Individual and Contextual Moderators of the Relationship Between Authoritarianism and Religiosity

Christopher M. Federico

Hui Bai

Rafael Aguilera

University of Minnesota, Twin Cities

Word Count: 6,997 (excluding abstract and references)

In press, *British Journal of Social Psychology*

The data for all studies are available through <http://www.worldvaluessurvey.org/wvs.jsp>. The sample size was pre-determined by the organizers of the World Value Survey.

Author Note

Christopher M. Federico is Professor in the Departments of Political Science and Psychology at the University of Minnesota, Twin Cities. Rafael Aguilera is a Ph.D. student in the Department of Psychology at the University of Minnesota, Twin Cities. Hui Bai is a Ph.D. student in the Department of Psychology at the University of Minnesota, Twin Cities. *Address correspondence to Christopher M. Federico, Department of Political Science, University of Minnesota, 1414 Social Sciences Building, 267 19th Avenue South, Minneapolis, MN 55455; e-mail: federico@umn.edu.

Abstract

Social scientists have devoted much attention to explaining individual and contextual variation in religiosity. Among other things, authoritarianism is reliably found to be associated with greater religiosity. Though education and human development are often thought to *reduce* religiosity, we show in this study that the relationship between authoritarianism and various indices of religiosity is stronger in the presence of greater educational attainment and living in a society with a higher level of human development. Using two large cross-cultural datasets from the World Values Survey, we find evidence that authoritarianism is more strongly associated with religious involvement and practice among individuals at higher levels of education and individuals living in societies with higher level of human development. Thus, we demonstrate that the connection between authoritarianism and religiosity is contingent on both individual-level and societal moderators.

KEYWORDS: authoritarianism, religiosity, education, human development

Individual and Contextual Moderators of the Relationship Between Authoritarianism and Religiosity

Religion is an enduring feature of human social life, but not all human beings are equally religious. To explain variation in religiosity, social scientists have focused on both characteristics of individuals and characteristics of the societies they live in. A common assumption is that individuals are more likely to be religious to the extent that religion provides them with security and certainty (Jost et al., 2014; Saraglou, 2002a,b; see also Norenzayan, 2013; Stark, 2001). In this study, we focus on a psychological variable that has been frequently identified as an antecedent of greater religiosity: *authoritarianism*, which reflects a general preference for social conformity over individual autonomy (Altemeyer, 1996; Leak & Randall, 1995; Wink et al., 2007). We argue that the relationship between authoritarianism and various indices of religiosity may be stronger in the presence of two factors often thought to *reduce* religiosity: greater educational attainment and living in a society with a higher level of human development (e.g., Johnson, 1997; McCleary, 2008). Using two large World Values Survey datasets, we find evidence for these predictions, in addition to confirming the usual main-effect relationship between authoritarianism and religiosity. In doing so, we demonstrate that the connection between authoritarianism and religiosity is contingent on both individual-level and societal moderators.

Authoritarianism and Religiosity

As noted above, authoritarianism is a psychological variable reflecting individual differences in preferences for social conformity, willingness to defer to ingroup authorities and norms, and hostility toward those who threaten relevant forms of normative order (Adorno et al., 1950; Altemeyer, 1988, 1996, 1998; Duckitt & Bizumic, 2013; Feldman & Stenner 1997; Feldman 2003; Stenner 2005). Many studies suggest that authoritarianism is a robust predictor of religiosity (Altemeyer & Hunsberger, 1992; Duck & Hunsberger, 1999; Hunsberger, 1995; Rubinstein, 1996; Weller, Levinbok, Maimon, & Shaham, 1975; Wink, Dillon, & Prettyman, 2007; Wylie & Forest,

1992). For example, authoritarians tend to see religion as a more important part of their life (Blogowska & Saraglou, 2011), they endorse religious beliefs more strongly (Altemeyer & Hunsberger, 1992; Canetti-Nisim, 2004; Leak & Randall 1995; Rowatt et al., 2005, 2006), and practice their religion more frequently (Jones, 1958; Leak & Randall 1995; Weller, Levinbok, Maimon, & Shaham, 1975). Among individuals who were raised with religious beliefs in childhood, authoritarians also tend to retain the beliefs they were socialized into more than non-authoritarians do (Altemeyer, 1981, 1988).

The relationship between authoritarianism and religiosity is not specific to any one religion or culture. Denominationally, studies suggest that authoritarianism predicts religiosity well among Christians, Hindus, Muslims, and Jews alike (e.g., Duriez & Van Hiel, 2002; Altemeyer & Hunsberger, 1992; Canetti-Nisim, 2004; Hunsberger, 1996). The relationship between authoritarianism and religiosity has also been observed in the United States (e.g., Watson et al., 2003), Canada (e.g., Altemeyer & Hunsberger, 1992), Belgium (e.g., Duriez & Van Hiel, 2002), Poland (e.g., Blogowska & Saraglou 2011) and Israel (e.g., Rubinstein, 1996; Canetti-Nisim, 2004).

Evidence also suggests that dispositional variation in authoritarianism is at least partly prior to variation in religiosity. For instance, Weller and colleagues (1975) found that authoritarians became more religious over time regardless of whether they were raised in a traditionally-religious home or a secular one as children. This suggests that authoritarianism is antecedent to religiosity rather than vice versa (see also Photiadis & Johnson, 1963). What accounts for this relationship? A core theoretical approach suggests that religion is more appealing to those who desire security, certainty, and order (Jost et al., 2014; Norenzayan, 2013; Stark, 2001). According to Hogg, Adelman, and Blagg (2010), people are motivated to reduce uncertainties in their life, and group identification is an effective way to manage uncertainties. Since religions are groups that provide clear narratives about the nature and meaning of human existence and appropriate ways of conducting oneself,

religion may be a particularly attractive venue for reducing uncertainty. Religion's ability to promise order, security, and certainty offer authoritarians what they need psychologically. In addition, authoritarians tend to have high levels of need for closure and are lower in openness to experience (Onraet, Van Hiel, Roets, & Cornelis, 2011; see also Saraglou, 2002a, b; Streyffeler & McNally, 1998). As such, they may especially benefit from the epistemic, existential, and social resources provided by religiosity (Jost et al., 2014; see also Jost, Federico, & Napier, 2009). Consistent with this idea, research suggests that authoritarianism is particularly related to fundamentalist forms of religious belief and practice, which subject the individual to stricter forms of orthodoxy and obligation than other modes of religious life (Altemeyer 1988, 1996; Altemeyer & Hunsberger 1992; Hall, Matz, & Wood, 2010; Hunsberger 1995; Kirkpatrick 1993; Laythe, Finkel, & Kirkpatrick 2001; McCleary, Quillivan, Foster, & Williams, 2011).

Moderators of the Relationship Between Authoritarianism and Religiosity

Despite the wealth of research connecting authoritarianism with religiosity, few studies—beyond the aforementioned ones examining authoritarianism as a predictor of fundamentalist versus non-fundamentalist forms of religiosity—have explored possible moderators of this relationship. In this study, we argue that the relationship between authoritarianism and religiosity should be conditioned by both individual-level and societal-level variables. At the individual level, we hypothesize that authoritarianism will more strongly predict religiosity among individuals with higher levels of educational attainment. At the societal level, we hypothesize that authoritarianism will be more strongly associated with religiosity among individuals living in societies at higher levels of development. At first glance, these predictions may not be very intuitive: we are predicting that education and development should strengthen the link between authoritarianism and religiosity, *despite* the fact that extant theory and research commonly suggests that religiosity and authoritarianism both decline as individual-level education and societal development increase. To

develop our predictions, we first of all review previous research on how religiosity and authoritarianism vary as a function of education and development.

The role of education. Educational attainment has been repeatedly linked to variation in both religiosity and authoritarianism. With respect to religiosity, the most common theoretical expectation has been that education weakens religiosity, as suggested by the “erosion thesis” (Johnson, 1997; see also Beckwith, 1985; Herbert, 2003). This may occur for two reasons. First, education may expose people to knowledge (scientific knowledge, in particular) and to secular outlooks that are usually inherently incompatible with traditional or orthodox interpretations of religious teachings (Johnson, 1997; Sherkat, 1998). Second, education may serve as an alternate means of satisfying psychological needs that might otherwise motivate people to adhere to religions (Jost et al., 2016). That is, education may provide people with useful information and skills to manage and adapt to the complex and uncertain world that they reside in. As a result, the existential and epistemic benefits promised by religion may be less appealing to highly-educated individuals, leading to lower religiosity. Parallel arguments have been made with respect to authoritarianism. As with religiosity, one argument is that education may provide knowledge and tools that can buffer against the sensitivity to threats that predispose people to authoritarianism (Allport, 1954; Christie, 1954; Stenner, 2005; see also Kimmelmeier, 2007). Moreover, education may expose individuals to norms of tolerance and provide greater experience with worldview diversity, weakening authoritarian tendencies (Lipset, 1960; McClosky & Zaller, 1984; Sniderman, Brody, & Tetlock, 1991).

Consistent with these arguments, education often has a “main effect” of undermining both religiosity (Beckwith, 1985; Johnson, 1997; Mocan & Pogorelova, 2014; Hungerman, 2014; Roozen, Carroll, & Roof, 1995) and authoritarianism (e.g., Altemeyer, 1996; Christie, 1954; Duriez & Van Hiel, 2002; Kohn, 1969; Lipsitz, 1965; Simpson, 1972). Importantly, these associations are somewhat variable. In particular, the relationship between education and reduced religiosity does not appear to

be the same across all manifestations of religiosity. It is stronger for religious belief and personal importance of religion than for practice (which is sometimes higher among the well-educated, consistent with the notion that the educated are generally higher in social capital; Brown & Taylor, 2007; Johnson, 1997; Petersen, 1994; Sherkat, 1998).

The role of development. One of the oldest ideas in the social sciences is the *secularization hypothesis*—the prediction that religiosity and other manifestations of traditionalism will decline as a society undergoes development (Weber, 1904; for reviews, see Inglehart, 2018; Swatos & Christiano, 1999). Social and economic development, in this context, has a number of aspects. Broadly speaking, human development describes the quality of people’s lives within any given society. Developed societies are those that provide individuals with greater freedoms, opportunity, and well-being—via access to knowledge, human rights, security, health, and a decent standard of living (United Nations Development Programme, 2016).

Societies with high levels of human development afford their members resources and security that reduce uncertainty. In contemporary scholarship, *modernization theory* makes some of the clearest arguments about how development should affect religiosity and orientations reflective of authoritarianism (Inglehart, 1990, 2018; Inglehart & Baker, 2000; Inglehart & Norris, 2011; Inglehart & Welzel, 2005, 2010). According to this perspective, social and economic development provides individuals with greater security from economic and physical threats. This change in material conditions leads to a motivational shift from survival values (focused on collective effort to avoid danger and deprivation) to self-expression values (focused on autonomy and self-actualization). This value shift lessens the need for institutions and norms that preserve group cohesion by strongly embedding the individual in a thick set of social ties and constraints (Inglehart & Welzel, 2005, 2010).

This shift manifests itself notably with respect to the two variables of interest in the present study: religiosity and authoritarianism. Religion is a key form of traditional social solidarity in which the individual is subordinated to both an institutional order and a posited cosmic order (e.g., Stark, 2001). By shifting individuals from survival to self-expression and increasing the scope for individual autonomy, development thus weakens the underpinnings of religiosity. Consequently, development is usually associated with reduced levels of religiosity (Barber, 2011; Inglehart, 2018; Inglehart & Baker, 2000; Inglehart & Norris, 2011). More broadly, development is also associated with a shift away from authoritarian worldviews that emphasize conformity, conventionalism, and submission to authority (Inglehart, 1990; Inglehart & Welzel, 2005, 2010). Thus, like education at the individual level, development at the societal level is associated with lower levels of religiosity and authoritarianism.

Moderating Effects of Education and Development?

Based on the above discussion, it may appear that authoritarianism and religiosity are mutually-reinforcing aspects of a traditionalist outlook that should be most common among those low in education and who live in less-developed societies. This suggests that, if anything, authoritarianism should more strongly predict religiosity among individuals with lower levels of education and those residing in societies with lower levels of social and economic development. However, we argue that the opposite should be the case: education and development should *strengthen rather than weaken* the relationship between authoritarianism and religiosity. But why?

In the case of education, a growing body of research suggests that education allows people to adopt attitudes and behaviors that are more aligned with their basic psychological dispositions—including, in the present case, authoritarianism (Federico & Deason, 2012; Federico & Malka, 2018). Among other things, education brings a greater level of cognitive sophistication, which makes it easier for people to see which inclinations, attitudes, and behaviors “go together” (either logically or

normatively; Barton & Parsons, 1977; Converse, 1964). To the extent that religiosity in part reflects individual differences in authoritarianism, education should facilitate the process of adopting a level of religiosity consistent with one's degree of authoritarianism. In other words, despite existing evidence that education is associated with lower levels of authoritarianism (and for that matter, religiosity), it may at the same time increase the extent to which religiosity reflects variation in authoritarianism. Though we are not aware of any studies that have examined this hypothesis, public-opinion research suggests that political preferences are more (rather than less) strongly rooted in authoritarianism among the educated (Federico & Reifen Tagar, 2014; see also Federico, Fisher, & Deason, 2011; Federico & Malka, 2018). Thus, the relationship between authoritarianism and religiosity should be stronger among those higher in education.

In the case of societal-level development, we expect a similar effect. Though the security that development brings may "liberate" individuals from authoritarian worldviews and dependence on religion, it may also facilitate individuals' adoption of orientations that are more expressive of the self, such as orientations toward religion. In this vein, the shift from survival values to self-expressive ones that comes with material security suggests that individuals are free to adopt religious orientations that more clearly reflect their basic inclinations as individuals, including their level of authoritarianism (Inglehart, 1990, 2018). Similarly, developed societies have richer communicative environments that are more likely to expose people to discourse that facilitates an understanding of the symbolic meanings of attitudes and behaviors, as well as how those meanings correspond to underlying needs (United Nations Development Programme, 2016; see also Federico & Malka, 2018; Inglehart, 1990). Finally, development facilitates the emergence of sociopolitical divides over the relative value of cultural openness and individual autonomy versus the maintenance of traditional social practices (Inglehart & Welzel, 2005, 2010). This means that developed societies may produce

more variation in social practices—including ones linked to religion—for individual differences in authoritarianism to “seize on.”

Thus, although development may have the main effect of dampening both authoritarianism and religiosity, development may also strengthen the relationship between authoritarianism and religiosity. As with education, we are not aware of extant research that examines this. However, research does suggest that the relationship between psychological variables and political preferences is stronger among individuals living in societies with higher levels of development (Malka, Soto, Inzlicht, & Lelkes, 2014; Malka, Lelkes, & Soto, 2017). As such, the relationship between authoritarianism and religiosity should be stronger among those who live in societies with higher levels of human development.

Overview

Below, we examine the aforementioned theoretical expectations about individual-level and contextual moderators of the relationship between authoritarianism and religiosity in two large samples taken from the World Values Surveys. We test three hypotheses:

Hypothesis 1: Authoritarianism will be associated with greater religiosity.

Hypothesis 2: The positive relationship between authoritarianism and religiosity will be stronger among highly-educated individuals.

Hypothesis 3: The positive relationship between authoritarianism and religiosity will be stronger among individuals living in nations at a higher level of human development.

Methods

Data

Our analyses rely on data from waves 4 (1999-2004) and 5 (2005-2009) of the World Values Survey; each wave is a separate cross-section with different respondents, carried out by teams of social scientists from the nations the survey reaches. In each nation, the English root questionnaire

for the WVS is translated into all local languages spoken by at least 15% of the nation's population to ensure representativeness. The resulting surveys are then administered in face-to-face interviews to a representative sample of adults in each country. In each WVS dataset, we used only those national samples that included our key variables for each analysis. In Wave 4, this gave us samples from 36 nations for all analyses. In Wave 5, it gave us 49 nations for the religious-identification analysis and 47 nations for the religious-practice analysis.¹ In each analysis which follows, only respondents from these nations with complete data on all included variables were used; exact sample sizes are provided below for each model estimated.

Measures

Descriptions of the WVS measures are provided below. Detailed information is provided for each WVS in the supplemental materials.²

Religious identification. Two items were used to measure religious identification. The first is from a series of items prefaced with the following: "For each of the following, indicate how important it is in your life," with the response options (1) "very important," (2) "rather important," (3) "not very important," and (4) "not at all important." We used responses to the one asking about "religion." The second item asked participants, "Independently of whether you attend religious services or not, would you say you are (1) a religious person, (2) not a religious person, or (3) an atheist?" Both items were reversed and recoded to run from 0 to 1 so that 1 reflects a higher degree of religiosity. The items were related ($\alpha=0.64$, in Wave 4, $\alpha=0.69$, in Wave 5), and thus were averaged ($M=0.83$, $SD=0.25$, in Wave 4; $M=0.76$, $SD=0.29$, in Wave 5).

¹ In Wave 5, religious practice was not measured in two of the nations (Malaysia and Morocco) that religious identification was measured in. Therefore, all descriptive statistics and model estimates involving religious practice rely on 47 nations rather than 49.

² All data and code for the analyses can be found at: <https://osf.io/g3t5a/>

Religious practice. We used one item to measure level of religious practice: “Apart from weddings and funerals, about how often do you attend religious services these days?” Responses included: (1) “more than once a week,” (2) “once a week,” (3) “once a month,” (4) “only on special holy days,” (5) “once a year,” (6) “less often,” and (7) “never.” Responses were reversed and recoded to run from 0 to 1 so that 1 indicates more frequent practice ($M=0.58$, $SD=0.37$, in Wave 4; $M=0.63$, $SD=0.37$, in Wave 5).

Authoritarianism. Authoritarianism was assessed using a measure of childrearing values (Federico et al., 2011; Federico & Reifen-Tagar, 2014; Hetherington & Weiler, 2009; Stenner, 2005). In contrast to other measures of authoritarianism (e.g., the RWA scale; Altemeyer, 1996), these measures are relatively free of explicit political content and tap the *predisposition* toward conformity and deference to authority apart from its political consequences (e.g., social conservatism). We rely on a variant of a measure originally employed by Stenner (2005) and a variety of other researchers who have examined authoritarianism in the WVS (Brandt & Henry, 2012; Dunn, 2015; Dunn & Singh, 2014; Singh & Dunn, 2013; Weiner & Federico, 2016). The measure was constructed from responses to checklist items inquiring about “qualities that children can be encouraged to learn at home.” Respondents were permitted to check up to five they considered “especially important.” To generate the scale, responses to three traits were considered: obedience, imagination, and independence. Responses were scored 1 if the quality was endorsed and 0 otherwise. Scores on imagination and independence were reversed. These were supplemented with a fourth item dealing with respect for authority: “I’m going to read out a list of various changes in our way of life that might take place in the near future. Please tell me for each one, if it were to happen, whether you think it would be a good thing, a bad thing, or don’t you mind?” The stimulus was: “Greater respect for authority.” “Good” responses were coded as authoritarian (1); “don’t mind” and “bad” responses were coded as non-authoritarian (0). The scale measure was then constructed by summing

responses to the four items and then recoding the sums to run from 0 to 1 (with 1 reflecting higher authoritarianism; $M=0.59$, $SD=0.28$, in Wave 4; $M=0.58$, $SD=0.24$, in Wave 5).³

Demographics. These included: *age* (in years), *income* (rescaled from 0 to 1 where 1 reflects a higher level of income), *gender* (1=male, 0=other), and *education* (seven ordered categories, rescaled to run 0 to 1, where 1 reflects a higher level of education).

Nation-level variables. First, to assess the general level of development in each respondents' nation, we relied on the United Nations *Human Development Index* (HDI). The 2001 HDI for each nation was used in the Wave 4 data and the 2005 HDI was used in Wave 5. In each nation, this index is a composite of life expectancy at birth, mean years of schooling, and per capita income. Conceptually, the HDI represents the extent to which a nation's social and economic conditions materially allow individuals to self-actualize and accomplish their goals (ul Haq, 2009).⁴ Second, to check on differences due to national religious culture, we also included a series of four dummy variables indicating the numerically-dominant religious group in each nation (Central

³ The WVS authoritarianism items make traditional indices of internal consistency inappropriate (Dunn & Singh, 2014; see also Brandt & Henry, 2012; Weiner & Federico, 2016). This is because 3 of 4 of the items have a checklist format that does not require respondents to explicitly choose only one of two desirable qualities for children or to rank-order the qualities, as other childrearing-values scales do (Federico, Fisher, & Deason, 2011). With checklist items like these, a 'high' level of the construct is indicated by an accumulation of diagnostic responses across stimuli relevant to different facets of the construct rather than consistent responding across items (Bollen & Lennox, 1991; McCrae, 2015; Streiner, 2003). Despite this difference in measurement characteristics, previous research using the measure consistently indicates that this checklist-based authoritarianism scale predicts theoretically-related outcome variables in much the same way other measures of authoritarianism do (Brandt & Henry, 2012; Dunn, 2015; Dunn & Singh, 2014; Stenner, 2005). That said, to be sure that our results are not an artifact of this operationalization of authoritarianism, we replicate our results in the WVS 5 using a measure of conservation values (e.g., Dunn et al., 2017). These results can be found in the supplemental materials.

⁴ In contrast to what we do at the individual level with income and education, we do not consider the individual components of HDI. Rather than being distinct characteristics, our theory regards the individual HDI components as indicators of a common construct. Indeed, the three HDI components are so highly correlated at the nation level ($r_s > 0.70$) as to be conceptually redundant and statistically impossible to differentiate in a regression context (Ghislandi et al., 2003; Ogwang & Abdou, 2003).

Intelligence Agency, 2017). These included “Protestant,” “Orthodox,” “Muslim,” and “Other Religion.” “Roman Catholic” was the excluded group.

Results

Preliminary Analyses: Bivariate Correlations

We begin by examining the bivariate relationships between the two dependent measures (religious identification and religious practice) and three key individual-level predictors (income, education, and authoritarianism) in Table 1. In both WVS datasets, religious identification was weaker among both those high in income and formal education ($p < 0.001$), but stronger among those high in authoritarianism ($p < 0.001$). Similarly, religious practice was less frequent among those high in income and education ($p < 0.001$), but more frequent among those high in authoritarianism ($p < 0.001$). Importantly, both religiosity indices were more strongly associated with authoritarianism than with either of the two demographics (income and education). For example, in WVS Wave 4, religious identification correlated more strongly in absolute terms with authoritarianism ($r = 0.29$) than with income ($r = -0.08$) or education ($r = -0.15$); religious practice was also more strongly correlated with authoritarianism ($r = 0.16$) than with income ($r = -0.04$) or education ($r = -0.04$).

Religious identification and practice were also strongly correlated in both datasets ($r = 0.46$ in Wave 4, $r = 0.56$ in Wave 5; $p < 0.001$). Authoritarianism also showed the usual negative relationships with both income ($p < 0.001$) and education ($p < 0.001$) in both datasets, consistent with the idea that authoritarianism is lower among those with higher incomes and greater education attainment.

Main Analyses: Moderators of the Relationship Between Authoritarianism and Religiosity

To test our main hypotheses, we estimated a series of multilevel linear mixed models, since individual WVS respondents (level 1) were nested in nations (level 2). For each dependent variable in each dataset, we estimated three models. In Model 1, we regressed each dependent variable on the level-2 predictors (the religious-culture dummies and HDI) and the level-1 main effects (income,

education, gender, age, and authoritarianism). In Model 2, we added the level-1 Authoritarianism $\times$ Education interaction, along with the Authoritarianism $\times$ Income to distinguish the moderating effect of education from that of income. In Model 3, we added the cross-level Authoritarianism $\times$ HDI interaction, along with four other cross-level interactions between authoritarianism and each of the level-2 national religious-culture indicators to distinguish the moderating effect of education from that of nation-level religious differences. In each model, we allowed the intercept to vary randomly, along with selected coefficients indicated below.⁵ Given the lack of an agreed-upon method for computing effect sizes in linear mixed models (Peugh, 2010), we rely on the 0 to 1 coding of our key independent and dependent variables to provide an indication of effect size (Baguley, 2009). With this coding, each coefficient estimate indicates the proportion change in religious identification or religious practice associated with moving from the minimum to the maximum value of each independent variable.

Authoritarianism and religious identification. The models predicting religious identification are summarized in Tables 2 (WVS 4) and 3 (WVS 5). We begin with Model 1.⁶ Looking at the estimates for this model, we find support for Hypothesis 1 in both datasets: authoritarianism was associated with greater religious identification ($b=0.08$, in Wave 4; $b=0.11$, in Wave 5; $ps<0.001$). Moving from the lowest to the highest authoritarianism level was associated with 8% and 11% increases in religious identification in each sample, respectively. That said, the estimated effect of authoritarianism varied considerably across nations. To illustrate this, we provide within-nation coefficients for the relationship between authoritarianism and religious identification in the left-hand panels of Figures 1 (WVS 4) and 2 (WVS 5) derived from empirical Bayes estimates

⁵ Random-effect variance estimates for all models are provided in the supplementary materials.

⁶ In Model 1 in Tables 2 and 3, we allow the intercept and the coefficients for income, education, and authoritarianism to vary randomly across nations.

of the random effects for the slope of authoritarianism in Model 1 (Rabe-Hesketh & Skrondal, 2008). In Wave 4, the coefficients range from $b=-0.005$ (Pakistan) to $b=0.26$ (South Korea); in Wave 5, they range from $b=0.001$ (Georgia) to $b=0.26$ (United States). Despite this variance, it is notable that the nation-level effects whose 95% confidence intervals did not include 0 were predominantly positive. Estimates from both samples also indicated that HDI was associated with reduced religious identification at the national level ($p<0.001$) and that education was associated with reduced religious identification at the individual level ($p<0.001$ in Wave 4 and $p=.086$ in and in Wave 5). Income had far weaker relationships with religious identification in both datasets ($p>0.250$). Finally, individuals who identified themselves as male were less religiously-identified in both samples ($p<0.001$), while older individuals displayed higher identification ($p<0.001$).

Model 2 examined Hypothesis 2 by adding the Authoritarianism $\times$ Education interactions (with the Authoritarianism $\times$ Income interactions as a control).⁷ As expected, these interactions were significant and positively signed in Wave 4 ($b=0.05$, $p=0.013$) and Wave 5 ($b=0.09$, $p<0.001$). To break down these interactions, we estimated conditional effects for authoritarianism across the range of education values from the minimum (0) to the maximum (1). These conditional effects are plotted in the left-hand panels of Figure 3; values on the y-axis represent the conditional-effect estimates and can be interpreted as the proportion change in religious identification associated with going from the lowest to the highest value of authoritarianism at a specific education level. As an additional illustration, we plot regression lines for authoritarianism at minimum and maximum education in the left two panels of Figure 4. In Wave 4, the conditional effects ranged from $b=0.06$ (95% CI=0.04, 0.08; $p<0.001$) at the lowest education level to $b=0.11$ (95% CI=0.07, 0.14; $p<0.001$) at the highest education level. In Wave 5, the effects ranged from $b=0.06$ (95% CI=0.04, 0.09;

⁷Based on likelihood-ratio tests, we added random coefficients for the two level-1 interactions to Model 2 in Tables 2 and 3 (in addition to the random effects included in Model 1).

$p < 0.001$) at minimum education to $b = 0.15$ (95% CI = 0.12, 0.18; $p < 0.001$) at maximum education.

Results were less consistent for the Authoritarianism $\times$ Income interactions; it reached conventional levels of significance only in Wave 4 ($p = 0.035$). Looking at the left two panels in Figure 4, it is also worth noting that education is associated with lower religiosity among those at all levels of authoritarianism in Wave 4, though the gap is largest among those low in authoritarianism. However, education is associated both with reduced religious identification among those low in authoritarianism and greater identification among those high in authoritarianism in Wave 5.

Model 3 tested Hypothesis 3 by adding the Authoritarianism $\times$ HDI interactions (plus the interactions between authoritarianism and the level-2 religious-culture indicators as controls).⁸ As predicted, Authoritarianism $\times$ HDI interaction was significant and positively-signed in both Wave 4 ($b = 0.12$, $p < 0.001$) and Wave 5 ($b = 0.14$, $p < 0.001$). To unpack these interactions, we estimated conditional effects for authoritarianism across the range of HDI values from the minimum (0) to the maximum (1). These conditional effects are plotted in the right-hand panels of Figure 3; y-axis values represent the conditional effects and indicate the proportion change in religious identification associated with going from the lowest to the highest value of authoritarianism at a particular level of human development at the national level. For additional illustration, we plot regression lines for authoritarianism at minimum and maximum HDI in the right two panels of Figure 4.

In Wave 4, the conditional effects ranged from $b = 0.01$ (95% CI = -0.03, 0.05; $p > 0.250$) at minimum national HDI to $b = 0.13$ (95% CI = 0.10, 0.16; $p < 0.001$) at maximum national HDI. In Wave 5, the effects ranged from $b = 0.01$ (95% CI = -0.04, 0.05; $p > 0.250$) at the lowest level of human development to $b = 0.14$ (95% CI = 0.12, 0.17; $p < 0.001$) at the highest level of human development. None of the other cross-level interactions reached conventional levels of significance in either wave

⁸ Based on likelihood-ratio tests, we included the same random effects in Model 3 as Model 2 in Tables 2 and 3.

(all p s > 0.05). In both waves, the right two panels in Figure 4 tell a consistent story about the nature of the interactions: though respondents in high-HDI nations are lower in religious identification across the authoritarianism spectrum, the gap is largest among those low in authoritarianism. This suggests that those low in authoritarianism are especially likely to abandon religious identification in low-HDI nations.

Authoritarianism and religious practice. The models predicting religious practice are summarized in Tables 4 (WVS 4) and 5 (WVS 5). Looking first at Model 1, we again found support for Hypothesis 1 in both samples.⁹ As predicted, authoritarianism was associated with greater religious practice ($b=0.07$, in Wave 4, $p<0.001$; $b=0.10$, in Wave 5, $p<0.001$). Moving from the lowest to the highest authoritarianism level was associated with 7% and 10% increments in religious practice in Waves 4 and 5, respectively. Again, however, the estimated effect of authoritarianism varied markedly across nations. For illustrative purposes, within-nation coefficients for the relationship between authoritarianism and religious practice are provided in the right-hand panels of Figures 1 (WVS 4) and 2 (WVS 5); these were computed using empirical Bayes estimates of the random effects for the slope of authoritarianism in Model 1. In Wave 4, the within-nation coefficients for authoritarianism ranged from $b=-0.18$ (Bangladesh) to $b=0.33$ (United States). In Wave 5, they ranged from $b=-0.10$ (Mali) to $b=0.31$ (United States). Again, despite the variance in nation-level effects, the vast majority of the estimates whose 95% confidence intervals did not include 0 were positively-signed. The only negatively-signed nation-level estimates whose confidence intervals did not include 0 were Bangladesh in Wave 4, and Vietnam and Mali in Wave 5. Consistent with prior research, HDI was also associated with reduced religious practice (p s < 0.001). However, education was associated with reduced religious practice at the individual level only in Wave 5

⁹ In Model 1 in Tables 4 and 5, we again specify the intercept and the coefficients for income, education, and authoritarianism as random effects.

($p=0.046$). Income was related to religious practice only in Wave 5 ($p=0.013$). Older respondents showed higher levels of practice ($ps<0.001$).

Turning to Hypothesis 2, Model 2 added the Authoritarianism $\times$ Education interactions (again with the Authoritarianism $\times$ Income interactions for control purposes).¹⁰ As expected, these interactions were significant and positively-signed in Wave 4 ($b=0.07$, $p=0.007$) and Wave 5 ($b=0.09$, $p<0.001$). We unpacked the interactions using conditional-effect analyses paralleling those conducted for religious identification. These conditional effects are plotted in the left-hand panels of Figure 5 and can be interpreted the same way as the corresponding plots in Figure 3. For additional visualization, we also plot regression lines for authoritarianism at minimum and maximum education in the left two panels of Figure 6. In Wave 4, the conditional effects ranged from $b=0.04$ (95% CI=0.01, 0.08; $p=0.039$) at minimum educational attainment to $b=0.11$ (95% CI=0.06, 0.16; $p<0.001$) at maximum educational attainment. In Wave 5, the estimates ranged from $b=0.05$ (95% CI=0.02, 0.09; $p=0.001$) at the lowest education level to $b=0.15$ (95% CI=0.11, 0.18; $p<0.001$) at the highest education level. Results for the Authoritarianism $\times$ Income interactions were similar to those in the religious-identification analyses. The interaction was positively-signed in both samples, but it was statistically different from zero only in Wave 4 ($p=0.035$). Looking at the left two panels in Figure 6, we can also see that education is associated both with reduced religious practice among those low in authoritarianism and greater practice among those high in authoritarianism in both waves.

¹⁰ We added random coefficients for the two level-1 interactions to Model 2 (in addition to the random effects included in Model 1) in the analyses from Table 4 but not those in Table 5; likelihood-ratio tests indicated an improvement in fit from their addition in the former case but not the latter case.

Turning to Hypothesis 3, Model 3 added the Authoritarianism $\times$ HDI interactions (plus the interactions between authoritarianism and the religious-culture indicators).¹¹ Consistent with predictions, the Authoritarianism $\times$ HDI interactions were significant and positive in Wave 4 ($b=0.19, p<0.001$) and Wave 5 ($b=0.15, p=0.002$). We broke down these interactions using conditional-effect analyses similar to those used to unpack the corresponding interactions in the religious-identification analyses. These conditional-effect estimates are plotted in the right-hand panels of Figure 5. As before, we also plot regression lines for authoritarianism at minimum and maximum HDI in the right two panels of Figure 6. In Wave 4, the estimates ranged from $b=-0.04$ (95% CI=-0.11, 0.02; $p=0.210$) at minimum HDI to $b=0.15$ (95% CI=0.10, 0.20; $p<0.001$) at maximum HDI. In Wave 5, there was some evidence that authoritarianism was marginally associated with *reduced* practice in nations at the lowest level of human development, though the strongest positive relationship between the two variables was again observed at maximum HDI. Here, the effects ranged from $b=-0.01$ (95% CI=-0.08, 0.061; $p>0.250$) at the lowest level of human development to $b=0.14$ (95% CI=0.11, 0.18; $p<0.001$) at the highest level of human development. In both waves, the two right panels in Figure 6 again tell a consistent story: though respondents in high-HDI nations are lower in religious practice at all authoritarianism levels, the gap is largest among those low in authoritarianism. This suggests that those low in authoritarianism are especially likely to drift away from religious practice in low-HDI nations.

Discussion

A wealth of research has explored the individual and contextual correlates of religiosity. In particular, whereas higher authoritarianism is associated with higher levels of religiosity, both low levels of education at the individual level and residence in a nation with a low level of human

¹¹ Based on likelihood-ratio tests, we included the same random effects in Model 3 as Model 2 in Tables 4 and 5.

development are associated with higher levels of religiosity. In the present research, we argue that education and development interact with authoritarianism to predict religiosity. Using data from two large cross-cultural datasets, we confirm that authoritarianisms predict greater religiosity (Hypothesis 1), and that religiosity is higher among individuals with lower levels of education and those living in less-developed nations. More importantly, we found that the relationship between religiosity and authoritarianism is stronger among highly educated individuals (Hypothesis 2) and among individuals living in societies that have higher levels of development (Hypothesis 3).

In terms of overall contribution, the current study suggests that although education and development are associated with reduced levels of religiosity, religiosity varies more strongly as a function of authoritarianism among those high in educational attainment or who reside in a more developed society. Put differently, our studies suggest that education and social development may play a powerful yet thus far underexplored role in shaping society by allowing individuals to sort into more religious or more secular worldviews and lifestyles based on their level of authoritarianism. Looking at the plots in Figures 4 and 6, it is apparent that education and development strengthen the link between authoritarianism and religiosity in somewhat different ways, though. On one hand, except in the case of religious identification in wave 4 of the WVS, education is associated with reduced religiosity among those low in authoritarianism and greater religiosity among those high in authoritarianism. Thus, education appears to be associated with differential sorting into varying levels of religiosity—in opposed directions—at both ends of the authoritarianism spectrum. On the other hand, development is consistently associated greater drops in religiosity among those low in authoritarianism than among those high in authoritarianism, though respondents in developed nations are lower in religiosity at all authoritarianism levels. This suggests that those low in authoritarianism may be especially likely to fall away from religion as development increases.

In sum, our results reveal that the relationship between authoritarianism and religiosity is more complex and conditional than previously thought. Furthermore, it contributes to the growing body of literature on variables, such as education and development, that can facilitate the expression of psychological dispositions (Federico & Deason, 2012; Federico & Malka, 2018; Malka, Soto, Inzlicht, & Lelkes, 2014; Malka, Lelkes, & Soto, 2017), sometimes in the counterintuitive ways such as those found in the present study.¹²

Limitations

The current study has some limitations. One limitation is a result of the cross-sectional nature of our current study, which does not allow our analyses to identify whether religiosity is caused by either authoritarianism, education, a country's level of development or their interactions. Although experimentally manipulating a personality variable such as authoritarianism might be practically difficult, if not impossible, longitudinal models may help to provide stronger evidence of causal relationships.

Another limitation is the relatively simple instrumentation provided by the WVS. Though this is offset by the large, cross-national samples provided by the WVS, most of our core variables were operationalized using single items or only a small number of items whose measurement properties are difficult to assess in the full samples and in subsamples. In particular, our measure of authoritarianism was based on a simple four-item scale (consisting largely of checklist-style items),

¹² Research has also found positive relationships between religiosity and authoritarianism in a different sense: i.e., support for actual autocratic governance (Malka, 2020). The question of whether our moderation hypotheses for education and HDI apply to the relationship between anti-democratic attitudes and religiosity is beyond the scope of the present investigation, which follows Stenner (2005) in focusing specifically on authoritarianism in the pre-political sense, i.e., as a general orientation toward obedience and conformity apart from specific political commitments. We leave this question for future research, though we speculate that the democracy/religiosity relationship may be more strictly moderated by individual-level variables governing ideological constraint (such as education or political engagement; Federico & Malka, 2018).

which is not as psychometrically ideal as longer measures (Altemeyer, 1998). The scale is not without its advantages over other measures, though. Unlike multifaceted inventories like the Right-Wing Authoritarianism scale, another commonly used measure, the items in the WVS scale do not explicitly mention respect for religious authority which may confound any associations we make between authoritarianism and our measures of religiosity. Therefore, by relying on the scale (which focuses largely on childrearing values) we avoid inflating the relationship between authoritarianism and religiosity due to wording similarities. In addition, we find similar results using a conceptually-related measure of conservation values in the supplementary materials, adding confidence that our key results are not an artifact of the WVS authoritarianism measure. Nevertheless, because of the limits of the WVS measures, we cannot be as sure of our results as we would be with longer scores whose psychometric properties can be more easily evaluated.¹³

Future Directions

We would also like to highlight a number of directions for future research. Although it is not a focus of our current study, we also found some evidence that income plays a role similar to that of education and development in two of four analyses. Specifically, the relationship between authoritarianism and religiosity is stronger among individuals with access to financial resources, suggesting that income may also facilitate the religious expression of authoritarianism. Given the inconsistency of this moderating effect across analyses, future research may wish to identify the boundary conditions for the moderating effect of income, if any. Relatedly, researchers should explore the possibility that other variables may moderate the relationship between authoritarianism and indices of religiosity. In this vein, one candidate variable is the need for cognition. Individuals higher in need for cognition tend to cognitively elaborate on prior predispositions and develop

¹³ In section 6 of the supplemental materials, we address these measurement concerns in more detail, with attention to the possibility of measurement differences across education and HDI.

stronger justifications for them, which may in turn increase consistency between those predispositions and related attitudes and behaviors (e.g., Cacioppo, Petty, Kao, & Rodriguez, 1986; Tam, Leung, & Chiu, 2008). Similar processes may also make it easier for individuals high in need for cognition to adopt religious orientations that are more consistent with their psychological needs.

On a different front, if the relationship between authoritarianism and religiosity is conditioned by development, our results also suggest that we may observe changes in this relationship across time within societies. Specifically, if a society that initially scores low on development experiences an increase in development over time, authoritarianism may become more strongly predictive of religious involvement and practice over that interval. While this question is beyond the scope of the present study, future research should identify candidate nations in which survey data covering a period of intense development are available for testing this prediction.

Conclusion

In the analyses reported here, we shed new light on the relationship between individual differences in authoritarianism and religiosity. Using data from two large cross-cultural surveys, we demonstrate that authoritarianism is more strongly related to religious involvement and practice among individuals with higher levels of education and those who reside in nations at higher levels of human development. Taken together, our findings suggest that authoritarianism is more likely to predict religiosity when individual and contextual factors facilitate the adoption of expressive attitudes and behaviors.

References

- Adorno, T. W., Frenkel-Brunswik, E., Levinson, D. J., Sanford, R. N., Aron, B. R., Levinson, M. H., & William R.. Morrow. (1950). The authoritarian personality.
- Allport, G. W (1954). The nature of prejudice.
- Altemeyer, B., & Hunsberger, B. (1992). Authoritarianism, religious fundamentalism, quest, and prejudice. *The international journal for the psychology of religion*, 2(2), 113-133.
https://doi.org/10.1207/s15327582ijpr0202_5
- Altemeyer, B. (1988). *Enemies of freedom: Understanding right-wing authoritarianism*. Jossey-Bass.
- Altemeyer, B. (1981). *Right-wing authoritarianism*. University of Manitoba press.
- Altemeyer, B. (1998). The other “authoritarian personality”. In *Advances in experimental social psychology* (Vol. 30, pp. 47-92). Academic Press. [https://doi.org/10.1016/S0065-2601\(08\)60382-2](https://doi.org/10.1016/S0065-2601(08)60382-2)
- Altemeyer, B., & Altemeyer, R. A. (1996). *The authoritarian specter*. Harvard University Press.
- Baguley, T. (2009). Standardized or simple effect size: What should be reported?. *British journal of psychology*, 100(3), 603-617. <https://doi.org/10.1348/000712608X377117>
- Barber, N. 2011. A cross-national test of the uncertainty hypothesis of religious belief. *Cross-Cultural Research*, 45(3), 318-333. <https://doi.org/10.1177/1069397111402465>
- Barton, A. H., & Parsons, R. W. (1977). Measuring belief system structure. *Public Opinion Quarterly*, 41(2), 159-180. <https://doi.org/10.1086/268372>
- Beckwith, B. P. (1985). *The decline of US religious faith, 1912-1984: and the effects of education and intelligence on such faith*. Burnham P Beckwith.
- Blogowska, J., & Saroglou, V. (2011). Religious fundamentalism and limited prosociality as a function of the target. *Journal for the Scientific Study of Religion*, 50(1), 44-60.
<https://doi.org/10.1111/j.1468-5906.2010.01551.x>

- Bollen, K., & Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological bulletin*, 110(2), 305. <https://doi.org/10.1037/0033-2909.110.2.305>
- Brandt, M. J., & Henry, P. J. (2012). Gender inequality and gender differences in authoritarianism. *Personality and Social Psychology Bulletin*, 38(10), 1301-1315. <https://doi.org/10.1177/0146167212449871>
- Brown, S., & Taylor, K. (2007). Religion and education: evidence from the National Child Development Study. *Journal of Economic Behavior & Organization*, 63(3), 439-460. <https://doi.org/10.1016/j.jebo.2005.08.003>
- Cacioppo, J. T., Petty, R. E., Kao, C. F., & Rodrigues, R. (1986). Central and peripheral routes to persuasion: An individual difference perspective. *Journal of Personality and Social Psychology*, 51, 1032-1043. <https://doi.org/10.1037/0022-3514.51.5.1032>
- Canetti-Nisim, D. (2004). The effect of religiosity on endorsement of democratic values: The mediating influence of authoritarianism. *Political Behavior*, 26(4), 377-398. <https://doi.org/10.1007/s11109-004-0901-3>
- Central Intelligence Agency. (2017). *The World Factbook 2016-17*. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook>
- Christie, R. (1954). Authoritarianism re-examined. *Studies in the scope and method of "the authoritarian personality": Continuities in social research*, 123-96.
- Converse, P. E. (2006). The nature of belief systems in mass publics (1964). *Critical review*, 18(1-3), 1-74. <https://doi.org/10.1080/08913810608443650>
- Duck, R. J., & Hunsberger, B. (1999). Religious orientation and prejudice: The role of religious proscription, right-wing. *The International Journal for the Psychology of Religion*, 9(3), 157-179. https://doi.org/10.1207/s15327582ijpr0903_1

- Duckitt, J., & Bizumic, B. (2013). Multidimensionality of right-wing authoritarian attitudes: Authoritarianism-conservatism-traditionalism. *Political Psychology*, 34(6), 841-862.
<https://doi.org/10.1111/pops.12022>
- Dunn, K. (2015). Preference for radical right-wing populist parties among exclusive-nationalists and authoritarians. *Party Politics*, 21(3), 367-380. <https://doi.org/10.1177/1354068812472587>
- Dunn, K., Griffiths, E., Lamb, S., Shortt, R., & Theocari, E. (2017). The human empowerment sequence and the development of libertarian values: A theoretical and empirical adjustment to the human empowerment sequence. *Journal of Cross-Cultural Psychology*, 48, 771-789.
<https://doi.org/10.1177/0022022117699882>
- Dunn, K., & Singh, S. P. (2014). Pluralistic conditioning: Social tolerance and effective democracy. *Democratization*, 21(1), 1-28. <https://doi.org/10.1080/13510347.2012.697056>
- Duriez, B., & Van Hiel, A. (2002). The march of modern fascism. A comparison of social dominance orientation and authoritarianism. *Personality and Individual Differences*, 32(7), 1199-1213. [https://doi.org/10.1016/S0191-8869\(01\)00086-1](https://doi.org/10.1016/S0191-8869(01)00086-1)
- Federico, C. M., & Deason, G. M. (2011). Uncertainty, insecurity, and ideological defense of the status quo: The extremitizing role of political expertise. *Extremism and the Psychology of Uncertainty*, 195-211.
- Federico, C. M., & Malka, A. (2018). The contingent, contextual nature of the relationship between needs for security and certainty and political preferences: Evidence and implications. *Political Psychology*, 39, 3-48. <https://doi.org/10.1111/pops.12477>
- Federico, C. M., & Tagar, M. R. (2014). Zeroing in on the Right: Education and the Partisan Expression of Authoritarianism in the United States. *Political Behavior*, 36(3), 581-603.
<https://doi.org/10.1007/s11109-013-9250-4>

- Federico, C. M., Fisher, E. L., & Deason, G. (2011). Expertise and the ideological consequences of the authoritarian predisposition. *Public opinion quarterly*, 75(4), 686-708.
<https://doi.org/10.1093/poq/nfr026>
- Feldman, S., & Stenner, K. (1997). Perceived threat and authoritarianism. *Political Psychology*, 18(4), 741-770. <https://doi.org/10.1111/0162-895X.00077>
- Feldman, S. (2003). Enforcing social conformity: A theory of authoritarianism. *Political psychology*, 24(1), 41-74. <https://doi.org/10.1111/0162-895X.00316>
- Ghislandi, S., Sanderson, W. C., & Scherbov, S. (2019). A simple measure of human development: the human life indicator. *Population and Development Review*, 45, 219-233.
- Hall, D. L., Matz, D. C., & Wood, W. (2010). Why don't we practice what we preach? A meta-analytic review of religious racism. *Personality and social psychology review*, 14(1), 126-139.
<https://doi.org/10.1177/1088868309352179>
- Hetherington, M. J., & Weiler, J. D. (2009). *Authoritarianism and polarization in American politics*. Cambridge University Press.
- Hogg, M. A., Adelman, J. R., & Blagg, R. D. (2010). Religion in the face of uncertainty: An uncertainty-identity theory account of religiousness. *Personality and social psychology review*, 14(1), 72-83. <https://doi.org/10.1177/1088868309349692>
- Hungerman, D. M. (2014). The effect of education on religion: Evidence from compulsory schooling laws. *Journal of Economic Behavior & Organization*, 104, 52-63.
<https://doi.org/10.1016/j.jebo.2013.09.004>
- Hunsberger, B. (1995). Religion and prejudice: The role of religious fundamentalism, quest, and right-wing authoritarianism. *Journal of Social Issues*, 51(2), 113-129.
<https://doi.org/10.1111/j.1540-4560.1995.tb01326.x>

- Hunsberger, B. (1996). Religious fundamentalism, right-wing authoritarianism, and hostility toward homosexuals in non-Christian religious groups. *The International Journal for the Psychology of Religion*, 6(1), 39-49. https://doi.org/10.1207/s15327582ijpr0601_5
- Inglehart, R., & Baker, W. E. (2000). Modernization, cultural change, and the persistence of traditional values. *American sociological review*, 19-51. <https://doi.org/10.2307/2657288>
- Norris, P., & Inglehart, R. (2011). *Sacred and secular: Religion and politics worldwide*. Cambridge University Press.
- Inglehart, R., & Welzel, C. (2005). *Modernization, cultural change, and democracy: The human development sequence*. Cambridge University Press.
- Inglehart, R., & Welzel, C. (2010). Changing mass priorities: The link between modernization and democracy. *Perspectives on politics*, 8(2), 551-567.
- Inglehart, R. (1990). *Values, ideology, and cognitive mobilization in new social movements* (pp. 43-66). Taylor & Francis, Boca Raton.
- Inglehart, R. (2018). *Culture shift in advanced industrial society*. Princeton University Press.
- Johnson, D. C. (1997). Formal education vs. religious belief: Soliciting new evidence with multinomial logit modeling. *Journal for the scientific study of religion*, 231-246. <https://doi.org/10.2307/1387555>
- Jones, M. B. (1958). Religious values and authoritarian tendency. *The Journal of Social Psychology*, 48(1), 83-89. <https://doi.org/10.1080/00224545.1958.9919270>
- Jost, J. T., Basevich, E., Dickson, E. S., & Noorbaloochi, S. (2016). The place of values in a world of politics: Personality, motivation, and ideology. *Handbook of value: Perspectives from economics, neuroscience, philosophy, psychology, and sociology*, 351-374.

- Jost, J. T., Federico, C. M., & Napier, J. L. (2009). Political ideology: Its structure, functions, and elective affinities. *Annual review of psychology*, 60, 307-337.
<https://doi.org/10.1146/annurev.psych.60.110707.163600>
- Jost, J.T., Hawkins, C.B., Nosek, B.A., Hennes, E.P., Stern, C., Gosling, S.D., & Graham, J. (2014). Belief in a just god (and a just society): A system justification perspective on religious ideology. *Journal of Theoretical and Philosophical Psychology*, 34, 56-81. <https://doi.org/10.1037/a0033220>
- Kemmelmeier, M. (2007). Political conservatism, rigidity, and dogmatism in American foreign policy officials: The 1966 Mennis data. *The Journal of Psychology*, 141(1), 77-90.
<https://doi.org/10.3200/JRLP.141.1.77-90>
- Kirkpatrick, L. A. (1993). Fundamentalism, Christian orthodoxy, and intrinsic religious orientation as predictors of discriminatory attitudes. *Journal for the Scientific Study of Religion*.
<https://doi.org/10.2307/1386664>
- Kohn, M. (1969). *Class and conformity: A study in values*. University of Chicago Press.
- Laythe, B., Finkel, D., & Kirkpatrick, L. A. (2001). Predicting prejudice from religious fundamentalism and right-wing authoritarianism: A multiple-regression approach. *Journal for the scientific study of Religion*, 40(1), 1-10. <https://doi.org/10.1111/0021-8294.00033>
- Leak, G. K., & Randall, B. A. (1995). Clarification of the link between right-wing authoritarianism and religiousness: The role of religious maturity. *Journal for the Scientific Study of Religion*, 245-252. <https://doi.org/10.2307/1386769>
- Lipset, S. M. (1960). Party systems and the representation of social groups. *European Journal of Sociology/Archives Européennes de Sociologie*, 1(1), 50-85.
- Lipset, S. M. (1960). Political Man: The Social Bases of Politics. Garden City, NY: Anchor. *Lipset Political Man: The Social Bases of Politics 1960*.

- Lipsitz, L. (1965). Working-class authoritarianism: A re-evaluation. *American Sociological Review*, 30(1), 103-109. <https://doi.org/10.2307/2091777>
- Malka, A. (2020). Religiosity and openness to authoritarian governance. In D. Osborne & C.G. Sibley (Eds.), *Cambridge Handbook of Political Psychology*. Cambridge, UK: Cambridge University Press.
- Malka, A., Lelkes, Y., & Soto, C. J. (2017). Are cultural and economic conservatism positively correlated? A large-scale cross-national test. *British Journal of Political Science*, 1-25. <https://doi.org/10.1017/S0007123417000072>
- Malka, A., Soto, C. J., Inzlicht, M., & Lelkes, Y. (2014). Do needs for security and certainty predict cultural and economic conservatism? A cross-national analysis. *Journal of Personality and Social Psychology*, 106(6), 1031. <https://doi.org/10.1037/a0036170>
- McCleary, R. M. (2008). Religion and economic development. *Policy Review*, (148), 45.
- McCleary, D. F., Quillivan, C. C., Foster, L. N., & Williams, R. L. (2011). Meta-analysis of correlational relationships between perspectives of truth in religion and major psychological constructs. *Psychology of Religion and Spirituality*, 3(3), 163. <https://doi.org/10.1037/a0022208>
- McClosky, H., & Zaller, J. (1984). The American ethos: Public attitudes toward democracy and capitalism. *Cambridge, MA: Harvard University Press*. McFarland, SG (1989). Religious orientations and the targets of discrimination. *Journal for the Scientific Study of Religion*, 28, 324-336.
- McCrae, R. R. (2015). A more nuanced view of reliability: Specificity in the trait hierarchy. *Personality and Social Psychology Review*, 19(2), 97-112. <https://doi.org/10.1177/1088868314541857>
- Mocan, N., & Pogorelova, L. (2017). Compulsory schooling laws and formation of beliefs: Education, religion and superstition. *Journal of Economic Behavior & Organization*, 142, 509-539. <https://doi.org/10.1016/j.jebo.2017.07.005>

- Norenzayan, A. (2013). *Big gods: How religion transformed cooperation and conflict*. Princeton University Press.
- Ogwang, T., & Abdou, A. (2003). The choice of principal variables for some measures of human well-being. *Social Indicators Research*, 64, 139-152. <https://doi.org/10.1023/A:1024788123572>
- Onraet, E., Van Hiel, A., Roets, A., & Cornelis, I. (2011). The closed mind: 'Experience' and 'cognition' aspects of openness to experience and need for closure as psychological bases for right-wing attitudes. *European Journal of Personality*, 25(3), 184-197. <https://doi.org/10.1002/per.775>
- Petersen, L. R. (1994). Education, homogamy, and religious commitment. *Journal for the Scientific Study of Religion*. <https://doi.org/10.2307/1386599>
- Peugh, J. L. (2010). A practical guide to multilevel modeling. *Journal of School Psychology*, 48, 85–112. <http://dx.doi.org/10.1016/j.jsp.2009.09.002>
- Photiadis, J. D., & Johnson, A. L. (1963). Orthodoxy, church participation, and authoritarianism. *American Journal of Sociology*, 69(3), 244-248.
- Rabe-Hesketh, S. and Skrondal, A. (2008). *Multilevel and longitudinal modeling using Stata (2nd Edition)*. College Station, TX: Stata Press.
- Rowatt, W. C., Franklin, L. M., & Cotton, M. (2005). Patterns and personality correlates of implicit and explicit attitudes toward Christians and Muslims. *Journal for the Scientific Study of Religion*, 44(1), 29-43. <https://doi.org/10.1111/j.1468-5906.2005.00263.x>
- Rowatt, W. C., Tsang, J. A., Kelly, J., LaMartina, B., McCullers, M., & McKinley, A. (2006). Associations between religious personality dimensions and implicit homosexual prejudice. *Journal for the Scientific Study of Religion*, 45(3), 397-406. <https://doi.org/10.1111/j.1468-5906.2006.00314.x>

- Rubinstein, G. (1996). Two peoples in one land: A validation study of Altemeyer's right-wing authoritarianism scale in the Palestinian and Jewish societies in Israel. *Journal of Cross-Cultural Psychology*, 27(2), 216-230. <https://doi.org/10.1177/0022022196272005>
- Saroglou, V. (2002). Beyond dogmatism: The need for closure as related to religion. *Mental Health, Religion & Culture*, 5(2), 183-194. <https://doi.org/10.1080/13674670210144130>
- Saroglou, V. (2002). Religion and the five factors of personality: A meta-analytic review. *Personality and individual differences*, 32(1), 15-25. [https://doi.org/10.1016/S0191-8869\(00\)00233-6](https://doi.org/10.1016/S0191-8869(00)00233-6)
- Sherkat, D. E. (1998). Counterculture or continuity? Competing influences on baby boomers' religious orientations and participation. *Social Forces*, 76(3), 1087-1114. <https://doi.org/10.1093/sf/76.3.1087>
- Simpson, M. (1972). Authoritarianism and education: A comparative approach. *Sociometry*, 223-234. <https://doi.org/10.2307/2786619>
- Singh, S. P., & Dunn, K. P. (2013). Veto Players, the Policy-Making Environment and the Expression of Authoritarian Attitudes. *Political Studies*, 61(1), 119-141. <https://doi.org/10.1111/j.1467-9248.2012.00959.x>
- Sniderman, P. M., Brody, R. A., & Tetlock, P. E. (1991). The role of heuristics in political reasoning: A theory sketch. *Reasoning and choice: Explorations in political psychology*, 14-30.
- Stark, R. (2001). Reconceptualizing religion, magic, and science. *Review of Religious Research*, 101-120. <https://doi.org/10.2307/3512057>
- Stenner, K. (2005). *The authoritarian dynamic*. Cambridge University Press.
- Streyffeler, L. L., & McNally, R. J. (1998). Fundamentalists and liberals: Personality characteristics of Protestant Christians. *Personality and Individual Differences*, 24(4), 579-580. [https://doi.org/10.1016/S0191-8869\(97\)00189-X](https://doi.org/10.1016/S0191-8869(97)00189-X)

- Streiner, D. L. (2003). Being inconsistent about consistency: When coefficient alpha does and doesn't matter. *Journal of personality assessment*, 80(3), 217-222.
https://doi.org/10.1207/S15327752JPA8003_01
- Swatos, W. H., & Christiano, K. J. (1999). Introduction—Secularization theory: The course of a concept. *Sociology of Religion*, 60(3), 209-228. <https://doi.org/10.2307/3711934>
- Tam, K.-P., Leung, A. K.-Y., & Chiu, C.-Y. (2008). On being a mindful authoritarian: Is need for cognition always associated with less punitiveness? *Political Psychology*, 29, 77-91.
<https://doi.org/10.1111/j.1467-9221.2007.00613.x>
- ul Haq, M. (2009). The human development paradigm. In S. Fukuda-Parr & A. K. Shiva Kumar (Eds.), *Handbook on human development* (pp. 17-34). New York: Oxford University Press.
- United Nations Development Programme. (2016). *Human Development Report 2016* [Aggregate data file]. Retrieved from <http://hdr.undp.org/en/content/human-development-report-2016-human-development-everyone>
- Watson, P. J., Sawyers, P., Morris, R. J., Carpenter, M. L., Jimenez, R. S., Jonas, K. A., & Robinson, D. L. (2003). Reanalysis within a Christian ideological surround: Relationships of intrinsic religious orientation with fundamentalism and right-wing authoritarianism. *Journal of Psychology and Theology*, 31(4), 315-328. <https://doi.org/10.1177/009164710303100402>
- Weber, M. (1904). The Protestant ethic and the spirit of capitalism. *New York: Charles Scribner's Sons*.
- Weiner, E., & Federico, C. M. (2017). Authoritarianism, institutional confidence, and willingness to engage in collective action: A multinational analysis. *Personality and Social Psychology Bulletin*, 43(3), 392-406. <https://doi.org/10.1177/0146167216686561>
- Weller, L., Levinbok, S., Maimon, R., & Shaham, A. (1975). Religiosity and authoritarianism. *The Journal of social psychology*, 95(1), 11-18. <https://doi.org/10.1080/00224545.1975.9923229>

Wink, P., Dillon, M., & Prettyman, A. (2007). Religiousness, spiritual seeking, and authoritarianism: Findings from a longitudinal study. *Journal for the Scientific Study of Religion*, 46(3), 321-335.

<https://doi.org/10.1111/j.1468-5906.2007.00361.x>

Wylie, L., & Forest, J. (1992). Religious fundamentalism, right-wing authoritarianism and prejudice. *Psychological reports*, 71(3_suppl), 1291-1298.

<https://doi.org/10.2466/pr0.1992.71.3f.1291>

Table 1. Correlations Between Key Individual-Level Variables

Variables	1	2	3	4
<i>World Values Survey, Wave 4</i>				
1. Religious identification	1.00			
2. Religious practice	0.46***	1.00		
3. Income Decile	-0.08***	-0.04***	1.00	
4. Education	-0.15***	-0.04***	0.34***	1.00
5. Authoritarianism	0.29***	0.16***	-0.13***	-0.21***
<i>World Values Survey, Wave 5</i>				
1. Religious identification	1.00			
2. Religious practice	0.56***	1.00		
3. Income Decile	-0.09***	-0.05***	1.00	
4. Education	-0.14***	-0.13***	0.33***	1.00
5. Authoritarianism	0.26***	0.19***	-0.17***	-0.23***

Note. Entries are Pearson correlation coefficients. (***) $p < .001$.

Table 2. Religious Identification as a Function of Authoritarianism (WVS Wave 4)

Predictor	Model 1			Model 2			Model 3		
	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>
<i>Country-level predictors:</i>									
Protestant	-0.04	(-0.17, 0.08)	>0.250	-0.04	(-0.17, 0.08)	>0.250	-0.03	(-0.16, 0.10)	>0.250
Orthodox	0.04	(-0.12, 0.21)	>0.250	0.03	(-0.14, 0.20)	>0.250	0.04	(-0.13, 0.21)	>0.250
Muslim	0.04	(-0.07, 0.15)	>0.250	0.03	(-0.07, 0.14)	>0.250	0.04	(-0.07, 0.15)	>0.250
Other Religion	-0.25	(-0.36, -0.13)	<0.001	-0.26	(-0.37, -0.14)	<0.001	-0.25	(-0.37, -0.14)	<0.001
HDI (2001)	-0.29	(-0.44, -0.13)	<0.001	-0.26	(-0.42, -0.11)	0.001	-0.29	(-0.45, -0.13)	<0.001
<i>Individual-level predictors and interactions:</i>									
Income Decile	-0.01	(-0.03, 0.01)	>0.250	-0.03	(-0.06, -0.01)	0.011	-0.03	(-0.06, -0.01)	0.016
Education	-0.03	(-0.05, -0.02)	<0.001	-0.06	(-0.09, -0.03)	<0.001	-0.06	(-0.09, -0.03)	<0.001
Gender (1 = Male)	-0.04	(-0.05, -0.04)	<0.001	-0.04	(-0.05, -0.04)	<0.001	-0.04	(-0.05, -0.04)	<0.001
Age	0.001	(0.001, 0.001)	<0.001	0.001	(0.001, 0.001)	<0.001	0.001	(0.0010, 0.0013)	<0.001
Authoritarianism	0.08	(0.06, 0.11)	<0.001	0.04	(0.02, 0.06)	0.004	-0.0005	(-0.06, 0.06)	0.988
Authoritarianism × Income	--	--	--	0.05	(0.01, 0.08)	0.009	0.04	(0.01, 0.08)	0.017
Authoritarianism × Education	--	--	--	0.05	(0.01, 0.08)	0.013	0.04	(0.01, 0.08)	0.025
<i>Cross-level interactions:</i>									
Authoritarianism × Protestant	--	--	--	--	--	--	-0.04	(-0.09, 0.01)	0.123
Authoritarianism × Orthodox	--	--	--	--	--	--	-0.05	(-0.12, 0.03)	0.213
Authoritarianism × Muslim	--	--	--	--	--	--	-0.04	(-0.08, 0.01)	0.104
Authoritarianism × Other Religion	--	--	--	--	--	--	-0.0005	(-0.05, 0.05)	>0.250
Authoritarianism × HDI	--	--	--	--	--	--	0.12	(0.05, 0.18)	<0.001
Intercept	0.96	(0.81, 1.10)	<0.001	0.97	(0.82, 1.12)	<0.001	0.98	(0.83, 1.12)	<0.001
-2 × log-likelihood	-19,805.80			-19,913.33			-19,936.99		
Wald χ^2 (degrees of freedom)	988.46 (10), $p < 0.001$			1,028.64 (12), $p < 0.001$			1,125.22 (17), $p < 0.001$		

Note. Entries are coefficients from a multilevel linear mixed model. Number of level-1 units=48,545; number of level-2 units=36.

Random-effect estimates not shown, but included in the supplementary materials.

Table 3. Religious Identification as a Function of Authoritarianism (WVS Wave 5)

Predictor	Model 1			Model 2			Model 3		
	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>
<i>Country-level predictors:</i>									
Protestant	-0.12	(-0.21, -0.03)	0.008	-0.13	(-.22, -0.04)	0.005	-0.13	(-0.22, -0.04)	>0.005
Orthodox	-0.01	(-0.10, 0.09)	>0.250	-0.02	(-0.11, 0.08)	>0.250	-0.01	(-0.10, 0.09)	>.250
Muslim	0.09	(-0.01, 0.19)	0.082	0.08	(-0.02, 0.19)	0.120	0.09	(-0.01, 0.19)	0.092
Other Religion	-0.17	(-0.26, -0.07)	0.001	-0.17	(-0.27, -0.07)	0.001	-0.17	(-0.27, -0.07)	0.001
HDI (2005)	-0.41	(-0.55, -0.28)	<0.001	-0.39	(-0.53, -0.25)	<0.001	-0.41	(-0.54, -0.27)	<0.001
<i>Individual-level predictors and interactions:</i>									
Income Decile	-0.003	(-0.02, 0.02)	>0.250	-0.01	(-0.04, 0.01)	0.305	-0.02	(-0.04, 0.01)	>.250
Education	-0.01	(-0.03, 0.002)	0.086	-0.06	(-0.08, -0.04)	<0.001	-0.06	(-0.08, -0.04)	<0.001
Gender (1 = Male)	-0.06	(-0.06, -0.06)	<0.001	-0.06	(-0.06, -0.06)	<0.001	-0.06	(-0.06, -0.06)	<0.001
Age	0.0016	(0.0014, 0.0017)	<0.001	0.002	(0.0015, 0.0017)	<0.001	0.0016	(0.0015, 0.0017)	<0.001
Authoritarianism	0.11	(0.08, 0.13)	<0.001	0.05	(0.03, 0.08)	<0.001	-0.03	(-0.08, 0.03)	0.362
Authoritarianism × Income	--	--	--	0.02	(-0.01, 0.05)	0.179	0.02	(-0.01, 0.05)	0.127
Authoritarianism × Education	--	--	--	0.09	(0.06, 0.11)	<0.001	0.08	(0.05, 0.11)	<0.001
<i>Cross-level interactions:</i>									
Authoritarianism × Protestant	--	--	--	--	--	--	0.01	(-0.03, 0.05)	>.250
Authoritarianism × Orthodox	--	--	--	--	--	--	-0.05	(-0.09, -0.002)	0.043
Authoritarianism × Muslim	--	--	--	--	--	--	-0.03	(-0.08, 0.01)	0.165
Authoritarianism × Other Religion	--	--	--	--	--	--	-0.01	(-0.06, 0.03)	>0.250
Authoritarianism × HDI	--	--	--	--	--	--	0.14	(0.07, 0.20)	<0.001
Intercept	0.99	(0.87, 1.11)	<0.001	1.00	(0.88, 1.12)	<0.001	1.01	(0.89, 1.13)	<0.001
-2 × log-likelihood	-14,056.264			-14136.67			-14,169.31		
Wald χ^2 (degrees of freedom)	2,072.43 (10), $p<0.001$			2,138.83 (12), $p<0.001$			2,292.31 (17), $p<0.001$		

Note. Entries are coefficients from a multilevel linear mixed model. Number of level-1 units=65,835; number of level-2 units=49.

Random-effect estimates not shown, but included in the supplementary materials.

Table 4. Religious Practice as a Function of Authoritarianism (WVS Wave 4)

Predictor	Model 1			Model 2			Model 3		
	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>
<i>Country-level predictors:</i>									
Protestant	-0.06	(-0.21, 0.10)	>0.250	-0.05	(-0.20, 0.11)	>0.250	-0.04	(-0.19, 0.12)	>0.250
Orthodox	-0.01	(-0.22, 0.20)	>0.250	-0.03	(-0.24, 0.18)	>0.250	-0.01	(-0.22, 0.20)	>0.250
Muslim	-0.02	(-0.15, 0.11)	>0.250	-0.04	(-0.17, 0.09)	>0.250	-0.02	(-0.16, 0.11)	>0.250
Other Religion	-0.15	(-0.29, -0.01)	0.040	-0.16	(-0.31, -0.02)	0.024	-0.15	(-0.29, -0.01)	0.042
HDI (2001)	-0.52	(-0.71, -0.32)	<0.001	-0.49	(-0.68, -0.30)	<0.001	-0.52	(-0.72, -0.33)	<0.001
<i>Individual-level predictors and interactions:</i>									
Income Decile	0.01	(-0.02, 0.05)	>0.250	-0.02	(-0.06, 0.02)	>0.290	-0.02	(-0.06, 0.02)	>0.250
Education	-0.01	(-0.04, 0.01)	>0.250	-0.05	(-0.09, -0.02)	<0.002	-0.05	(-0.08, -0.02)	0.003
Gender (1 = Male)	0.02	(0.02, 0.03)	<0.001	0.02	(0.02, 0.03)	<0.001	0.02	(0.02, 0.03)	<0.001
Age	0.002	(0.0019, 0.0024)	<0.001	0.002	(0.0020, 0.0024)	<0.001	0.002	(0.0020, 0.0024)	<0.001
Authoritarianism	0.07	(0.04, 0.11)	<0.001	0.01	(-0.02, 0.05)	>0.250	-0.05	(-0.14, 0.05)	>0.250
Authoritarianism × Income	--	--	--	0.06	(0.004, 0.12)	0.035	0.06	(0.0001, 0.12)	0.050
Authoritarianism × Education	--	--	--	0.07	(0.02, 0.12)	0.007	0.07	(0.01, 0.12)	0.012
<i>Cross-level interactions:</i>									
Authoritarianism × Protestant	--	--	--	--	--	--	-0.03	(-0.12, 0.05)	>0.250
Authoritarianism × Orthodox	--	--	--	--	--	--	-0.10	(-0.21, 0.02)	0.092
Authoritarianism × Muslim	--	--	--	--	--	--	-0.05	(-0.12, 0.02)	0.125
Authoritarianism × Other Religion	--	--	--	--	--	--	-0.08	(-0.16, -0.01)	0.035
Authoritarianism × HDI	--	--	--	--	--	--	0.19	(0.09, 0.30)	<0.001
Intercept	0.78	(0.60, 0.96)	<0.001	0.81	(0.63, 0.98)	<0.001	0.81	(0.63, 0.99)	<0.001
-2 × log-likelihood	26,669.16			26,608.45			26586.20		
Wald χ^2 (degrees of freedom)	583.35 (10), $p<0.001$			612.12 (12), $p<0.001$			662.45 (17), $p<0.001$		

Note. Entries are coefficients from a multilevel linear mixed model. Number of level-1 units=48,380; number of level-2 units=36.

Random-effect estimates not shown, but included in the supplementary materials.

Table 5. Religious Practice as a Function of Authoritarianism (WVS Wave 5)

Predictor	Model 1			Model 2			Model 3		
	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>
<i>Country-level predictors:</i>									
Protestant	-0.22	(-0.31, -0.12)	<0.001	-0.22	(-0.31, -0.13)	<0.001	-0.22	(-0.31, -0.13)	<0.001
Orthodox	-0.16	(-0.25, -0.06)	0.002	-0.15	(-0.25, -0.06)	0.002	-0.14	(-0.24, -0.05)	0.003
Muslim	-0.09	(-0.21, 0.02)	0.110	-0.10	(-0.21, 0.02)	0.098	-0.09	(-0.20, 0.02)	0.110
Other Religion	-0.08	(-0.17, 0.02)	0.131	-0.08	(-0.18, 0.01)	0.097	-0.08	(-0.17, 0.02)	0.122
HDI (2005)	-0.65	(-0.78, -0.51)	<0.001	-0.64	(-0.78, -0.50)	<0.001	-0.65	(-0.79, -0.52)	<0.001
<i>Individual-level predictors and interactions:</i>									
Income Decile	0.04	(0.01, 0.06)	0.013	0.02	(-0.02, 0.06)	>0.250	0.02	(-0.02, 0.06)	>.250
Education	0.03	(0.0005, 0.05)	0.046	-0.02	(-0.06, 0.01)	0.133	-0.02	(-0.06, 0.01)	0.176
Gender (1 = Male)	-0.04	(-0.04, -0.03)	<0.001	-0.04	(-0.04, -0.03)	<0.001	-0.04	(-0.04, -0.03)	<0.001
Age	0.0023	(0.0021, 0.0024)	<0.001	0.0023	(0.0022, 0.0025)	<0.001	0.0023	(0.0022, 0.0025)	<0.001
Authoritarianism	0.10	(0.07, 0.13)	<0.001	0.04	(0.01, 0.08)	0.010	-0.03	(-0.12, 0.05)	>0.250
Authoritarianism × Income	--	--	--	0.03	(-0.02, 0.07)	0.220	0.03	(-0.01, 0.07)	0.174
Authoritarianism × Education	--	--	--	0.09	(0.06, 0.13)	<0.001	0.09	(0.05, 0.12)	<0.001
<i>Cross-level interactions:</i>									
Authoritarianism × Protestant	--	--	--	--	--	--	-0.01	(-0.08, 0.05)	>0.250
Authoritarianism × Orthodox	--	--	--	--	--	--	-0.10	(-0.17, -0.03)	0.003
Authoritarianism × Muslim	--	--	--	--	--	--	-0.02	(-0.10, 0.06)	>0.250
Authoritarianism × Other Religion	--	--	--	--	--	--	-0.04	(-0.11, 0.03)	>0.250
Authoritarianism × HDI	--	--	--	--	--	--	0.15	(0.06, 0.25)	0.002
Intercept	0.90	(0.78, 1.02)	<0.001	0.93	(0.81, 1.05)	<0.001	0.93	(0.82, 1.05)	<0.001
-2 × log-likelihood	31,589.41			31,551.11			31,527.91		
Wald χ^2 (degrees of freedom)	1083.29 (10), $p<0.001$			1128.99 (12), $p<0.001$			1199.56 (17), $p<0.001$		

Note. Entries are coefficients from a multilevel linear mixed model. Number of level-1 units=61,234; number of level-2 units=47.

Random-effect estimates not shown, but included in the supplementary materials.

Figure 1. Within-nation coefficient estimates for the effects of authoritarianism on religious identification (left panel) and religious practice (right panel), WVS Wave 4. Within-nation effects computed from empirical Bayes estimates of random effects for the authoritarianism slope in Model 1 from Tables 2 and 4. Spikes indicate 95% confidence intervals.

Figure 2. Within-nation coefficient estimates for the effects of authoritarianism on religious identification (left panel) and religious practice (right panel), WVS Wave 5. Within-nation effects computed from empirical Bayes estimates of random effects for the authoritarianism slope in Model 1 from Tables 3 and 5. Spikes indicate 95% confidence intervals.

Figure 3. Education and HDI as moderators of the relationship between authoritarianism and religious identification in the World Values Survey Wave 4 (top panels) and the World Values Survey Wave 5 (bottom panels). Plots based on estimates from Tables 2 and 3.

Figure 4. The relationship between authoritarianism and religious identification at minimal and maximum levels of education and HDI in the World Values Survey Wave 4 (top panels) and the World Values Survey Wave 5 (bottom panels). Plots based on estimates from Tables 2 and 3.

Figure 5. Education and HDI as moderators of the relationship between authoritarianism and religious practice in the World Values Survey Wave 4 (top panels) and the World Values Survey Wave 5 (bottom panels). Plots based on estimates from Tables 4 and 5.

Figure 6. The relationship between authoritarianism and religious identification at minimal and maximum levels of education and HDI in the World Values Survey Wave 4 (top panels) and the World Values Survey Wave 5 (bottom panels). Plots based on estimates from Tables 4 and 5.

Supplementary Materials

1. Nations Included in the Analyses

Wave 4. Albania, Algeria, Argentina, Bangladesh, Bosnia and Herzegovina, Canada, Chile, China, Egypt, India, Indonesia, Iran, Japan, Jordan, Kyrgyzstan, Macedonia, Mexico, Moldova, Morocco, Nigeria, Pakistan, Peru, Philippines, Saudi Arabia, Singapore, South Africa, South Korea, Spain, Sweden, Tanzania, Turkey, Uganda, United States, Venezuela, Vietnam, Zimbabwe.

Wave 5. Australia, Brazil, Bulgaria, Burkina Faso, Canada, Chile, China, Colombia, Cyprus, Egypt, Ethiopia, Finland, France, Georgia, Germany, Ghana, Guatemala, India, Indonesia, Iran, Italy, Japan, Malaysia, Mali, Mexico, Moldova, Morocco, The Netherlands, New Zealand, Norway, Peru, Poland, Romania, Russia, Rwanda, Slovenia, South Africa, South Korea, Spain, Sweden, Thailand, Trinidad and Tobago, Turkey, Ukraine, United Kingdom, United States, Uruguay, Vietnam, Zambia.

2. Item Information from Waves 4 and 5 of the World Values Survey

Here, we provide complete question wording for the World Values Survey items used in our analyses, along with WVS item designators. All item designators are taken from the WVS integrated longitudinal file (1981-2014). This dataset and all documentation for it—from which we extracted WVS waves 4 and 5—can be found at:

<http://www.worldvaluessurvey.org/WVSDocumentationWVL.jsp>

Additional instructions provided to respondents can be found in the full Wave 4 and Wave 5 questionnaire documents, which can be downloaded at the above site.

Religious identification. (1) “For each of the following, indicate how important it is in your life. Would you say it is very important, rather important, not very important, or not at all important?”

The target stimulus was “religion.” (2) “Independently of whether you attend religious services or not, would you say you are a religious person, not a religious person, or an atheist?” (A006, F034)

Religious practice. “Apart from weddings and funerals, about how often do you attend religious services these days? More than once a week, once a week, once a month, only on special holy days, once a year, less often, or never.” (F028)

Authoritarianism. (1) “Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five!” Responses to the following stimuli were used: “obedience,” “imagination,” and “independence.” (A029, A034, A042). (2) A fourth item dealing with respect for authority was also used: “I’m going to read out a list of various changes in our way of life that might take place in the near future. Please tell me for each one, if it were to happen, whether you think it would be a good thing, a bad thing, or don’t you mind?” Responses to the following stimulus were used: “Greater respect for authority.” “Good” responses were coded as authoritarian (1); “don’t mind” and “bad” responses were coded as non-authoritarian (0). (E018).

Income decile. “On this card is a scale of incomes on which 1 indicates the ‘lowest income decile’ and 10 the ‘highest income decile’ in your country. We would like to know in what group your household is. Please, specify the appropriate number, counting all wages, salaries, pensions and other incomes that come in.” (X047)

Education. “What is the highest educational level that you have attained?” The ordered response categories were: incomplete primary school, complete primary school, incomplete secondary school (technical/vocational type), complete secondary school (technical/vocational type), incomplete secondary (university-preparatory type), complete secondary (university-preparatory type), some university-level education (without degree), university-level education (with degree). (X025)

Gender. 0 = female, 1 = male. (X001)

Age. In years (X003)

3. Random-Effect Estimates for Tables 2-5*Table S1.* Random Effect Estimates for Models 1-3 in Table 2 (WVS, Wave 4)

Random Effect	Model 1		Model 2		Model 3	
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
σ^2 (Income Decile)	0.002	(0.001, 0.004)	0.002	(0.001, 0.004)	0.002	(0.001, 0.005)
σ^2 (Education)	0.003	(0.001, 0.004)	0.005	(0.003, 0.008)	0.005	(0.003, 0.008)
σ^2 (Authoritarianism)	0.005	(0.003, 0.009)	0.002	(0.001, 0.005)	0.001	(0.0001, 0.003)
σ^2 (Authoritarianism $\times$ Income)	--	--	0.001	(0.0003, 0.008)	0.002	(0.001, 0.008)
σ^2 (Authoritarianism $\times$ Education)	--	--	0.007	(0.004, 0.014)	0.007	(0.004, 0.013)
σ^2 (Intercept)	0.011	(0.007, 0.018)	0.012	(0.007, 0.019)	0.012	(0.007, 0.018)

Note. Entries are coefficients from a multilevel linear mixed model. Number of level-1 units=48,545; number of level-2 units=36.

Table S2. Random Effect Estimates for Models 1-3 in Table 3 (WVS, Wave 5)

Random Effect	Model 1		Model 2		Model 3	
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
σ^2 (Income Decile)	0.005	(0.003, 0.008)	0.005	(0.004, 0.009)	0.005	(0.003, 0.009)
σ^2 (Education)	0.003	(0.002, 0.004)	0.003	(0.002, 0.005)	0.003	(0.002, 0.005)
σ^2 (Authoritarianism)	0.006	(0.004, 0.010)	0.004	(0.002, 0.007)	0.002	(0.001, 0.003)
σ^2 (Authoritarianism $\times$ Income)	--	--	0.002	(0.0003, 0.010)	0.001	(0.00002, 0.021)
σ^2 (Authoritarianism $\times$ Education)	--	--	0.003	(0.001, 0.008)	0.003	(0.001, 0.007)
σ^2 (Intercept)	0.012	(0.008, 0.018)	0.012	(0.008, 0.018)	0.011	(0.008, 0.017)

Note. Entries are coefficients from a multilevel linear mixed model. Number of level-1 units=65,835; number of level-2 units=49.

Table S3. Random Effect Estimates for Models 1-3 in Table 4 (WVS, Wave 4)

Random Effect	Model 1		Model 2		Model 3	
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
σ^2 (Income Decile)	0.008	(0.005, 0.015)	0.006	(0.003, 0.013)	0.006	(0.003, 0.013)
σ^2 (Education)	0.006	(0.003, 0.010)	0.005	(0.002, 0.010)	0.005	(0.002, 0.010)
σ^2 (Authoritarianism)	0.012	(0.007, 0.020)	0.006	(0.003, 0.013)	0.002	(0.001, 0.007)
σ^2 (Authoritarianism $\times$ Income)	--	--	0.008	(0.003, 0.025)	0.008	(0.003, 0.023)
σ^2 (Authoritarianism $\times$ Education)	--	--	0.010	(0.004, 0.022)	0.010	(0.005, 0.021)
σ^2 (Intercept)	0.017	(0.010, 0.028)	0.017	(0.010, 0.027)	0.017	(0.010, 0.027)

Note. Entries are coefficients from a multilevel linear mixed model. Number of level-1 units=48,380; number of level-2 units=36.

Table S4. Random Effect Estimates for Models 1-3 in Table 5 (WVS, Wave 5)

Random Effect	Model 1		Model 2		Model 3	
	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
σ^2 (Income Decile)	0.008	(0.005, 0.013)	0.008	(0.005, 0.013)	0.008	(0.005, 0.013)
σ^2 (Education)	0.007	(0.004, 0.011)	0.007	(0.005, 0.012)	0.007	(0.005, 0.012)
σ^2 (Authoritarianism)	0.009	(0.006, 0.014)	0.008	(0.005, 0.013)	0.004	(0.003, 0.007)
σ^2 (Authoritarianism $\times$ Income)	--	--	--	--	--	--
σ^2 (Authoritarianism $\times$ Education)	--	--	--	--	--	--
σ^2 (Intercept)	0.011	(0.007, 0.017)	0.011	(0.007, 0.017)	0.011	(0.007, 0.017)

Note. Entries are coefficients from a multilevel linear mixed model. Random slopes for the Authoritarianism $\times$ Income and Authoritarianism $\times$ Education interactions are not included in Models 2 and 3; likelihood-ratio tests indicated no improvement in fit from including them. Number of level-1 units=61,234; number of level-2 units=47.

4. Sample Sizes and Descriptive Statistics for Key Variables, by Nation

Table S5. Sample Sizes and Descriptive Statistics for Key Variables, by Nation (World Values Survey, Wave 4)

Nation	<i>n</i>	Religious Identification		Religious Practice		Income Decile		Education		Authoritarianism	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Albania	1000	0.69	(0.29)	0.46	(0.33)	0.50	(0.23)	0.44	(0.33)	0.51	(0.27)
Algeria	1282	0.80	(0.25)	0.54	(0.42)	0.24	(0.20)	0.58	(0.33)	0.71	(0.24)
Argentina	1280	0.79	(0.25)	0.44	(0.37)	0.50	(0.32)	0.35	(0.27)	0.62	(0.27)
Bangladesh	1500	0.97	(0.10)	0.68	(0.35)	0.41	(0.20)	0.40	(0.35)	0.49	(0.21)
Bosnia and Herzegovina	1200	0.74	(0.28)	0.57	(0.32)	0.41	(0.19)	0.51	(0.27)	0.47	(0.28)
Canada	1931	0.74	(0.26)	0.46	(0.36)	0.44	(0.30)	0.57	(0.28)	0.52	(0.28)
Chile	1200	0.79	(0.23)	0.48	(0.37)	0.35	(0.30)	0.45	(0.31)	0.56	(0.29)
China	1000	0.30	(0.24)	0.06	(0.19)	0.54	(0.23)	0.35	(0.25)	0.42	(0.25)
India	2002	0.82	(0.22)	0.62	(0.29)	0.29	(0.17)	0.39	(0.40)	0.54	(0.26)
Indonesia	1004	0.96	(0.09)	0.77	(0.26)	0.54	(0.19)	0.61	(0.34)	0.47	(0.22)
Iran	2532	0.94	(0.15)	0.64	(0.24)	0.45	(0.19)	0.55	(0.34)	0.62	(0.24)
Japan	1362	0.42	(0.28)	0.43	(0.24)	0.44	(0.32)	0.68	(0.25)	0.23	(0.18)
Jordan	1223	0.96	(0.10)	0.49	(0.45)	0.28	(0.22)	0.42	(0.35)	0.77	(0.21)
South Korea	1200	0.51	(0.33)	0.46	(0.37)	0.42	(0.20)	0.75	(0.22)	0.30	(0.22)
Kyrgyzstan	1043	0.76	(0.23)	0.43	(0.36)	0.37	(0.15)	0.68	(0.27)	0.49	(0.26)
Mexico	1535	0.85	(0.21)	0.70	(0.28)	0.48	(0.30)	0.40	(0.35)	0.66	(0.26)
Moldova	1008	0.81	(0.20)	0.52	(0.26)	0.32	(0.22)	0.57	(0.31)	0.52	(0.27)
Morocco	2264	0.98	(0.09)	0.50	(0.45)	0.36	(0.20)	0.20	(0.30)	0.73	(0.25)
Nigeria	2022	0.98	(0.08)	0.91	(0.18)	0.47	(0.24)	0.46	(0.33)	0.80	(0.23)
Pakistan	2000	0.93	(0.15)	0.87	(0.17)	0.39	(0.18)	0.35	(0.35)	0.72	(0.23)
Peru	1501	0.86	(0.18)	0.69	(0.28)	0.25	(0.20)	0.61	(0.30)	0.70	(0.25)
Philippines	1200	0.92	(0.14)	0.73	(0.26)	0.41	(0.23)	0.56	(0.35)	0.58	(0.23)
Saudi Arabia	1502	0.91	(0.15)	0.52	(0.35)	0.50	(0.30)	0.67	(0.27)	0.59	(0.24)
Singapore	1512	0.79	(0.29)	0.62	(0.32)	0.32	(0.26)	0.41	(0.28)	0.54	(0.24)

Viet Nam	1000	0.52	(0.26)	0.24	(0.30)	0.47	(0.15)	0.36	(0.27)	0.65	(0.25)
South Africa	3000	0.89	(0.19)	0.69	(0.33)	0.43	(0.28)	0.49	(0.27)	0.63	(0.25)
Zimbabwe	1002	0.91	(0.18)	0.75	(0.33)	0.24	(0.23)	0.27	(0.20)	0.79	(0.21)
Spain	1209	0.65	(0.29)	0.42	(0.37)	0.41	(0.20)	0.35	(0.34)	0.61	(0.28)
Sweden	1015	0.53	(0.26)	0.21	(0.26)	0.44	(0.30)	0.56	(0.26)	0.32	(0.26)
Turkey	3401	0.88	(0.21)	0.46	(0.40)	0.24	(0.18)	0.38	(0.33)	0.65	(0.27)
Uganda	1002	0.92	(0.15)	0.82	(0.21)	0.22	(0.16)	0.50	(0.22)	0.75	(0.24)
Macedonia	1055	0.82	(0.21)	0.56	(0.28)	0.36	(0.22)	0.45	(0.31)	0.47	(0.22)
Egypt	3000	0.99	(0.04)	0.57	(0.38)	0.50	(0.26)	0.35	(0.35)	0.63	(0.23)
Tanzania	1171	0.95	(0.13)	0.84	(0.26)	0.24	(0.22)	0.36	(0.30)	0.64	(0.26)
United States	1200	0.85	(0.22)	0.62	(0.35)	0.51	(0.29)	0.67	(0.32)	0.53	(0.28)
Venezuela	1200	0.85	(0.21)	0.52	(0.34)	0.49	(0.32)	0.56	(0.30)	0.69	(0.25)

Table S6. Sample Sizes and Descriptive Statistics for Key Variables, by Nation (World Values Survey, Wave 5)

Nation	<i>n</i>	Religious Identification		Religious Practice		Income Decile		Education		Authoritarianism	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Australia	1421	0.57	(0.32)	0.28	(0.34)	0.46	(0.33)	0.70	(0.28)	0.47	(0.29)
Brazil	1500	0.87	(0.17)	0.63	(0.35)	0.36	(0.24)	0.31	(0.32)	0.70	(0.25)
Bulgaria	1001	0.63	(0.28)	0.39	(0.29)	0.31	(0.19)	0.53	(0.31)	0.52	(0.25)
Canada	2164	0.71	(0.29)	0.42	(0.37)	0.51	(0.32)	0.60	(0.29)	0.53	(0.28)
Chile	1000	0.73	(0.25)	0.43	(0.37)	0.36	(0.21)	0.44	(0.31)	0.62	(0.28)
China	2015	0.42	(0.28)	0.33	(0.33)	0.33	(0.21)	0.36	(0.33)	0.46	(0.23)
Colombia	3025	0.90	(0.21)	0.62	(0.33)	0.22	(0.26)	0.56	(0.34)	0.75	(0.24)
Cyprus	1050	0.76	(0.25)	0.46	(0.32)	0.52	(0.19)	0.61	(0.33)	0.61	(0.26)
Ethiopia	1500	0.90	(0.19)	0.82	(0.25)	0.46	(0.22)	0.36	(0.29)	0.43	(0.24)
Finland	1014	0.64	(0.26)	0.33	(0.29)	0.36	(0.28)	0.49	(0.32)	0.42	(0.27)
France	1001	0.53	(0.32)	0.21	(0.30)	0.29	(0.23)	0.43	(0.35)	0.66	(0.27)
Georgia	1500	0.95	(0.11)	0.53	(0.28)	0.28	(0.20)	0.70	(0.25)	0.57	(0.23)
Germany	2064	0.49	(0.32)	0.29	(0.31)	0.39	(0.20)	0.41	(0.32)	0.38	(0.27)
Ghana	1534	0.96	(0.12)	0.84	(0.25)	0.38	(0.26)	0.24	(0.26)	0.80	(0.20)
Guatemala	1000	0.89	(0.17)	0.78	(0.28)	0.14	(0.14)	0.44	(0.32)	0.74	(0.22)
India	2001	0.81	(0.23)	0.66	(0.30)	0.30	(0.24)	0.40	(0.39)	0.50	(0.25)
Indonesia	2015	0.95	(0.11)	0.76	(0.28)	0.47	(0.23)	0.64	(0.32)	0.44	(0.21)
Iran	2667	0.91	(0.17)	0.56	(0.37)	0.43	(0.22)	0.51	(0.35)	0.55	(0.23)
Italy	1012	0.80	(0.23)	0.60	(0.30)	0.35	(0.30)	0.59	(0.31)	0.50	(0.26)
Japan	1096	0.41	(0.28)	0.40	(0.24)	0.41	(0.32)	0.70	(0.25)	0.25	(0.18)
South Korea	1200	0.52	(0.32)	0.49	(0.38)	0.43	(0.20)	0.77	(0.27)	0.32	(0.24)
Malaysia	1201	0.93	(0.15)	--	--	0.54	(0.19)	0.53	(0.27)	0.44	(0.23)
Mali	1534	0.97	(0.09)	0.79	(0.31)	0.44	(0.26)	0.19	(0.29)	0.66	(0.27)
Mexico	1560	0.83	(0.21)	0.63	(0.33)	0.43	(0.33)	0.45	(0.35)	0.70	(0.26)
Moldova	1046	0.78	(0.21)	0.47	(0.28)	0.44	(0.23)	0.59	(0.22)	0.48	(0.24)
Morocco	1200	0.96	(0.11)	--	--	0.41	(0.18)	0.19	(0.31)	0.60	(0.26)

The Netherlands	1050	0.53	(0.31)	0.26	(0.34)	0.26	(0.23)	0.44	(0.29)	0.56	(0.28)
New Zealand	954	0.55	(0.32)	0.26	(0.34)	0.61	(0.32)	0.74	(0.23)	0.48	(0.28)
Norway	1025	0.53	(0.27)	0.24	(0.27)	0.48	(0.31)	0.66	(0.30)	0.29	(0.25)
Peru	1500	0.82	(0.22)	0.63	(0.31)	0.20	(0.19)	0.48	(0.32)	0.75	(0.22)
Poland	1000	0.86	(0.18)	0.72	(0.25)	0.34	(0.21)	0.45	(0.27)	0.59	(0.29)
Romania	1776	0.89	(0.17)	0.58	(0.28)	0.50	(0.31)	0.46	(0.36)	0.61	(0.23)
Russian Federation	2033	0.64	(0.28)	0.29	(0.28)	0.55	(0.26)	0.63	(0.26)	0.57	(0.25)
Rwanda	1507	0.88	(0.12)	0.95	(0.16)	0.26	(0.22)	0.18	(0.22)	0.82	(0.22)
Viet Nam	1495	0.49	(0.27)	0.29	(0.32)	0.49	(0.17)	0.34	(0.24)	0.60	(0.22)
Slovenia	1037	0.60	(0.32)	0.42	(0.34)	0.44	(0.21)	0.51	(0.29)	0.43	(0.25)
South Africa	2988	0.88	(0.19)	0.65	(0.34)	0.43	(0.26)	0.51	(0.28)	0.63	(0.24)
Spain	1200	0.55	(0.29)	0.30	(0.35)	0.39	(0.19)	0.37	(0.32)	0.66	(0.25)
Sweden	1003	0.47	(0.29)	0.18	(0.25)	0.56	(0.32)	0.71	(0.30)	0.26	(0.26)
Thailand	1534	0.75	(0.18)	0.75	(0.24)	0.51	(0.22)	0.34	(0.33)	0.51	(0.25)
Trinidad and Tobago	1002	0.90	(0.18)	0.64	(0.32)	0.42	(0.22)	0.38	(0.26)	0.75	(0.21)
Turkey	1346	0.89	(0.19)	0.48	(0.39)	0.27	(0.26)	0.42	(0.34)	0.60	(0.28)
Ukraine	1000	0.70	(0.25)	0.42	(0.30)	0.37	(0.21)	0.67	(0.27)	0.67	(0.26)
Egypt	3051	0.98	(0.08)	0.56	(0.40)	0.32	(0.21)	0.40	(0.38)	0.77	(0.23)
United Kingdom	1041	0.57	(0.31)	0.30	(0.36)	0.59	(0.29)	0.58	(0.27)	0.57	(0.28)
United States	1249	0.78	(0.27)	0.49	(0.39)	0.45	(0.21)	0.54	(0.19)	0.51	(0.28)
Burkina Faso	1534	0.94	(0.15)	0.79	(0.32)	0.31	(0.22)	0.18	(0.27)	0.73	(0.26)
Uruguay	1000	0.61	(0.30)	0.45	(0.37)	0.38	(0.18)	0.33	(0.29)	0.56	(0.29)
Zambia	1500	0.92	(0.16)	0.75	(0.30)	0.48	(0.27)	0.40	(0.29)	0.64	(0.26)

5. Replication Analyses with Conservation Values (WVS 5)

Though the authoritarianism measure we use has been relied on by numerous researchers (e.g., Brandt & Henry, 2012; Dunn, 2015; Stenner, 2005), it differs from other authoritarianism measures due to its checklist format and does not form a traditional ‘reflective’ scale (Dunn & Singh, 2014). To be sure our basic pattern of results is not contingent on the quirks of the WVS authoritarianism scale, we conceptually replicated our primary analyses using a scale measure of Schwartz’s (1992) conservation values: *tradition* (e.g., respect for and commitment to established customs, humility), *conformity* (e.g., obedience, restraint of actions likely to violate social expectations), and *security* (e.g., safety and stability with respect to the self and social relationships, social order). This value cluster overlaps with authoritarianism as conceptualized in our research, i.e., a predisposition to seek order, security, and certainty in the face of threat through tighter adherence to group norms and conventions (see Dunn et al., 2017; Feldman, 2003). If our hypotheses are correct, then we should expect to find similar patterns when a composite measure of conservation values is substituted for the authoritarianism measure.

We rely solely on data from Wave 5 of the World Values Survey for this analysis, as Wave 4 did not include the 10-item WVS Schwartz value measure. The full set of value items was introduced with the following: “Now I will briefly describe some people. Using this card, would you please indicate for each description whether that person is very much like you, like you, somewhat like you, not like you, or not at all like you?” All items were answered on a six-point scale with the following ordered response options: *very much like me*, *like me*, *somewhat like me*, *a little like me*, *not like me*, *not at all like me*. The three conservation-value measures were: “Tradition is important to this person; to follow the customs handed down by one’s religion or family” (tradition; A198), “It is important to this person to always behave properly; to avoid doing anything people would say is wrong” (conformity; A196), and “Living in secure surroundings is important to this person; to avoid

anything that might be dangerous” (security; A191). Responses were reversed so that higher scores indicated greater endorsement of each value and rescaled to run from 0-1; the items were then averaged to form a scale ($\alpha=0.62$; $M=0.70$, $SD=0.21$).

We conducted two sets of analyses in the WVS: one for religious identification and one for religious practice. In each set of analyses, three models were estimated. These models were identical in specification to Models 1-3 in Table 4 (for WVS 5 religious identification) and Table 5 (for WVS 5 religious practice); the only difference was that the conservation values measure was substituted for authoritarianism in the equations. In all models, we allow the intercept and the coefficients for income, education, and conservation values to vary randomly across nations.

The results for the religious-identification models are summarized in Table S7. Looking at the estimates for Model 1, we find support for Hypothesis 1: endorsement of conservation values was associated with greater religious identification ($b=0.25$, $p<0.001$). Moving from the lowest to the highest level of conservation-values endorsement was associated with a 25% increase in religious identification. Model 2 examined Hypothesis 2 by adding the Conservation Values $\times$ Education interaction (along with the Conservation Values $\times$ Income interaction). As expected, this interaction was significant and positively ($b=0.05$, $p=0.001$). To unpack the interaction, we estimated conditional effects for conservation values across the range of education values from the minimum (0) to the maximum (1). These conditional effects are plotted in the upper-left panel of Figure A1; values on the y-axis represent the conditional-effect estimates and can be interpreted as the proportion change in religious identification associated with going from the lowest to the highest value of conservation values at a specific education level. In turn, Model 3 tested Hypothesis 3 by adding the Conservation Values $\times$ HDI interaction (as well as interactions between conservation values and the level-2 religious-culture indicators). As predicted, the Conservation Values $\times$ HDI interaction was significant and positively signed ($b=0.22$, $p=0.001$). To unpack the interaction, we estimated

conditional effects for conservation values across the range of HDI values from the lowest (0) to the highest (1). These conditional effects are plotted in the upper-right panel of Figure A1; y-axis values represent the conditional effects and indicate the proportion change in religious identification associated with going from the lowest to the highest value of conservation values at a particular level of human development.

Estimates for the religious-practice models are reported in Table S8. These models were identical in specification to those in Table S7, the only difference being that religious practice rather than religious identification was used as the dependent variables in the analyses. Model 1 again provides evidence consistent with Hypothesis 1: endorsement of conservation values was associated with higher levels religious practice ($b=0.22, p<0.001$). Going from the minimum to the maximum level of conservation-values endorsement corresponds to a 22% increase in religious practice. Model 2, in turn, provided evidence for Hypothesis 2. The Conservation Values $\times$ Education interaction was significant and positively ($b=0.05, p=0.025$). Following up on this, we again estimated conditional effects for conservation values across the range of education values from the minimum (0) to the maximum (1). These conditional effects are plotted in the lower-left panel of Figure S1; estimates on the y-axis represent the proportion change in religious practices associated with going from the minimum to the maximum value of conservation values at each education level. Finally, in Model 3, the Conservation Values $\times$ HDI interaction was significant and positive, as predicted ($b=0.13, p=0.038$). To break down the interaction, we estimated conditional effects for conservation values across the range of HDI values from the minimum (0) to the maximum (1). These conditional effects are plotted in the lower-right panel of Figure S1; y-axis values indicate the proportion change in religious identification associated with going from the lowest to the highest value of conservation values at a particular level of human development.

Thus, our replication analyses using conservation values in place of authoritarianism largely confirm the main results shown in Tables 2-5.

Table S7. Religious Identification as a Function of Conservation Values (WVS Wave 5)

Predictor	Model 1			Model 2			Model 3		
	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>	<i>b</i>	95% <i>CI</i>	<i>p</i>
<i>Country-level predictors:</i>									
Protestant	-0.10	(-0.21, 0.005)	0.062	-0.10	(-0.21, 0.01)	0.069	-0.10	(-0.21, 0.01)	0.065
Orthodox	0.01	(-0.11, 0.12)	>0.250	0.01	(-0.10, 0.13)	>0.250	0.01	(-0.10, 0.13)	>0.250
Muslim	0.13	(0.01, 0.26)	0.034	0.14	(0.01, 0.26)	0.029	0.14	(0.02, 0.26)	0.021
Other Religion	-0.10	(-0.22, 0.02)	0.094	-0.10	(-0.21, 0.02)	0.102	-0.09	(-0.21, 0.02)	0.109
HDI (2005)	-0.46	(-0.62, -0.30)	<0.001	-0.45	(-0.60, -0.29)	<0.001	-0.46	(-0.61, -0.30)	<0.001
<i>Individual-level predictors and interactions:</i>									
Income Decile	-0.003	(-0.03, 0.02)	>0.250	-0.02	(-0.05, 0.02)	>0.250	-0.02	(-0.06, 0.01)	0.240
Education	-0.02	(-0.06, -0.003)	0.021	-0.06	(-0.08, -0.03)	<0.001	-0.05	(-0.08, -0.03)	<0.001
Gender (1 = Male)	-0.06	(0.02, -0.05)	<0.001	-0.06	(-0.06, -0.05)	<0.001	-0.06	(-0.06, -0.05)	<0.001
Age	0.001	(0.001, 0.001)	<0.001	0.001	(0.001, 0.001)	<0.001	0.001	(0.001, 0.001)	<0.001
Conservation Values (CV)	0.25	(0.21, 0.29)	<0.001	0.22	(0.17, 0.26)	<0.001	0.11	(-0.002, 0.22)	0.054
CV × Income	--	--	--	0.02	(-0.02, 0.06)	0.235	0.03	(-0.01, 0.07)	0.187
CV × Education	--	--	--	0.05	(0.02, 0.08)	0.001	0.05	(0.02, 0.08)	0.002
<i>Cross-level interactions:</i>									
CV × Protestant	--	--	--	--	--	--	0.01	(-0.08, 0.09)	>0.250
CV × Orthodox	--	--	--	--	--	--	-0.06	(-0.15, 0.03)	0.167
CV × Muslim	--	--	--	--	--	--	-0.10	(-0.19, -0.003)	0.044
CV × Other Religion	--	--	--	--	--	--	-0.09	(-0.18, 0.002)	0.044
CV × HDI	--	--	--	--	--	--	0.22	(0.09, 0.34)	0.001
Intercept	0.89	(0.74, 1.02)	<0.001	0.90	(0.76, 1.04)	<0.001	0.91	(0.76, 1.05)	<0.001
σ^2 (Income Decile)	0.005	(0.003, 0.008)		0.005	(0.003, 0.008)		0.005	(0.003, 0.008)	
σ^2 (Education)	0.003	(0.002, 0.004)		0.003	(0.002, 0.004)		0.003	(0.002, 0.004)	
σ^2 (Conservation Values)	0.018	(0.012, 0.028)		0.017	(0.011, 0.026)		0.008	(0.005, 0.013)	
σ^2 (Intercept)	0.015	(0.010, 0.023)		0.015	(0.010, 0.023)		0.015	(0.010, 0.023)	
-2 × log-likelihood	-14,522.40			-14,538.91			-14,568.64		
Wald χ^2 (degrees of freedom)	1,696.52 (10), $p<0.001$			1,725.13 (12), $p<0.001$			1,941.40 (17), $p<0.001$		

Note. Entries are coefficients from a multilevel linear mixed model. Number of level-1 units=61,135; number of level-2 units=46.

Table S8. Religious Practice as a Function of Conservation Values (WVS Wave 5)

Predictor	Model 1			Model 2			Model 3		
	<i>b</i>	95% CI	<i>p</i>	<i>b</i>	95% CI	<i>p</i>	<i>b</i>	95% CI	<i>p</i>
<i>Country-level predictors:</i>									
Protestant	-0.19	(-0.29, -0.09)	<0.001	-0.18	(-0.29, -0.08)	<0.001	-0.19	(-0.29, -0.12)	<0.001
Orthodox	-0.14	(-0.25, -0.03)	0.013	-0.13	(-0.24, -0.02)	0.019	-0.12	(-0.25, -0.06)	0.028
Muslim	-0.08	(-0.21, 0.05)	0.217	-0.07	(-0.20, 0.05)	>0.250	-0.07	(-0.21, 0.02)	>0.250
Other Religion	-0.02	(-0.13, 0.10)	>0.250	-0.01	(-0.12, 0.10)	>0.250	0.001	(-0.19, 0.01)	>0.250
HDI (2005)	-0.64	(-0.79, -0.49)	<0.001	-0.63	(-0.78, -0.48)	<0.001	-0.64	(-0.78, -0.51)	<0.001
<i>Individual-level predictors and interactions:</i>									
Income Decile	0.04	(0.01, 0.07)	0.021	0.01	(-0.04, 0.06)	>0.250	0.01	(-0.01, 0.05)	>0.250
Education	0.02	(-0.01, 0.04)	0.221	-0.02	(-0.06, 0.02)	>0.250	-0.02	(-0.05, 0.01)	>0.250
Gender (1 = Male)	-0.03	(-0.03, -0.02)	<0.001	-0.03	(-0.03, -0.02)	<0.001	-0.03	(-0.04, -0.03)	<0.001
Age	0.002	(0.002, 0.002)	<0.001	0.002	(0.002, 0.002)	<0.001	0.002	(0.002, 0.003)	<0.001
Conservation Values (CV)	0.22	(0.18, 0.26)	<0.001	0.18	(0.13, 0.22)	<0.001	0.13	(-0.16, 0.02)	0.030
CV × Income	--	--	--	0.04	(-0.02, 0.10)	0.181	0.04	(-0.01, 0.10)	0.135
CV × Education	--	--	--	0.05	(0.01, 0.10)	0.025	0.05	(-0.0001, 0.10)	0.050
<i>Cross-level interactions:</i>									
CV × Protestant	--	--	--	--	--	--	0.02	(-0.07, 0.11)	>0.250
CV × Orthodox	--	--	--	--	--	--	-0.09	(-0.18, -0.00003)	0.050
CV × Muslim	--	--	--	--	--	--	-0.05	(-0.16, 0.06)	>0.250
CV × Other Religion	--	--	--	--	--	--	-0.11	(-0.21, -0.02)	0.017
CV × HDI	--	--	--	--	--	--	0.13	(0.01, 0.26)	0.038
Intercept	0.79	(0.65, 0.92)	<0.001	0.81	(0.67, 0.94)	<0.001	0.81	(0.68, 0.95)	<0.001
σ^2 (Income Decile)	0.009	(0.005, 0.014)		0.009	(0.005, 0.014)		0.009	(0.005, 0.014)	
σ^2 (Education)	0.007	(0.004, 0.012)		0.007	(0.004, 0.012)		0.007	(0.004, 0.012)	
σ^2 (Conservation Values)	0.014	(0.008, 0.022)		0.013	(0.018, 0.021)		0.007	(0.004, 0.013)	
σ^2 (Intercept)	0.013	(0.008, 0.020)		0.013	(0.008, 0.020)		0.012	(0.008, 0.019)	
-2 × log-likelihood	28,595.21			28,585.44			28,564.19		
Wald χ^2 (degrees of freedom)	881.20 (10), $p < 0.001$			898.70 (12), $p < 0.001$			1,023.14 (17), $p < 0.001$		

Note. Entries are coefficients from a multilevel linear mixed model. Number of level-1 units=56,605; number of level-2 units=44.

Figure S1. Education and HDI as moderators of the relationship between conservation values and religious identification (top panels) and religious practice (bottom panels), in the World Values Survey Wave 5. Plots based on estimates from Tables A7 and A8.

6. Additional Measurement Information for Key Variables

One potential concern with our key variables is that their measurement properties may vary across education and development levels, perhaps accounting for some portion of the moderation patterns we observe. In general, a limitation of the WVS is that its instrumentation is simple and not always ideal from a psychometric perspective, though this is offset by the fact it provides large, representative samples from an extensive set of nations. Indeed, two of our core measures display these limitations. Religious practice was necessarily operationalized using a single item, whereas authoritarianism was operationalized using checklist-composite items that traditional psychometric indices (e.g., measures of internal consistency) are inappropriate for. Moreover, the items used to construct our core variable were administered at only one time point, making an examination of test-retest reliability impossible. Nevertheless, where possible, we conduct some basic analyses on psychometric differences by performing a median split on each WVS sample by (1) educational attainment and (2) HDI. We go through our three core measures below.

Religious identification and religious practice. Though few in number, the WVS religiosity items are face-valid (see the above question wordings). They have been used frequently in cross-national studies of religiosity, and they correlate in with other individual-level and national-level variables in ways predicted by theory (e.g., secularization or modernization theories, which suggest that religiosity should decline in more economically-developed nations; Norris & Inglehart, 2004). We cannot assess the comparative reliability of the religious-practice measure, since in each survey it consists of only a single item (ruling out internal-consistency indices) assessed at one point in time (ruling out test-retest indices).

However, we can examine the comparative internal consistency of the two-item religious identification measure. Here, we compute a reliability coefficient for the scale separately in each of the education and HDI groups. For education, we find that the scale has similar reliability in both

waves. In wave 4, the reliability is $\alpha=0.64$ in both education groups. In wave 5, the differences are somewhat larger, but not overwhelmingly so: i.e., $\alpha=0.65$ in the low education group and $\alpha=0.76$ in the high-education group. For HDI, the low-high differences are a little larger. In wave 4, the reliabilities are $\alpha=0.61$ in the low-HDI group and $\alpha=0.76$ in the high-HDI group. In wave 5, they are $\alpha=0.62$ in the low-HDI group and $\alpha=0.73$ in the high-HDI group. Thus, while the religious-identification measure has acceptable reliability at all levels of education and HDI, they are somewhat larger in the groups higher on each moderator. Nevertheless, these reliability differences should not be problematic, since measurement error on the dependent variables (as opposed to the independent variables) does not lead to bias in estimation of regression coefficients (Cohen, Cohen, West, & Aiken, 2003).

Finally, as an additional step, we examined the relationship between the two religiosity measures in each of the education and HDI groups in both Wave 4 and Wave 5. To the extent that the measures are both tapping various aspects of religiosity similarly across education and development, their association should be similar in the education and HDI groups. To obtain standardized estimates, we z-transformed the two religiosity indices and then estimated a bivariate multilevel linear mixed model predicting religious practice from religious identification, allowing the intercept to vary randomly across nations. For education, the coefficient was similar in the low-education group ($\beta=0.41, p<0.001$; 95% CI: 0.40, 0.42) and the high-education group ($\beta=0.42, p<0.001$; 95% CI: 0.41, 0.43) in Wave 4. It was also virtually identical in the low-education group ($\beta=0.47, p<0.001$; 95% CI: 0.46, 0.48) and the high-education group ($\beta=0.48, p<0.001$; 95% CI: 0.47, 0.49) in Wave 5. For HDI, the coefficient was significant in both groups, but slightly larger in the high-HDI group ($\beta=0.44, p<0.001$; 95% CI: 0.43, 0.45) compared to the low-HDI group ($\beta=0.38, p<0.001$; 95% CI: 0.36, 0.39) in Wave 4. Similarly, in Wave 5, the coefficient was significant in both

groups, but slightly larger in the high-HDI group ($\beta=0.50, p<0.001$; 95% CI: 0.49, 0.51) compared to the low-HDI group ($\beta=0.46, p<0.001$; 95% CI: 0.45, 0.48).

Authoritarianism. As noted above and in the main text, traditional indices of internal consistency are not appropriate for the WVS authoritarianism measure (Dunn & Singh, 2014). Nevertheless, close variants of the measure we use have been frequently employed in other studies using WVS data, and they correlate in the predicted fashion with outcomes that authoritarianism should be associated with (see Brandt & Henry, 2012; Stenner, 2005; Weiner & Federico, 2016). To build on this, in wave 5 of the WVS, we can examine the relationship between the authoritarianism measure and the conceptually-related conservation values index from Section 5 above in each education and HDI group. If authoritarianism is a consistently valid measure, it should predict conservation values in both education and both development groups.

To obtain standardized estimates, we transformed the authoritarianism and conservation-values indices to z-scores and then estimated a bivariate multilevel linear mixed model predicting conservation values from authoritarianism, allowing the intercept to vary randomly across nations. For education, the coefficient was relatively similar in the low-education group ($\beta=0.15, p<0.001$; 95% CI: 0.14, 0.16) and the high-education group ($\beta=0.17, p<0.001$; 95% CI: 0.16, 0.18). For HDI, the coefficient was significant in both groups, but larger in the high-HDI group ($\beta=0.21, p<0.001$; 95% CI: 0.20, 0.22) compared to the low-HDI group ($\beta=0.11, p<0.001$; 95% CI: 0.10, 0.12). Thus, authoritarianism consistently correlates with conservation values in the theoretically expected fashion, though the magnitude of the relationship varies somewhat by HDI. Though these results provide some reassurance, they cannot completely rule out the possibility that some portion of the difference in the relationship between authoritarianism and the religiosity variable across development is due to differences in measurement properties.

References

- Brandt, M. J., & Henry, P. J. (2012). Gender inequality and gender differences in authoritarianism. *Personality and Social Psychology Bulletin*, 38(10), 1301-1315.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Lawrence Erlbaum Associates Publishers.
- Dunn, K. (2015). Preference for radical right-wing populist parties among exclusive-nationalists and authoritarians. *Party Politics*, 21(3), 367-380.
- Dunn, K., Griffiths, E., Lamb, S., Shortt, R., & Theocari, E. (2017). The human empowerment sequence and the development of libertarian values: A theoretical and empirical adjustment to the human empowerment sequence. *Journal of Cross-Cultural Psychology*, 48, 771-789.
- Dunn, K., & Singh, S. P. (2014). Pluralistic conditioning: Social tolerance and effective democracy. *Democratization*, 21(1), 1-28.
- Norris, P., & Inglehart, R. (2004). *Sacred and secular: Religion and politics worldwide*. Cambridge, UK; New York: Cambridge University Press.
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25, 1-65.
- Stenner, K. (2005). *The authoritarian dynamic*. Cambridge University Press.
- Weiner, E., & Federico, C. M. (2017). Authoritarianism, institutional confidence, and willingness to engage in collective action: A multinational analysis. *Personality and Social Psychology Bulletin*, 43(3), 392-406.