION

We believe that one issue deserves special theoretical and empirical attention in future research: the dynamics of religious decline and increase within countries. Several insights of this study can be used as a starting point.

First, the implications of the intergenerational transmission and rein-

forcement of religious behavior are far from trivial. They indicate that societies follow divergent pathways, depending on different starting conditions. Religious countries remain rather religious or become even more religious because many people in these countries are raised by religious parents, they make religious friends, they interact with religious neighbors, and they marry a religious partner. Although urbanization generally weakens social control, the fact that many people in such countries share the same religious norms will provide a strong barrier to religious decline.

By contrast, more secular countries accelerate toward religious decline: secularization is self-reinforcing. In those countries, people who are raised religiously are less strongly sanctioned when they leave the religious community, leading them to adjust to their more secular environment. For the next generation, the initial conditions have changed: fewer people in these countries are religious than before, implying that even fewer people are raised religiously and that those who are, are confronted with an even more secular environment. Our study suggests that path dependency plays a major role: given initial macrolevel conditions, the process of religious change is self-reinforcing. We encourage further research to examine these feedback processes in a dynamic fashion (Schelling 1978), as has been done in research in historical sociology (e.g., Goldstone 1998; Mahoney 2000) and social inequality (DiPrete and Eirich 2006).

Second, our study provides insights into why there are differences in initial conditions in religious attendance. Why are some countries religious to begin with? Naturally, historical reasons and contingent events that are exogenous to our theoretical model play a major role. Examples of exogenous factors are selectivity of immigration (e.g., the inflow of religious immigrants) and differences in fertility levels and mortality. But next to these factors, this study emphasizes the importance of religious regulation, urbanization, and existential insecurities in the past. Countries in which religions were not strongly regulated in the past, that had a large rural population, or in which the inhabitants were confronted with personal and societal threats were more likely to have a religious population. Indeed, in an additional analysis (not presented here), we found that the religiosity of the cohort (used as an independent variable in our study) is positively and significantly affected by the number of years of division between church and state in a country (a measure of religious regulation in the past). Thus, rather than contrasting the secularization paradigm and the religious market paradigm, future research could fruitfully integrate elements from both paradigms.

Third, and along the same lines, our study provides explanations of why trends in religious decline or increase sometimes stop or even turn in the opposite direction. Our study shows that present conditions with respect to religious regulation, urbanization, and socioeconomic inequality

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affect religious attendance, even when taking into account the religious past. This suggests that trends in religious attendance can change when governments change their regulation of religions, when there is a change in urbanization, or when populations are confronted with a change in their personal or societal threat—whatever its source.

Given these implications of our study, it is important to emphasize that two of the “secularization” or “modernization” theories tested here overcome a well-known criticism of the secularization paradigm, the idea that secularization is an inevitable trend in all countries. As Stark and Finke (2000, p. 78) formulate it, “What is needed is a body of theory to explain religious variation, to tell us when and why various aspects of religiousness rise and fall, or are stable. In that regard, the secularization theory is as useless as a hotel elevator that only goes down.” There is not a single secularization theory. And the theories maintain, for different reasons, that the modernization-secularization link is a general tendency, not an iron law (Norris and Inglehart 2004). Economically developed nations are generally less religious because economic development is generally associated with urbanization and fewer insecurities (e.g., diminishing income inequalities), and the religious decline that is the result of these tendencies subsequently affects future generations. Taken together, the theoretical model tested in this study—including the secularization theories—provides insights into differences in initial conditions, path dependency, and the reason why religious trends are sometimes reversed.

APPENDIX

TABLE A1
OVERVIEW OF COUNTRIES AND CONTEXTUAL VARIABLES INCLUDED IN THE ANALYSIS

	N	EVS/WVS SURVEYS				TERTIARY SCHOOL ENROLLMENT		GINI	URBANIZATION	RELIGIOUS REGULATION
		1990-93	1995-97	1999-2001	ENROLLMENT	ENROLLMENT				
Argentina (AR)	999	X			48.5	52.2	87	5		
Armenia (AM)	2,000		X		23.7	44.4	69	9		
Australia (AU)	2,046		X		65.7	30.5	85	0		
Austria (AT)	2,689	X		X	53.6	31.0	65	4		
Azerbaijan (AZ)	2,002		X		15.4	36.0	56	5		
Bangladesh (BD)	1,525		X		5.8	33.6	22	7		
Belarus (BY)	3,082		X	X	52.0	21.7	70	6		
Belgium (BE)	4,696	X		X	56.1	28.7	97	5		
Bosnia and Herzegovina (BA)	1,200		X		33.9	26.2	41	4		
Brazil (BR)	2,931	X	X		14.5	59.1	76	1		
Bulgaria (BG)	3,080	X	X	X	45.7	26.4	67	5		
Canada (CA)	1,720	X			58.9	31.5	77	1		
Chile (CL)	2,499	X	X		37.6	57.5	83	4		
China (CN)	701	X			6.4	40.3	27	7		
Colombia (CO)	2,929		X		21.9	57.1	72	4		
Croatia (HR)	2,158		X	X	30.5	29.0	56	5		
Czech Republic (CZ)	3,293	X	X	X	26.3	25.4	75	3		
Denmark (DK)	2,037	X		X	55.9	24.7	85	6		
Dominican Republic (DO)	417		X		32.9	47.4	62	5		
East Germany (DD)	3,250	X	X	X	33.8	30.0	86	3		
Estonia (EE)	2,026		X	X	50.7	37.6	70	2		
Finland (FI)	2,002		X	X	82.4	25.6	66	5		

France (FR)	2,617	X				52.3	32.7	75	5
Georgia (GE)	2,592		X			35.9	37.1	58	7
Ghana (GE)	95		X			2.6	39.6	36	3
Greece (GR)	1,099				X	46.9	35.4	60	10
Hungary (HU)	1,998	X			X	33.2	24.4	63	4
Iceland (IS)	968				X	40.0	32.0	92	7
India (IN)	4,290	X	X			9.8	37.8	26	3
Ireland (IE)	1,954	X			X	45.2	35.9	58	1
Italy (IT)	4,014	X			X	47.1	27.3	67	3
Japan (JP)	2,057	X	X			45.1	24.9	78	2
Latvia (LV)	3,106	X	X		X	50.1	32.4	69	3
Lithuania (LT)	2,027		X		X	43.9	32.4	68	3
Luxembourg (LU)	1,161				X	10.5	26.9	91	3
Macedonia (MK)	995		X			21.7	28.2	60	3
Malta (MT)	1,000				X	19.6	30.0	90	2
Mexico (MX)	3,032	X	X			18.1	51.9	73	4
Moldova (MD)	984		X			33.4	40.6	46	5
Netherlands (NL)	1,983	X			X	50.1	32.6	89	1
Nigeria (NG)	2,973	X	X			6.6	50.5	38	7
Northern Ireland (GB-NI)	942	X			X	59.9	38.0	89	3
Norway (NO)	2,347	X	X			66.4	25.8	73	5
Peru (PE)	1,211		X		X	31.6	46.2	71	5
Poland (PL)	2,245		X		X	44.4	38.5	64	4
Portugal (PT)	2,185	X			X	44.8	35.6	54	3
Romania (RO)	2,249	X			X	21.8	28.2	55	7
Russian Federation (RU)	6,501	X	X		X	60.9	48.7	76	8
Slovakia (SK)	1,331				X	26.2	25.8	57	5
Slovenia (SL)	2,022	X			X	52.8	28.4	50	2
Spain (ES)	7,745	X	X		X	55.0	32.5	76	6
Sweden (SE)	2,655	X	X		X	63.7	25.0	83	4
Switzerland (CH)	1,205		X			37.6	33.1	68	4
Turkey (TR)	1,103				X	21.5	41.5	74	7

Ukraine (UA)	4,006		X	X	47.5	29.0	67	3
United Kingdom (GB)	997		X	X	59.9	36.0	89	3
United States (US)	3,191	X	X		73.2	40.8	75	1
Uruguay (UY)	1,000		X		34.0	44.8	90	2
Venezuela (VE)	1,200		X		28.4	48.8	86	3
West Germany (DE)	4,249	X	X	X	33.8	30.0	86	3

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