Southern Economic Journal 2004, 71(1), 103–117

Religious Freedom and the Unintended Consequences of State Religion

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We use a cross-section of 59 countries to examine the impact of state religion and of constitutional protection of religion on the degree of religiosity within a country. Our measure of religiosity is the percentage of the population who attend religious services at least once a week. We find that both establishment of a state religion and constitutional protection of religion have significant (and opposing) effects. The existence of a state religion reduces attendance by 14.6–16.7% of the total population, whereas each decade of constitutional protection increases attendance by approximately 1.2% of the population. We also find that other measures of religious regulation have significant negative effects on attendance. Ironically, the motive behind establishment of a particular state religion usually is to strengthen that religion, but the effects are ultimately to undermine the vitality of the established religion.

JEL Classification: Z12, K10

1. Introduction

"[A] union of government and religion tends to destroy government and degrade religion."

So wrote Justice Hugo Black in the majority opinion in *Engel v. Vitale*,[1] a 1962 school prayer case decided by the United States Supreme Court. Today, church-state issues continue to rise to the forefront of American politics. In recent years alone, disputes have arisen over public school vouchers and prayers, the phrase "under God" in the Pledge of Allegiance, the display of the Ten Commandments in public meeting halls and courthouses, and the proper scope of President Bush's recent Faith-Based and Community Initiative. Across the Atlantic, William Carey, the recently retired Archbishop of Canterbury, argued in April 2002 that establishment strengthens the Church of England by allowing it to build a comprehensive network of parishes throughout the entire country, and he denied that establishment has constrained "the prophetic voice of the Church."[2] In contrast, Carey's successor Rowan Williams, who became Archbishop of Canterbury in July 2002, has in the past

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For helpful comments, the authors thank Roger Finke, Steve Green, Dan Hamermesh, Larry Iannaccone, Rodney Stark, Beck Taylor, David VanHoose, two anonymous referees, and participants at the 2002 meeting of the Society for the Scientific Study of Religion, the 2002 meeting of the Southern Economic Association, and the 2002 Christianity and Economics Conference held at Baylor University. We also thank Malcolm Gold for valuable research assistance and insight. The usual disclaimer applies.

Received March 2003; accepted August 2003.

[1] 370 US 421, 431 (1962).

[2] Boulding (2002) and Gledhill (2002). The full text of the archbishop's address to about 65 politicians and members of the media is available at http://churchtimes.co.uk.

advocated the disestablishment of the Church of England.[3] In Sweden, where the Church of Sweden had been the state church since 1593, the parliament passed a statute providing for the formal disestablishment of the church on January 1, 2000.[4]

In the United States, the strongest advocates for giving religion a more prominent role in governmental settings have often been religious conservatives, whereas the strongest opponents are often political liberals. For example, in the recently decided Cleveland school voucher case,[5] Christian organizations like Focus on the Family, the Christian Legal Society, the Ethics and Religious Liberty Commission of the Southern Baptist Convention, the National Association of Evangelicals, and the United States Conference of Catholic Bishops filed briefs in support of the program, which allowed public funds to pay tuition in private schools (including religious schools). Among the organizations filing briefs in opposition to the program were the NAACP and various public education lobbies, whereas the American Civil Liberties Union, People for the American Way, and Americans United for Separation of Church and State provided legal representation for some of the plaintiffs challenging the voucher program. Interestingly, however, several religious organizations also filed briefs in opposition to the voucher program, including the American Jewish Committee, the Jewish Council for Public Affairs, the Baptist Joint Committee on Public Affairs, the National Council of Churches of Christ in the USA (NCC), and two regional Seventh-Day Adventist organizations. Except for the NCC, these organizations represent the interests of religious groups that are (or in the case of the Baptists, once were) distinctly in the religious minority.

A growing body of research suggests that any positive benefits to the church with direct support from the state are outweighed by indirect effects that undermine the church's autonomy and its authority with the general populace. (For an excellent introduction to this research, see Stark and Finke 2000, chapter 9). If such research is correct, then the advocates of governmental endorsement of religion may be undermining the very institutions they seek to support. In this article, we use cross-country survey responses to assess the impact of religious freedom and the separation of church and state on the health of religion throughout the world. Using survey responses on the frequency of attendance at religious services, we find that government establishment of state religion reduces religious attendance, whereas enduring constitutional protection of religion increases religious attendance.

Adam Smith recognized that establishment could ultimately undermine the state religion. In *The Wealth of Nations*, Smith discussed the impact of establishing a religion on the fervor and effectiveness of the clergy in that religion:

> The teachers [of religion], in the same manner as other teachers, may either depend altogether for their subsistence upon the voluntary contributions of their hearers; or they may derive it from some other fund to which the law of their country may entitle them; such as a landed estate, a tythe or land tax, an established salary or stipend. Their exertion, their zeal and industry, are likely to be much greater in the former situation than in the latter. In this respect, the teachers of new religions have always had a considerable advantage in attacking those antient and established systems of which the clergy, reposing themselves upon their benefices, had neglected to keep up the fervour of faith and devotion in the great body of the people; and having given themselves up to indolence, were become altogether incapable of making any vigorous exertion in defence even of their own establishment. The clergy of an established and well-endowed religion ... are apt gradually to

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[3] See Ashworth (2000) for a discussion of Dr. Williams's opinion on disestablishment.

[4] Note that although the Church of Sweden is no longer the official state church, it still receives preferential treatment from the government in various forms, including a church tax on members. However, these government mechanisms now apply equally to all registered religious associations. Stegeby (1999) provides a thorough description of the process of disestablishing the Church of Sweden and of the content of the new church act.

[5] *Zelman v. Simmons-Harris*, 536 US 639 (2002).

> lose the qualities, both good and bad, which gave them authority and influence with the inferior ranks of people, and which had perhaps been the original causes of the success and establishment of their religion. Such a clergy, when attacked by a set of popular and bold, though perhaps stupid and ignorant enthusiasts . . . have commonly no other resource than to call upon the civil magistrate to persecute, destroy, or drive out their adversaries, as disturbers of the public peace. (Smith [1776] 1981, pp. 788–9)

More recently, a number of scholars have conducted direct empirical examinations of the effect of a country's church-state relationship on the religiosity of its citizens. This literature is interdisciplinary, coming from sociology, political science, and economics. Iannaccone (1991) provided an early look at the relationship between religious competition and religious attendance. Using a cross-section of 12 predominantly Protestant countries, he demonstrated a negative relationship between weekly religious attendance and a Herfindahl index of Protestant religious concentration. The lowest levels of attendance were in Great Britain and Scandinavia, the only countries in the sample with official state churches. However, when predominantly Roman Catholic nations were included in the analysis, the negative effect of religious market concentration on attendance disappeared. Iannaccone suggested that there may be no attendance-reducing effect in Catholic countries because (i) Roman Catholicism is more internally diverse than most Protestant denominations; (ii) within countries, the Roman Catholic Church has suffered less government co-option even where ties to the government exist; and (iii) Roman Catholicism places a much higher emphasis on church attendance than do most Protestant denominations.

Chaves and Cann (1992) examined the same data used by Iannaccone (1991) but created a simple index of "religious regulation" based upon six factors showing church-state entanglement. They showed that for the 18 countries in the sample, there was a significant negative relationship between weekly religious attendance and the degree of religious regulation. These results were robust to inclusion of the six predominantly Roman Catholic nations.

Iannaccone, Finke, and Stark (1997) presented a primarily qualitative comparative discussion of religious institutions in Sweden and the United States. They argued that the huge differences in religious attendance in the two countries (43% of Americans attend religious services at least once per week compared with 5% of Swedes) were traceable to widespread religious competition in the United States contrasted with a stale officially established church in Sweden. Furthermore, they showed that the low rates of church attendance among members of the Church of Sweden were not mirrored by Swedish members of other denominations. Thus, although attendance rates in the Church of Sweden are very low, weekly attendance rates among Catholic Swedes are around 20%, and among Swedish members of Latter-Day Saints, Jehovah's Witnesses, Seventh-Day Adventists, and other small sects, weekly attendance rates are around 70%. Further evidence of differential rates of attendance between the state church and nonstate churches appeared in Sawkins, Seaman, and Williams (1997). Using British data, they demonstrated that Catholics and non-Anglican Protestants were much more likely to attend church frequently than were members of the Church of England (or even the Church of Scotland). Thus, in both Great Britain and Sweden, people claiming affiliation with the state church are much less likely to attend regularly than are adherents of other churches in those countries.

Other studies found that deregulation of religious markets led to increased religious participation in 19th century New England (Olds 1994), among youth in Italy (Introvigne and Stark 2003), and among Muslims in the industrialized West (Chaves, Schraeder, and Sprindys 1994). Posner (1987) argued that because government and organized religion are substitutes in teaching moral behavior, the "aggressively secularist" stance of the Supreme Court on issues relating to school prayer, public religious displays, and other establishment issues may have increased the demand for religious services.

In marked contrast to the bulk of scholarship on the topic, Barro and McCleary (2003; hereafter B&M) concluded that having an established state religion had a significant positive effect on religious attendance at the national level. In their analysis, B&M included as independent variables (among others) a Herfindahl-based pluralism measure, a dummy for state religion, a dummy for state regulation of religion (meaning that the state appoints or approves church leaders), and a measure of the fraction of religious adherents belonging to each of nine groupings. They found that pluralism and state religion both have a significant positive effect on church attendance, whereas state regulation of religion had a significant negative effect.

In addition to the above-described studies of religious behavior using aggregated measures, there have been several individual-level studies of religious attendance based upon survey data from the United States and Great Britain. These studies have examined many determinants of individual attendance, but we limit our discussion to the effects of income and age because these traits are also measurable at the aggregate (country) level. Regarding income's effect on religious attendance, existing empirical analyses have been somewhat ambiguous. Studies focused on the hourly wage have found a negative relationship between wage rate and attendance levels, supporting an opportunity cost theory of religious attendance—that is, attendance decreases as its opportunity cost increases (Azzi and Ehrenberg 1975; Ehrenberg 1977). However, others have found no relationship between wage rate and attendance (Long and Settle 1977; Ulbrich and Wallace 1983), and British data showed a positive relationship between wage level and attendance (Sawkins, Seaman, and Williams 1997). In contrast, total family income or wealth was positively associated with attendance in Azzi and Ehrenberg (1975) and Ehrenberg (1977), but no effect was found by Iannaccone (1998).

The relationship between age and attendance has been more consistent, with studies finding either a positive (Azzi and Ehrenberg 1975; Ehrenberg 1977; Ulbrich and Wallace 1983) or a U-shaped (Ehrenberg 1977; Sullivan 1985) relationship between age and attendance. Sawkins, Seaman, and Williams (1997) found a positive relationship between age and attendance for lower- and middle-income British and a negative relationship among higher-income British. Only Long and Settle (1977) found no relationship between age and attendance.

Based on the existing literature, we expect that establishment of an official religion will have the effect of weakening religiosity within a country. Moreover, restriction of religious practice should also reduce religiosity because of the reduction of competition in religious markets. In this article, we test these hypotheses.

Using aggregated results from the World Values Survey, we examine a cross-section of 59 countries to determine the impact on the degree of religiosity in a country of both the legal protection of religious freedom and the establishment of an official religion or other restrictions on religious practices. We find that establishment of an official religion reduces religious attendance in a country by 15–17%, whereas each decade of constitutional protection of religion increases religious attendance within a country by approximately 1.2% of the population. We find that other forms of religious regulation reduce religious attendance as well. Section 2 sets forth a model of religious participation, section 3 describes our data, section 4 presents the results of our analysis, and section 5 concludes the article.

2. A Model of Religious Participation

We employ a modification of Azzi and Ehrenberg's (1975) and Sullivan's (1985) household allocation of time models to show that opportunity costs affect religious participation in predictable ways. Our addition to the earlier theoretical models is that we explicitly incorporate into the model

the existence of choice among heterogeneous religious services. Household utility U is derived from nonreligious consumption bundles at time t, C_t, and religious services bundles, S_t, until death at known time n. Household utility is thus specified as

$$U = U(C_1, C_2, \ldots, C_t, \ldots, C_n; S_1, S_2, \ldots, S_t, \ldots, S_n).$$

Households allocate time among consuming a nonreligious composite product x_t with price p_x and requiring consumption time h_t, receiving a religious service y_t with price p_y requiring attendance time r_t, and work l_t at wage rate w_t. Nonreligious consumption and religious services bundles are produced by the household production functions $C_t = C_t(x_t, h_t)$ and $S_t = S_t(y_t, r_t)$. Let i be the constant market rate of interest and T be the time available to the household per period t. The consumer's problem can now be represented as

$$\max_{h_t, r_t, l_t} U = U[C_1(x_1, h_1), C_2(x_2, h_2), \ldots, C_n(x_n, h_n); S_1(y_1, r_1), S_2(y_2, r_2), \ldots, S_n(y_n, r_n)]$$

subject to the consumer's income constraint

$$\sum_{t=1}^{n}\left[\frac{p_x x_t + p_y y_t}{(1+i)^{t-1}}\right] = \sum_{t=1}^{n}\left[\frac{w_t l_t}{(1+i)^{t-1}}\right] \tag{1}$$

and time constraint

$$h_t + r_t + l_t = T \quad \text{for all } t. \tag{2}$$

After substituting Equation 2 into Equation 1, we can write the Lagrangian function as

$$L = U(C_1, \ldots, C_n; S_1, \ldots, S_n) + \lambda\left\{\sum_{t=1}^{n}\left[\frac{w_t(T - h_t - r_t)}{(1+i)^{t-1}}\right] - \sum_{t=1}^{n}\left[\frac{p_x x_t + p_y y_t}{(1+i)^{t-1}}\right]\right\}.$$

Assuming a quasi concave utility function and the existence of an interior optimum, one result from the first-order conditions is

$$\frac{(\partial U/\partial S_t)(\partial S_t/\partial r_t)}{(\partial U/\partial S_{t-1})(\partial S_{t-1}/\partial r_{t-1})} = \frac{w_t}{w_{t-1}(1+i)}. \tag{3}$$

Equation 3 implies that religious participation decreases as opportunity cost increases. Given the typical age-wage profile, Azzi and Ehrenberg (1975) argued that Equation 3 implies that religious participation will have a U-shaped relationship with age, first decreasing and later rising with age. Sullivan (1985) offers two additional explanations. Religious participation will increase with age if the numerator of the left-hand side of Equation 3 exceeds the denominator. The marginal utility of religious services ($\partial U/\partial S_t$) may rise with age, or the marginal product of time devoted to religion ($\partial S_t/\partial r_t$) may increase with experience and the accompanying accumulation of religious capital.

Neither Azzi and Ehrenberg (1975) nor Sullivan (1985) address the issue of choice among religious services. If there are m religions to choose among, then the household will choose the religious service from the set $\mathbf{y}_t = (y_t^1, y_t^2, \ldots, y_t^m)$ that maximizes utility. Of course, the government could restrict the religious services available to the household by, for example, establishing an official

religion, restricting the practice of certain religions, or imposing added costs on the practice of certain religions. Assuming that the price of an hour of time devoted to religious production r_t is equal to the wage rate w_t (i.e., the opportunity cost of time), standard production theory tells us that the household production decision regarding $S_t(y_t, r_t)$ is characterized by setting the ratio of the marginal products equal to the relative price ratio. That is,

$$\frac{\partial S_t/\partial y_t}{\partial S_t/\partial r_t} = \frac{p_y}{w_t}.$$

Restriction of the household's choice of religious services to a set smaller than $\mathbf{y}_t = (y_t^1, y_t^2, \ldots, y_t^m)$ means that for many households each unit of y_t^i will yield less S_t (that is, the marginal product of y_t^i is reduced at every possible input level). To maintain an optimal production plan, the household will thus reduce its consumption of religious service y_t^i. However, because y_t^i is by assumption a production complement of r_t (the time spent in producing the religious service), the reduced productivity of attending a suboptimal religious service will also lead the household to decrease the time it devotes to attending religious services.

Restrictions on freedom of religion can immediately reduce the marginal productivity of the household's religious service production function, and households respond by decreasing attendance of second-best religious services. However, the lifting of restrictions may not reverse this effect as quickly. If religion is an experience service so that the marginal utility of religious services ($\partial U/\partial S_t$) rises with age, or if growth of specific religious capital over time increases the marginal productivity of religious services (y_t), then it may take time for households to increase their attendance of religious services once restrictions are removed. In addition, governments may also restrict attendance at religious services by criminalizing religious participation. If so (and if the restriction is effectively enforced), $p_y \to \infty$, and households will devote all of their resources to production of nonreligious consumption bundles.

3. Data

We examine issues of religious freedom and the establishment of state religion using aggregate data on religious attendance from a cross-section of 59 countries. In all of our empirical models, the dependent variable is the percentage of people within a country who attend religious services at least once per week. Iannaccone (1991) found that attendance was as accurate a proxy of religiosity as such internal measures as prayer life and strength of various religious beliefs. Religious attendance data are taken from aggregated survey responses from the World Values Survey.[6]

The countries included in our data are quite diverse. Although most of Western Europe and North America are included, we also have observations from several major Asian countries, numerous former Soviet republics and other formerly Communist countries, several Latin American countries, and a few predominantly Islamic countries. Thus, our data represent a marked improvement over the sample in Iannaccone (1991) and Chaves and Cann (1992), and our data include as many countries as B&M.[7]

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[6] Religious attendance data are available at www.umich.edu/~newsinfo/Releases/1997/Dec97/r121097a.html. All aggregate attendance estimates are from the 1995–1997 wave of the World Values Survey, except for the following 16 countries (which are from the 1990–1991 wave): Austria, Belgium, Bulgaria, Canada, Czech Republic, Denmark, France, Great Britain, Hungary, Iceland, Ireland, Italy, Netherlands, Northern Ireland, Portugal, and Romania.

[7] Both our data and the data in B&M cover 59 countries, but the two articles have only 46 countries in common.

We use several variables to proxy for the degree of religious regulation within a country. From the U.S. Department of State[8] we obtained data for each country in our sample on the following categories of restrictions on religious groups: (i) the existence of a state or official religion, (ii) the requirement that religious groups register with the government, (iii) the censoring of religious beliefs or gatherings, (iv) the censoring of religious media, (v) government influence on religious schools, (vi) mandatory religious teaching in state schools, (vii) forced religious conversion or prohibition of voluntary conversion, (viii) restriction of missionary groups, and (ix) government funding of certain religious groups. We report results using dummy variables for two of these individual categories (*Official State Religion*[9] and *Registration Required*) and for a combination of all of the categories (i.e., *Any Restriction on Religious Freedom* is equal to one whenever any of the nine previously listed types of religious restriction is present in a country). We also generate an *Index of Restrictions on Religious Freedom*, which sums each of the nine religious regulation dummy variables. This index therefore is a rough proxy for the amount of regulation of religion within the particular country and is in the spirit of the index generated by Chaves and Cann (1992).

Recognizing that the preceding categories of religious regulations, although based upon the State Department's reporting scheme, are somewhat subjective, we also use a more objective measure of protection of religious freedom. *Date of Constitutional Protection* is the year in which the country enacted some form of constitutional protection of religious freedom. The nature of such protection varies across countries. Some countries follow the model of the United States Constitution and prohibit both government interference with the free exercise of religion and the establishment of any religion by the government. Other countries only provide protection for the free exercise of religion, and some merely provide protection against discrimination on the basis of religion.[10] Moreover, the existence of *de jure* protection of religious freedom does not mean that *de facto* religious freedom exists, and the degree to which freedom of religion is enforced surely varies across countries. Thus, using *Date of Constitutional Protection* as a proxy for religious freedom captures some, but not all, of the variation in religious freedom across countries.

To control for other factors that should influence religious attendance, we include the GDP per capita for each country[11] as an aggregate-level proxy for wage and income effects on individual attendance decisions. We also include two additional dummy variables for control purposes: (i) *Majority Catholic*, which is equal to one in countries where more than 50% of the population is affiliated with the Roman Catholic Church;[12] and (ii) *Currently or Formerly Communist*, which is equal to one in countries that are under Communist rule or that emerged from Communist rule in the 1990s. *Currently or Formerly Communist* takes into account the limitations placed by Communist governments on religious choice. *Majority Catholic* is included because empirical evidence suggests that Roman Catholics attend church services more frequently than adherents of many other religions.

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[8] U.S. Department of State (2001).

[9] The countries in our data in which there is either an official or a clearly implied state religion are Argentina, Armenia, Belarus, Bulgaria, Denmark, Finland, Iceland, Norway, Sweden, and the United Kingdom. Sweden disestablished its church as of January 2000, but our data predate the conversion.

[10] International constitutional provisions and dates were obtained from a variety of sources, including Barrett, Kurian, and Johnson (2001), Barrett (1982), the International Constitutional Law electronic library maintained at the University of Bern Web site (http://www.oefre.unibe.ch/law/icl/index.html), the www.religious-freedom.org Web site maintained by the Christian Science Committee on Publication, and Gill (1998).

[11] GDP per capita is stated in U.S. dollar purchasing power equivalency, and the data are taken from the Central Intelligence Agency (2001).

[12] Data on the religious demographics of each country are taken from U.S. Department of State (2001) and from Barrett, Kurian, and Johnson (2001).

Most of the countries in our sample with a Catholic majority are heavily Roman Catholic—only four of the 24 majority Catholic countries have a Catholic population less than 70% of the total population.[13]

4. Results

Summary statistics for all variables are set forth in Table 1. Across the 59 countries in our sample, the average percentage of people who attend religious services at least once per week is 26.1%, but this ranges from 2% in Russia to 89% in Nigeria. Official state religions are present in 16.9% of our countries. Some form of restriction on religious freedom exists in 83.1% of the countries, with registration required in 35.6%. The number of restrictions on religious freedom (among the nine types of restrictions that we analyze) ranges from zero to six, with an average of 1.83.[14] The earliest date of constitutional protection of religious freedom ranges from 1689 in the United Kingdom to 1995 in Armenia and Azerbaijan, with the average year being 1913. At least half of the population is Roman Catholic in 40.7% of our countries, and 37.3% of the countries either are or recently were governed by communists.

To assess the impact of both religious freedom and government regulation of religion, we regressed religious attendance on differing combinations of the variables described in the previous section. The results of these regressions are reported in Table 2, which sets forth the coefficient estimates along with robust standard errors and associated *p*-values.[15] Column 1 of Table 2 presents results from only the control variables. To isolate the individual effect of each of our variables of interest, columns 2–6 present separately the effects of *Date of Constitutional Protection, Any Restriction on Religious Freedom, Official State Religion, Registration Required*, and *Index of Restrictions on Religious Freedom*. Finally, columns 7–10 separately present the joint effects of the date of constitutional protection of religious freedom and each of the religious regulation measures. The regression coefficients are nearly all highly significant, and the regressions generally explain approximately half of the cross-country variability in religious attendance.[16]

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[13] In the sociology literature, there is a significant debate over the so-called Catholic effect in estimating adherence rates. In essence, the debate involves the reasons for the relatively high religiosity in countries with heavily Roman Catholic populations. An explanation proffered by Stark, Finke, Iannaccone, and others is that the Roman Catholic church permits far more internal competition than do comparable Protestant monopolies. See Iannaccone, Finke, and Stark (1997) and Stark and Finke (2000, chapter 9) for examples of and support for this analysis. On the other hand, Olson (1999) argued that any positive effect of religious pluralism on religious adherence was a mathematical artifact of the use of the Catholic share as a control variable in combination with a pluralism measure based on squared shares. Chaves and Gorski (2001) summarize additional arguments along these lines. In this article, however, we do not address this Catholic effect; rather, we note the existence of an observed effect and control for it using a dummy variable in order to avoid the use of a control variable that is a mathematical component of the dependent variable (which is the primary statistical criticism leveled by Olson 1999 and Chaves and Gorski 2001).

[14] The countries in our sample with a Restriction Index of zero are Australia, Canada, Ireland, Italy, The Netherlands, Puerto Rico, Slovakia, South Africa, South Korea, and the United States. The highest scores on the Restriction Index are Finland and Mexico (Index = 4), Armenia and Belarus (Index = 5), and Bulgaria (Index = 6).

[15] Our dependent variable (the percentage of the population attending religious services at least once per week) is inherently limited to a value between 0 and 100, so that the assumptions of the ordinary least squares method are not all met. Therefore, we also estimated regressions using a logistic transformation of the dependent variable; that is, we let $y_i = \ln[p_i/(100 - p_i)]$, where p_i is the percentage attending services weekly. We estimated the coefficients of the transformed model and calculated the partial derivatives $\partial p_i/\partial x_i$ for each of the independent variables at the means of all independent variables. The alteration of the dependent variable did not alter the substantive results reported in Table 2. We opt to report the results from the linear specification simply because the meaning of the coefficients is more transparent.

[16] We examined separately each of the nine types of religious freedom restriction. Only the two reported in Table 2 had statistically significant coefficient estimates.

Table 1. Summary Statistics

Variable	Mean	Standard Deviation	Minimum Value	Maximum Value
Weekly religious attendance	26.12	20.94	2	89
Date of constitutional protection	1912.93	71.91	1689	1995
Any restriction on religious freedom	0.831	0.378	0	1
Official state religion	0.169	0.378	0	1
Registration required	0.356	0.483	0	1
Index of restrictions on religious freedom	1.83	1.379	0	6
Majority Catholic	0.407	0.495	0	1
Currently or formerly communist	0.373	0.488	0	1
GDP per capita ($)	13,495.76	9066.02	950	36,200

Number of observations = 59.

The most compelling results appear in columns 7–10, which estimate the effects of both constitutional protection and the various religious freedom dummy variables. Because constitutional protection is measured by the date of enactment, a negative sign implies that earlier adoption (a decrease in the year) is associated with an increase in religious attendance. Interpreting the coefficient estimates in this light, the smallest estimate, in column 7, suggests that each year of constitutional protection increases attendance by 0.1115% of the total population of a country, whereas the largest estimate, in column 8, places the estimate at 0.1317%. Averaging the estimates in columns 7–10 implies that each decade of constitutional protection of religious freedom increases religious attendance by approximately 1.2% of the population.[17]

Columns 3 and 7 show that the existence of some form of religious restriction reduces attendance by 19–20% of the population. Columns 4 and 8 imply that the existence of an established religion within a country reduces religious attendance by 14.6–16.7% of the population. Just as Iannaccone (1991) and others have suggested (and Adam Smith well before that), a religious monopoly or dominant church established by the state has a large negative impact on the degree of religiosity among the population as measured by the level of religious attendance.

The other two religious regulation dummy variables also have significantly negative effects on religious attendance. Requiring religious groups to register is associated with approximately 13% less of the population attending religious services on a weekly basis. Each additional regulatory increment restricting religious freedom is associated with a reduction in attendance of about 3% of the population.

Because the dependent variable is limited to values between 0 and 100, the specific interpretations we have given the coefficients are less reliable the more we move away from the center of the distribution of the dependent and independent variables. Thus, one should be cautious before broadly extrapolating these results to the extreme values in our data set, such as countries with very high or very low attendance and countries with long-standing legal protection of religious freedom. Also, because the data are cross-sectional, the effects across time may not be as large as our regression results suggest. Even so, the magnitude and significance of the coefficient estimates in Table 2 suggest that government regulation of religion, including the establishment of a state religion, has a large negative impact on religious attendance, and that legal protection of religious freedom has a strong positive influence.

[17] We also examined whether the duration of constitutional protection had a nonlinear effect by calculating *Duration* as (2002 – *Date of Constitutional Protection*) and regressing both *Duration* and its square on religious attendance. The squared term was never significant.

Table 2. Factors Affecting Religious Attendance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Date of constitutional protection	—	−0.1208 (−2.93) [0.005]	—	—	—	—	−0.1115 (−3.16) [0.003]	−0.1317 (−4.16) [0.000]	−0.1239 (−3.19) [0.002]	−0.1162 (−3.07) [0.003]
Any restriction on religious freedom	—	—	−20.35 (−3.37) [0.001]	—	—	—	−18.98 (−4.27) [0.000]	—	—	—
Official state religion	—	—	—	−14.59 (−3.41) [0.001]	—	—	—	−16.69 (−3.87) [0.000]	—	—
Registration required	—	—	—	—	−13.08 (−2.91) [0.005]	—	—	—	−13.58 (−2.85) [0.006]	—
Index of restrictions on religious freedom	—	—	—	—	—	−3.28 (−2.47) [0.017]	—	—	—	−2.95 (−2.44) [0.018]
Majority Catholic	14.19 (2.80) [0.007]	15.27 (3.15) [0.003]	14.18 (3.09) [0.003]	11.21 (2.17) [0.034]	13.21 (2.81) [0.007]	12.47 (2.59) [0.012]	15.18 (3.44) [0.001]	11.96 (2.50) [0.016]	14.28 (3.25) [0.002]	13.69 (2.96) [0.005]
Currently or formerly communist	−23.87 (−3.81) [0.000]	−18.05 (−2.56) [0.013]	−21.92 (−3.56) [0.001]	−24.05 (−3.96) [0.000]	−23.20 (−4.21) [0.000]	−24.60 (−3.97) [0.000]	−16.67 (−2.39) [0.020]	−17.73 (−2.61) [0.012]	−17.20 (−2.78) [0.007]	−18.92 (−2.71) [0.009]
GDP per capita	−0.00072 (−1.85) [0.070]	−0.00109 (−2.83) [0.006]	−0.00093 (−2.63) [0.011]	−0.00062 (−1.71) [0.094]	−0.00104 (−2.51) [0.015]	−0.00086 (−2.31) [0.025]	−0.00126 (−3.53) [0.001]	−0.00101 (−2.91) [0.005]	−0.00143 (−3.44) [0.001]	−0.00120 (−3.23) [0.002]
Constant	39.02 (4.32) [0.000]	272.60 (3.47) [0.001]	58.02 (5.74) [0.000]	41.38 (4.69) [0.000]	48.12 (4.92) [0.000]	47.87 (5.21) [0.000]	272.13 (4.15) [0.000]	296.16 (4.97) [0.000]	287.97 (3.87) [0.000]	271.53 (3.79) [0.000]
R^2	0.4083	0.5132	0.5288	0.4701	0.4777	0.4512	0.6175	0.5933	0.5880	0.5477
F-statistic	19.46	16.56	20.37	16.02	17.57	15.50	22.51	17.06	18.24	14.78

Number of observations = 59. Dependent variable is percent of population attending religious services at least once per week. Independent variables are defined in the text. Numbers in parentheses are robust t-statistics using the Huber/White/sandwich estimator of variance; numbers in brackets are the associated p-values. The F-statistics are all highly significant, with $p < 0.000$ for each specification.

The other control variables all have the signs and significance suggested both by theory and by prior empirical work on individual-level data. Countries that are majority Roman Catholic show higher attendance from 11.2% to 15.3% of the population. In contrast, communism (or recent emergence from communism) has a negative effect on attendance by 16.7–24.6% of the population. GDP per capita has the negative sign expected from the Azzi/Ehrenberg/Sullivan-style model in section 2, with each additional thousand dollars–equivalent reducing attendance by between 0.60% and 1.43% of the population.

One potential concern is our use of *Majority Catholic* as a control variable. Religious attendance is likely to be higher in countries with high levels of religious adherence, and countries with a population that is over one-half Catholic may have higher overall levels of religious adherence (because at least half of the population by definition are religious adherents). Thus, it is possible that, consistent with the arguments of Olson (1999), any effect we find for regulation of religion could be merely a mathematical artifact of strong correlations among key variables on the left- and right-hand sides of our equations. To see whether *Majority Catholic* had this effect, we estimated all of the equations in Table 2 leaving out *Majority Catholic*. The results showed no qualitative differences; indeed, the magnitude and significance of the coefficient estimates on *Official State Religion, Registration Required,* and the *Index* actually increased. (These results are available from the authors on request.) Thus, our results reported in Table 2 are robust to the inclusion or not of *Majority Catholic* in the specification.

Individual-level analyses in the existing literature suggest that age and gender also ought to influence religious attendance. In recognition of this, we controlled for the median age in each country in regressions not reported herein, and its effect was uniformly significant and negative. This result is consistent with the U-shaped age-attendance profiles found using individual data; the countries' median ages range from 17.8 to 41.1, which should be on the downward-sloping portion of the U.[18] Unfortunately, there was sufficient collinearity between GDP per capita and median age that median age generally rendered GDP per capita insignificant and median age less significant when both were included in the same regression. We also controlled for the male-to-female population ratio in each country, but the coefficient was never statistically significant.

Overall, the results we present in Table 2 are consistent with much of the prior literature on church-state matters. However, B&M reached a different result, finding that an official state religion had a significantly positive effect on weekly and monthly church attendance. In order to assess any reasons for the differences in our conclusions and those of B&M, we conducted a number of comparative analyses using our data. The most important results from this exercise are presented in Table 3. To better mimic B&M's analysis, the dependent variable in Table 3 is the logit transformation of attendance, $\ln[p/(1-p)]$.

There are a few key differences between our empirical specification and B&M's model. First, we base our definition of *Official State Religion* on our own research into the existence of legally instituted provisions setting a particular religion as the official or traditional religion of a country. In contrast, B&M use the classification scheme set forth in Barrett, Kurian, and Johnson (2001, pp. 834–5; hereafter BKJ), which employs a much looser standard for "official" than we do. Moreover, BKJ set forth the church-state status of each country at four different points in time: 1900, 1970, 1990, and 2000. B&M used BKJ's 1970 status to define "state religion." In Table 3, we use each of the possible classification years from BKJ (2001) along with our own on our set of 59 countries. The difference in church-state

[18] We also estimated regressions with median age squared to test for nonlinear effects. In each case, neither median age nor its square was statistically significant.

Table 3. Comparison to Barro and McCleary (2003)

	Barrett, Kurian, and Johnson (2001) Classification								Our Definition	
	1900		1970		1990		2000			
Official state religion	−0.9227	−0.7727	−0.7228	−0.6223	−0.6833	−0.6929	−0.7062	−0.7037	−0.8688	−0.5774
	[0.001]	[0.005]	[0.067]	[0.182]	[0.006]	[0.006]	[0.005]	[0.013]	[0.014]	[0.204]
Pluralism (1 − Herfindahl)	0.2329	0.1532	0.0947	0.2349	0.2212	0.1757	0.0974	0.1146	0.2057	0.5226
	[0.686]	[0.827]	[0.887]	[0.799]	[0.730]	[0.831]	[0.878]	[0.890]	[0.753]	[0.574]
Majority Catholic	1.1728	—	1.2978	—	1.2900	—	1.2596	—	1.0362	—
	[0.000]		[0.000]		[0.000]		[0.000]		[0.000]	
Currently or formerly communist	−1.3762	−1.2062	−1.6604	−1.3437	−1.4708	−1.2385	−1.3514	−1.1067	−1.4397	−1.1684
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]
ln(GDP per capita)	−0.6383	−0.5266	−0.5175	−0.4909	−0.5490	−0.5976	−0.5567	−0.5409	−0.4768	−0.4142
	[0.001]	[0.019]	[0.014]	[0.057]	[0.009]	[0.014]	[0.007]	[0.020]	[0.030]	[0.099]
Muslim share	—	−0.8726	—	−1.2352	—	−1.4966	—	−1.1591	—	−0.9316
		[0.211]		[0.094]		[0.070]		[0.046]		[0.204]
Protestant share	—	−1.8482	—	−1.7524	—	−1.6572	—	−1.7334	—	−1.5571
		[0.000]		[0.001]		[0.000]		[0.000]		[0.004]
Hindu share	—	−2.0119	—	−1.6104	—	−1.7642	—	−1.6782	—	−1.2249
		[0.000]		[0.008]		[0.004]		[0.004]		[0.054]
Eastern religion share	—	−2.3148	—	−3.0203	—	−2.9709	—	−3.0068	—	−2.9005
		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]
Jewish share	—	−4.9328	—	−4.6815	—	1.3747	—	4.2490	—	−2.4574
		[0.870]		[0.873]		[0.964]		[0.889]		[0.929]
Orthodox share	—	−1.7596	—	−2.2577	—	−2.2487	—	−2.1805	—	−1.9038
		[0.000]		[0.000]		[0.000]		[0.000]		[0.019]
Other religion share	—	5.5018	—	4.6171	—	3.5153	—	4.0446	—	4.9499
		[0.215]		[0.409]		[0.477]		[0.428]		[0.415]
Constant	5.0313	5.2919	3.6412	4.7858	3.8720	5.8067	4.0059	5.2796	3.2299	3.7208
	[0.008]	[0.015]	[0.077]	[0.060]	[0.057]	[0.015]	[0.046]	[0.019]	[0.123]	[0.112]
R^2	0.6166	0.6877	0.5397	0.6500	0.5590	0.6720	0.5651	0.6820	0.5542	0.6458
F-statistic	21.29	26.37	17.16	23.04	16.74	22.47	17.60	24.09	16.81	19.60

Number of observations = 59. The dependent variable in each column is $\ln [p/(1-p)]$, where p = percent of population attending religious services at least once per week. The source of the variable for *Official State Religion* is stated at the top of each pair of columns. Numbers in brackets are robust p-values using the Huber/White/sandwich estimator of variance. The F-statistics are all highly significant, with $p < 0.000$ for each specification.

classification scheme makes no difference at all in our results, as every classification scheme yields a negative coefficient estimate on *Official State Religion*, with most of them statistically significant.

A second difference between our specification and that of B&M is that B&M include a pluralism measure and the "market" shares of seven different religious groups (Roman Catholics are excluded to avoid collinearity). The pluralism measure is calculated as $1 - H$, where H is a standard Herfindahl index calculated at the country level for nine religious groupings: Roman Catholic, Orthodox, Protestant, Muslim, Hindu, Buddhist, Jewish, Other Eastern Religions, and Other Religions.[19] Using BKJ, as B&M did, we calculated the shares of each of B&M's groups and the Herfindahl index for each country using adherence statistics for 1995, the year closest in time to most of our sample. (B&M calculated their shares and Herfindahl using 1980 statistics.) As shown in Table 3, the pluralism variable is never significant, nor does it alter the conclusion from our data that *Official State Religion* has a significant negative effect. In contrast, in two of the five church-state classification schemes (BKJ 1970 and ours), the coefficient on *Official State Religion* is no longer significant when the various religious shares are included with pluralism, although the sign is still negative.

The final major difference between our analysis and B&M is that we use different data, so that only 46 of our 59 countries are also present in B&M's analysis.[20] In regressions that we do not report here, we limited our sample to only those 46 countries also appearing in B&M's sample. We also used the data on "pluralism" and "state regulation" directly from B&M's Table 1, rather than trying to replicate it.[21] The specifications used in these unreported regressions followed the pattern of Table 3, including all five church-state classification schemes both with and without the individual religion shares. In eight of those 10 regressions, the coefficient on *Official State Religion* is negative and insignificant. (The p-values are in the 0.11–0.20 range when shares are not included, and less significant when the shares are included.) The only two specifications for which *Official State Religion* has a positive coefficient estimate are when the BKJ 1970 classification is used with religion shares and when our definition is used with religion shares. Similarly, when we exclude the pluralism measure but include the seven non-Catholic shares, the only positive (although insignificant) estimate on *Official State Religion* occurs in the 1970 BKJ classification, which is the classification used by B&M. These results could reflect the noncausal linkages between participation and pluralism measures discussed in Voas, Olson, and Crockett (2002).

In summary, the differences between our results and those of B&M do not appear to be driven by differences in the samples, differences in how *Official State Religion* is defined, or the inclusion (or not) of a pluralism measure. The inclusion of the shares of seven religious groups combined with the pluralism measure may be a source of differences. However, because the pluralism measure is based on a Herfindahl index, which is simply the sum of the squared shares, B&M's inclusion of both $1 - H$ and the shares introduces an odd quadratic specification in which the quadratic term for each share is constrained to have the same coefficient, Roman Catholicism enters only with the quadratic term and not an associated linear term, and the shares for Buddhists and Other Eastern Religions are constrained to have the same coefficient (since B&M combine these two in the share but not the Herfindahl calculation). Thus, inclusion of both the pluralism variable and the religion shares is

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[19] B&M combine the Buddhist and Other Eastern groups into Eastern Religion when controlling for market shares.

[20] The countries appearing in our sample but not in B&M are Armenia, Azerbaijan, Belarus, Croatia, Georgia, East Germany, Moldova, Montenegro, Nigeria, Northern Ireland, Puerto Rico, Serbia, and Ukraine.

[21] Barrett, Kurian, and Johnson (2001) break the Christian adherents into six main groups rather than three. Moreover, there is some double-counting and overcounting, which Barrett, Kurian, and Johnson (2001) control for by subtracting so-called disaffiliates and double-affiliates. Thus, there is some ambiguity in how to properly calculate the total numbers of Protestants, Catholics, and Orthodox within each country, which results in ambiguity in calculating shares and the Herfindahl.

inappropriate, a conclusion bolstered by the findings in Voas, Olson, and Crockett (2002). As a result, the best conclusion regarding the effect of a state religion on attendance, using our sample, is that an official state religion has a significantly negative effect on weekly religious attendance.

5. Conclusion

We use a cross-section of 59 countries to examine the impact of state religion and of constitutional protection of religion on the degree of religiosity in the country. Our measure of religiosity is the percentage of the population who attend religious services at least once per week. We find that both establishment and constitutional protection have significant (and opposing) effects. The existence of a state religion reduces attendance by 14.6–16.7% of the total population, whereas each decade of constitutional protection increases attendance by approximately 1.2% of the population. Thus, having an established state religion can undo the positive effect of well over a century of constitutional protection of religious freedom. The same is true of other forms of religious regulation, including a registration requirement: we find that government regulation of religion is associated with lower religious attendance.

We began this article by citing several recent examples of church-state issues from the United States and abroad in order to show the connection between this area of economic research and public policies regarding schools and other types of governmental sanctioning of religion. Certainly, our data are too blunt an instrument to answer the finely honed church-state questions raised under the First Amendment, which flatly prohibits the establishment of any religion or governmental interference with the free exercise thereof.[22] Nevertheless, our results yield insight into the possible unintended consequences if people of religious faith, in seeking to strengthen American religion, are able to reinsert mandatory prayer and other sectarian teaching and behavioral requirements into public schools, or to gain approval of sectarian displays on government property, or to garner additional government funds for faith-based groups that explicitly seek to proselytize while delivering social services, or . . . the list goes on. If these religious groups are successful in obtaining governmental favor for their particular brands of religion, they may be inadvertently sowing the seeds of their own destruction.

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[22] Moreover, future research would benefit from accounting for unobserved heterogeneity across countries or even the possibility of endogeneity between attendance and our control variables. Plus, it is conceivable that there is endogeneity between religious pluralism and religious regulation, since religious groups are more likely to join together to oppose any form of regulation when all are minorities. Unfortunately, our present data do not allow us to address these matters.

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