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# "Religious Freedom and State Religion in an International Panel"

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2004-056-ECO

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# Religious Freedom and State Religion in an International Panel

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August 2004

ABSTRACT

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JEL Classifications:

Z12 – Economics of Religion
K10 – Basic Areas of Law: General (Constitutional Law)

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* For helpful comments, the authors thank Larry Iannaccone, Steven Levitt, and participants at the 2003 annual meeting of the Society for the Scientific Study of Religion and the 2004 ASSA meetings. The authors thank Malcolm Gold for valuable research assistance. The usual disclaimer applies.

**Religious Freedom and State Religion in an International Panel**[1]

ABSTRACT

This paper explores the determinants and implications of church-state relationships. A theoretical model of a government's decision to establish, or disestablish, a state church is developed and then tested with data from a 65-year panel of 31 countries. We also examine the effects of state religion and legal protection of religious freedom on religious attendance and religious pluralism. We show that, due to economies of scale in the provision of religious services, governments are most likely to establish a state religion in countries with homogeneous populations. We further show that heterogeneity of religious preferences reduces the likelihood of a state religion, that state religions undermine the overall religiosity of the population in religiously pluralistic countries, and that religious freedom protection increases religious attendance and spurs increases in religious pluralism. The overall implication of our model and empirical findings is that state religion is inherently self-destructive when religious freedom is guaranteed.

## I. Introduction

A growing body of literature across the social sciences is examining the effects of state intervention in religious markets. Generally speaking, this literature finds that state regulation of religion and state provision of religion lead to a less religious populace. However, there has been little exploration of why a state would sponsor its own religion, and what empirical work there is has relied upon cross-sectional data. We address these shortcomings in the existing literature by developing a model of church-state interaction and by testing the model's predictions using an international panel. Our findings suggest that (1) state religion is most likely in societies where there is significant homogeneity of preferences for religion; (2) disestablishment during the 20th century was more likely to occur in countries with increasing religious pluralism; (3) state religion undermines the level of religious attendance in pluralistic countries but increases the level of religious attendance in homogeneous countries; and (4) over time protection of religious freedom generates greater religious heterogeneity. The implication of these findings is that state

[1] Earlier versions of this paper were presented in October 2003 at the annual meeting of the Society for the Scientific Study of Religion and in January 2004 at the Allied Social Science Association meetings.

religion's continued success is dependent upon continued religious homogeneity, but that state religion and religious freedom combine to reduce this needed homogeneity. As a result, guarantees of religious freedom are a first step to disestablishment, even in societies that currently have homogeneous religious preferences.

A number of studies have found that regulation in religious markets reduces the level and/or vitality of religious practice (Iannaccone, 1991; Chaves and Cann, 1992; Chaves, Schraeder, and Sprindys, 1994; Iannaccone, Finke, and Stark, 1997; Introvigne and Stark, 2003; North and Gwin, 2004). Similarly, several studies focusing explicitly on state religion have found that state religion weakens religious practice (Iannaccone, Finke, and Stark, 1997; Olds, 1994; Sawkins, Seaman, and Williams, 1997; North and Gwin, 2004). One important study finding that state religion had a positive impact on religious attendance is Barro and McCleary (2003). That study, based on a group of international cross sections, jointly estimates how religious attendance is affected by religious regulation, state religion, and religious market concentration. Unfortunately, their use of a reduced-form empirical specification makes it difficult to disentangle the partial effects of each factor due to endogeneity among all three.

In addition, two recent working papers analyze the factors associated with the establishment of a state religion. Barro and McCleary (2004) use the church-state classification scheme from Barrett *et al.* (2001) to determine what factors are associated with having a state religion in 1970 and 2000. Performing a cross-sectional analysis of 189 countries, they find that a state religion was more likely in 1970 and 2000 if the country had a state church in 1900, if the country had no regime change during the 20th century, and if the country's religious market was highly concentrated. On the other hand, a state religion was less likely in communist countries and countries in sub-Saharan Africa. Fox and Sandler (2004) construct several indices of

separation of religion and state in order to analyze the extent of separation throughout the world. As part of their analysis, they too find that a more concentrated religious market led to higher levels of "religious support" and "religious legislation."

The analyses by Barro and McCleary (2004) and Fox and Sandler (2004) complement our work, in that we too examine the connection between religious heterogeneity and state religion. Our project goes further, however, in that we develop and test a model to explain how relative homogeneity or heterogeneity influences the existence of a state religion, we examine the connection between state religion and religious attendance, we explore the effects of state religion and religious freedom on religious pluralism, and we utilize country-level panel data spanning much of the 20th century.

To conduct our analysis, we rely upon religious attendance data from Iannaccone's (2003) 65-year panel of 32 countries[2] (observed every five years), which was generated from retrospective church attendance questions contained in the 1991 and 1998 waves of the International Social Survey Programme. Use of panel data in our analysis provides several key advantages. First, several of the 31 countries in our panel experienced changes in the establishment status of the state religion during the sample period, so that we are able to assess the impact of internal variations in establishment status in addition to cross-sectional variations. Second, panel data enable us to control for unobserved heterogeneity across countries (such as cultural factors), thus providing greater reliability to any conclusions about the causal relationship between religious attendance and the regulation of religious markets. Third, by examining within-country variation and controlling for cross-country heterogeneity, we avoid the mathematical problems discussed in Olson (1999) and Voas, Crockett, and Olson (2002) regarding the use of cross-sectional data to study religious pluralism and religious participation.

[2] Because we were not able to obtain certain data on Latvia, we do not include Latvia in our sample.

In addition to our contributions to the economics of religion, our findings also provide insight into the debate surrounding sociology of religion's "new paradigm," which is rooted in religious market theory. In particular, we demonstrate some of the mechanisms by which regulation of religious markets impacts the religious behavior of participants in those markets. Moreover, we shed new light on the connection between religious pluralism and religious attendance by examining the differential impact of pluralism on the religious attendance of adults and their children.

In Section II, we model the decision to establish or disestablish a state religion. Section III describes our data, Section IV discusses the empirical evidence on the existence of state religions, Section V presents results on the effects of state religion on attendance and religious heterogeneity, and Section VI concludes.

## II. A Model of State Religion

This section presents a theoretical model of a government's decision of whether to establish or (later) disestablish a state religion. The model combines the principal-agent (public-government) model of government choice in a pure presidential system from Ferejohn (1986) and Persson, Roland, and Tabellini (1997) with Azzi and Ehrenberg's (1975) and Sullivan's (1985) models of the household allocation of time between consumption and religious participation. The models of the principal-agent problem explore the potential conflicts of interest between a government and public. We incorporate religious participation as an additional point of conflict into this principal-agent framework.

### A. The Model

Our model contains consuming households, a government, and a religious services provider or providers. For convenience, we will refer to each religious services provider as a

"church," recognizing of course that the set of possible religions is larger than those implied by the use of the Christian term "church." Furthermore, we envision each church in a denominational sense, rather than a congregational sense, so that the term in our usage refers to the entire institutional structure of a religious supplier and not just the building and activities of a single congregation and its members.

The consumers in our model are a large number of infinitely lived households that may or may not differ on religious preferences. Each household maximizes its utility ($U$) which is derived from non-religious consumption bundles at time $t$, $c_t$, and religious services bundles, $s_t$. Letting the discount factor be $\delta$ where $0 \le \delta \le 1$ and $u(c_t, s_t)$ be a concave utility function monotonically increasing in $c_t$ and $s_t$, the unconstrained problem facing the households is:

$$\max \quad U = \sum_{t=0}^{\infty} \delta^t u(c_t, s_t) . \tag{1}$$

Households allocate their total time $T$ per period among consuming a non-religious 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 $w_t$. Non-religious consumption and religious services bundles are produced by the household production functions $c_t = c_t(x_t, h_t)$ and $s_t = s_t(y_t, r_t)$. We assume that the consumption goods/services and consumption time are complementary inputs into the household production functions, so that increased consumption of either the non-religious good or the religious service requires increased time allocated to that consumption bundle.

Azzi and Ehrenberg (1975) and Sullivan (1985), on which our household production model is based, presume that household preferences are homogeneous with respect to consumption of the religious service. The assumption of homogeneous preferences implies that

one religion can serve the needs of all households, especially if there are potential reductions in social cost from reducing the number of religions. Thus, a trivial explanation for why a state might create its own church is homogeneous preferences among consumers combined with economies of scale in the production of religious services.

To explore in a more meaningful way why a government would establish a state church, it must be plausible that other religions could serve as actual or potential substitutes for the state religion. To implement this in our model, we allow households to be heterogeneous in their preferences for religious services. In this way, multiple religious providers becomes a plausible equilibrium outcome. Depending on the structure of underlying preferences, possible market structures include differentiated churches in oligopoly, monopolistic competition, dominant church with a fringe, or any number of other imperfectly competitive market structures.

In the context of religious markets, use of a product-differentiation model like monopolistic competition is problematic because that particular model (and others as well) predicts that differentiation will lead to reduced consumption. However, one of the important debates surrounding religious markets theory is whether religious participation is higher or lower in a more pluralistic setting. Thus, we need to develop a model flexible enough to allow either higher or lower levels of religious consumption as the market composition changes. We accomplish this through use of a product attributes model.

To model consumer preferences for what are essentially different brands of religious services, we incorporate the product characteristics approach initially developed by Lancaster (1966, 1971, 1979) and analyzed as a "Product Attributes Model" by Gwin and Gwin (2003). In a product attributes model, rather than choosing from among a set of one dimensional products, consumers choose from a set of brands that embody a bundle of product attributes. Consumers

thus maximize utility derived from consumption of the characteristics or attributes of brands subject to a budget constraint. We therefore assume that there are *m* churches to choose from in each period, with each church indexed by *i*. Then, each type of religious activity $y_{it}$ produces a vector of attributes ($\mathbf{z_{it}}$). Assuming a linear relationship,

(2) $$\mathbf{z_{it}} = \mathbf{b_i} y_{it},$$

where $y_{it}$ measures the amount of a particular church's services consumed by the household, $\mathbf{z_{it}}$ is a vector of attributes provided in varying degrees by the various churches, and $\mathbf{b_i}$ is a parameter vector, unique to each church, that converts the scalar measure of the level of services consumed into the attributes vector $\mathbf{z_{it}}$.

In analyzing the state's decision to sponsor its own religion, it is important to specify how the state receives its payoff. A number of social benefits from religious participation have been identified in previous literature. For example, people of some religions may simply earn more than others. Chiswick (1983), Tomes (1983, 1984, 1985) and Steen (1996) find that some religious people are willing to work harder or invest more in human capital and thus earn more over their lifetimes. Similarly, Adam Smith (1981 [1776]) argued that adherence to stricter religious sects provides a signal that a person has a trustworthy character and is a good commercial partner. Another possible benefit to the state is that people with high levels of religious participation may be less likely to commit crimes (Lipford, McCormick, and Tollison, 1993; Hull and Bold, 1995; Hull, 2000), and lower societal crime levels should be conducive to greater earnings and wealth. Similarly, a set of shared values and norms generated through religious devotion might lower transactions costs in the conduct of commerce (Fukuyama, 1995), or at least lead to economic attitudes that are conducive to growth (Guiso, Sapienza, and Zingales, 2003). There is also growing medical evidence of health benefits associated with

religious belief and practice, some of which is described in Kalb (2003). Whatever the source of benefit to the state, we assume that religious practice benefits society in some way,[3] and that the state is able to extract some of that benefit.

To implement into our model this concept that widespread religious participation yields social benefits, we will assume that religious participation affects labor productivity within the consuming and producing household. While increased (decreased) productivity is not the only mechanism by which the social benefits (costs) of religion might be experienced, it will nevertheless suffice as a general representation of religion's benefits to society. We assume that the earnings of each consumer are affected by the aggregate consumption of all religious activities. Let $\mathbf{z_t} = \sum_{i=1}^{m}\sum_{j=1}^{n}\mathbf{b}_i y_{ijt}$, where $m$ is the total number of churches, and $n$ is the total number of households consuming religious services. Without loss of generality, we incorporate the social impact of religious participation into the framework of our model by letting $w_t = w_t(\mathbf{z_t})$. That is, the wage for labor varies with the aggregate level of religious consumption.

We model the government as an executive who maximizes his own utility, as in Persson, Roland, and Tabellini (1997). The executive maximizes the diversion of government funds to his own benefit subject to a reelection constraint. (In a similar fashion with similar results, Ferejohn (1986) has the executive minimizing effort.) In Persson, Roland, and Tabellini, government funds are raised from the public in some unspecified way. For our purposes, an income tax or equivalent flat tax to raise these funds can be used. Additionally, a government

[3] There would seem to be no reason to establish a state religion unless it generates (or is perceived to generate) some type of benefit. Even so, the assumption that religious practice generates societal benefits is not built into the model in a restrictive way. Rather, we only rely upon this assumption in analyzing the model's comparative statics. In fact, our discussion of communist governments later in this section shows what happens if the opposite assumption is made.

may choose to offer a tax deduction for religious contributions if the social benefit of church attendance increases tax revenues more than the cost of the tax deduction. The tax deduction may be necessary if the individual household's optimal level of church attendance is lower than the socially optimal level, which could occur because of free rider problems. Let $\tau_t$ be the income tax rate at time $t$ and $\alpha_t$ be the tax deduction for religious contributions at time $t$.

We assume that the total cost to operate any church at time $t$ ($TC_t$) is given by

(3) $$TC_t = F + \frac{ny_t}{m}\chi ,$$

where $F$ is the recurring opportunity cost of the fixed investment in a church[4] and $\chi$ is the constant marginal cost of providing a unit of a religious service. The average cost to operate a church is then given by

(4) $$AC_t = \frac{m}{ny_t}F + \chi .$$

Because $\frac{\partial AC_t}{\partial(ny_t)} = \frac{m}{ny_t}\left(\frac{dF}{d(ny_t)} - \frac{F}{ny_t}\right)$, economies of scale to operating a church exist over the range of outputs where $\frac{dF}{d(ny_t)} < \frac{F}{ny_t}$. The expression on the left-hand side of this inequality represents the marginal opportunity cost of expanding fixed investment when an additional unit of religious services is sold; the right-hand side represents the average opportunity cost that is spread across all religious services consumers. Thus, economies of scale in religious services provision will exist if the decrease in average cost from spreading the

[4] It is important to recognize that $F$ as used here is not the typical "fixed cost" of a firm's short-term cost function. Instead, as defined, it represents the opportunity cost of the resources that are fixed in the short-run but can vary in the long-run. In the classical microeconomic model of a firm with inputs of labor and capital, $F$ might represent the optimal level of capital associated with each level of output; in our model, it could represent the opportunity cost of the church buildings and other resources that are considered fixed in the short run. Thus, over time, $F$ can vary with the level of attendance, represented by $ny_t$, and ultimately $F$ represents the opportunity cost in a given period of the optimal level of capital (or similar resources) for each potential value of the quantity of religious services supplied.

opportunity cost of higher investment over more consumers outweighs the marginal cost of that additional investment. Economies of scale may be explicit (e.g., if there are scale economies in church construction) or implicit (e.g., larger churches may facilitate the government's objective at a lower cost). For example, Gill (1998) suggests that a government may be able to maintain social control at a lower cost through religion than through other mechanisms (like direct payoffs to citizens or military expenditures). It follows that increased product variety in a religious market can increase average cost. Assuming that churches as non-profit organizations earn zero profit, the price of church attendance is set equal to average cost:

(5) $$p_y = \frac{m}{ny_t} F + \chi \, .$$

With clear definitions of the interests of consumers and government, we can formalize a model of how the players make choices with regard to provision and consumption of religious services. The household's problem is to

(6) $$\max_{h,r,l} U = \sum_{t=0}^{\infty} \delta^t u(c_t(x_t, h_t), s_t(\mathbf{z_t}, r_t)) \, ,$$

subject to the consumer's budget constraint

(7) $$\sum_{t=0}^{\infty} \delta^t [p_x x_t + (1-\alpha_t \tau_t) p_y y_t] = \sum_{t=0}^{\infty} \delta^t (1-\tau_t)(w_t(\mathbf{z_t}) l_t) \, ,$$

and time constraint

(8) $$h_t + r_t + l_t = T \text{ for all } t \, .$$

The government maximizes its utility as

(9) $$\max_{m_t, \alpha_t, \tau_t} V = \sum_{t=0}^{\infty} \delta^t v(\tau_t w_t(\mathbf{z_t}) l_t - \alpha_t \tau_t p_y n y_t) \, .$$

### B. Analysis of the Model

A government that chooses to establish a monopoly state church is represented in our model by the government choosing $m = 1$. We begin by considering when a government would seek to establish a single religion as the official state religion. Thus, our initial analysis focuses on the circumstances that would lead to government to set $m = 1$. From equations (7) and (9), both households and the government prefer that churches operate at the lowest possible average cost, and equation (5) implies that the lowest average cost could be achieved in a natural monopoly. The monopoly price would be

$$p_y^{m=1} = \frac{1}{ny_t} F + \chi \,. \tag{10}$$

If households are homogeneous in their preferences for religious services, in that they all desire the same set of attributes, then a single church best serves households and the government. Thus, the most obvious situation in which a government would establish a state church is where preferences are homogeneous and religious services are a natural monopoly.

We turn now to the more important question of when a state would establish a monopoly religion even though consumer preferences for religion are heterogeneous. We use backward induction to derive a sub-game perfect Nash equilibrium to the game between households and the government in this situation. After substituting equation (8) into equation (7), we can write the Lagrangian function representing the household's problem as

$$\max_{h_t, r_t, \lambda_t} L = U + \lambda \sum_{t=0}^{\infty} \delta^t \left\{ \left[ (1-\tau_t) w_t(\mathbf{z_t})(T - h_t - r_t) \right] - \left[ p_x x_t + (1-\alpha_t \tau_t) p_y y_t \right] \right\} \tag{11}$$

Assuming a well-behaved, quasiconcave utility function and the existence of an interior optimum, the first-order conditions are

(12) $$\frac{\partial L}{\partial h} = \frac{\partial U}{\partial c}\frac{\partial c}{\partial h} - \lambda \sum_{t=0}^{\infty} \delta^t [(1-\tau_t) w_t(\mathbf{z_t})] = 0,$$

(13) $$\frac{\partial L}{\partial r} = \frac{\partial U}{\partial s}\frac{\partial s}{\partial r} - \lambda \sum_{t=0}^{\infty} \delta^t [(1-\tau_t) w_t(\mathbf{z_t})] = 0, \text{ and}$$

(14) $$\frac{\partial L}{\partial \lambda} = \sum_{t=0}^{\infty} \delta^t \left\{ \left[ (1-\tau_t) w_t(\mathbf{z_t})(T - h_t - r_t) \right] - \left[ p_x x_t + (1-\alpha_t \tau_t) p_y y_t \right] \right\} = 0.$$

The consumer's optimal choices of $h_t^*$, $r_t^*$, and $l_t^*$ can be determined by simultaneously solving equations (8), (12), (13), and (14).

The government approaches its problem knowing that the household will respond as described above. Assuming that $v(\cdot)$ is quasiconcave and that an interior solution exists, the government's optimal number of religions ($m_t$), tax deduction ($\alpha_t$) for religious contributions, and tax rate ($\tau_t$) are characterized by the first order conditions

(15) $$\frac{\partial V}{\partial m_t} = \sum_{t=0}^{\infty} \delta^t \frac{\partial v}{\partial(\cdot)} \tau_t \left( \frac{\partial w_t}{\partial z_t}\frac{\partial z_t}{\partial m_t} l_t^* + w_t \frac{\partial l_t^*}{\partial m_t} - \alpha_t \frac{\partial p_y}{\partial m_t} n y_t \right) = 0,$$

(16) $$\frac{\partial V}{\partial \alpha_t} = \sum_{t=0}^{\infty} \delta^t \frac{\partial v}{\partial(\cdot)} \tau_t \left( \frac{\partial w_t}{\partial z_t}\frac{\partial z_t}{\partial y_t}\frac{\partial y_t}{\partial \alpha_t} l_t^* + w_t \frac{\partial l_t^*}{\partial \alpha_t} - p_y n y_t - \alpha_t p_y n \frac{\partial y_t}{\partial \alpha_t} \right) = 0, \text{ and}$$

(17) $$\frac{\partial V}{\partial \tau_t} = \sum_{t=0}^{\infty} \delta^t \frac{\partial v}{\partial(\cdot)} \left( w_t l_t^* + \tau_t w_t \frac{\partial l_t^*}{\partial \tau_t} - \alpha_t p_y n y_t \right) = 0.$$

The determination of whether to establish a state church centers on equation (15). The optimal number of religious activities is given by the $m_t$ that solves

(18) $$\frac{\partial w_t}{\partial z_t}\frac{\partial z_t}{\partial m_t} l_t^* = -w_t \frac{\partial l_t^*}{\partial m_t} + \alpha_t \frac{\partial p_y}{\partial m_t} n y_t.$$

Consistent with the literature described above, we begin by assuming that $\frac{\partial w_t}{\partial z_t} > 0$. We also assume that $\frac{\partial z_t}{\partial m_t} \geq 0$, i.e., an increase in the number of brands will have a non-negative effect on the ability of consumers to maximize the attributes they receive when they consume a product.[5] As households increase their consumption of religious activities with increases in the number of brands, at least some of the additional time devoted to religious consumption will likely be drawn from work hours, implying that $\frac{\partial l_t^*}{\partial m_t} < 0$. We know from equation (5) that $\frac{\partial p_y}{\partial m_t} > 0$. Under these assumptions, the left-hand side of equation (18) represents the marginal increase in aggregate income because more workers are more religious. The right-hand side of equation (18) represents the marginal costs of additional churches from reduced work time (due to substitution of religious consumption time for work time) and increased tax deductions (due to the increase in price/average cost of religious activities). Thus, the government's optimal choice of the number of religious activities entails balancing the benefits from increased wage productivity against the costs of reduced work hours and an increase in tax deductions. With heterogeneous household preferences, a single state religion will be less likely to attract a large number of adherents, meaning that fewer workers generate the heightened productivity that (by assumption) flows from religious participation. By allowing religious competition in such circumstances, the state is likely to gain more from the higher productivity associated with a

[5] At this point, we can address briefly a question that lurks in the background of the state religion question. Specifically, even if a monopoly church is the ideal solution, why should the government be the provider? One possible answer is that government is best situated to overcome the free rider problem. Another possible answer that emerges from our model is that government will choose to be the provider in order to select the religion with the highest level of productivity enhancement; that is, government will choose the $y_i$ with the most favorable $b_i$. This possibility implicates the Weberian conceptions of the Protestant work ethic and the work being done by Barro and McCleary (2003), Guiso, Sapienza, and Zingales (2003), and others.

marked increase in religious participation than it will lose in redistributed work time and increased tax deductions.

In summary, the model presented above suggests a number of testable hypotheses. The first hypothesis suggested by the model is:

> **Hypothesis 1:** A monopoly state church is more likely to be established if consumers are relatively homogeneous in their preferences for religious activities.

In this case, a state church satisfies most of the consuming households at the lowest possible price of a religious activity. Under these circumstances, religious consumption is relatively high and the government's benefits are high also. However, an increase in the heterogeneity of religious preferences (represented by an increase in $\frac{\partial z_t}{\partial m_t}$ in our model) means that a single state church will be less effective in meeting the needs of the consumers, leading to lower levels of religious participation. Lower religious participation in turn implies decreased wage productivity, which constitutes a loss to households and derivatively to the government. Thus, the second hypothesis is:

> **Hypothesis 2:** When religious preferences are heterogeneous, the state can generate social gains by allowing religious competition and ultimately disestablishing the state church.

When preferences are sufficiently diverse, such gains are more likely to outweigh the foregone cost advantages of a monopoly church.

The analysis above is premised on the assumption that $\frac{\partial w_t}{\partial z_t} > 0$; that is, that religion has positive social benefits of some sort. Marxist ideology views religion as restrictive of the masses, thus making an opposite assumption about the social value of religion. Communist governments are likely to share the Marxist assumption about the value of religion, and it is likely that communist government policies will reflect the assumption that religion does not

generate net positive effects. In our model, if we assume that $\frac{\partial w_t}{\partial z_t} \leq 0$, then equation (18) cannot be satisfied through an interior solution. Rather, the optimal solution to the country's problem is a corner solution with $m = 0$. This yields another testable hypothesis:

> **Hypothesis 3:** Because of the belief that religion provides no social benefit, communist governments are less likely to establish a state religion.

While this prediction is not surprising, it is worth noting because the prediction demonstrates the generality of our model, in that it provides more than a seat-of-the-pants explanation of why communist governments tend not to support religion while most non-communist governments do provide such support in at least some form.[6]

In the remainder of the paper, we test these hypotheses.

## III. Data

In order to conduct a longitudinal analysis of religious attendance across a number of countries, we rely upon data assembled by Iannaccone (2003). This panel consists of estimates of weekly religious attendance in 32 countries observed every five years from 1925 to 1990. (In some countries, estimates of religious attendance are not available for the earliest years.) To develop these data, Iannaccone used responses to a set of questions present in the 1991 and 1998 survey waves of the International Social Survey Programme: "When you were a child, how often did your mother (father) attend religious services?" and "When you were around 11 or 12, how often did you attend religious services?" Relying upon differences in the ages of respondents in the survey year, Iannaccone reconstructed religious attendance patterns for two subsets of the population in the 32 ISSP countries: attendance by children of 11-12 years of age and by their parents. Iannaccone (2003) sets forth a number of tests of the validity of these

[6] After all, even the highly separationist U.S. provides an income tax deduction for religious (and other charitable) contributions, and the property of most religious entities is exempt from various local taxes.

reconstructed data, all of which suggest a reasonably high degree of reliability. Our measure of religious attendance is thus the percentage of each of these two population groups attending religious services at least once a week in each country-year combination.

To assess whether a given country has a state church in a given year, any number of approaches are possible. We use two distinct but complementary approaches to defining state religion status: a *de jure* standard and a *de facto* standard. We treat a country as having a *de jure* state religion if a particular religion is designated as the official religion in the country's constitution, laws, or agreements with a church (such as a concordat with the Roman Catholic Church). To obtain data on whether a country has a *de jure* state religion, we conducted original research on the legal status of churches in the countries contained in the Iannaccone (2003) panel. We also conducted original research on these countries' legal provisions for protecting religious freedom. Our primary sources were Barrett (1982), Barrett *et al.* (2001), and Gill (1998), as well as the U.S. State Department's International Religious Freedom Reports, the website of the International Coalition for Religious Freedom (www.religiousfreedom.com), and the Religious Freedom Page maintained at the University of Virginia (religiousfreedom.lib. virginia.edu).

We obtain our classification of *de facto* state religion from Barrett *et al.* (2001), which identifies the church-state status of each country in 1900, 1970, 1990, and 2000. Barrett *et al.* split countries into one of three categories: "atheist," "secular," or "religious." In addition, a subset of the "religious" countries are described as being identified with a specific religious denomination, such as Catholic, Protestant, Orthodox, Islam, and so on. Because Barrett *et al.* (2001) considers a country to have a state religion based on both formal and informal factors,[7]

[7] Barrett's definition of a "religious" state is explicitly stated in Barrett (1982, 96): "State identifies itself with religion and its promotion (state identified with, or formally linked with, or heavily involved with, or joined in law

we view the classification as being broader than our formal *de jure* classification described in the previous paragraph. Consistent with Barro and McCleary (2003, 2004) and Fox and Sandler (2004), we classify a country as having a *de facto* state religion only when Barrett *et al.* (2001) labels a country as "religious" and further identifies it with a particular religion. Whenever a change in status occurred for a particular country between the years examined by Barrett *et al.* (2001) – usually between 1900 and 1970 – we did additional research to determine the historical event(s) likely to have induced Barrett *et al.* to alter their state religion classification. Thus, for every 5 year period from 1900 to 1990, we have a measure of the status of *de facto* state religion.

Table 1 sets forth the status of *de jure* state religion, *de facto* state religion, and religious freedom for each country in our sample. "Year of Religious Freedom" represents the earliest year in which the country provided a legal guarantee of freedom of religion. Our standard for the existence of a legal guarantee is again a formal one; we consider the country to provide legal protection so long as the law exists, without regard to how well enforced the legal guarantee is. Obviously, guarantees of religious freedom are well enforced in some countries and poorly enforced in others. Moreover, countries vary in the types of rights that are even nominally protected by their constitutional and other legal provisions. Even so, we suspect that the more time that a legal guarantee remains on the books, the stronger its actual protection will be. Therefore, we use *Years of Religious Freedom* to measure the level of legal protection of

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with, religion or religions or churches and their promotion); state formally proclaims or identifies itself explicitly either as religious (believing in or recognizing the supremacy or existence of God) or as belonging to one particular religion or church; state proclaims or recognizes or favours a state religion or church (legislatively and financially controlled by the state), or an official religion, or a national church or one or more established churches, or recognizes state churches in a majority of the nation's component provinces or parts; state ceremonial and government procedure closely linked with religion or churches; usually no formal or institutional separation of church and state, though separation can co-exist with a state's specifically religious self-identification; a concordat guaranteeing a special or privileged church relationship with the state is in force or in existence; state formally and actively organizes and promotes religion or subsidizes its promotion, or on a formal and permanent basis claims the right of intervention and patronage." This definition is clearly broader than our formal *de jure* standard, and it incorporates more informal support mechanisms than just an explicit legal declaration of a religion's official status.

religious freedom in a given country-year observation; the variable is defined as the observation year minus the "Year of Religious Freedom" for the country in question. For country-years prior to the country's adoption of religious freedom protection, the variable *Years of Religious Freedom* is equal to zero.

We also relied upon Barrett *et al.* (2001) and Barrett (1982) for data on the distribution of religious adherents in each country across time. Barrett *et al.*(2001) contains population data for a wide number of religious groups in the countries in our sample for the years 1900, 1970, and 1990. In addition, Barrett (1982) provides similar data for the years 1975 and 1980. We used these data to calculate a *Pluralism Index*, which is defined as $PI = 1 - \sum s_i^2$ , where $s_i$ represents the share of religious group *i* of all religious adherents.[8] For the years from 1905 to 1965 and for 1985, we filled in the missing data by linearly interpolating the missing values. We recognize the inherent limitations of this methodology, but these were the best available data for our purpose. In a similar fashion, we calculated a share of the total population who were religious nonadherents. This group was composed of those classified by Barrett *et al.* (2001) as Unaffiliated Christians (i.e., people who profess Christianity but are not members of any church), Non-Religious, and Atheists. Thus, we have measures for each country-year of both diversity within the religious market and the portion of the population that does not participate in the religious market.

[8] We treat the following groupings as distinct religions for purposes of calculating religious shares (using the terminology in Barrett *et al.* (2001)): Roman Catholics, Protestants, Orthodox, Anglicans, Marginal Christians, Independent Christians, Muslims, Hindus, Chinese Folk Religionists, Buddhists, Ethnoreligionists, New Religionists, Sikhs, Jews, Spiritists, Baha'is, Confucianists, Jains, Shintos, Taoists, Zoroastrians, and Other Religionists. Obviously, most countries contained only some of these groups.

In order to measure aggregate productivity, we obtained GDP per capita for all countries in our sample from Maddison (1995, 2002).[9] GDP per capita is measured in 1990 international Geary-Khamis dollars. We also created a dummy variable equal to one for countries under Communist rule in the year of the observation. Finally, we obtained population per square kilometer, a measure of population density, for each country-year.

Table 2 presents summary statistics of these variables. The first column of Table 2 reports means and standard deviations for the whole sample. We also conduct analyses below based upon the average degree of pluralism in each country; therefore, Table 2 reports summary statistics for countries with both high levels and low levels of pluralism. To split the sample, we computed the average *Pluralism Index* for each country across all years. The fifteen countries with the highest average *Pluralism Index* are "High Pluralism" countries, while the remaining sixteen are the "Low Pluralism" countries.[10]

In general, the average attendance rates for both parents and children are higher than those observed for entire populations from other sources like the World Values Survey and the General Social Survey. Moreover, the average children's attendance rate is higher than the parents' attendance rate, and there is no significant difference in attendance rates between High and Low Pluralism countries. About 24 percent of our country-years feature a *de jure* state religion, while almost 34 percent of the country-years feature a *de facto* state religion. Both types of state religion are far more common in the Low Pluralism countries, as predicted by

[9] We could not obtain consistent GDP data series for Latvia for all years in our sample, so we do not include it even though Iannaccone (2003) provides estimates of religious attendance patterns in that country.

[10] The 15 High Pluralism countries are, in descending order: Australia, United States, New Zealand, Canada, Switzerland, West Germany, Great Britain, Northern Ireland, Netherlands, Philippines, Hungary, Russia, Japan, Slovakia, and Bulgaria. The 16 Low Pluralism countries are, in descending order: Israel, Chile, Czech Republic, East Germany, Poland, Austria, Ireland, France, Cyprus, Slovenia, Sweden, Norway, Denmark, Italy, Portugal, and Spain.

Hypothesis 1.[11] In addition, the High Pluralism countries have a higher average *Years of Religious Freedom* and a higher average *Nonadherents Share of Population*. Most likely, both religious pluralism and higher numbers of nonadherents are connected to the increased religious freedom associated with more *Years of Religious Freedom*. Communist governments were present for approximately 20 percent of the country-years, with no real difference between High and Low Pluralism countries. Finally, the High Pluralism countries are wealthier and have lower population density than the Low Pluralism countries.

## IV. Determinants of State Religion

In this section, we test the hypotheses presented in Section II. To conduct such tests, we estimated logistic probability models on both *De Jure State Religion* and *De Facto State Religion*. To take advantage of the panel structure of our data, we estimated robust standard errors clustered on each country, thereby taking into account within-country correlation of error terms over time.[12] Results of our analysis are presented in Table 3.

In each panel of Table 3, each column represents a single logit estimation of state religion status on a heterogeneity measure, a GDP measure, a communist dummy variable, and a vector of year fixed-effects. In Panel A, the heterogeneity measure is *Pluralism Index*, and in Panel B it is the *Nonadherents Share of Population*. In both panels, column (1) presents the results of a logit estimation of *De Jure State Religion* on the contemporaneous measure of heterogeneity,

[11] In all countries in the sample except Japan, the state religion is Christian; indeed, in the sample only Japan and Israel are not predominantly Christian. For this reason, we do not address the issue of Islamic share as Barro and McCleary (2004) did.

[12] A fixed-effects model was not appropriate, because most of the countries in our sample did not see changes in either type of state religion during the sample period. As a result, the zero-one state religion outcome in these countries was perfectly collinear with the fixed effects. Thus, the only countries that could be included in such an estimation were the ones whose state religion status changed during the sample period. When we performed fixed-effects panel logit analyses on only the countries where changes in state religion status occurred, the coefficient estimates for *Pluralism Index* in the equations for *De Jure State Religion* were negative and significant (5 countries, 66 observations). However, the coefficient estimates for *De Facto State Religion* were insignificant (3 countries, 40 observations).

GDP, and communism. Similarly, column (2) presents a logit estimation of *De Jure State Religion* on contemporaneous GDP and communism but with the heterogeneity measure lagged by 25 years.[13] Columns (3) and (4) of each panel repeat this format with *De Facto State Religion* as the dependent variable. The results are quite consistent: *Pluralism Index* is a strong negative predictor of a state religion, whether measured contemporaneously or lagged. Similarly, while the results for *Nonadherents Share* are not generally statistically significant, they are consistently negative. Keeping in mind that the general pattern in our sample period was to move from state religion to no state religion, Table 3 suggests that increases in the religious heterogeneity of a country's population make the existence of a state church less likely, confirming Hypothesis 2.

The similarity of the coefficient estimates for contemporaneous and lagged values of the *Pluralism Index* in Panel A of Table 3 is curious and could simply be a remnant of the interpolated manner in which this variable was created. However, the similarity in value of these coefficient estimates is not a result of any overwhelming stability in the level of pluralism within countries. Twelve countries in the sample (Chile, France, East Germany, Great Britain, Japan, Netherlands, New Zealand, Northern Ireland, Norway, Portugal, Sweden, and the United States) saw an increase of more than .10 in the *Pluralism Index* from 1900 to 1990. In eleven countries (Australia, Austria, Canada, Cyprus, Denmark, West Germany, Israel, Italy, Slovenia, Spain, Switzerland) the *Pluralism Index* increased by less than .10; in two countries (Bulgaria, Ireland), it decreased by less than .10. Three countries (Czech Republic, Russia, and Slovakia) showed an increase in pluralism from 1900 to 1970 (whether this occurred pre- or post-Communism is not apparent from Barrett *et al.* (2001)), followed by a mild decline between 1970 and 1990. Three others (Hungary, Philippines, and Poland) followed the opposite pattern: reduced pluralism from

[13] We choose 25 years as our lag period because the first year for which we have data on *De Facto State Religion* is 1900 (from Barrett *et al.*). Thus, 25 years is the longest possible lag on *De Facto State Religion* that still includes all available years in our panel (which begins in 1925).

1900 to 1970 and a mild increase from 1970 to 1990. While the general pattern was toward greater pluralism, the amount of change varied drastically across countries, and several countries showed decreases in pluralism at various points in time. Moreover, the *Nonadherents Share* was calculated by interpolation just like the *Pluralism Index*, yet its coefficient estimates are increasing in absolute value (and statistical significance) as the length of the lagged period grows. Thus, the results in Table 3 appear reliable with regard to changes in the composition of religious markets, indicating that state religions are less likely in countries where there is substantial heterogeneity in religious preferences.

Regarding the other variables,[14] *GDP per Capita* is never significant but is consistently positive.[15] The closest the estimates get to statistical significance is where *De Facto State Religion* is estimated with *Pluralism Index*. This outcome is plausible since the definition of *de facto* state religion involves some degree of financial interaction between church and state, while the definition of *de jure* state religion hinges only on the existence of a legal provision. While far from conclusive, these results suggest but do not prove that state religion is more likely in wealthier countries, where there is greater potential for the state to extract whatever surplus might flow from religious practice.

Finally, the coefficient estimates on *Communist Government* are statistically insignificant for *De Jure State Religion*, but they are negative and highly significant for *De Facto Religion*. At least two explanations for this result are possible. On one hand, communist governments might be likely to maintain a facade of commitment to a state religion while refusing to provide

[14] We also estimated each of the specifications in Table 3 with *Population Density* included. The coefficient estimate on *Population Density* was significant (and positive) in only one of the eight specifications. Because the inclusion of *Population Density* entails a loss of 19 observations and is rarely significant, we do not include it in the estimations reported in Table 3.

[15] Neither Barro and McCleary (2004) nor Fox and Sandler (2004) found GDP to play a significant role in the existence of a state religion.

actual support. This interpretation would be a partial confirmation of Hypothesis 3. On the other hand, the result may stem from the nature of Barrett *et al.*'s (2001) definition of state religion. As mentioned above, Barrett *et al.* use three mutually exclusive categories to define a country's church-state relationship: "religious," "secular," and "atheist." Under the definition used here and by Barro and McCleary (2003, 2004) and Fox and Sandler (2004), only those countries identified as "religious" can have a state religion. Barrett *et al.* generally classify communist countries as "atheistic," thus implying that they will treat most communist countries as having no state religion.[16] As such, the strong negative effect of communism on *de facto* state religion may be an artifact of how the variables were constructed.

## V. The Effects of State Religion

Prior research has found important effects from state religion on both religious participation and religious heterogeneity. North and Gwin (2004) found a strong negative impact on religious attendance from both *de jure* and *de facto* state religion in a cross-section of 59 countries. Iannaccone, Finke, and Stark (1997) provide a qualitative analysis of several settings to argue that state religion inhibits competition among religious providers, resulting in lower levels of religious vitality, including attendance rates. Using British survey data, Sawkins, Seaman, and Williams (1997) showed that self-identified adherents of the Churches of England and Scotland were less likely to attend religious services regularly than were members of the various "dissenting" churches in Great Britain. Finally, Olds (1994) found that the early 1800s disestablishment of the state churches in Massachusetts and Connecticut led to a surge in demand for preachers, primarily among the formerly dissenting Methodists and Baptists. Contrasted with these findings is the positive relationship between state religion and attendance found by Barro

[16] Unless, of course, atheism is treated as an official state religion. While such treatment is possible, it has not been the custom in the existing literature.

and McCleary (2003). Regarding state religion's effect on religious pluralism, various analysts from Smith (1981 [1776]) to Stark and Finke (2000) have used theory and qualitative evidence to argue that state religions inhibit the growth of competing denominations, thereby keeping pluralism low.

In this section, we examine the issue of state religion's effect on religious attendance using our international panel. To our knowledge, we are the first to take advantage of a panel to analyze this question. We then discuss the dynamic processes by which state religion can spur future heterogeneity. In so doing, we detail the larger picture of state religion's effects over time on religion itself.

### A. On Religious Attendance

In Tables 4 and 5, we present the results of our analysis of the impact of state religion and religious freedom protection on religious attendance of parents and children, respectively. In these two tables, we estimate linear models with fixed effects for country and year and robust error term estimates that control for within-country correlation. The dependent variable in each table is $\ln[P/(100 - P)]$, where $P$ is the percentage of the particular group (children or their parents) who attend religious services at least once per week. We again split the sample of countries into High and Low Pluralism subsets.

The results in Tables 4 and 5 show that the effect of state religion on attendance varies depending on the type of state religion, the age of the individual, and the level of religious pluralism in the country. For parents, *de jure* state religion overall has a negative but insignificant effect, a result driven by the effects from High Pluralism countries. In contrast, *de facto* state religion significantly increases parents' attendance rates, a result driven by the Low Pluralism countries. Turning to Table 5, *de jure* state religion significantly reduces children's

attendance in High Pluralism countries and significantly increases it in Low Pluralism countries. Across the entire sample of countries, the negative effect on children's attendance in High Pluralism countries dominates the positive effect from Low Pluralism countries. However, *de facto* state religion significantly increases children's attendance in Low Pluralism countries, with a negative but insignificant effect in High Pluralism countries. To summarize these results, state religion of either type boosts attendance rates among both parents and their children in Low Pluralism countries. In High Pluralism countries, state religion's effect on attendance is negative, though the only significant effect found is for *de jure* state religion on children's attendance rates.

Unlike the effects of the two state religion variables, the effect of *Years of Religious Freedom* is consistent and unambiguous: religious freedom has a significantly positive effect on attendance of both parents and children. The estimated coefficients have tremendous practical significance as well. The estimates' values of approximately 0.02 in Tables 4 and 5 imply that, for the average country with attendance rates of 40-50 percent and 73 years of religious freedom (the mean values in our sample), legally-protected religious freedom increases weekly religious attendance by 30-35 percent of the population of parents or children.

The effects of religious pluralism vary by age group. Pluralism increases attendance by parents, but it decreases attendance by children. In general, both effects are statistically significant. These results shed some light on the ongoing debate over the effects of religious pluralism on religious participation.[17] The results for parents are fully consistent with the New Paradigm view that attendance is much higher where many different religions are present.

[17] For both the earliest and most recent contributions to this debate, see Finke and Stark (1988, 1989), Breault (1989a, 1989b), Olson (1999), and Voas, Crockett, and Olson (2002). An exhaustive review of the literature on religious pluralism is set forth in Chaves and Gorski (2001), who ultimately side with the critics of the New Paradigm.

However, the negative effects found for children in Table 5 provide a counter-balance to the New Paradigm: even if adults are more likely to attend services, children in pluralistic societies are less likely to do so. In addition, as mentioned above, all of the specifications reported include year fixed-effects. The pattern of the coefficient estimates on the year fixed-effects is increasingly negative; that is, over time, attendance across all countries is falling. Our results thus provide interesting fodder to the discussion over the effects of secularization versus pluralism, with each side finding some support in our sample.[18] On one hand, adults are more likely to be religious where pluralism reigns. Perhaps increased religious participation necessarily leads to more pluralism, or perhaps the increased choice afforded by pluralistic markets leads to more adults attending the various services offered. More likely, perhaps both are true, and each feeds into the other. On the other hand, it may be the case that children in pluralistic religious markets lack the sense of a "sacred canopy" and wonder how there could be "truth" in any of the competing and conflicting claims to truth found in a pluralistic religious market.

Communist governments do not significantly affect attendance by parents, but the effect on children is consistently negative and is statistically significant for the overall sample. Interestingly, the pattern of statistical significance is similar for both *De Jure State Religion* and *Communist Government* in the overall sample. That is, the first columns of Tables 4 and 5 suggest that neither *de jure* state religion nor a Communist government significantly deters attendance by parents, but that children are significantly less likely to attend religious services in both types of countries. This result suggests a source of the inhibition of religious practice for both state religion countries and Communist countries: successfully deterring children from

[18] It should be noted that this sample is composed heavily of countries that the conventional wisdom views as having become increasingly secular throughout the 20th century.

attending services (or, at least in the case of Communism, deterring parents from bringing their children to services with them). Without the religious capital investment as youths, the adults of today are much less likely to attend religious services in countries that had state religions or were ruled by Communists when today's adults were growing up.

The results for *GDP per Capita* show that parents in wealthy countries are less likely to attend services, while children are not significantly affected. The effect comes mainly from the High Pluralism countries. This outcome is consistent with the opportunity cost theory of religious attendance generated by the Azzi and Ehrenberg (1975) model of household religious production and consumption. That is, where opportunity costs are higher, parents are more likely to skip religious services even though their children are going (likely by having only one parent take the children to services).

### B. On Homogeneity and Heterogeneity of Religious Preferences

Our discussion now turns to how heterogeneity in religious preferences can arise within a society. We first discuss, in the abstract, how a society might move from religiously homogeneous to religiously heterogeneous. To illustrate these concepts, we then discuss several historical examples in which heterogeneity emerged out of a religiously homogeneous population. Finally, we examine the role of state religion and religious freedom in generating heterogeneous demand using our 20th century panel data.

One way in which a nation with homogeneous preferences could see an introduction of religious heterogeneity is through substantial immigration of persons with different religious preferences. Other types of population shocks could also generate heterogeneity, including relatively high fertility among small religious minorities. In addition, heterogeneous religious preferences could emerge out of endogenous processes of ideological or political change.

Ideologically-driven heterogeneity occurs when new theological concepts emerge and take hold in a large portion of the population, such as occurred with the emergence of Islam in the Middle East and the Protestant Reformation in Europe. Political change can also induce heterogeneity of preferences when population groups affected adversely by the state's nonreligious policies develop religiously-based reasons to object to the state religion, as has occurred in Latin America according to Gill (1998). Such disaffected population groups could then seek to develop their own churches in order to better meet the demand resulting from their distinct preferences.

If the state religion loses adherents and/or minority religions grow through these or other processes, there likely will be an increase in popular support first for guarantees of religious freedom and later for disestablishment of the state religion. Demand for freedom of religion should result from those outside the state religion's orbit who ask merely for the right to practice their chosen religion (or none at all) free from state interference. As the size of the population beyond the state church grows, more and more citizens are likely to object to continued support for the state religion through taxes; eventually, popular will should arise to disestablish the state religion.

In the next several paragraphs, we provide several historical examples where religious dissent developed within a homogeneous society in response to an officially-established state religion. Thus, these examples provide anecdotal evidence that state religion can contribute to a subsequent heterogeneity in religious preferences. Our first example is seventeenth-century Massachusetts, as described by Lambert (2003, Ch. 3). The Massachusetts Bay Colony was founded by English Puritans seeking greater latitude in the exercise of their faith than was afforded to them in England. By virtue of the 1629 charter of the Massachusetts Bay Company, the colonists were able to establish their own Congregational churches as the official religion of

the colony. The Puritans intended their faith to infuse all elements of life in the colony, including a requirement that one must be a church member in order to attain full citizenship. The maintenance of the faith required stringent rules on who could or could not become part of the community. However, by 1660, this policy of exclusivity in joining the community was grating on the merchants of Boston, whose businesses required the free flow of both goods and people for trading and for production workers. Within a generation of its founding, Massachusetts Bay already was finding dissent within the merchant class, which placed pressure on the policies of both church and state in favor of a more religiously lax society.

For our next example, we move about 100 years forward and 400 miles south to colonial Virginia. At the time of the so-called First Great Awakening of the 1740s, the Church of England was the state church in Virginia, and leaders of dissenting churches were required to obtain a license in order to preach. Mathews (1977, Ch. 1) described how Anglicans in Virginia had substantial autonomy from the mother church in England, in part due to a persistent shortage of clergy. This led to the various parishes of the Virginia Church being governed by local lay leaders, who were almost uniformly members of the social elite. The Church was not able to gain influence over the masses, though:

> As an extension of the powerful men in each locality, the Anglican church was quite naturally incapable of eliciting intense devotion from folk who felt powerless and insignificant. Society in the English New World may have been bereft of a nobility, but it was not lacking an aristocracy, which, while possibly base-born in the dimly remembered past, was by the eighteenth century sure of the rightfulness of its high position. . . . Through distinguishing dress, education, leisure activities, and place at public worship, the better sort could very easily emphasize their superior rank in society, a rank which elicited a deferential manner – and sometimes fear – from social inferiors. The ranks of the better sort, the middling classes, the vulgar, and the slave were carefully ordered in the minds of colonial Americans, and in the minds of most, the church stood with the gentry. (Mathews, 2003, 8-9)

The connection in the minds of the people between social stratification and the official church helped to fuel the growth of evangelical groups like the Methodists, Baptists, and New Light Presbyterians. As Finke and Stark (1992) showed, it was these dissenting groups who were on the ascendancy in Virginia during the latter part of the 18th century, despite the Anglican Church's prior status as the official church of the colony.

We next move even further south to Latin America, where the Catholic Church was long affiliated with the various colonial and national governments. During the nineteenth century, several new nations in Latin America recognized their need for limited religious liberty for foreigners in order to foster trade with Europe and the United States. Thus, during that time some Protestant immigration did occur, but these Protestants generally were non-Spanish Europeans who did not proselytize the Catholic natives and whose churches functioned in their original tongues. In addition, the Catholic Church in Latin America was long constrained in terms of its resources; for example, Gill (1998) showed that most Latin American countries during the 1970s had approximately 1-2 priests per 10,000 Catholics, far less than most other countries with sizable Catholic populations. As a result of a lack of competition from other churches and a noticeable lack of resources, the Catholic Church in Latin America had a strong tendency to align with and serve the political elites. Gill (1998) made a persuasive case that the alignment of the Catholic Church with the political regimes of Latin America left the large poor populations highly receptive to new Protestant (mainly Pentecostal) evangelism that began in the 1930s. Moreover, in countries where governments made little effort to protect the Church from external Protestant competition, the national Catholic episcopates in the 1970s were far more likely to adopt the "preferential option for the poor" in order to stave off further Protestant gains and keep the poor in the Catholic fold.

In Sweden, immigrants skilled in trades have had freedom of religion since the 1700s. By the mid-1800s, the growth of free churches and other religious and political movements led to increased demand for removing the Swedish government from deciding the affairs of the Church of Sweden. This led to the creation in 1863 of a somewhat independent body to govern Church affairs. Even so, the Church remained a state agency throughout the 20th century, as immigrants arrived and attendance at the Church waned. As described in Stegeby (1999), political pressure finally grew large enough in the 1990s that the Church of Sweden was formally disestablished as of January 2000.

The examples in the foregoing paragraphs demonstrate the dynamics of the church-state relationship, showing how state churches have lost parts of their followers due to economic concerns or even simple neglect. Though these examples are admittedly Western and Christian, they demonstrate processes by which state religion eventually finds itself at odds with some part of its constituency, leading that subset of adherents to seek a new approach to the religious tradition. As we show next, though, widespread abandonment of the state religion is also dependent on religious freedom and the latitude it provides to operate outside of the state religion.

While the examples set forth above are suggestive, we also use our panel data to examine whether a link exists between either state religion or religious freedom and subsequent increases in religious pluralism. The results of this analysis are set forth in Table 6, in which we examine the determinants of religious pluralism. In the first and third columns, we control for the contemporaneous status of *de jure* and *de facto* state religion, where as the second and fourth columns control for 25-year lagged values of the two measures of state religion. As in Table 3, the lagged values allow us to examine the direction of causation, if any. As for the degree of

past religious freedom, recall that *Years of Religious Freedom* is constructed as the difference between the observation year and the "year of religious freedom" identified in Table 1. Thus, we do not include lagged values of *Years of Religious Freedom* because lagging that variable would mainly rescale the variable downward by 25 years.

Interestingly, Table 6 shows that the most important religious determinant of religious pluralism is *Years of Religious Freedom*, which has a consistently positive and significant effect on the *Pluralism Index*. In contrast, lagged *State Religion* does not have a significant effect. The contemporaneous measures (in which endogeneity is a clear concern) show that *De Jure State Religion* significantly decreases pluralism, while *De Facto State Religion* has a marginally significant positive effect on pluralism. The impact of religious freedom on generating later pluralism is shown clearly in comparing the coefficient estimate in the first column on *Years of Religious Freedom* with the coefficient estimate on contemporaneous *De Jure State Religion*, the only significantly negative effect found for state religion. The pluralism-reducing effect generated by having a *de jure* state religion is completely offset after about 50 years of religious freedom. Given that the mean value of religious freedom in our data is 73 years, most of the countries in our data set are at a point where religious market factors are spurring increases in pluralism rather than further concentrating the religious markets.

Finally, *Population Density* has a consistently negative and significant effect on religious pluralism. Most likely, this implies that scale economies in the provision of religious services are real, in that denser populations can achieve substantial reductions in the cost of producing religious services because of the ability to spread fixed costs over a larger set of adherents. This cost saving should, in turn, lead to a lower money price of religious services, further fueling an increase in religious participation among adults induced by competition and reported in Table 4.

## VI. Conclusion

In this paper, we show that, due to economies of scale in the provision of religious services, governments are most likely to establish a state religion in countries with homogeneous populations. We further show that heterogeneity of religious preferences reduces the likelihood of a state religion, that (as earlier studies have suggested) state religions undermine the overall religiosity of the population in religiously pluralistic countries, and that religious freedom protection increases religious attendance and spurs increases in religious pluralism. The upshot of these findings in combination with the theory presented in our model is that state religions can easily be inherently self-destructive. A state-sponsored religion is likely to generate animosity among portions of a population disaffected by the religious or other policies of the state. Over time, this effect leads to an increasing heterogeneity in religious preferences within the country's population, an effect that can be exacerbated by immigrants from differing religious traditions. In countries where there is also a reasonable degree of religious freedom, the heterogeneity in preferences will be manifested in denominational competition for the state church, which over time will increase the degree of religious pluralism in the country. At this point, mounting pluralism increases the likelihood that the state religion will ultimately be disestablished. This story is strongest for countries where *de jure* state religion and long-standing religious freedom coexist in a religiously pluralistic society. In countries with *de facto* state religion, low pluralism, and a shorter history of religious freedom, gains in attendance are most pronounced among children, but these are ultimately reversed when the children reach adulthood and their attendance patterns are adversely affected by a noncompetitive religious market.

Whether the close connection to the state leads to animus toward the state church among the population, or whether the state funding makes a clergy less focused on the needs of

parishioners, or whether the lack of any credible sacred canopy leads to children who do not go to religious services – whatever the source of the problem, our evidence indicates that state religions ultimately weaken the religiosity of their own populations. Guarantees of religious freedom can reverse this effect, but in the end such guarantees weaken the state religion in favor of a more pluralistic religious economy.

## REFERENCES


Azzi, Corry, and Ronald Ehrenberg. 1975. "Household Allocation of Time and Church Attendance." *Journal of Political Economy*, 83:27-56.

Barrett, David B. 1982. *World Christian Encyclopedia*. Oxford: Oxford University Press.

Barrett, David B., George T. Kurian, and Todd M. Johnson. 2001. *World Christian Encyclopedia*. 2nd edition. Oxford: Oxford University Press.

Barro, Robert J., and Rachel M. McCleary. "Religion and Economic Growth across Countries." *American Sociological Review*, 68(5): 760-81 (October 2003).

Barro, Robert J., and Rachel M. McCleary. 2004. "Which Countries Have State Religions?" NBER Working Paper 10438.

Berger, Peter L. 1967. *The Sacred Canopy: Elements of a Sociological Theory of Religion*. Garden City: Doubleday.

Breault, Kevin D. 1989a. "New Evidence on Religious Pluralism, Urbanism, and Religious Participation." *American Sociological Review*, 54: 1048-53.

Breault, Kevin D. 1989b. "A Reexamination of the Relationship between Religious Diversity and Religious Adherents." *American Sociological Review*, 54: 1056-59.

Chaves, Mark and D.E. Cann. 1992. "Regulation, Pluralism, and Religious Market Structure: Explaining Religion's Vitality." *Rationality and Society*, 4 (July): 272-90.

Chaves, Mark and Philip S. Gorski. 2001. "Religious Pluralism and Religious Participation." *Annual Review of Sociology*, 27: 261-79.

Chaves, Mark, Peter J. Schraeder, and Mario Sprindys. 1994. "State Regulation of Religion and Muslim Religious Vitality in the Industrialized West." *Journal of Politics*, 56: 1087-97.

Chiswick, Barry R. 1983. "The Earnings and Human Capital of American Jews." *Journal of Human Resources* 18 (Summer): 313-36.

Ferejohn, John. 1986. "Incumbent Performance and Electoral Control." *Public Choice*, 50: 5-25.

Finke, Roger and Rodney Stark. 1988. "Religious Economies and Sacred Canopies: Religious Mobilization in American Cities." *American Sociological Review*, 53:41-49.

Finke, Roger, and Rodney Stark. 1989. "Evaluating the Evidence: Religious Economies and Sacred Canopies." *American Sociological Review*, 54:1054-56.

Finke, Roger, and Rodney Stark. 1992. *The Churching of America: Winners and Losers in Our Religious Economy*. New Brunswick, N.J. : Rutgers University Press.

Fox, Jonathan, and Shmuel Sandler. 2004. "World Separation of Religion and State in the Twenty First Century." Working paper, Bar Ilan University.

Fukuyama, Francis. 1995. *Trust: The Social Virtues and the Creation of Prosperity*. New York: The Free Press.

Gill, Anthony J. 1998. *Rendering unto Caesar: The Catholic Church and the State in Latin America*. Chicago: University of Chicago Press.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales. 2003. "People's Opium? Religion and Economic Attitudes." *Journal of Monetary Economics*, 50 (January): 225-82.

Gwin, Carol F., and Carl R. Gwin. 2003. "Product Attributes Model: A Tool for Evaluating Brand Positioning." *Journal of Marketing Theory and Practice*, 11 (Spring): 30-42.

Hull, Brooks B. 2000. "Religion Still Matters." *Journal of Economics (MVEA)*, 26: 35-48.

Hull, Brooks B., and Frederick Bold. 1995. "Preaching Matters: Replication and Extension." *Journal of Economic Behavior and Organization*, 27 (June): 143-49.

Iannaccone, Laurence R. 1991. "The Consequences of Religious Market Structure: Adam Smith and the Economics of Religion." *Rationality and Society*, 3 (April): 156-77.

Iannaccone, Laurence. 2003. "Looking Backward: A Cross-National Study of Religious Trends." Working paper.

Iannaccone, Laurence R., Roger Finke, and Rodney Stark. 1997. "Deregulating Religion: The Economics of Church and State." *Economic Inquiry*, 35 (April): 350-64.

Introvigne, Massimo, and Rodney Stark. 2003. "Religious Competition and Revival in Italy: Exploring European Exceptionalism." Working paper. Published in Italian in *Dio e*

*Tornato: Indagine Sulla Risveglio Delle Religioni in Occidente (God Has Returned: An Enquiry into the Revival of Religions in the West).* Casale Monferrato: Piemme.

Kalb, Claudia. 2003. "Faith & Healing." *Newsweek*, 142 (Nov. 10): 44-56.

Lambert, Frank. 2003. *The Founding Fathers and the Place of Religion in America*. Princeton: Princeton University Press.

Lancaster, Kelvin J. 1966. "A New Approach to Consumer Theory." *Journal of Political Economy*, 74: 132-57.

Lancaster, Kelvin J. 1971. *Variety, Equity and Efficiency.* New York: Columbia University Press.

Lancaster, Kelvin J. 1979. *Consumer Demand: A New Approach*. New York: Columbia University Press.

Lipford, Jody, Robert E. McCormick, and Robert D. Tollison. 1993. "Preaching Matters." *Journal of Economic Behavior and Organization*, 21 (August): 235-50.

Maddison, Angus. 1995. *Monitoring the World Economy 1820-1992*. Paris: OECD.

Maddison, Angus. 2002. *The World Economy: A Millennial Perspective*. Paris: OECD.

Mathews, Donald G. 1977. *Religion in the Old South*. Chicago: The University of Chicago Press.

North, Charles M., and Carl R. Gwin. 2004. "Religious Freedom and the Unintended Consequences of State Religion." *Southern Economic Journal*, 71 (July): 103-17.

Olds, Kelly. 1994. "Privatizing the Church: Disestablishment in Connecticut and Massachusetts." *Journal of Political Economy*, 102(April): 277-97.

Olson, Daniel V.A. 1999. "Religious Pluralism and US Church Membership: A Reassessment." *Sociology of Religion*, 60: 149-73.

Persson, Torsten, Gerard Roland, and Guido Tabellini. 1997. "Separation of Powers and Political Accountability." *Quarterly Journal of Economics*, 112 (November): 1163-1202.

Sawkins, John W., Paul T. Seaman, and Hector C. S. Williams. 1997. "Church Attendance in Great Britain: An Ordered Logit Approach." *Applied Economics*, 29:125-34.

Smith, Adam. 1981 [1776]. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Indianapolis: Liberty Fund.

Stark, Rodney, and Roger Finke. 2000. *Acts of Faith: Explaining the Human Side of Religion.* Berkeley: University of California Press.

Steen, Todd P. "Religion and Earnings: Evidence from the NLS Youth Cohort." *International Journal of Social Economics*, 23: 47-58.

Stegeby, E. Kenneth. 1999. "An Analysis of the Impending Disestablishment of the Church of Sweden." *Brigham Young University Law Review*, 1999: 703-69.

Sullivan, Dennis H. 1985. "Simultaneous Determination of Church Contributions and Church Attendance." *Economic Inquiry*, 23:309-20.

Tomes, Nigel. 1983. "Religion and the Rate of Return on Human Capital: Evidence from Canada." *Canadian Journal of Economics*, 16 (February): 122-38.

Tomes, Nigel. 1984. "The Effects of Religion and Denomination Earnings and the Returns to Human Capital." *Journal of Human Resources*, 19 (Fall): 472-88.

Tomes, Nigel. 1985. "Religion and the Earnings Function." *American Economic Review*, 75 (May): 245-50.

Voas, David, Daniel V. A. Olson, and Alasdair Crockett. 2002. "Religious Pluralism and Participation: Why Previous Research Is Wrong." *American Sociological Review*, 67:212-30.

**Table 1: State Religion and Religious Freedom Status by Country, 1925-1990**

| Country | De Jure State Religion | De Facto State Religion | Year of Religious Freedom |
|---|---|---|---|
| Australia | None | None | 1901 |
| Austria | None | None | 1867 |
| Bulgaria | Began in 1949 | None | 1971 |
| Canada | None | None | 1852 |
| Chile | Ended 1925 | Ended in 1925 | 1925 |
| Cyprus | None | None | 1960 |
| Czech Republic | None | None | 1990 |
| Denmark | All Years | All Years | 1849 |
| France | None | None | 1905 |
| East Germany | None | None | 1990 |
| West Germany | None | None | 1919 |
| Great Britain | All Years | All years | 1689 |
| Hungary | None | None | 1972 |
| Ireland | Ended 1972 | Ended in 1972 | 1689 |
| Israel | None | Began in 1948 | 1948 |
| Italy | None | All years | 1948 |
| Japan | Ended 1945 | Ended in 1945 | 1946 |
| Netherlands | None | None | 1814 |
| New Zealand | None | None | 1840 |
| Northern Ireland | None | All years | 1689 |
| Norway | All Years | All years | 1814 |
| Philippines | None | None | 1899 |
| Poland | None | None | 1952 |
| Portugal | 1933-1976 | All years | 1933 |
| Russia | None | Ended 1917 | 1936 |
| Slovakia | None | None | 1990 |
| Slovenia | None | 1900-45, 1990 | 1953 |
| Spain | Until 1931 and 1939-1976 | All years | 1967 |
| Sweden | All Years | All years | 1951 |
| Switzerland | None | None | 1874 |
| United States | None | None | 1791 |

*De Jure State Religion* is based upon formal constitutional and similar foundational legal provisions declaring a specific religion to be the official state religion. *De Facto State Religion* is based upon the church/state relationship specified by Barrett *et al.*(2001), supplemented where necessary by Barrett (1982). Barrett's treatment of church/state relationship is based upon a broad array of connections between church and state. *De Facto State Religion* is equal to one whenever these sources identify a specific denomination as the state religion. "Year of Religious Freedom" is the earliest year in which the country provided a legal guarantee of religious freedom.

**Table 2: Summary Statistics**

| Variable | Entire Sample | High Pluralism | Low Pluralism |
|---|---|---|---|
| Attendance Rate – Parents | 40.97 | 40.36 | 41.57 |
| | (22.84) | (21.16) | (24.42) |
| Attendance Rate – Children | 51.21 | 50.64 | 51.78 |
| | (26.87) | (26.21) | (27.56) |
| De Jure State Religion | 0.240 | 0.139 | 0.338 |
| | (0.427) | (0.347) | (0.474) |
| De Facto State Religion | 0.336 | 0.164 | 0.505 |
| | (0.473) | (0.371) | (0.501) |
| Years of Religious Freedom | 72.93 | 92.72 | 53.43 |
| | (83.41) | (89.05) | (72.55) |
| Pluralism Index | 0.325 | 0.527 | 0.124 |
| | (0.229) | (0.117) | (0.100) |
| Nonadherents' Share of Population | 0.130 | 0.167 | 0.094 |
| | (0.108) | (0.103) | (0.010) |
| Communist Government | 0.198 | 0.204 | 0.191 |
| | (0.399) | (0.404) | (0.394) |
| GDP Per Capita (in thousands of 1990 | 7.192 | 7.838 | 6.557 |
| Geary-Khamis dollars) | (4.727) | (5.097) | (4.250) |
| Population Density (per sq. km) | 260.38 | 310.47 | 210.81 |
| | (224.79) | (279.69) | (135.72) |
| Number of Observations | 405 | 201 | 204 |
| Number of Countries | 31 | 15 | 16 |

Numbers in parentheses are standard deviations. "High Pluralism" countries are the 15 countries with the highest average *Pluralism Index* across all years. "Low Pluralism" countries are the remaining 16 countries with the lowest average *Pluralism Index* across all years. There are 19 missing observations on *Population Density*.

**Table 3: Determinants of State Religion**

**Panel A: Effect of Religious Pluralism on Probability of State Religion**

| | De Jure State Religion | | De Facto State Religion | |
|---|---|---|---|---|
| | Current Year *Pluralism Index* | 25 Year Lag on *Pluralism Index* | Current Year *Pluralism Index* | 25 Year Lag of *Pluralism Index* |
| Pluralism Index | -5.492 | -5.354 | -6.189 | -5.977 |
| | (0.017) | (0.019) | (0.001) | (0.002) |
| ln(GDP per capita) | 0.797 | 0.685 | 0.963 | 0.832 |
| | (0.327) | (0.398) | (0.156) | (0.216) |
| Communist Gov't | -0.962 | -0.915 | -3.306 | -3.224 |
| | (0.394) | (0.416) | (0.000) | (0.000) |
| Constant | 0.253 | 0.275 | 0.704 | 0.700 |
| | (0.817) | (0.799) | (0.501) | (0.487) |
| Pseudo $R^2$ | 0.216 | 0.208 | 0.338 | 0.327 |
| Wald statistic | 53.11 | 62.95 | 206.24 | 221.98 |
| | (0.000) | (0.000) | (0.000) | (0.000) |

**Panel B: Effect of Nonadherents Share of Population on Probability of State Religion**

| | De Jure State Religion | | De Facto State Religion | |
|---|---|---|---|---|
| | Current Year *Nonadh. Share* | 25 Year Lag on *Nonadh. Share* | Current Year *Nonadh. Share* | 25 Year Lag of *Nonadh. Share* |
| Nonadherents Share of Population | -5.874 | -8.006 | -8.101 | -11.985 |
| | (0.320) | (0.239) | (0.149) | (0.065) |
| ln(GDP per capita) | 0.278 | 0.243 | 0.424 | 0.403 |
| | (0.698) | (0.728) | (0.561) | (0.567) |
| Communist Gov't | -0.617 | -0.635 | -2.591 | -2.545 |
| | (0.606) | (0.562) | (0.011) | (0.008) |
| Constant | -0.497 | -0.549 | -0.212 | -0.291 |
| | (0.578) | (0.553) | (0.815) | (0.742) |
| Pseudo $R^2$ | 0.068 | 0.071 | 0.1635 | 0.181 |
| Wald statistic | 41.23 | 63.29 | 126.90 | 228.16 |
| | (0.001) | (0.000) | (0.000) | (0.000) |

Number of observations = 405. Number of countries = 31.

The table reports coefficients from logit estimations. Numbers in parentheses are *p*-values calculated from robust standard errors corrected for within-country correlation of the error term. All specifications include year fixed-effects.

**Table 4: Parents' Attendance Rate**

| Variable | De Jure State Religion | | | De Facto State Religion | | |
|---|---|---|---|---|---|---|
| | All Countries | High Pluralism | Low Pluralism | All Countries | High Pluralism | Low Pluralism |
| State Religion | -0.117 | -0.158 | 0.056 | 0.256 | -0.060 | 0.386 |
| | (0.138) | (0.227) | (0.556) | (0.009) | (0.748) | (0.000) |
| Yrs Religious Freedom | 0.017 | 0.024 | 0.009 | 0.017 | 0.024 | 0.010 |
| | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) |
| Pluralism Index | 1.468 | 2.067 | 0.974 | 1.372 | 2.323 | 0.704 |
| | (0.004) | (0.077) | (0.067) | (0.006) | (0.047) | (0.165) |
| Communist Government | 0.031 | 0.086 | 0.011 | 0.034 | 0.048 | 0.077 |
| | (0.720) | (0.570) | (0.910) | (0.686) | (0.747) | (0.400) |
| ln (GDP Per Capita) | -0.387 | -0.728 | 0.077 | -0.336 | -0.737 | 0.073 |
| | (0.000) | (0.000) | (0.472) | (0.000) | (0.000) | (0.478) |
| Constant | -0.590 | -1.630 | -0.135 | -0.773 | -1.752 | -0.311 |
| | (0.005) | (0.002) | (0.457) | (0.000) | (0.001) | (0.081) |
| Number of Observations | 405 | 201 | 204 | 405 | 201 | 204 |
| Number of Countries | 31 | 15 | 16 | 31 | 15 | 16 |
| Within $R^2$ | 0.697 | 0.733 | 0.749 | 0.701 | 0.731 | 0.768 |
| Between $R^2$ | 0.124 | 0.154 | 0.121 | 0.113 | 0.149 | 0.110 |
| Overall $R^2$ | 0.158 | 0.190 | 0.167 | 0.145 | 0.185 | 0.154 |
| $F$-Statistic | 45.44 | 25.59 | 28.14 | 46.30 | 25.30 | 31.23 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |

Numbers in parentheses are $p$-values.

The dependent variable in all regressions is $\ln[P/(100-P)]$, where $P$ is the percentage of parents who attended religious services at least once a week.

"High" and "Low" pluralism are based on the average pluralism index for each country across all years in the sample. The "High Pluralism" countries are the 15 countries with the highest average pluralism across the entire sample; the "Low Pluralism" countries are the remaining 16 countries.

All specifications include fixed effects for country and year.

**Table 5: Children's Attendance Rate**

| Variable | De Jure State Religion | | | De Facto State Religion | | |
|---|---|---|---|---|---|---|
| | All Countries | High Pluralism | Low Pluralism | All Countries | High Pluralism | Low Pluralism |
| State Religion | -0.202 | -0.482 | 0.196 | 0.129 | -0.251 | 0.341 |
| | (0.045) | (0.005) | (0.081) | (0.304) | (0.309) | (0.006) |
| Yrs Religious Freedom | 0.020 | 0.033 | 0.018 | 0.020 | 0.033 | 0.019 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Pluralism Index | -0.911 | -3.29 | -1.726 | -0.978 | -2.606 | -1.799 |
| | (0.155) | (0.030) | (0.006) | (0.129) | (0.091) | (0.004) |
| Communist Government | -0.269 | -0.234 | -0.181 | -0.281 | -0.338 | -0.123 |
| | (0.015) | (0.232) | (0.102) | (0.011) | (0.088) | (0.269) |
| ln (GDP Per Capita) | -0.032 | -0.021 | -0.038 | 0.014 | -0.059 | -0.060 |
| | (0.752) | (0.893) | (0.761) | (0.893) | (0.722) | (0.626) |
| Constant | 0.136 | 0.276 | 0.223 | -0.030 | -0.050 | 0.136 |
| | (0.612) | (0.679) | (0.298) | (0.911) | (0.941) | (0.525) |
| Number of Observations | 405 | 201 | 204 | 405 | 201 | 204 |
| Number of Countries | 31 | 15 | 16 | 31 | 15 | 16 |
| Within $R^2$ | 0.703 | 0.762 | 0.738 | 0.700 | 0.752 | 0.745 |
| Between $R^2$ | 0.166 | 0.219 | 0.113 | 0.149 | 0.211 | 0.117 |
| Overall $R^2$ | 0.206 | 0.250 | 0.132 | 0.185 | 0.241 | 0.136 |
| $F$-Statistic | 46.78 | 29.88 | 26.60 | 46.22 | 28.29 | 27.56 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |

Numbers in parentheses are $p$-values.

The dependent variable in all regressions is $\ln[P/(100-P)]$, where $P$ is the percentage of children who attended religious services at least once a week.

"High" and "Low" pluralism are based on the average pluralism index for each country across all years in the sample. The "High Pluralism" countries are the 15 countries with the highest average pluralism across the entire sample; the "Low Pluralism" countries are the remaining 16 countries.

All specifications include fixed effects for country and year.

**Table 6: Determinants of Religious Pluralism**

| | De Jure State Religion | | De Facto State Religion | |
|---|---|---|---|---|
| Variable | Current Year *State Religion* | 25 Year Lag on *State Religion* | Current Year *State Religion* | 25 Year Lag on *State Religion* |
| State Religion | -0.2431 | 0.0249 | 0.1750 | -0.0986 |
| | (0.003) | (0.766) | (0.095) | (0.238) |
| Yrs Religious Freedom | 0.0047 | 0.0056 | 0.0053 | 0.0053 |
| | (0.054) | (0.023) | (0.028) | (0.029) |
| Population Density | -0.0008 | -0.0006 | -0.0005 | -0.0006 |
| | (0.017) | (0.055) | (0.100) | (0.054) |
| Constant | -1.425 | -1.586 | -1.658 | -1.520 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Within $R^2$ | 0.321 | 0.304 | 0.310 | 0.307 |
| Between $R^2$ | 0.127 | 0.052 | 0.016 | 0.095 |
| Overall $R^2$ | 0.137 | 0.064 | 0.026 | 0.106 |
| *F*-Statistic | 10.08 | 9.31 | 9.55 | 9.43 |
| | (0.000) | (0.000) | (0.000) | (0.000) |

Numbers in parentheses are *p*-values. Number of countries = 31. Number of observations = 388.

The dependent variable in all regressions is $\ln[P/(1-P)]$, where *P* is the *Pluralism Index*.

All specifications include fixed effects for country and year.