

STATE WELFARE SPENDING AND RELIGIOSITY

A CROSS-NATIONAL ANALYSIS

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ABSTRACT

What accounts for cross-national variation in religiosity as measured by church attendance and non-religious rates? Examining answers from both secularization theory and the religious economy perspective, we assert that cross-national variation in religious participation is a function of government welfare spending and provide a theory that links macro-sociological outcomes with individual rationality. Churches historically have provided social welfare. As governments gradually assume many of these welfare functions, individuals with elastic preferences for spiritual goods will reduce their level of participation since the desired welfare goods can be obtained from secular sources. Cross-national data on welfare spending and religious participation show a strong negative relationship between these two variables after controlling for other aspects of modernization.

KEY WORDS • religious economy • secularization • welfare spending

Introduction

Explaining why people participate in religious activities has long been one of the major puzzles within sociology. For most of the 20th century, the secularization paradigm reigned supreme in the study of religion. Scholars often posited a relatively simple unilinear relationship between 'modernization' and religious decline. Rigorous empirical testing of this relationship was seldom conducted due, in part, to the vague and often tautological conceptualizations offered for both 'modernization' and 'secularization' (cf. Gill 2001).¹

In place of rigorous conceptualization and empirical testing, casual observation was substituted. Scholars simply noted that Europe was 'modernized' and had low levels of religious participation. Latin America, by contrast, represented a less modernized region and, not surprisingly, had the appearance of being a very religious society. The United States tended always to stand out as an exception to this trend but was never considered a serious empirical challenge to secularization theory (cf. Bruce 2002: 204–28).

The rise of religious fundamentalism at the end of the 20th century, often dated from the 1979 Iranian Revolution, put the secularization paradigm to the test. Regions of the globe that were in the process of modernizing apparently moved in the opposite direction that secularization theory predicted (Casanova 1994; Berger 1999). Interestingly, scholars theorized that the same causal factor creating religious decline in Europe worked to spawn religious revitalization elsewhere; modernization was the culprit (cf. Antoun 2001). As Berger states:

Modernity tends to undermine the taken-for-granted certainties by which people lived through most of history. This is an uncomfortable state of affairs, for many an intolerable one, and religious movements that claim to give certainty have great appeal (1999: 11).

Not satisfied with such tautological explanations, a new group of scholars relying on insights from economic theory began developing more tightly constructed theories (cf. Stark and Bainbridge 1985; Stark and Finke 2000) and empirical tests (Iannaccone 1991; Stark and Iannaccone 1994; Gill 1998). A new emphasis was placed on the market structure (competitiveness) of the religious environment and the degree to which governments regulated religious activity.

All of this has generated increased interest among political scientists as religious belief and practice often has profound implications for political behavior. Churches (broadly conceived)² are frequently centers for collective political mobilization. The U.S. Civil Rights movement, Latin American Christian base communities, and Islamic political mobilization in the Middle East and Southeast Asia are but a few examples of this tendency. Moreover, religious organizations are often the creators and purveyors of important values, beliefs, and norms that affect how people behave politically. But it is not just the effect that religion has had on politics that has caught the attention of scholars. It is becoming increasingly apparent that the actions of governments play an important role

in determining behavior in the religious sphere. Examining the possible effects government policy has on religiosity may help to bridge the gap between the secularization thesis and economic theories of religion.

This paper develops the theme that governmental policies have important effects on religious behavior, most specifically participation rates and the willingness of people to declare themselves non-religious.³ In addition to previous explanations of cross-national religious attendance focusing on the degree of religious pluralism and level of governmental regulation faced by religious organizations, we argue and empirically demonstrate that state welfare spending has a detrimental, albeit unintended, effect on long-term religious participation and overall religiosity. Given that attending church is one of the main processes whereby individuals solidify their spiritual beliefs,⁴ and churches are primary loci for organizing political action, this finding should be of great interest to both sociologists and political scientists. The implication is that religious social mobilization and political involvement are more likely in countries with less extensive welfare systems and, conversely, that the expansion of state-sponsored social welfare will diminish, though not eliminate, the role religion will play in politics. Furthermore, by examining and testing the causal linkage between welfare spending and religious participation/belief, we are better able to explain the secular nature of Europe without resorting to the vague conceptualization of 'modernization'. Our goal is to unpack that concept into its component parts and test the various influences that each component, e.g. urbanization, telecommunications, increased government spending, has on religious participation.⁵ Given that an extensive governmental welfare system is one of the hallmarks of modern states, providing a microfoundational (micro-economic) theory of why such welfare spending affects religious participation will help bridge the gap between two competing paradigms within the sociology of religion – secularization theory and the 'religious economy' school – and will help to account for some of the unexplained cross-national variation in religious attendance observed by both perspectives.⁶ Moreover, we hope that this study spurs greater interest in exploring the linkages between social welfare spending and the various dimensions of religiosity (including attendance), particularly given that President George W. Bush has embarked on a policy seeking to integrate faith-based organizations more closely with social welfare provision in the United States.

Religious Economics and the Uruguayan Paradox

Recent studies in the 'economics of religion', dating back to Stark and Bainbridge's seminal works (1985; [1987] 1996), have challenged the long-standing secularization theory by explaining variation in religious practice across countries with two principal variables: market structure (i.e. the degree of pluralistic competition) and governmental regulation (i.e. the level of religious liberty). Iannaccone (1991), building upon insights from Adam Smith's *Wealth of Nations*, argued that religious pluralism was related directly to the level of religious activity across European nations. The logic was that different denominations competing for members (and revenue) would be more likely to exert a strong effort in attracting parishioners and keeping them active. Empirically, denominational pluralism was associated with levels of religious participation, although not all the variation could be explained. Nonetheless, the focus on religious market structure gave social scientists a firm start at trying to understand 'secularization' in a more rigorous manner.

Establishing religious pluralism as an important factor contributing to religious participation naturally begged the question of what explained the variation in religious pluralism. Here, several scholars turned to look at how governments regulated religious markets (Finke 1990; Chaves and Cann 1992; Iannaccone et al. 1996; Gill 1999a, b). Logically, religious pluralism would flourish in less regulated religious markets, resulting in higher levels of religious participation. Moreover, since most highly regulated religious markets not only put up barriers to new religious movements (or foreign missionaries) but also heavily subsidize single denominations, religious deregulation that privatized state churches naturally forced clergy to finance themselves via voluntary contributions of their parishioners. This would invariably push religious leaders, who need revenue to fund their institution, to increase participation more aggressively. Again, empirical analysis revealed this to be the case (Chaves and Cann 1992; Finke and Iannaccone 1993; Iannaccone et al. 1996; Gill 1999a). Still, not all the variation in religious participation could be explained, thereby prompting a search for additional variables associated with differences in national religious participation rates.

One particular outlier in Latin America – Uruguay – prompted our additional theorizing. Uruguay, a nation with a population of just over three million, has a high degree of religious liberty, yet

remarkably low levels of religious activity contrary to expectations from the aforementioned literature. Church and state were formally separated in 1916 and the government does not currently subsidize the Catholic Church beyond some minor funding for parochial schools and historic church buildings, nothing atypical when compared to many of the countries of Western Europe. All officially recognized religious organizations are tax exempt, and obtaining official recognition is no more difficult than in the United States. Interviews conducted with non-Catholic religious leaders in the country indicated that there are few, if any, legal obstacles for minority religions in constructing church buildings.⁷ Despite this, Uruguay has remarkably low levels of religious participation compared to neighboring countries. Roughly 26.8% of the Uruguayan population consider themselves 'non-religious' and 6% are declared atheists (Barrett et al. 2001: 790). These figures appear more like those of European countries than of any Latin American nation (see Table 1). Similarly, data from the *World Values Survey* (Inglehart et al. 1995) indicate that Uruguayans have much lower weekly attendance at religious services than all other Latin American countries. Uruguayan participation rates are again more akin to Protestant Europe (and France) in this respect. Several of those countries, including Argentina, Colombia, the Dominican Republic, Mexico, and the Philippines,⁸ have more restrictive religious markets⁹ and higher levels of religious market concentration.

What can account for this relatively low level of church attendance (and high non-religious rate) in Uruguay, particularly in relation to other Latin American states? While Uruguay has a more 'European' culture than many Latin American nations,¹⁰ it is no different in this respect than Argentina or Chile, both of which exhibit substantially higher rates of church attendance. Where Uruguay does resemble Europe more, though, is in the extensive reach of the state's social welfare system. Uruguay is often referred to as the 'Switzerland of South America' because of the government's expansive role in the provision of social welfare services. Given that religious organizations have historically been a source of welfare services for society (e.g. assisting the poor), we reasoned that this association might be worth further investigation. This single outlier should not be taken as proof that previous explanations for variation in religious activity are invalid. Quite the contrary, we believe the empirical work of Stark, Finke and Iannaccone holds up well under scrutiny. However, in an attempt to explain

Table 1. Religious participation data

| <i>Country</i> | <i>Non-religious rate (%)</i> | <i>Weekly Church attendance (%)</i> |
|--------------------|---------------------------------------|---|
| Argentina | 2.2 | 25.4 |
| Australia | 14.3 | 16.5 |
| Austria | 6.8 | 27.3 |
| Brazil | 2.3 | 36.3 |
| Chile | 6.9 | 25.0 |
| Colombia | 1.1 | 45.8 |
| Denmark | 5.2 | 3.1 |
| Dominican Republic | 1.7 | 44.3 |
| Finland | 5.3 | 3.9 |
| France | 15.4 | 10.9 |
| Germany | 17.1 | 13.5 |
| Greece | 1.6 | 24.2 |
| Ireland | 2.2 | 76.8 |
| Italy | 12.9 | 40.7 |
| Luxembourg | 3.7 | 21.6 |
| Mexico | 3.0 | 46.4 |
| Netherlands | 12.8 | 28.3 |
| Norway | 1.8 | 5.0 |
| Peru | 1.1 | 42.9 |
| Philippines | 0.6 | 70.0 |
| Portugal | 5.3 | 37.5 |
| Spain | 4.4 | 35.9 |
| Sweden | 17.5 | 4.1 |
| Switzerland | 6.5 | 15.7 |
| UK | 11.6 | 33.2 |
| USA | 8.7 | 43.9 |
| Uruguay | 26.9 | 13.2 |

Non-religious rate represents percentage of population reporting they are non-religious. Weekly Church attendance is percentage of sample reporting attending religious services once a week or more.

Sources: Non-religious rate from Barrett et al. (2001). Attendance data from *World Values Survey* 1995.

this one single case, we are prompted to develop a more general set of hypotheses that could be used to account for variation left unexplained in their previous models. With this said, we now turn our attention to building a theoretical model linking state social welfare spending and lower rates of religious participation.

A Theory of Welfare Spending and Religious Participation

Because we seek to extend the work previously done within the economics of religion, our theory begins with many of the definitions and assumptions common to this school of thought (cf. Stark and Finke 2000).

Definition 1. Religious goods are the fundamental answers to the deep philosophic questions surrounding life that have as their basis some appeal to a supernatural force.

Definition 2. Religious firms (or churches) are organizations that produce and distribute religious goods.

Axiom 1. Religious goods are credence goods in that the quality of the good cannot be judged until some future point in time, after the initial purchase.

Axiom 2. Religious goods are difficult to price because they are both credence goods (and hence depend upon the reputation of the seller) and are ideational in nature, meaning their distribution is difficult to control once these goods initially become known.

Religious organizations, at their very core, produce and distribute answers to the philosophic questions of life. Not surprisingly, it is rather hard for religious firms to control the distribution of these ideational goods and collect revenue that helps to pay for the institutions and personnel that produce them. (Consider the intellectual property rights debate surrounding the easy dissemination of music and software via the Internet today, or the difficulty scholars have in controlling the use of, and capturing rents for, their intellectual ideas.) There would be a strong incentive to free ride when such goods can be easily obtained simply by conversing with others. Moreover, since the quality of these goods cannot be readily determined, it is not surprising to find consumers to be skeptical and only willing to contribute to their provision if they are given some assurance that those philosophic answers are credible.

This leads us to the following propositions:

Proposition 1. Religious producers have a strong incentive to invest in the trustworthiness and credibility of their personnel and institutions.

Proposition 1a. Religious firms will offer a variety of tangible services designed to build trust among the community of potential followers, encourage participation in the organization, and capture revenue.

To demonstrate that religious firms can be trusted to provide credible answers to life's tough questions, clergy possess an incentive to engage in behaviors that build trust on a smaller scale. It is not uncommon for clergy to take vows of poverty or engage in other costly activities (e.g. itinerant preaching) to signal that they are sincere in their beliefs and are not just selling 'snake oil' (Stark 1996: 163–89). Moreover, building and maintaining trust among a population often impels religious producers to coordinate welfare activities that benefit the community, e.g. charity for the poor, assistance for individuals who experience personal disasters, elder care, medical assistance, orphanages, and education. This is not to claim that religious leaders and organizations perform these activities selfishly for personal or institutional benefit. Rather, this observation merely points out that such activities have beneficial side effects at ensuring individuals that they are dealing with an institution that can be trusted.¹¹ Historically, most major religious denominations have played a large role in providing for community welfare and many of the fastest growing denominations today (e.g. Mormons, Jehovah's Witnesses) are quite active in offering these services.¹²

From the individual's perspective, the role played by churches in welfare provision can play a significant role in encouraging a person to join and remain active in a religious organization.

Proposition 2. To the extent that the community and individual welfare services offer tangible benefits to religious consumers and alleviate any concerns they have about the quality of the spiritual goods provided religious participation will increase. Conversely, if churches offer fewer such services, we expect religious participation to decline.

This proposition does *not* imply that individuals join churches simply to obtain material benefits. There are many individuals who would pay dearly for spiritual answers to life's mysteries regardless of whether a church provided material welfare. However, there are also many individuals who are reluctant pay large sums (or participate extensively) for religious goods unless there is some reassurance

that the goods are credible or that they are attached with other more tangible goods that can be consumed more immediately. For many centuries, the Vatican realized this variation in willingness to pay for spiritual goods. This is why Catholic priests kept the payment of indulgences secret during the Middle Ages; secrecy allowed priests to identify each individual's price elasticity for salvation and price the indulgences accordingly (Ekelund et al. 1996).

Axiom 3a. Religious consumers will differ in their willingness to purchase religious goods and engage in religious activity based upon the degree of welfare a religious firm provides.

We could conceive of religious participation as a series of concentric circles each representing the different price elasticities of various consumers. At the center we would find hardcore consumers willing to pay any price for religious goods regardless of whether the church provides tangible welfare incentives. As we move away from this core, though, the price people are willing to pay for religious goods is more contingent upon the ability of the clergy to provide credible assurances about the quality of those spiritual goods and/or the ability to deliver tangible welfare benefits. These outer rings of individual religious consumers will become important as we move on to discuss the role of state provision of welfare. To the extent that a secular government can provide these welfare goods to individual consumers at a lower cost,¹³ religious participation (i.e. the time cost of purchasing religious goods) will decrease among those with more elastic preferences for spiritual goods.

Over the past century, secular states have become increasingly involved in the provision of welfare benefits. Prior to the 1900s, states largely relied upon land taxes and import/export duties as a way of financing government operations since they were the easiest revenue streams to capture. As modern technology enhanced the ability of states to monitor economic activity more closely, politicians were able to expand the sources from which to tax (namely to income and sales taxes). This increased the amount of revenue flowing into government coffers and correspondingly expanded the ability to deliver goods and services to the population. Although churches had been providing for the welfare of local communities for a long period of time, politicians often saw the provision of these goods and services as useful means of obtaining political support, as people tend to support politicians that deliver patronage.

Throughout the 20th century, secular politicians began providing the welfare services that were once the domain of religious institutions.

Although both states and religious firms were providing welfare to citizens during the 20th century, the state gained a significant advantage early on in the amount of welfare it could deliver to citizens. This advantage was (and still is) based on the different manner in which resources were (are) extracted from the population.

Axiom 4a. The state relies implicitly, if not explicitly, on coercive means (e.g. threat of imprisonment) of revenue collection.¹⁴

Axiom 4b. Churches (largely) rely on voluntary means of revenue collection.¹⁵

Any organization that relies upon voluntary contributions for revenue will face a more difficult collective action problem to solve than one that collects revenue under the threat of coercion, *ceteris paribus*.¹⁶ Thus:

Proposition 3. The state will have a comparative advantage relative to churches in the delivery of the absolute amount of social welfare services provided to a population.

Since the state can provide a greater amount of welfare to citizens, and since it can also compel citizens to pay for such services, it follows by way of Axiom 4 that the state can indirectly affect the level of church participation based upon its provision of welfare.

Proposition 4. As the provision of state welfare (and taxation for that welfare) increases, people with more elastic preferences for religious goods based upon the receipt of religious welfare will tend to decrease their voluntary donations to religious firms (financial cost) and level of participation (time cost).

Since the decisions of many individuals over time can manifest themselves on a larger scale, proposition 4 leads us a direct empirical prediction that can be measured at a higher (societal) level of analysis.

Central Hypothesis

The level of religious participation in society should vary inversely with the per capita¹⁷ level of social welfare provided by the state.

This will be the claim that we directly test below. However, before moving forward with the empirical tests, it is first necessary to examine two qualifications to the model presented above. These qualifications are not meant to modify the central prediction in any way, but rather are presented to account for some interesting situations involving the trade-off between state-provided and religious-provided welfare.

First, while the state began taking over as the central institution for providing welfare, it often used religious organizations as a means of delivering these services at the local level.¹⁸ This was a well-known policy of Scandinavian states (Gustafsson 1990). In essence, religious institutions became embedded within the welfare bureaucracy of society. One could plausibly hypothesize that this would not affect a church's ability to recruit and retain members. Being on the frontline of welfare provision should encourage people to associate welfare with the church, and by way of Axiom 3a should increase (or at a minimum not decrease) religious participation. However, this interpretation ignores a critical set of incentives for the clergy and welfare recipients.

Proposition 5a. To the extent that funding to provide welfare comes from the state and is not voluntarily acquired from parishioners, the clergy have little incentive to encourage greater religious participation on the part of the populace. Clergy are more beholden on the good graces of government bureaucrats for their livelihood.¹⁹

Proposition 5b. To the extent that the recipients of welfare services are aware that the church is delivering welfare from state tax revenue, and that the receipt of these goods is not contingent upon religious participation, certain individuals with high price elasticities for religious goods will not seek to participate (by way of Axiom 3a).²⁰

Second, it has been noted that some European states (e.g. Britain, The Netherlands, Norway, Germany) include churches as recipients of state welfare spending. Here, tax revenue is specifically set aside to pay for the operating costs of the state churches and other denominations (Monisma and Soper 1997). Standard economic logic dictates that any good subsidized by the government will be consumed in greater quantities. Hence, if the government is subsidizing the institutions that provide for religious goods, we should see

increased religious participation. This reasoning ignores two important points. First, those taxes are sunk costs for taxpayers. They cannot get them back. To the extent that religious participation still entails significant time commitments (costs), there is no guarantee that religious participation would increase since the government cannot subsidize the time cost (voluntary participation) of parishioners. Second, and more importantly, since government funds (from coerced taxes) are going to pay for salaries and institutional maintenance, there is not a strong incentive to seek voluntary contributions from parishioners. And since the vigor of the clergy is an important element in convincing potential believers that the credence goods being offered are worthwhile, an unmotivated clergy is unlikely to inspire an increase in religious participation or belief (cf. Smith [1776] 1981: 789). That being the case, it is not likely that state subsidized churches will exhibit any greater tendency towards increased parishioner involvement. That said, we now turn our attention to testing our primary assertion that increased welfare spending will decrease religious participation.

Methodology and Variables

While our theory linking state welfare spending to religious participation rests upon a foundation of methodological individualism, our tests were conducted at aggregate (national) level. As individual behaviors do combine to leave telltale signs at a higher level of analysis, we argue that our cross-national data provide a sufficient test for our hypothesis. Indeed, it is common to test analyses built on microfoundations using macro-level data (cf. Iannaccone 1991). Economic and church behavior data to test Proposition 4 were pulled from a sample of between 16 and 33 predominantly Christian nations.²¹ Asian cases with increasing Christian populations, such as Singapore, South Korea, and Taiwan, were excluded, as many of the indigenous religions in these nations do not have strict attendance requirements; results based on church attendance measures would likely understate the level of religious adherence in these societies.

The ideal research design for this study would be a time-series analysis extending across several decades to capture generational effects. Unfortunately, given that the *World Values Survey* had a smaller set of nations in prior iterations of the survey, time-series data on church attendance exist only for a dramatically smaller

subset of our cases. Moreover, consistent cross-national figures for social welfare spending become increasingly unavailable or unreliable prior to the 1980s, particularly for the Latin American countries in the sample. For this reason, we can only perform a simple, cross-national analysis test of the propositions mentioned above. While this certainly is a limitation in our analysis, we reason that the impact is fairly minimal. The general size of the welfare state (measured by welfare spending per capita) will generally be associated with its longevity. Countries that developed social welfare programs early in the 20th century (e.g. the Nordic countries) tend to have the largest per capita social welfare expenditures (cf. Stein 1978). While welfare data are available for the late 1980s and 1990s, we reasoned that even a 15-year period is too short to show the generational impact that the welfare state has on religious participation.

As Iannaccone (1990) argues, religious human capital is built over time and generally passed from parents to children. Traditions persist and people are creatures of habit. The more an individual engages in a certain religious practice (e.g. attending church), the less likely they are to give it up at a moment's notice. Therefore, we are not arguing that individuals make perfect cost benefit calculations of whether or not they should attend church relative to the availability of social services. Rather, the process is more gradual. An individual who has relatively elastic demand for spiritual goods will likely continue to attend church services out of habit even after state-sponsored welfare goods become available. Not knowing what else to do on a Sunday morning or the desire to say hello to a few friends may provide the momentum for continued church attendance. However, over time that attendance is likely to become erratic and decrease. The children of these individuals will thus not attend church as often either, and they will not build the religious capital that will keep them sustaining their church attendance as adults. For this reason, increased welfare spending is most likely to chip away at the attendance of the children of loosely affiliated individuals as those children mature into adults. In other words, the effect that welfare spending has on religious attendance is hypothesized to be a gradual, generational process. Given that the welfare states in place in some European and Latin American states (namely Uruguay) had been in place for over 50 years, the impact on religious participation would have had its effect by the 1990s.

Lacking more detailed time-series data, one might also question the direction of causality in our study. It may be possible that welfare states arose in response to a decrease in the desire and/or ability of religious organizations to provide social services. We consider this to be an unlikely scenario. Most religious denominations have continued to offer the welfare services they have provided in the past, including activities such as child care, elderly care, and assistance to the poor. The nature of such services may have changed over time, but we are unaware of any religious denomination that stopped engaging in such activity prior to the rise of the welfare state. Also, we note that some religious leaders did recognize the threat that state-provided welfare provided to their institutions. As Finnegan and McCarron write about Ireland:

In 1944 a report was issued by a commission chaired by the [Catholic] bishop of Galway, calling for diminishing the centralization of bureaucratic control in Irish government because it was inefficient and insensitive. The state, the report declared, should instead operate through the already existing vocational organizations. That same year the bishop of Clonfert called for reorganization of the medical services and other social services into a social insurance scheme supported, not by the state, but by the contributing members. The report was ignored by the Fianna Fail government, but it did reflect Church thought on the role of the state bureaucracy in the vocational or social sphere during the period. Essentially the Church wanted to deny the state the role of supplanting the family or the vocational sectors of society in the provision of social services (2000: 126–8).

While this report does not explicitly express a fear on the part of Catholic bishops that their membership would decline (as no bishop would likely admit that some people have highly elastic preferences for spiritual goods contingent upon social services), it does reveal that this particular denomination was fighting a defensive battle against the encroachment of the state upon its traditional territory.

Finally, even without adequate time-series data covering two or three generations, we consider our cross-national results here to be important given that the relationship between aggregate welfare expenditures and religious participation has never been tested. If our hypothesis helps to account for some cross-national variation in religious participation, we believe that these results will open a new avenue of investigation for scholars interested in explaining religious participation across space and time. At a minimum, it would introduce another variable for consideration among scholars interested in secularization and religiosity. In other words, we intend

for this analysis to be a first cut at a more ambitious research agenda examining the unintended consequences that government policy may have on religious behavior.

Three separate measures of the dependent variable were used, each getting at a slightly different dimension of religiosity and religious participation.²² Varying the operational measurements of our principal concept provides a more rigorous test of the general model. With small sample sizes, a possibility exists that statistical results are a function of the sample selected based upon the available data and/or the way the variables were measured (including the possibility of measurement error). As such, Type I errors might occur.²³ This problem can be minimized by providing independent measures of the various variables. Additionally, since we are dealing with a multidimensional concept generally placed under the rubric of 'religiosity', our different measures of the dependent variable also represent slightly different conceptualizations of the topic under investigation. We provide definitions of all dependent variables in the Appendix and leave it to the reader to decide whether our three alternative measures and conceptualizations are appropriate.

Our first operational definition of 'religiosity' was measured directly as religious participation, namely the percentage of the population reporting that they attended church services at least once a week. Indeed, the theory presented above anticipates that the effects of welfare spending will be greatest on church attendance – relative to any other measure of religiosity – since attendance is associated with time (and often direct financial) costs. Individuals who have high elastic preferences for the spiritual goods of religion will be less likely to pay such costs should the tangible welfare benefits traditionally offered by churches be provided elsewhere and without the attendant participation costs. Data for this measure were culled from the *World Values Survey* (Inglehart et al. 1995)²⁴ and comparable survey questions from the 1995 *Eurobarometer*.

Next, we included a measure of the percentage of the population recorded as 'non-religious' by the *World Christian Encyclopedia* (Barrett et al. 2001),²⁵ perhaps the most comprehensive source of religious statistics available. To the extent that 'non-religious' implies that individuals will not actively partake in religious activities, this variable represents an alternative measure for religious participation and encompasses personally held religious beliefs as well. We assume that individuals declaring themselves as 'non-religious' are unlikely to be active churchgoers, hence this variable

represents the 'flip side' of the participation variable. Accordingly, we expect the theoretical relationship between welfare spending and percent of population non-religious to be the reverse of that hypothesized for welfare spending and weekly church attendance. More importantly, use of this measure also allowed us to expand the sample size to 33 cases to test if the relationship between welfare spending and religious participation was dependent on the specific sample resulting from the data availability of the 'weekly church attendance' variable. Due to the high degree of skewness and curvilinear nature of the 'non-religious' data, we calculated the natural log of this variable. Although making the interpretation of the regression coefficients a bit less intuitive, the mathematical relationship among the cases is preserved by such a transformation.

One final measure on the dependent variable was used – the portion of the population expressing that they 'take comfort in religion'. We recognize that this is not a measure of active participation per se; people may take comfort in religious belief even if they are not active participants in an organized church. Nonetheless, we considered this measure to be possibly revealing, particularly for this study. To the extent that government welfare programs provide citizens not only with a material safety net, but a psychological one as well (knowing that the state will be there to care for them), we reasoned that state welfare spending may have an impact here as well. Information on the percentage of the population 'taking comfort in religion' was available only from the *World Values Survey* as no comparable question was available in the 1995 *Eurobarometer* questionnaire.

Data for the independent variables were obtained from Barrett et al. (2001), the International Monetary Fund (2000), and the World Bank (2001) with sensitivity towards maintaining consistent definitions of 'social welfare spending' across nations. See Appendix for details. Other explanations for variation in religiosity across nations were also accounted for in our analysis. As for explanations favored by the 'religious economy' school, we included a measure of the degree the religious marketplace is regulated (*Regulation*) and of religious pluralism (*Pluralism*). The latter variable is measured using the natural log of denominations per million population to adjust for skewness.²⁶ Our measure for regulation represents a modified version of the scale used in Barrett et al. (2001: 46). Variables relating to explanations commonly attributed to secularization theory include the level of urbanization (*Urban*), literacy rate (*Literacy*),

and number of televisions per 1,000 people (*Television*).²⁷ According to standard secularization theory, an increase of all of these variables would indicate a more 'modern' outlook upon society and, hence, less reliance upon the 'superstitious' explanations provided by religion. The primary variable of interest here is urbanization, as this is assumed to be correlated with a number of other features of modern societies that act to secularize society, including social differentiation, long-term economic growth, socio-cultural diversity, and structural differentiation (Bruce 2002: 4–14). Note that our principal explanatory variable – social welfare spending – is part and parcel of a modern society as well; thus, while our theory fits well within the (microfoundational) religious economy school, it is also related to the trends observed by the more macrosociological secularization thesis.

Finally, as some analysts have noted that Catholic nations seem to have higher rates of religious participation than an economic pluralism model would indicate (Iannaccone 1991; Chaves and Cann 1992), we included a dummy variable showing whether the country was majority Catholic or not. Finally, to account for any possible cultural bias in the analysis, we coded countries as to whether they were Latin American (i.e. developing world) or not.²⁸ Doing this also controls for the possibility that the results are driven by the inclusion of 'less modern' nations. Secularization theory predicts that such countries would have higher levels of religiosity; hence, the Latin American variable serves as another test of the secularization thesis.

The theoretically anticipated signs of the coefficients are as follows for Tables 2–5:

| | <i>Tables and 3 Church attendance</i> | <i>Table 4 Non-religious rate</i> | <i>Table 5 Comfort in religion</i> |
|-----------------------|---|---|--|
| Welfare | Negative | Positive | Negative |
| Regulation | Negative | Positive | Negative |
| Denominations/million | Positive | Negative | Positive |
| Urbanization | Negative | Positive | Negative |
| Literacy | Negative | Positive | Negative |
| Television | Negative | Positive | Negative |
| Catholic dummy | Positive | Negative | Positive |
| Latin American dummy | Positive | Negative | Positive |

Empirical Results

Results for the OLS regression analyses are presented in Tables 2–5. Scatterplots of our dependent variables versus our principal independent variable – welfare spending – and primary rival hypothesis – urbanization – can be seen in Figures 1–6. Standardized beta coefficients are presented as a means of evaluating the relative weight of each independent variable in accounting for variation in the dependent variable.²⁹ Because of the small sample sizes involved, care was taken to evaluate whether results were attributable to the specific nature of the sample. Evaluating our hypothesis on four different sample sizes aided in this process. Durbin-Watson statistics for all models fell between 1.0 and 3.0 for all models, indicating no significant correlation between the variables and the error term (Field 2000: 138). All models were tested for multicollinearity between the independent variables using the tolerance and variance inflation factor (VIF) statistics provided by SPSS (Field 2000: 132). Surprisingly, though we were expecting problems to arise between urbanization and welfare spending, we did not observe any collinearity problems. This made us confident that we were theoretically and empirically correct to unpack ‘state welfare spending’ from the general concept of ‘modernity’, best represented by the urbanization measure. Multicollinearity was more of a problem between measures of urbanization, literacy, and television ownership, thus these variables appeared separately in the various regression models – each representing a different aspect of ‘modernization’.

Overall, our primary independent variable – state welfare spending – appeared statistically significant in all models presented across the four tables (and all three conceptualizations of ‘religious participation’), with one exception (see below). This provides a solid indication that the results were not an artifact of a specific sample, nor of a particular measure of the concepts of either ‘religious participation’ or ‘religiosity’. The variable measuring the governmental regulation of religion is significant in the models examining church attendance and the non-religious rate. However, as we note below, the results for church attendance may be in part related to the composition of the sample – namely the presence of two significant outliers – Ireland and the Philippines. The regulation variable is also in the opposite direction predicted for our examination of non-religious rate, for reasons that we speculate on below. Interestingly, religious pluralism (as measured by logged denominations per

million) was not significant in any of the models presented. In part, this confirms the work of Chaves and Cann (1992) and Gill (1999a) that shows pluralism has less of an effect on religious participation after controlling for the governmental regulation of churches. Of the three variables associated with traditional secularization theory, only urbanization appears as statistically significant in the models exploring church attendance and non-religious rate. However, as with the regulation variable, urbanization is not a significant predictor of church attendance after adjusting for the outliers (Ireland and the Philippines) in the data. Finally, being a predominantly Catholic society tends to increase levels of church attendance and a willingness to take comfort in religion.³⁰

Our first and most direct test of whether welfare spending affects religious participation provides evidence that such spending does affect religious attendance. In terms of weekly church attendance (Tables 2 and 3), welfare spending per capita (controlling for GDP) is statistically significant and in the predicted direction in four of the five models presented. Note that the *p* values for these coefficients were below (or substantially close to) the standard 0.05 level of significance (two-tailed test), which is remarkable given a sample size of only 22 cases. With one exception, the welfare variable also had the largest standardized beta coefficient, indicating that it accounts for more of the variation than other variables. Government regulation was also statistically significant at the 0.05 level and in the predicted direction. This result supports previous work on the political economy of religion that demonstrated greater religiosity in countries with greater religious freedom. Urbanization was statistically significant in two of the models presented, but the other two measures of modernization – Literacy and Television – were not.

Note that model IV does not conform to this general pattern in Table 2. This is the model wherein we included a control for whether the nation was predominantly Catholic. As is apparent, this control variable is statistically significant and indicates that Catholic societies witness greater weekly church attendance on average. Regulation remains significant, confirming the modification of Chaves and Cann (1992) on Iannaccone's (1991) analysis of religious pluralism. For our analytical purposes, welfare spending is not statistically significant in this model, though with a *p* value of 0.150 using a two-tailed test, and with a sample size of 22, one could plausibly argue for a wider margin of error and assert that the result

Table 2. OLS regression models. Dependent variable: Church attendance 1995

| | I | II | III | IV | V |
|---------------------|----------------------|---------------------|---------------------|----------------------|----------------------|
| Welfare | -0.487** (0.019) | -0.626** (0.017) | -0.560** (0.014) | -0.275 (0.150) | -0.500* (0.060) |
| Regulation | -0.475*** (0.005) | -0.427** (0.020) | -0.451** (0.012) | -0.454*** (0.003) | -0.473*** (0.008) |
| Pluralism | 0.225 (0.201) | 0.211 (0.281) | 0.232 (0.224) | 0.173 (0.257) | 0.223 (0.222) |
| Urban | -0.345* (0.056) | | | -0.356* (0.019) | -0.335 (0.124) |
| Literacy | | -0.076 (0.737) | | | |
| Television | | | -0.212 (0.279) | | |
| Catholic | | | | 0.356** (0.019) | |
| Latin America | | | | | -0.017 (0.932) |
| N | 22 | 22 | 22 | 22 | 22 |
| Adj. R ² | 0.599 | 0.503 | 0.534 | 0.701 | 0.574 |
| F | 8.831*** (0.000) | 6.313*** (0.003) | 7.013*** (0.002) | 10.831*** (0.000) | 6.654*** (0.002) |
| Durbin-Watson | 444 | 1.93 | 1.53 | 1.88 | 1.95 |

Standardized beta coefficients presented. *P*-values in parentheses below coefficients.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ Two-tailed tests.

is not likely due to chance error.³¹ We report the *p* value so as to allow readers to determine for themselves whether this result is statistically significant. The reasonably low *p* value provides some suspicion of a relationship between welfare spending and religious attendance, even when Catholicism is controlled for.

However, we believe that something else may be at work in this model, which in turn may have an effect on all the models presented in Table 2. Examining Figures 1 and 2, it is quite apparent that Ireland and the Philippines are significant outliers, recording much higher levels of church attendance than predicted either by state welfare spending or urbanization. To adjust for these outliers, we performed two different procedures, as reported in Table 3. First, we eliminated the two largest outliers from the data set, resulting in a smaller sample size (models I–III). We surmised that in both nations religion recently served as a primary vehicle of political mobilization, more so than many of the other countries in the analysis – in Ireland against British influence in Northern Ireland and in the Philippines against the regime of Ferdinand Marcos. When the Philippines and Ireland are removed, welfare spending retains its predicted effect and is statistically significant. Urbanization, on the other hand, is no longer significant. Interestingly, our measure for regulation is no longer significant in models I–III (Table 3) either.

The other method of addressing the problem of Ireland and the Philippines as outliers was to take the natural log of church attendance. While this operation had the benefit of preserving the sample size, this transformation could only address the issue of the Philippines and not Ireland. Ireland remained a significant outlier in the analysis. The resulting analyses are presented in models IV–VI in Table 3. In these three models, welfare spending and regulation are statistically significant. Being a majority Catholic nation also has a statistically significant effect, as Catholic societies tend to promote higher levels of (self-reported) religious attendance. In sum, results reported in Tables 2 and 3 yield some indication that state welfare spending affects levels of religious participation. Nonetheless, we realize that some concern still may be raised as to whether the result is an artifact of the sample chosen.³²

To alleviate the above concern, we tested our primary hypothesis on a related dependent variable – logged non-religious rate – using an expanded sample size. Results are presented in Table 4 and Figures 3 and 4. Here again we see that state welfare spending is

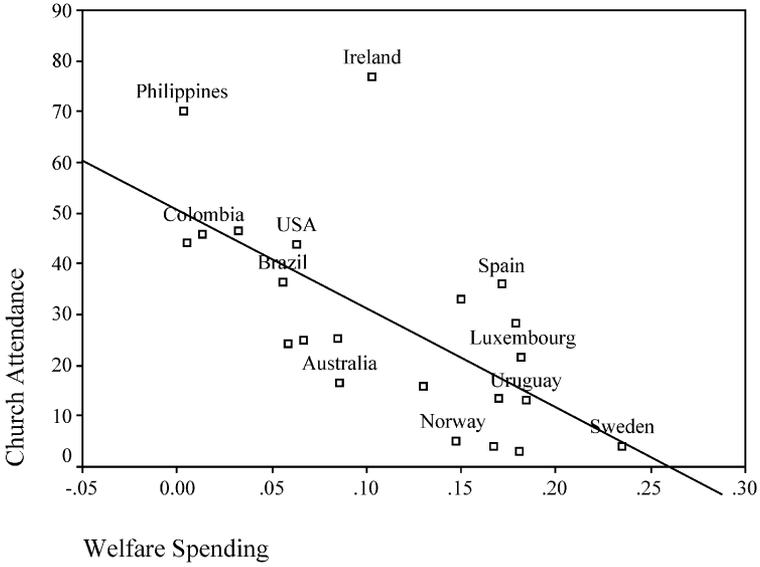


Figure 1. Welfare Spending vs. Church Attendance. See Appendix for variable descriptions

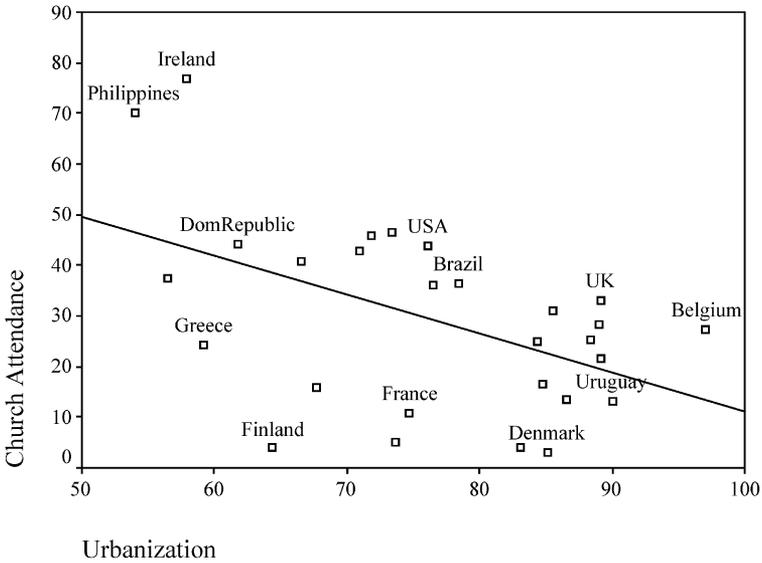


Figure 2. Urbanization vs. Church Attendance. See Appendix for variable descriptions

Table 3. OLS regression models. Dependent variable: Church attendance and In Church attendance 1995

| | <i>Ireland & Philippines excluded</i> | | | <i>Ln Church attendance</i> | | |
|---------------------|---|---------------------|---------------------|-----------------------------|---------------------|---------------------|
| | <i>I</i> | <i>II</i> | <i>III</i> | <i>IV</i> | <i>V</i> | <i>VI</i> |
| Welfare | -0.767*** (0.004) | -0.541* (0.059) | -0.781** (0.026) | -0.713*** (0.003) | -0.522** (0.027) | -0.749** (0.014) |
| Regulation | -0.114 (0.645) | -0.244 (0.339) | -0.110 (0.674) | -0.384** (0.032) | -0.366** (0.029) | -0.378** (0.042) |
| Pluralism | 0.000 (0.999) | 0.048 (0.836) | -0.002 (0.993) | 0.216 (0.264) | 0.169 (0.345) | 0.210 (0.293) |
| Urban | 0.135 (0.602) | -0.058 (0.835) | 0.144 (0.631) | 0.003 (0.988) | -0.044 (0.803) | 0.029 (0.899) |
| Literacy | | | | | | |
| Television | | 0.310 (0.146) | | | 0.321* (0.064) | |
| Catholic | | | | | | |
| Latin America | | | -0.016 (0.949) | | | -0.047 (0.832) |
| N | 20 | 20 | 20 | 22 | 22 | 22 |
| Adj. R ² | 0.454 | 0.500 | 0.416 | 0.511 | 0.584 | 0.482 |
| F | 4.995*** (0.010) | 4.802*** (0.009) | 3.702** (0.024) | 6.495*** (0.002) | 6.901*** (0.001) | 4.914*** (0.006) |
| Durbin-Watson | 2.31 | 2.08 | 2.31 | 2.24 | 2.12 | 2.27 |

Standardized beta coefficients presented. *P*-values in parentheses below coefficients.
 * *p* < 0.10, ** *p* < 0.05, *** *p* < 0.01 Two-tailed tests.

Table 4. OLS regression models. Dependent variable: Logged non-religious rate 1995

| | I | II | III | IV | V |
|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Welfare | 0.626*** (0.000) | 0.701*** (0.000) | 0.625*** (0.000) | 0.589*** (0.000) | 0.651*** (0.000) |
| Regulation | -0.205* (0.071) | -0.260** (0.043) | -0.214* (0.072) | -0.209* (0.064) | -0.204* (0.076) |
| Pluralism | -0.045 (0.671) | -0.020 (0.867) | -0.051 (0.649) | -0.054 (0.610) | -0.045 (0.681) |
| Urban | 0.334** (0.011) | | | 0.282** (0.038) | 0.339*** (0.012) |
| Literacy | | 0.174 (0.274) | | | |
| Television | | | 0.282* (0.057) | | |
| Catholic | | | | -0.154 (0.216) | |
| Latin America | | | | | 0.050 (0.705) |
| N | 33 | 33 | 33 | 33 | 33 |
| Adj. R ² | 0.648 | 0.575 | 0.611 | 0.656 | 0.637 |
| F | 15.734*** (0.000) | 11.825*** (0.000) | 13.561*** (0.000) | 13.180*** (0.000) | 12.233*** (0.000) |
| Durbin-Watson | 1.61 | 1.41 | 1.68 | 1.57 | 1.67 |

Beta coefficients presented. *P*-values in parentheses below coefficients.* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ Two-tailed tests.

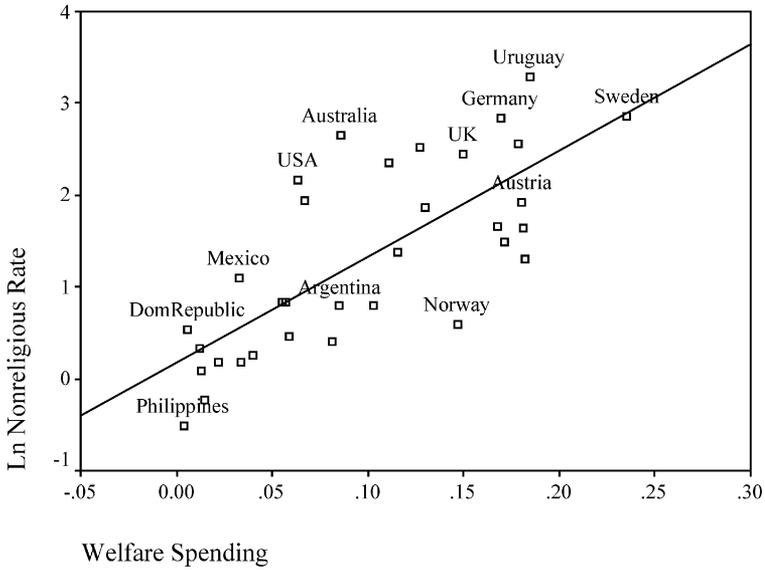


Figure 3. Welfare Spending vs. Ln Non-religious Rate. See Appendix for variable descriptions

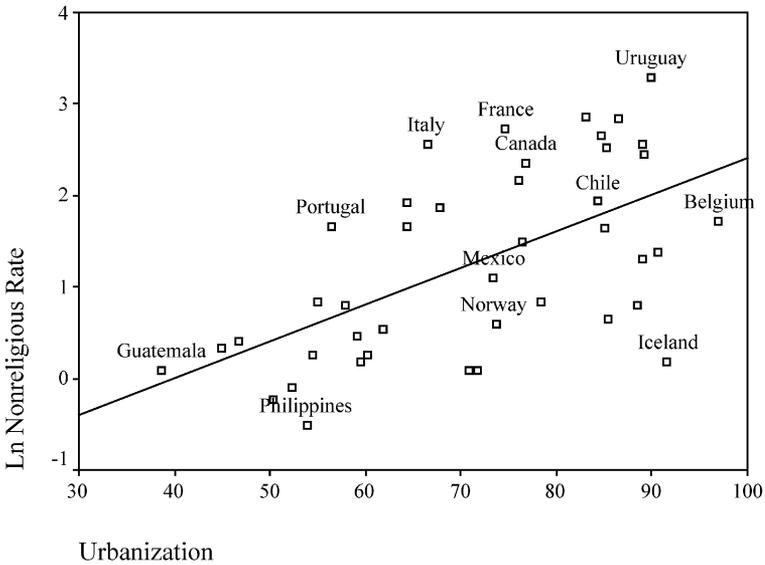


Figure 4. Urbanization vs. Ln Non-religious Rate. See Appendix for variable descriptions

statistically significant, in the predicted direction, and has the largest standardized beta coefficient. Regulation is also statistically significant at the 0.10 level. What is interesting, though, is that the results for regulation are not in the predicted direction. As regulation increases, the (logged) non-religious rate decreases, implying that less religious freedom is more likely to spur religiosity. We caution the reader on this assessment, however. Though regulation is not the focus of this paper, we offer one possible explanation wherein greater religious freedom is consistent with greater rates of non-religiousness. It is likely that as religious liberty increases (and states move away from supporting a single, hegemonic denomination), individuals are correspondingly more free to not only express belief in a minority religion, but non-belief as well. Hegemonic, state-sponsored religions may elicit a fear among individuals whereupon non-believers feel social pressure to conform to the official religion of the state. This cursory hypothesis warrants additional exploration. Additionally noteworthy in Table 4 is the fact that urbanization is also statistically significant in the predicted direction.

To what extent can the results from Table 4 (non-religious rate) be consistent with Tables 2 and 3 (church attendance)? It may well be the case that high levels of church attendance and non-religiosity can coexist within the same society. Recall our earlier assertion that there is likely to be a range of price elasticities for religious goods and services in society. Where state welfare provision is minimal, potential non-believers will be likely to attend church services to obtain a given level of welfare support. Obtaining such welfare will require such persons to express a belief in the religious doctrine being professed. Once state welfare is available as a substitute, those with more elastic preferences for religious goods will drift from the church and feel less compelled to express a spiritual belief (given that they have removed themselves from a sanctioning environment, i.e. weekly church services). Alternatively, those who continue to attend church services are likely those with intense (and inelastic) preferences for religious belief and hence likely to be the most active participants (cf. Iannaccone 1994). In other words, high levels of non-belief and religious participation in a society are not at odds with one another theoretically. The United States may be a prime case in point. Until further research into this relationship is conducted, this explanation remains only speculative. For present purposes, it is important to note that welfare spending does have the

predicted effect on both dependent variables – church attendance and non-religious rate.

Finally, we tested the effect welfare spending has on whether people take comfort in religion (Table 5 and Figures 5 and 6). We expected the relationship here to be substantively weaker than on more active forms of religious participation such as church attendance. People could avoid the time cost of going to church, yet still express a private piety or comfort in a supernatural entity.³³ Nevertheless, we would still expect that people who are active participants in religious services would take greater comfort in religion; exposure to positive religious messages on a weekly basis would likely increase one's spiritual devotion (Iannaccone 1990). Indeed, we find similar results in Table 5 as compared to Tables 2–4. Welfare spending is negatively associated with the percentage of people within a nation that take solace in religion and the relationship is statistically significant at the 0.01 level. Also, we note that Catholic countries tend to promote higher levels of people who take comfort in religion. Urbanization and the other two measures of modernity have no effect on the percentage of the population that take comfort in religion. Nor did we see any statistical relationship between regulation or religious pluralism on whether people take comfort in religion.

Conclusion

It is quite apparent that there is a strong statistical relationship between state social welfare spending and religious participation and religiosity. Countries with higher levels of per capita welfare have a proclivity for less religious participation and tend to have higher percentages of non-religious individuals. People living in countries with high social welfare spending per capita even have less of a tendency to take comfort in religion, perhaps knowing that the state is there to help them in times of crisis.³⁴ As laid out in the theory above, there is likely a substitution effect for some individuals between state-provided services and religious services. Religion will still be there to serve the spiritual needs of people seeking answers to the philosophic mysteries of life, but those who value those spiritual goods less than the tangible welfare benefits churches provide will be less likely to participate in religious services once secular substitutes become available. Given that religious practice

Table 5. OLS regression models. Dependent variable: Comfort in religion 1995

| | I | II | III | IV | V |
|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Welfare | -0.877*** (0.000) | -0.674*** (0.003) | -0.779*** (0.001) | -0.627*** (0.005) | -0.709*** (0.014) |
| Regulation | -0.074 (0.683) | -0.150 (0.313) | -0.155 (0.353) | -0.230 (0.180) | -0.154 (0.444) |
| Pluralism | -0.058 (0.730) | -0.020 (0.895) | -0.018 (0.916) | 0.049 (0.737) | -0.026 (0.880) |
| Urban | 0.069 (0.703) | | | -0.091 (0.581) | -0.081 (0.731) |
| Literacy | | -0.243 (0.192) | | | |
| Television | | | -0.120 (0.493) | | |
| Catholic | | | | 0.358** (0.034) | |
| Latin America | | | | | 0.199 (0.334) |
| N | 16 | 16 | 16 | 16 | 16 |
| Adj. R ² | 0.738 | 0.774 | 0.746 | 0.820 | 0.738 |
| F | 11.551*** (0.001) | 13.835*** (0.000) | 11.998*** (0.001) | 14.650*** (0.000) | 9.470*** (0.001) |
| Durbin-Watson | 2.19 | 2.00 | 2.18 | 2.29 | 2.01 |

Standardized beta coefficients presented. *P*-values in parentheses below coefficients.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ Two-tailed tests.

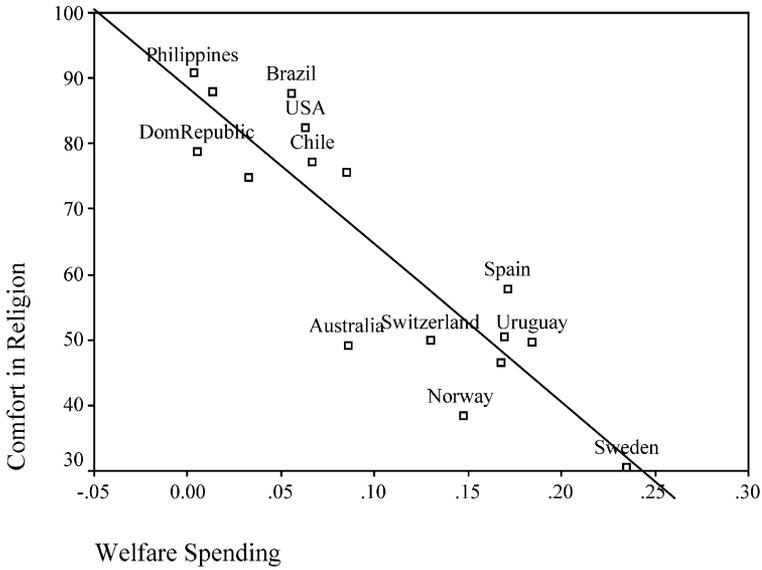


Figure 5. Welfare Spending vs. Comfort in Religion. See Appendix for variable descriptions

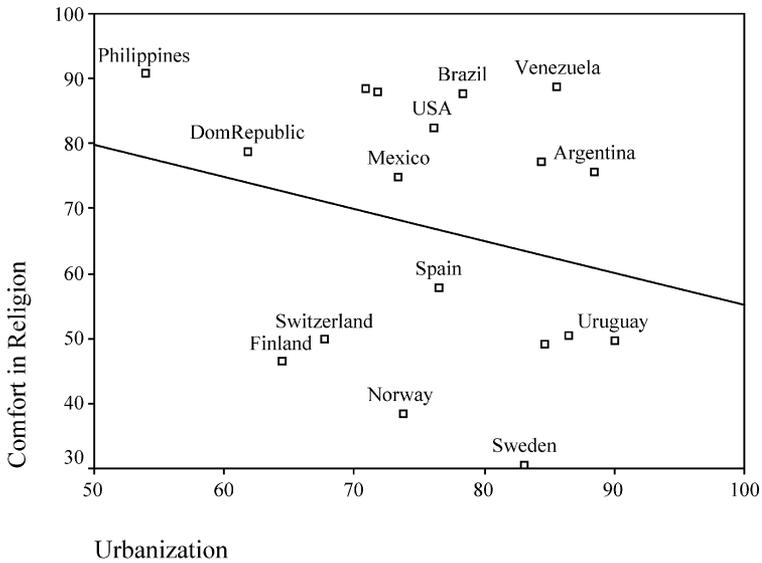


Figure 6. Urbanization vs. Comfort in Religion. See Appendix for variable descriptions

and values are often passed down from generation to generation, the weakening of practice in one generation will likely translate into weaker practice in subsequent generations. Does this mean that secularization theory is correct in its prediction that religion will gradually fade away? Doubtful. Realizing that there is still a yearning among many people to understand the mysteries of life, religion is not likely to dissipate at any time soon. Government simply cannot offer credible substitutes for these less tangible, supernatural goods. The explosion in spirituality once religion was made legal in former Soviet bloc countries lends credence to this assertion (Greeley 1994). As religious markets become more deregulated in various parts of the world, it is likely that new religious movements will take advantage of increased liberty and discover ways to expand.

Perhaps one of the most important lessons from the findings above is that the religiosity of a society is not simply determined by sociological factors. Government policy can play an important role in shaping the religiosity of a nation. Policies aimed at regulating the activities of religious organizations – from tax laws to zoning regulations – have important effects on the firms that supply religious goods and services. Many of these policies are designed consciously to promote or inhibit religious practice. Alternatively, welfare policy has been shown here to unintentionally affect the demand for religious services, likely over the course of generations. And, finally, since an extensive welfare state is considered by many to be a hallmark of modernized societies, the microfoundational analysis presented above provides a way of incorporating a component part of the secularization thesis (which relies heavily on notions of modernization) into the religious economy perspective.

NOTES

1. Since being 'modern' implied being 'secular', these definitions were often tautological by definition. Bruce notes this tendency in many scholars when he states that '[d]efining secularization in advance of offering explanations of it is less easy because scholars often conflate their definitions and explanations' (2002: 2).
2. We use the term 'church' here as a shorthand representation for all religious institutions with the understanding that it has a Christian bias. However, since our empirical focus is on religious participation in Christian countries, use of 'church' would seem adequate for present purposes.
3. We realize that 'religious behavior' has multiple dimensions, including attendance at regular church services, privatized practice (such as praying at home),

displaying religious symbols, relying on religious teachings to guide one's decision-making in political and economic spheres, etc. Many of these dimensions are difficult to operationalize and/or measure. Scholars studying religion have often relied upon participation in religious services as a proxy measure for the broader concept of 'religiosity' (cf. Iannaccone 1990, 1991). We follow suit here. While it is possible that regular churchgoers are not particularly spiritual and that there may be a segment of the population that consider themselves spiritual but avoid church, it is our working assumption here that in the Judeo-Christian societies we examine, regular church attendance will be largely (albeit imperfectly) correlated with other measures of 'religiosity', including frequent prayer and intensity of belief. Correlations (using Kendall's tau-b for ordinal data) between religious attendance and various measures of religious belief are significantly correlated in the World Values Survey and Eurobarometer. As discussed below, we do include a dimension of belief – 'comfort in religion' – that we believe may be affected by state welfare spending.

4. We recognize that 'spirituality/religiosity' may also take the form of private or unorganized forms of worship (e.g. private Christian prayer or New Age religions). Since our theory predicts that state welfare spending will have the greatest effect on formally organized religions, which as collective entities have traditionally provided social welfare services, we do not consider excluding private or unorganized forms of religious expression to be detrimental to our thesis.
5. In fairness to secularization theorists, some scholars do unpack the term 'modernization'. Bruce (2002, specifically Figure 1.1) does this, although he does not provide rigorous empirical tests. Bruce's categories include structural differentiation, social differentiation, individualism, economic growth, and a few other categories, many of which are difficult to operationalize and measure (2002: 5–30). Interestingly, he doubts that his specified 'causes are themselves *sufficient* to produce their purported effect', and that 'any of these causes were enduringly *necessary*' to result in secularization (2002: 5, emphasis in original). Unfortunately, a model with neither necessary nor sufficient conditions as explanatory factors would be difficult to disprove.
6. Social phenomena being what they are, no study can hope to explain 100% of the variation in any dependent variable under question. Attempting to find additional independent variables that can systematically account for such unexplained variation is a primary goal of social science research. Empirical studies by Iannaccone (1991) and Chaves and Cann (1992) appearing in this journal went far in explaining church attendance across various West European nations by focusing on religious pluralism and the degree of religious market regulation, respectively. We seek to build on these studies by adding an additional variable to the mix that was not considered earlier – per capita state welfare spending.
7. Approximately a dozen open-ended interviews with evangelical ministers, Mormon leaders, and government officials responsible for registering religious organizations conducted by Anthony Gill over a two-week period in spring 2001. The primary purpose of these interviews, making use of leftover funds of a study of laws in Chile, was to determine whether there was some regulatory burden on Uruguay churches hidden from general assessments that the country has a high level of religious liberty. Many of the evangelical ministers were in contact with other non-Catholic religious leaders and no one they knew of had experienced any form of religious persecution or onerous bureaucratic obstacles.

While not a scientific random sample, these interviews provided anecdotal evidence to support the general assessment of the U.S. Department of State (2001) that Uruguay has a high level of religious liberty.

8. The Philippines are not technically part of Latin America, obviously. However, it is a developing nation with a predominantly Christian (Catholic) culture that was colonized by Spain. As we had data for the Philippines on church attendance and other variables central to this study, we included it in the sample. For shorthand purposes, we will consider it to be similar to Latin American countries.
9. This judgment is based upon the religious liberty ranking and Christian Safety Index reported in Barrett et al. (2001: 46 and 834–5). Uruguay is rated as ‘marginally safe’ for Christian missionizing with a rating of 73, while ratings for Argentina (56), Brazil (52), Colombia (38), Mexico (57), and the Philippines (68) fall into categories rated as more dangerous. While the CSI takes into account governmental regulation, it also measures actual levels of religious persecution and criminal activity. To the extent the government does not attempt to crack down on religious persecution, it is placing de facto restrictions on the religious market. Violent persecution is usually a barrier to entry for most denominations (leaving the role of martyrdom aside).
10. Argentina, Uruguay, and Chile all have relatively low percentages of indigenous Americans among their populations, relative to other Latin American states. These three nations also experienced significant non-Spanish immigration during the 20th century, particularly from Italy and Germany.
11. This is not much different from why banks in the days before FDIC and FSLIC built lavish headquarters and branches. The sunk costs of those buildings signaled to potential clientele that the bank would be around for a long time and hence would be a safe place to store one’s savings.
12. Also consider Iannaccone’s (1994) argument that these denominations are strong because the strict requirements they place on members helps them solve collective action problems thereby enhancing the utility of all participants, i.e. it’s better when everybody chips in. These two issues are related since the provision of community welfare creates a strong incentive to participate in the religious organization and if all participate then the welfare net is that much stronger.
13. This is not to say that governments are more efficient at providing welfare services relative to churches. Rather, most governmental welfare services are paid for by compulsory taxation. If an individual already paid for said welfare services (or received them without having to pay taxes) they may have little incentive to pay a church voluntarily – with money (tithing) or time (participation) – for duplicate services.
14. We do acknowledge that many citizens consent to paying taxes without the threat of coercion. The relatively low level of cheating relative to the level of monitoring bears witness to this.
15. As with axiom 4b, this assumption is not perfectly accurate. Many small church communities may have strong social norms regarding tithing that may result in social ostracism if violated. This could be construed as coercion.
16. It may be the case that some small communities that have strict norms of conduct may be able to achieve higher compliance rates than states, though such groups are usually the exception not the rule.

17. As our analysis rests upon the assumption of methodological individualism, using per capita welfare expenditure data is a more valid method of assessing the impact of welfare on individual religious practice.
18. This is essentially what is happening with President George W. Bush's Faith-Based Initiative.
19. This is particularly true in many European states (e.g. Norway, Britain) where the state pays the salary of clergy directly.
20. Remember, church attendance and other forms of participation are equivalent to time costs for religious goods.
21. See the Appendix for a list of countries included in the analysis. Israel is included in one set of regression analyses. While obviously not a Christian nation, Israel is considered culturally part of the West and the Judaic faith has similar attendance requirements to Christianity. Interestingly, Israel was not an outlier in the analysis.
22. See the Appendix for description of dependent and independent variables and information on sources.
23. A Type I error occurs when a result is declared statistically significant when, in reality, the observed relationship is due simply to chance error. The probability of committing a Type I error for a particular variable in a regression analysis is equal to the p value of the beta coefficient. We report the p values for all regression coefficients in our results section below.
24. Actual date of World Values Survey in each country varied slightly from 1995–96. There is no reason to assume that variations in the date of the survey would have any biasing effect.
25. Barrett et al. define 'non-religious' as '[p]ersons professing no religion, no interest in religion; secularists, materialists; agnostics, but not militantly antireligious or atheists' (2001: 29). Since no specific measure of 'militantly antireligious' was included in Barrett et al., we chose to focus our analysis primarily on 'non-religious'.
26. We chose not to use a Herfindahl index as a measure for religious pluralism, used frequently by scholars working in the religious economy school (cf. Iannaccone 1991), since this measure was definitionally conflated with one of our dependent variables – 'non-religious rate'.
27. All these variables were distributed normally, thus no transformation was necessary.
28. The Philippines were coded as 'Latin American' although not geographically part of that region.
29. 'The standardized beta values tell us the number of standard deviations that the outcome will change as a result of one standard deviation change in the predictor. All of the standardized beta values are measured in standard deviation units and so are directly comparable: therefore, they provide a better insight into the importance of a predictor in the model' (Field 2000: 150).
30. We speculate that this may be because the Catholic church promotes more strict behavioral guidelines than mainline Protestant denominations, thereby increasing participation (Iannaccone 1994) and/or that Catholic clergy through their vows of celibacy send more credible signals about the quality of their good, thereby enhancing the willingness of some potential doubters to participate. These are only speculations about the role of Catholicism in these societies and are not the main focus of the present analysis.

31. While it is common to use one-tailed significance tests for small sample sizes where the researcher has a priori reason to assume directionality, we chose the more conservative approach of reporting two-tailed tests. Had we chosen to use one-tailed tests, *Welfare* would have been significant at the 0.10 level in Model IV (Table 2).
32. A less-than-honest research strategy would have pushed us to exclude Ireland and/or the Philippines altogether, thereby providing us with results that more strongly favored our analysis. The desire for academic integrity in research directed us otherwise. Moreover, we believe that identifying outliers can prompt further investigation as to why such outliers exist. Hopefully our readers will keep this in mind when evaluating our research results.
33. The authors have casually noted that on many university campuses religious expression tends to increase during mid-term and final examinations regardless of year round church attendance.
34. Although one might think that the welfare state is only able to help in times of fiscal crisis, state welfare spending has increasingly expanded to include personal, psychological counseling as well. Consider social services offered to homeless individuals in any large city.
35. Since the reunited Germany was only 5 years old at the time data were collected for this analysis, and given that religious activity was artificially and severely depressed in East Germany for the latter half of the 20th century, efforts were made only to use West German data. The *World Values Survey* did parse out West and East Germany in its 1995 survey. However, given migration from East to West following unification, the religious statistics may be slightly depressed if former East Germans were included in the WVS sample.

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Appendix

The following are descriptions and sources for the variables used in Tables 2–5.

Dependent Variables

Church Attendance: Percentage of survey respondents for each country claiming to attend religious services weekly or more. *Source:* *World Values Survey* 1995 and *Eurobarometer* 1995.

Logged Non-religious Rate: Percentage of individuals in each country classified as ‘non-religious’, defined as ‘persons professing no religion, no interest in religion; secularists, materialists; agnostics, but not militantly antireligious or atheist’. Logged to account for curvilinear skew in data. *Source:* Barrett et al. 2001.

Comfort in Religion: Percentage of survey respondents in each country claiming they take ‘comfort in religion’. *Source:* *World Values Survey* 1995.

Independent Variables

Welfare: Total government social welfare expenditures (including social security) divided by GDP and calculated on a per capita basis. *Source:* International Monetary Fund, 2000.

Regulation: Religious Regulation Index recalculated from the *World Christian Encyclopedia's* Religious Persecution Index to account for non-mutually exclusive categories. In the original WCE Index, 5 = state neutrality towards religion. Values less than 5 represent state favoritism to particular denominations, while values greater than 5 represent persecution (on a 1–10 scale). On the assumption that state favoritism of religion represents a restriction of the marketplace just as harassment may, these scores were recalculated to reflect absolute distance from the value of 5. Most states included in the survey had scores of 5 or below in the initial index. Higher values in the recalculated index represent more religious regulation of (or state interference in) the religious market. *Source:* Barrett et al. 2001.

Pluralism: Natural log of denominations per million people in a country. Natural log calculated to adjust for skew. Higher values represent more religious pluralism. *Source:* Barrett et al. 2001.

Urbanization: Percentage of population living in urban areas. *Source:* World Bank, 2001.

Literacy: Percentage of population age 15+ that are classified as literate in 1995. *Source:* Barrett et al. 2001.

Televisions: Number of televisions per 1,000 people in 1995. *Source:* Barrett et al. 2001.

Catholic Dummy: Classification whether country has a majority Catholic population. 1 = Catholic majority; 0 = no Catholic majority. *Source:* Barrett et al. 2001.

Latin American Dummy: Classification whether country is a Latin American country. 1 = Latin American country (including Philippines – as former Spanish colony with majority Catholic population); 0 = not Latin American country.

Countries Included in Analysis

Table 2: Argentina, Australia, Brazil, Chile, Colombia, Denmark, Dominican Republic, Finland, West Germany, Greece, Ireland, Luxembourg, Mexico, Netherlands, Norway, Philippines, Spain, Sweden, Switzerland, United Kingdom, United States, and Uruguay.

Table 3: Same as Table 2 minus Ireland and the Philippines for models I–III.

Table 4: Argentina, Australia, Austria, Belize, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Denmark, Dominican Republic, El Salvador, Finland, West Germany, Greece, Iceland, Ireland, Israel, Luxembourg, Mexico, Netherlands, New Zealand, Nicaragua, Norway, Panama, Philippines, Spain, Sweden, Switzerland, United Kingdom, United States, and Uruguay.

Table 5: Argentina, Australia, Brazil, Chile, Colombia, Dominican Republic, Finland, West Germany, Mexico, Norway, Philippines, Spain, Sweden, Switzerland, United States, and Uruguay.