

Religious Values, Beliefs and Economic Development

Jeffry Jacob[†]

**Department of Business and Economics
Bethel University**

and

Thomas Osang^{*‡}

**Department of Economics
Southern Methodist University**

February 2010

[†] Department of Business and Economics, Bethel University, 3900 Bethel Dr., St Paul, MN 55112; E-mail: j-jacob@bethel.edu, Phone: 651 635 6715

^{*} Department of Economics, Southern Methodist University, Dallas, TX 75275; E-mail: tosang@smu.edu, Phone: 214 768 4398

[‡] We would like to thank seminar participants at SMU, Bethel University, Texas Camp Econometrics and the ASREC meeting for their valuable comments and suggestions. Funding for this research project was provided through a Collin Powell Fellowship research grant.

ABSTRACT

This paper investigates the consequences of religion for economic development. In particular, we examine whether religious attitudes, beliefs and participation contribute to differences in per capita income across countries. Using a large scale international survey on values and religious behavior, we estimate both cross-section and panel data models, controlling for the so called deep determinants of development: Institutions, geography and trade. Our results indicate that religion plays an important role in economic development, but mostly in a non-linear manner. Countries with moderate religious values and behavior tend to have higher income levels than countries on either end of the religious spectrum.

JEL: O1, Z12, N1, H1, F1

Keywords: Development, Economics of Religion, Institutions, Openness, Geography

1. Introduction

According to the first three waves of the World Values Survey (Inglehart, 2000), 83% of the people interviewed believe in God, 75% believe in heaven, 26% attend a place of worship at least weekly and 38% at least once a month. More than 65% of the people questioned find comfort and strength in religion. In contrast, only 7% of the world's population are not affiliated with any religion or consider themselves as atheists (Barrett et al., 2001). Nevertheless, the distribution of religious beliefs, values, and practice is not uniform across countries. While the people in some countries such as Bangladesh, the Philippines, and Nigeria are predominantly religious both in expressed opinion and religious practice, other countries such as China, Russia, and Denmark display very low levels of religiosity (see Table 1(b) in the Appendix for a ranking of countries by our religiosity index). Thus, given the importance of religion in many people's lives as well as the observed cross-country heterogeneity in religious beliefs and practice, it is worthwhile to examine whether religious behavior contributes to the existing differences in economic performance across countries.

The importance of religion as a determinant of economic development was introduced in the mainstream economic literature almost a century ago. Max Weber (1905) recognizing the far reaching role that religion can play in social transformation, went on to claim that the Protestant Reformation, through its impact on the belief system, was central to the emergence of capitalism. There have been several studies that have challenged the validity of this claim. Tawney (1926) and Samuelsson (1993) argue that the main capitalist institutions which Weber (1905) ascribes to the transformative power of the Protestant Reformation, predated that movement. A weaker version of the

Weberian thesis was proposed by Eisenstadt (1968), according to whom it is not a particular theology or belief, but the “transformative potential” of religion that can result in shifts in values and behavior, which in turn can alter outcomes. Iannaccone (1998) provides an excellent survey of this literature on the economics of religion.

The direct link between religion and macroeconomic development of a country, though generally acknowledged, has received little attention in terms of empirical research. An exception is the paper by Barro and McCleary (2003) who examine the growth impact of a number of religious variables in a cross-country panel setting. They find a significant positive relationship between belief in hell and economic growth, as well as a significant negative relationship between monthly attendance and growth. Instrumental Variable (IV) estimates are used to account for the potential endogeneity of belief in hell and attendance. Instead of examining the direct link between economic performance and religion, Guiso et al. (2003) examine a variant of the Weberian hypothesis by focusing on how religion shapes people’s attitudes. They find that Jews and Protestants have the greatest aversion to cheating on taxes, while Buddhists and Protestants are least likely to accept bribe. Private ownership is supported most strongly by Catholics, while Hindus and Muslims are the strongest opponents of competition.

More recently, Durlauf, Kourtellos and Tan (2006) re-examine the results in Barro and McCleary (2003). In particular, they test the robustness of the earlier results by including a wider set of control variables. To evaluate robustness, they use Bayesian model averaging methods. They confirm as robust the Barro and McCleary finding that monthly church attendance has a significant and negative impact on economic growth, but, in contrast to the Barro and McCleary results, they find that belief in heaven or hell

is unrelated to economic growth. On a micro level, Gruber (2005) carries out a sub-national study linking religious attendance and economic outcomes in the United States. He finds that higher attendance, instrumented by a geographic measure of religious density, is generally related to better economic outcomes such as higher incomes, higher educational attainment, less reliance on welfare and disability receipt. A common characteristic of the above studies is the use of a set of controls to account for other factors affecting economic performance such as measures of labor, physical and human capital.

As Rodrik et al. (2004) point out labor, physical and human capital, while affecting economic development, are in turn determined by deeper and more fundamental factors which fall into three broad categories: Geography, institutions and trade (Acemoglu et al., 2001, Rodrik et al., 2004, Frankel and Romer, 1999, Sachs, 2003, among others). Easterly and Levine (2003) provide a good overview of how each of these three determinants has been treated in the literature with the aim of explaining the vast differences in growth and levels of income amongst countries. Regarding the relative importance of the three deep determinants, Rodrik et al. (2004) report that institutions matter most for economic development once the endogeneity of institutions and trade has been properly accounted for, leaving a negligible role for geography and trade. Sachs (2003), on the other hand, finds that geography is the most important deep determinant of income and output, while Frankel and Romer (1999) underscore the importance of international trade. Re-examining this issue in a panel data context, Jacob and Osang (2008) find that all three determinants play a significant role in economic development,

but that the economic and statistical significance varies with the way in which we measure institutional, trade-based, and geographic determinants.

This study contributes to the existing literature on religion and economic development in the following ways. First, our approach can be regarded as a synthesis of two different strands in the development literature: Economics of religion (Barro and McCleary, 2003) on the one hand, and deep determinants of development (Rodrik et al., 2004) on the other. We approach the issue of the impact of religion from the latter strand (Rodrik et. al., 2004). In particular, we extend the Rodrik et al. (2004) approach to study the impact of broad religious values and beliefs on economic development. Second, in contrast to Barro and McCleary (2003) and Durlauf, Kourtellos and Tan (2006), we not only control for the potential endogeneity of the religion variables but also for the endogeneity of important control variables such institutions and trade. Third, we account for the non-linear relationship between most religious variables and economic performance. This is in contrast to the existing literature which has focused almost exclusively on the linear case¹.

The main findings of the paper are as follows. First and foremost, all aspects of religion considered in the study – attitudes, beliefs and participation as well as an aggregate religion index – appear to matter for a country’s level of economic development, even after adequately controlling for measures of institutional quality, international linkages, and geography. Furthermore, we find that the relationship between religion and income is non-linear (in variables) in most cases. In particular, we find that income levels tend to be the highest for countries with moderate expressions of religiosity

¹ An exception is Dincer (2008) who uses a quadratic term in studying the impact of religious and ethnic diversity on corruption.

and lowest for those at both ends of the religious spectrum. In terms of robustness, we find that within each of the three aspects of religion some variables are significant and others are not. Finally, cross-section and panel data estimates produce quantitatively and qualitatively similar results.

The rest of the paper is organized as follows: Section 2 of the paper describes our empirical methodology, while Section 3 contains a discussion of the dataset. Results are presented in Section 4. Section 5 concludes.

2. Empirical Methodology

Our main objective is to study the relationship between religion and economic development, controlling for the commonly accepted deep determinants of development - institutions, trade and geography. We classify religious variables into three categories: Religious attitudes, religious beliefs and religious participation. Attitudes capture people's perception of religion as a factor in their lives, as exemplified by the question whether they derive comfort and strength from religion. Beliefs measures people's faith in core religious concepts such as God, Heaven, Hell and Sin. Finally, participation is a measure of the frequency with which people attend religious ceremonies. We use per capita income as our measure of economic development. While other measures of development such as the United Nations' Human Development Index, inequality measures such as the Gini index, or economic growth have also been used in the literature (Abadie, 2006; Barro and McCleary, 2003), per capita income is by far the most frequently used measure of economic performance and thus makes the results from this study readily comparable to the existing literature exploring the determinants of

economic development. In addition to the religion variables, we use one measure of institutional quality (Contract Intensive Money), two measures of global integration (Trade Share and Import Tariff) and one measure of geography (Malaria Ecology). Examining the bivariate scatter plots between per capita income and various religious variables (see Figs. 1(a)-(d)), which demonstrate a non-linear relationship, we use a linear as well as a quadratic term for the religious variables. Thus, our main empirical specification is:

$$Inc_{iT} = \alpha + \beta_1 * \overline{Inst}_i + \beta_2 * \overline{Trade}_i + \beta_3 * \overline{Geog}_i + \gamma_1 * \overline{Religion}_i + \gamma_2 * \overline{Religion}_i^2 + \varepsilon_i \quad (1)$$

where Inc_{iT} is income per capita in the year 2000, and \overline{Inst}_i , \overline{Trade}_i , and $\overline{Religion}_i$ are the time-averaged measures of institutions, trade, and religion, respectively. $Geog$ is a time-invariant measure of geography and ε_i is the error term assumed to be normally distributed.

Estimation of (1) poses a number of difficulties that need to be addressed. First, institutions, trade and some religion measures are likely to be endogenous due to measurement error, survey bias, and/or reverse causality.² Consequently, appropriate instruments are needed for these measures.³ Of the various instruments found in the literature for institutions and trade, two stand out due to their desirable properties and widespread use: Settler Mortality as an instrument for institutions (see Acemoglu et al., 2001)⁴ and Predicted Trade Shares as an instrument for a country's degree of integration

² For instance, see Frankel and Romer (1999)

³ We carry out a Hausman (1978) specification test to check the endogeneity of the institutional, trade and religion measures. If found endogenous, we use appropriate instrumental variable techniques to obtain consistent estimates.

⁴ Acemoglu et al. (2001) argue that settler mortality is a truly exogenous instrument for institutions since it is not correlated with current income. However it determined the colonization strategies, which shaped past institutions. Current institutions were in turn shaped by these past institutions.

(see Frankel and Romer, 1999). Though these two instruments have been shown to perform well in a number of studies, their first stage diagnostics have not measured up well according to some studies (Dollar and Kraay, 2003). In addition, the data availability of both measures is severely limited in our sample, causing the cross-section sample size to drop to 18 observations or less. Consequently, we use three alternative approaches to construct instruments for the institutions and trade measures.

The first approach builds on the idea suggested by several social scientists that a nation's culture can have an important impact on economic outcomes (Inglehart and Baker, 2000; Landes, 1998). One channel through which culture and values affect economic performance is through institutions. Institutions are defined as the "humanly devised constraints that structure human interactions" (North, 1994). They are the rules of the game which govern how humans interact with each other. Naturally, the enforcement of rules is part of the effectiveness of institutions. The strength of contract enforceability can be gauged by the degree of confidence which citizens have in the establishment. We exploit this relationship by using measures of people's confidence in the government as instruments for institutional quality. This idea of using underlying cultural values- in this case, confidence in the establishment- as instruments for institutions follows from Grief (1994). Grief (1994) develops a formal model to show the impact of culture on institutions and traces out how cultural differences between two pre-modern trading groups, one from the Muslim and the other from the Latin world, led to widely divergent institutional outcomes.⁵

⁵ In a related study Gwin and North (2004) show that a country's dominant religion is an important determinant of the quality of its institutions.

We use a similar approach to find instruments for trade. International trade has been widely credited with increasing competition and improving efficiency. The most noted case of trade-led growth is the East Asian economic miracle. Several studies (for e.g. World Bank, 1993) ascribe the successful adoption of trade promoting policies in these emerging markets to the people's culture of hard work and openness to exploit the market opportunities. In this spirit, we use data on attitude towards market as instruments for trade.

Our second set of instruments is derived by applying the principal components analysis to obtain instrument indices from the set of instruments used in the previous approach⁶. Specifically, we create an index of the variables capturing the attitude towards the establishment and another one for the square of these variables. An instrument index measuring the attitude towards the market was created in a similar way. Based on the screeplot⁷, we picked principal components whose eigenvalues were greater than one. In each case, only the first principal component met this criterion. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, which measures whether a low-dimensional representation of the data is possible, was in the acceptable range for all cases.⁸

In discussing the appropriate treatment of institutions as exogenous or endogenous, and in the latter case, investigating the choice of the correct instrumental variables, Dollar and Kraay (2003) argue that instruments from within the model perform

⁶ See Tabellini (2005) and Filmer and Pritchett (2001) for applying principal components analysis in constructing economic indices.

⁷ A screeplot plots the variances against the number of the principal component.

⁸ The KMO measure (Kaiser, 1974) was 0.64 and 0.62 for the levels and squares of the variables capturing the attitudes towards the government, respectively. It was 0.52 and 0.51 for the corresponding variables representing attitudes towards the market.

better and may be more desirable than external instruments. Thus for our third set of instruments, we follow an approach suggested by Lewbel (1997) to find instruments within the model by using second and third order centered moments of the endogenous institution and trade variables.

The religion variables may also be subject to an endogeneity bias. For example, religious attendance may be endogenous as noted in the context of the secularization hypothesis. We use three variables as instruments for the religious variables. The first is a Hirschfeld Index of religious concentration. The idea here is that if a religion is dominant within a country, religious attendance will be strengthened, while a more diffused field of religions may make religious attendance less likely. Gruber (2005) makes a similar argument using religious density as an instrument for religious participation in the United States.⁹ The other two instruments are a dummy variable for the presence of state religion and an index of government regulation of religion (obtained from Grim and Finke, 2006).

For the instruments to be valid, they must meet two conditions: They need to be correlated with the endogenous variables, conditional on the other covariates, and uncorrelated with the dependent variable, conditional on the fitted variables and the exogenous controls¹⁰. Regarding the validity of the instruments in the first stage (reduced form regression) we report a battery of diagnostic tests. First, the Cragg-Donald (1993) chi-square statistic tests the null that the matrix of reduced form coefficients has rank=K-1 where K=number of regressors, i.e., that the equation is underidentified. This is a test of

⁹ Note that Barro and McCleary (2003) use religious pluralism as an instrument for attendance. They argue that greater plurality of religions and therefore more competition among them encourages religious participation. Hence they use 1-Hirschfeld Index as instrument.

¹⁰ This is equivalent to saying that the instrument should be uncorrelated with the regression error.

instrumental relevance and a rejection of the null means that there is at least one available instrument for each endogenous variable (see Hall et al., 1996). Second, we report the Anderson-Rubin underidentification test of the instrumental variables. This test is similar to the Cragg Donald test, but is robust to the presence of weak instruments (see Dufour, 2003, for a discussion). Third, we report Shea's partial R^2 (Shea, 1997). This is a simple diagnostic statistic for determining the strengths of instruments when there are multiple endogenous variables. Weak instruments may cause an identification problem for the partial effects of the endogenous variables in the IV regression framework (Dollar and Kraay, 2003). The final first-stage test we report is the F-stat form of the Cragg Donald (CD) test statistic (see Stock and Yogo, 2002). This statistic tests for the existence of a bias in the IV estimates resulting from weak instruments. For example, the null of a 30% bias in the IV estimator is rejected if the CD F statistic is larger than 4.73 for the case of 2 endogenous variables and 4 instruments (see Stock and Yogo, 2002; Table 1).¹¹ Regarding the second stage restrictions, we carry out Sargan's test for properly excluding the set of instruments from the second stage regression.¹²

We also extend our analysis to a panel data setup. Using a panel data approach enlarges the sample size which enables us to include additional control variables such as regional dummies. The estimated panel data model is:

$$\text{Inc}_{it} = \alpha + \beta_1 * \text{Inst}_{it} + \beta_2 * \text{Trade}_{it} + \beta_3 * \text{Geog}_i + \gamma_1 * \text{Religion}_{it} + \gamma_2 * \text{Religion}_{it}^2 + \eta_r + \mathcal{G}_t + \varepsilon_{it}$$

where a subscript t indicates a time-varying variable, η_r and \mathcal{G}_t denote region and time dummies, respectively, and ε_{it} is an error term having a normal distribution.

¹¹ Estimation is done in STATA using ivreg2 (Baum et al., 2003).

¹² Since Sargan's test is valid only in the case of homoscedastic errors, we also report the Pagan and Hall (1983) test for the case of heteroscedasticity of the disturbance term.

Due to the restricted sample size in our panel specifications, a fixed effect (FE) analysis is not feasible. Thus, we perform pooled OLS and Random Effect (RE) estimations instead. The decision to choose between pooled OLS and RE model is based on the Breuch-Pagan (BP) test for error components. Once, the appropriate model is chosen, we conduct the Hausman (1978) specification test to determine the need for instrumental variable estimation.

3. Dataset

Our data spans three decades, 1970s, 1980s, and 1990s. For panel data analysis, we average our time varying macroeconomic variables for each decade to get a maximum of three observations per country. For cross section analysis, we average data over the three decades. Our dependent variable for cross-section study is GDP per capita in 2000, expressed in 1996 international dollars. Information on religion and culture variables is available, however, only for certain discrete time points. Based on the survey time periods, we match these observations to the respective decades considered in our study.

Our data on religious attitudes, values and beliefs comes from the first three waves of the World Values Survey (WVS; Inglehart, 2000). The WVS is a large scale international survey aimed at collecting national level data on a wide variety of cultural, religious and political variables. The survey contains socio-cultural information on 59 different countries, which together account for more than 80% of the world population. The three waves of the WVS we use are for the years 1981-84, 1990-93 and 1995-97. We match these time periods to the non-WVS data from the seventies, eighties and nineties respectively.

In each wave, an attempt is made to interview a nationally representative sample of at least a 1000 individuals from each country under study. Even though attempt is made to keep the sample large and free from any biases, some under or oversampling might occur. The WVS provides individual weights for each observation to correct for these sampling issues. We conduct our analyses on the weighted sample. Below, we provide a brief discussion of the variables used in our study.

3.1 Measures of Religion

As mentioned above, our religion measures cover three different religious dimensions: attitude towards religion, belief in various aspects of religion and religious attendance. These categories are drawn from the WVS (Inglehart, 2000).

3.1 (a) Attitude towards Religion

The first category of religious variables measures a country's attitude towards religion. They are based on two questions: "How important is religion in your life?" (Variable 9) and, "Do you find that you get comfort and strength from religion?" (Variable 191). The first question is measured on a scale of 1-4, with 1 implying "Very Important" and 4 representing the response: "Not at all important". We recode them so that higher number represents increased importance. The second has two responses: 1=Yes and 2=No. We recode "No" as 0.

3.1 (b) Belief in Religion

The next category is an indicator of people's beliefs in various dimensions of religion. The five questions we look at are, "Do you believe in God, Heaven, Soul, Devil and Sin?" (Variables 182, 188, 185, 186 and 189, respectively). Again, the responses are

1=Yes and 2=No. We dichotomize them with 1 representing a positive belief in the respective dimension.

3.1 (c) Religious Attendance

Religious Attendance variables are derived from the response to the question: “Apart from weddings, funerals and christenings, about how often do you attend religious services these days?” The responses are: 1= More than once a week, 2= Once a week, 3= Once a month, 4= Only on special holy days, 5= Once a year, 6= Less often and, 7= Never, practically never. From this, we construct three indicator variables: “Attend at least weekly” if response is 1 or 2, “Attend at least monthly” if response is 3 or less and “Attend yearly” if response is 5 or less.

3.1 (d) Index of Religiosity

Finally, we aggregate the above three categories of religious variables- attitudes, beliefs, attendance and the fraction of religious population (drawn from Barret et al, 2001) into an Index of Religiosity. This is done by normalizing each of the four religion variables to lie between zero to one and then adding them up to obtain the index. The index thus ranges from lowest possible score zero to a highest possible value of four. Table 1(b) provides a ranking of countries based on our religiosity index.

3.2 *Other Explanatory Variables*

Our measure of institution is contract intensive money (CIM) which was proposed by Clague et al. (1999). It is defined as the ratio of non-currency money to total money. The basic argument for such a measure stems from the fact that in societies where the rules of the game and property and contract rights are well defined, even transactions which heavily rely on outside enforcement can be advantageous. Currency in this setting

is used only in small transactions. Agents are increasingly able to invest their money in financial intermediaries and exploit several economic gains. Clague et al. (1999) discuss the various gains from increased use of CIM and augment their use of CIM with case studies. They also show that CIM is a measure of contracting environment and not of financial development, as one might suspect. This measure is thus in line with the definition of institutions as defined above. Moreover, CIM is a more objective measure that is free from some of the biases and measurement errors that affect many survey based measures of institutions.

The extent of openness of a country is measured by its share of trade in the GDP as well as import tariffs (obtained from the World Bank, 2003). For geography, we use Malaria Ecology (ME), a recently developed measure of disease environment proposed by Sachs (2003). Sachs has argued that the traditional malaria index (Gallup, Sachs and Melligner, 1998) used in the literature is not a good indicator of the disease environment. The new measure combines temperature, mosquito abundance and vector specificity and, as an ecology-based measure, is predictive of malaria risk.

3.3 Variables used as Instruments

Our set of instruments is based on people's attitude towards the establishment (as instruments for institutions) and markets (as instruments for trade). In particular, we use the following four questions from the WVS as instruments for institutions: "I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all?" The organizations we look at are: Government (Variable 142), Parliament (Variable 144), Police (Variable 141) and Armed Forces (Variable 136). The

responses are originally coded from 1 to 4, with 1=Great deal of confidence and 4= None at all. However, we rescale them so that a higher number represents a greater degree of confidence.

We use three questions from the WVS measuring people's attitude towards markets as instruments for trade. Specifically, these questions ask the respondent to rank a given statement in the following way: "Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between." The three statements we look at are: (i) "Competition is good. It stimulates people to work hard and develop new ideas"; (ii) "In the long run, hard work usually brings a better life"; (iii) "Wealth can grow so there's enough for everyone" (Variables 128-130, respectively). We recode the answers to these questions such that higher scores reflect a more positive attitude towards the market.

The World Christian Encyclopedia (Barret et al., 2001) is the source of two of the three instrumental variables for religion - the Hirfendahl index of religious concentration and the presence of state religion. The latter is a dummy variable taking the value of one if a state religion is present in two out of the three sample periods. We construct the Hirfendahl index of religious concentration from eight religious preference variables: Percentage of population that is Protestant, Roman Catholic, Orthodox Christian, Jewish, Muslim, Buddhist, Hindu and following a religious faith other than the one listed above

(Other Religion)¹³. The third instrument is the index of government regulation of religion constructed by Grim and Finke (2006).

4. Empirical Results

4.1 Cross-Section Analysis

We first estimate the impact of religious attitudes on economic performance within a cross-section context (see Table 2), using measures of institutions, trade and geography as covariates. Given the potential simultaneity between the economic performance variable and measures of institution and trade, we compare and test the OLS estimate (Col. 1 and 6) with various sets of IV estimators (Cols. 2-5 & 7-10). In particular, we use three sets of instruments. The first set of instruments (IV(A)) uses attitudes towards hard work, competition and wealth accumulation and their square terms as instruments for trade; as well as confidence in government, parliament, army and police and their square terms as instruments for institutions. The second set (IV(B)) employs the first principal component of the levels and squares of the variables in set A as instruments for institutions and trade. The third set (IV(C)) uses the second and third order centered moments of each endogenous variable as instruments for that particular variable. We report two IV specifications. The first one includes instruments for

¹³ The full set of religious groups used by Barrett et al. (2001) is: 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. We combine Anglicans with Protestants.

institutions and trade variables only (IV(A), IV(B) and IV(C)), while the second one includes instruments for the religion variables as well (IV-R(A), IV-R(B) and IV-R(C))¹⁴.

The main finding from Table 2 is that the two variables measuring religious attitudes - importance of religion (Cols. 1-7) and religion as a source of comfort and strength (Cols. 8-14) - exhibit a statistically significant impact on per capita income. The positive sign of the level estimate and the negative sign for the quadratic term imply that income levels initially rise, then taper off, and eventually decline as religious attitudes gain strength.¹⁵ The Hausman specification test indicates that only IV(A) estimates are preferred to OLS at the 5% level (col. 2 and 9), but not IV(B) and IV(C). Furthermore, when comparing IV(A) to IV-R(A), we get mixed results. For the importance of religion variable, we cannot reject the IV(A) null (col. 2), while for the comfort in religion variable, the IV(A) specification is rejected in favor of IV-R(A). Thus, the two preferred specifications in Table 2 are those in columns 2 and 10.

(Table 2 about here)

Regarding the strength of the instruments used in the IV regressions, we find that, for the specification in col. 2, all tests indicate the validity of the instrument set with the exception of the relatively low value of the CF-F statistic of 0.8. For the specification in col. 10, the CD Underid. Test now rejects the instruments in the first stage, while the CD

¹⁴ The sample sizes reported in Tables 2 through 5, ranging from 22-34, are substantially smaller than the 95-97 wave of the World Value Survey (59 countries). The decline in the sample size is due to data limitations with regard to the CIM variable as well as certain instrumental variables (IV(A) and IV(B)). Replacing the CIM measure with a more widely available measure of institutional quality (Rule of Law, see Kauffman et al, 2003) increases the sample size only for the OLS and IV(C) specifications and yields quantitatively and qualitatively similar results to those reported in Table 2. These results are available from the authors upon request.

¹⁵ Note that linear and quadratic terms are also jointly significant in all specifications, as reported in the table.

– F statistic is even lower (0.08). All other tests, however, underscore the relevance of the instrument set including Sargan’s overidentification test. Note that the Pagan-Hall test indicates that – across all specifications – the null of homoscedastic error terms cannot be rejected.

With one exception (import tariffs in Col. 13), all covariate estimates have the expected signs, that is positive for CIM and negative for import tariffs and malaria ecology. Furthermore, the majority of CIM estimates are statistically significant at the 10% level. However, only four import tariffs and malaria ecology estimates are significant. The imprecision in the estimation of these two deep determinants is most likely the result of the small sample size in most specifications in Table 2(a) and not a reflection of the dominance of institutional measures over trade and geography variables.

In all subsequent tables we use CIM and Import Tariff as our primary measures of institutions and trade, respectively. We always present the OLS results as a benchmark, but report only those IV estimates which are preferred to the OLS estimates according to the Hausman test. For each IV estimator, we report the same first and second stage diagnostic tests as in Table 2.

(Table 3 about here)

Table 3 examines the role of religious beliefs in economic development. In particular, we use five different forms of religious beliefs: In God (Cols. 1-5), Heaven (Cols.6-11), Soul (Cols. 12-17), Devil (Col. 18. 19) and Sin (Col. 20, 21). The strongest results from Table 3 are with respect to Belief in God (Cols. 1-5) which is statistically significant in both linear and second order term in all cases. Using alternate trade measures does not affect these results. Belief in Heaven (Cols 6-11) also shows a non-

linear pattern but is statistically significant in fewer cases. When combined with Import Tariff (Cols 6 & 7), only the second order term is significant in the OLS regression, while both terms are statistically significant in the IV (A) estimator (Col 7). Replacing Import Tariff with Trade Share (Cols. 8-11), we find that OLS is rejected against all IV estimates. Interestingly, neither OLS nor IV estimates yield significant results, except the second order term in IV(A) (Col. 9). For Belief in Soul (Cols. 12-17), only IV(A) and IV(C) yield statistically significant results for both, linear and the second order term while only the latter is significant in Cols. 15 and 16. The remaining religious belief variables - Belief in Devil and Belief in Sin- are never statistically significant. While the last two religious belief variables can be thought of as representing the deterring aspect of religion, the first three –Belief in God, Heaven and Soul- reflect, at least to some degree, the redeeming side of religion which may explain their stronger explanatory power. Except for Shea’s Partial R^2 for IV(A) (Col. 2) and the CD F-statistic for all IV estimators, the first and second stage diagnostic statistics confirm the relevance of the chosen instruments.

Regarding the other covariates, CIM has a positive and statistically significant impact on economic development in 15 out of 21 cases. With one exception, the Import Tariff estimates are negative and statistically significant, while Trade Share is statistically significant (and has the right sign) in four out of eleven cases (Cols. 9, 10, 15 & 16). As expected, Malaria Ecology exerts a negative impact on development but is significant in only half of all cases.

(Table 4 about here)

In Table 4, we look at the third category of religious variables: Religious Participation or Attendance. Attendance has been linked to the extent of religiosity in several previous studies. One concern with using attendance as a determinant of economic development has become known as the secularization hypothesis: In the early stages of development, places of religious worship tend to serve as important venues for networking and social capital formation. As a result, greater attendance can have a positive impact on income levels. However, as a country develops, formal institutions start maturing causing the demand for places of worship as facilitators of social capital to decline. As a result, attendance will decline. This potential feedback from income to attendance may bias the attendance estimates. In our analysis, we control for this potential endogeneity by using the instruments for religion discussed earlier. We consider three levels of religious participation: Attend religious worship at least once a week, at least once a month, and at least once a year.

Weekly attendance exerts a linear negative impact on development (Cols. 1 and 3). Since estimates for monthly attendance are statistically insignificant across most specifications, we only report the benchmark OLS results (Col. 3). For both these attendance variables, the linear terms are negative and the quadratic terms are positive. In contrast, Yearly attendance demonstrates the nonlinear relationship found in the previous tables – a positive linear and a negative second order term (Cols. 5-9). All second order terms are statistically significant at the 10% level. The linear terms are significant too, but most of them at a lower level (e.g. 15% level).

While CIM is statistically significant in only one case (Col. 6), its point estimates are similar to the previous results (see Tables 2 and 3). Import Tariff and Trade Share

have the expected signs (except for Cols. 2 and 10), but only Import Tariff are statistically significant. Malaria Ecology has the expected negative sign in all cases and is statistically significant at the 10% level in all but one.

In terms of the validity of the instruments, the AR joint significance test, which is robust to the presence of weak instruments, rejects the null of underidentification of the first stage equation in Cols. 6, 8 and 9. The Shea's partial R^2 values are also reasonably high in most cases, indicating that collinearity between instruments is not a problem. Except for Col. 6, Sargan's overidentification test indicates that the instruments are correctly excluded from the second stage regressions.

Next we combine the variables measuring religious attitudes, beliefs, participation and population size into an index of religiosity (Table 5).¹⁶ The results confirm our previous findings. The religiosity index has a non linear impact on economic development. Per capita income levels increase with the index of religiosity, taper off and then eventually experience a decline as the index increases. Furthermore, the linear and square terms of the index variable are significant in four out of six specifications. The magnitude of the impact remains robust to alternative choice of trade policy variables. As before, CIM, Malaria Ecology and Import Tariff are mostly statistically significant and display the expected signs.

4.2 Panel Data Results

As discussed in section 2, we also investigate the impact of religious attitudes, beliefs, attendance in the context of a panel data model. As in the previous section, we report IV estimates where appropriate..

¹⁶ For a ranking of countries by the religiosity index, see Table 1(c).

In Table 6 we study the impact of religious attitudes (Comfort in Religion, Cols. 1-4) and religious beliefs (Belief in God, Cols. 5-7). In Cols. 1 and 2, we report the pooled OLS and RE results, respectively. Comfort in Religion has a statistically significant and non-linear impact on income in the pooled OLS case. The BP test, however, indicates the presence of error components and thus the appropriateness of the RE model. In that specification, the linear term of the Comfort in Religion variable is no longer significant. In Cols. 3 and 4, we add region and time dummies to the OLS and RE model, respectively. Compared to the specifications without dummies, the parameter estimates for the Comfort in Religion variable are no longer significant, but sign and magnitude of the two terms are similar. The two time dummies and most of the region dummies are statistically significant and have the expected signs. For the Belief in God variable, we report the benchmark pooled OLS case (Col. 5), pooled OLS with region and time dummies (Col. 6) as well as pooled IV with region and time dummies (Col. 7). In all three cases Belief in God has a statistically significant and non-linear impact. The Hausman specification test indicates again the appropriateness of the IV approach (Col. 7) over the corresponding non-IV model (Col. 6). Regarding instrument quality, all tests indicate the validity of the instruments in the reduced form regression as well as their proper exclusion from the second stage regression.

As in the cross-section models before, most control variables have the expected sign and are generally statistically significant. The exceptions are the Trade Share estimates, two of which not only have the wrong sign but are statistically significant at the 5% level (Cols 6 & 7).

Table 7 investigates the impact of religious attendance. The results for Weekly Attendance are not statistically significant in the panel framework when both linear and non-linear terms are included. Thus, we restrict our attention to just the linear form (Cols 1-4). Weekly Attendance exhibits a negative sign and is highly significant in all four specifications. This result points to a clear trade-off between intense religious participation and economic performance: The higher the percentage of people attending religious ceremonies at least once a week, the lower a country's per capita income. In contrast, the Yearly Attendance variable demonstrates the familiar non-linear pattern of positive linear and negative quadratic term and is statistically significant near the 10% level in most cases (Cols. 7-9). These results suggest that countries with moderate religious participation rates (i.e. a moderate number of people attending religious ceremonies at least once a year) have higher income levels than countries with both, extremely low (i.e., most people never attend religious ceremonies) or extremely high participation rates (i.e. most people participate in religious ceremonies at least once a year).

All control variables perform fairly well in Table 7. CIM has the correct sign and is statistically significant at the 5% level in two third of the cases. The Trade Share variable is positive and statistically significant around the 10% level in three out of four cases. The Import Tariff covariate is also statistically significant in three specifications but has the expected sign in all five cases. Malaria Ecology always has the expected sign and is statistically significant at the 5% level. As in Table 6, the diagnostic tests confirm the appropriateness of the instruments in the IV(C) specification.

5. Summary and Conclusions

We find that religion matters for the economic performance of countries, even after controlling for the influence of such important determinants as public institutions, international linkages, and geography. In contrast to previous findings in the literature, however, our evidence points to a predominantly non-linear relationship between measures of religiosity and per capita income. Countries with moderate values for their religious indicators tend to enjoy higher levels of income than those with extremely high or low values. There is a plausible explanation for this non-linearity. When comparing low- to mid-level religious countries, the latter may benefit from incentives and behavioral modifications triggered or provided by religious beliefs and practice. In the context of countries with Christian faith, this could be called the “Protestant Ethics” effect. When comparing mid- to high-level religious countries, the latter may experience income losses due to reduced labor productivity as a result of the extensive involvement of their citizens in religious practice or due to barriers to scientific research, gender equality, and educational attainments, among others, justified by restrictive religious beliefs and attitudes.

In addition to our main ‘non-linearity’ finding, several more specific results emerge concerning the impact of religion on economic performance. The two religious attitude variables that we investigate - importance of religion and religion as a source of comfort and strength – both have a strongly significant (non linear) effect on per capita income levels. Among the religious beliefs variables those representing the redeeming aspect of religion – Belief in God, Heaven and Soul - have a more pronounced statistically significant impact on income than those capturing the punishing aspects

(Belief in Devil and Sin). Like some of the previous empirical studies, we find a negative relationship between weekly religious participation and income levels. Participation in religious ceremonies at least once a year, however, demonstrates the same non-linear relationship with income as the religious attitudes and beliefs variables. We also find that the three important controls – institutions, trade and geography - exhibit strong linkages with income both statistically and economically. While endogeneity of the explanatory variables (including some of the religion variables) is an ongoing issue, we find that our instrumental variables for institutions, trade, and religion perform well in most cases.

The robustness of our results is supported in two ways. First and foremost, we use several religion variables for each of the three categories that we examine: Two for religious attitudes, five for religious beliefs and three for attendance. In addition, we construct an aggregate index of religiosity based on the three categories. With the exception of two of the attendance measures all measures point to the same inverted U-shape relationship between religion and income, albeit by various degrees of significance. Second, we find that most of our cross-section findings carry over to the panel data framework where we can control for region and time effects.

There are several possible extensions of our work. As noted in Section 2, economic development has several dimensions besides per capita income. It will be interesting to explore the linkage between religion and some other development measures such as educational attainment, health, income inequality and attitude towards violence. Following Gruber (2005), it would be interesting to examine the role of religion and economic outcomes at the individual level, with individual data coming from several countries as in Guiso et al. (2003).

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Table 1(a): Summary Statistics I: Distribution of Religious Attitudes and Beliefs

Country	Attitudes		Beliefs in.. (% of "yes" answer)					Attend church at least...		
	Religion Important (On a scale of 1-4)	Comfort in Religion (% of "yes" answer)	God	Heaven	Soul	Devil	Sin	Weekly	Monthly	Yearly
Argentina	2.90	65.99%	91.96%	65.05%	79.01%	46.43%	68.46%	28.85%	50.76%	77.91%
Armenia	2.82	69.84%	85.64%	41.21%	64.88%	40.28%	65.39%	7.49%	29.50%	74.65%
Australia	2.52	48.99%	82.38%	63.74%	79.08%	44.63%	71.38%	22.27%	32.44%	68.79%
Austria	2.70	60.76%	86.69%	47.10%	72.49%	23.05%	66.37%	25.50%	44.12%	67.90%
Azerbaijan	3.10	87.65%	97.79%	61.27%	69.40%	47.29%	75.31%	5.92%	13.98%	70.99%
Bangladesh	3.80	98.78%	98.62%	97.87%	97.99%	95.91%	87.71%	63.75%	76.47%	90.99%
Belarus	2.39	56.55%	60.21%	28.70%	59.21%	28.82%	62.88%	4.40%	10.16%	43.30%
Belgium	2.33	50.64%	76.68%	36.19%	61.71%	20.84%	48.86%	26.27%	33.58%	48.61%
Brazil	3.44	87.67%	98.86%	79.30%	83.04%	50.26%	85.50%	34.70%	51.90%	68.92%
Bulgaria	2.18	46.07%	53.72%	21.59%	41.36%	17.12%	40.81%	6.34%	12.50%	44.86%
Canada	2.79	64.75%	91.21%	73.87%	85.58%	43.98%	75.11%	29.66%	43.27%	66.85%
Chile	3.18	81.06%	96.50%	78.04%	81.70%	54.94%	87.11%	26.06%	45.20%	63.64%
China	1.51	3.43%						0.35%	0.88%	2.85%
Colombia	3.36	90.70%	99.10%	81.68%	87.12%	40.65%	85.45%	45.81%	66.57%	80.43%
Czech Republic	1.77							6.36%	10.79%	35.71%
Denmark	2.10	23.70%	57.60%	16.01%	42.96%	9.89%	24.27%	2.22%	9.04%	40.83%
Dominican Republic	3.33	80.99%	92.74%	81.14%	88.72%	76.18%	83.46%	44.25%	55.26%	73.35%
Estonia	1.92	84.46%	51.77%	20.58%	63.49%	26.00%	56.57%	3.63%	8.63%	50.39%
Finland	2.37	51.17%	78.27%	57.96%	77.19%	38.73%	69.20%	3.98%	11.80%	57.17%
France	2.27	37.55%	64.58%	30.72%	53.30%	19.44%	43.79%	10.89%	17.32%	38.15%
Georgia	3.18	82.65%	93.24%	62.43%	75.33%	55.60%	83.17%	9.60%	26.48%	74.42%
Germany	2.26	51.19%	78.51%	39.19%	77.86%	19.81%	61.56%	17.92%	32.21%	57.14%
Ghana	3.81	96.67%	98.95%	92.39%	89.01%	73.91%	86.17%	80.22%	82.42%	84.62%
Hungary	2.52	46.49%	61.33%	23.61%	29.91%	14.17%	42.55%	16.33%	25.42%	57.44%
Iceland	2.65	75.73%	83.55%	58.17%	87.42%	17.27%	69.82%	2.41%	10.16%	54.81%
India	3.32	87.57%	95.74%	58.83%	77.90%	39.33%	73.77%	50.15%	64.51%	90.53%
Ireland	3.28	79.43%	96.66%	87.02%	86.63%	55.33%	87.33%	80.18%	86.68%	92.95%
Italy	2.87	67.58%	89.53%	49.99%	74.80%	37.54%	70.40%	35.94%	50.78%	77.13%
Japan	1.93	40.02%	61.45%	38.39%	73.11%	19.12%	29.11%	2.93%	12.68%	71.33%
Korea, Rep.	2.61		60.35%	53.38%	72.67%	46.88%	57.50%	18.31%	39.64%	65.90%
Latvia	2.11	62.55%	65.93%	20.49%	75.80%	25.76%	60.14%	3.99%	12.26%	56.16%
Lithuania	2.46	68.30%	86.61%	70.14%	85.96%	59.30%	88.65%	15.90%	31.47%	77.34%
Macedonia, FYR	2.88	57.52%	83.84%	45.71%	79.14%	38.01%	83.52%	10.95%	17.69%	71.16%
Mexico	3.11	82.85%	95.25%	75.11%	77.01%	51.95%	78.80%	48.02%	67.61%	82.04%
Moldova	2.88	92.30%	90.59%	53.43%	72.32%	44.92%	83.90%	10.82%	22.65%	75.51%

Table 1(a), Contd.: Summary Statistics I: Distribution of Religious Attitudes and Beliefs.

Country	Attitudes		Beliefs in.. (% of "yes" answer)					Attend church at least...		
	Religion Important (On a scale of 1-4)	Comfort in Religion (% of "yes" answer)	God	Heaven	Soul	Devil	Sin	Weekly	Monthly	Yearly
Netherlands	2.34	45.48%	66.56%	39.71%	71.72%	18.73%	48.10%	21.48%	34.56%	54.28%
Nigeria	3.87	97.99%	98.62%	96.93%	88.72%	65.10%	71.06%	83.09%	85.63%	87.81%
Norway	2.32	40.88%	69.58%	47.24%	57.40%	27.23%	49.20%	5.21%	13.34%	48.76%
Pakistan	3.75	97.36%								
Peru	3.37	91.77%	97.99%	85.85%	89.72%	68.81%	94.11%	42.88%	64.07%	80.85%
Philippines	3.76	92.99%	99.75%	98.23%	96.51%	92.15%	99.83%	70.00%	89.92%	97.33%
Poland	3.33	85.35%	96.60%	80.13%	85.84%	50.47%	90.75%	60.69%	79.34%	93.01%
Portugal	2.56	67.30%	85.66%	55.73%	66.20%	27.60%	68.22%	33.29%	41.16%	53.09%
Puerto Rico	3.62	88.77%	99.31%	91.99%	94.93%	78.83%	96.52%	51.77%	65.06%	81.54%
Romania	3.10	75.68%	93.71%	57.49%	76.07%	42.26%	76.66%	18.64%	30.64%	85.64%
Russian Federation	2.22	46.30%	55.63%	25.61%	59.63%	27.27%	59.37%	2.06%	7.03%	30.07%
Slovak Republic	2.31							33.33%	40.22%	61.72%
Slovenia	2.38	54.20%	63.52%	32.83%	58.58%	21.81%	53.28%	22.50%	34.24%	63.84%
South Africa	3.54	90.06%	98.39%	89.00%	85.38%	55.84%	71.16%	46.99%	63.30%	73.57%
Spain	2.62	60.88%	89.58%	56.79%	73.42%	37.36%	62.97%	32.51%	43.97%	61.69%
Sweden	2.08	30.18%	53.37%	32.62%	59.17%	14.25%	34.37%	4.60%	11.63%	38.46%
Switzerland	2.47	54.91%	83.10%	44.28%	85.11%	29.47%	60.42%	18.11%	33.52%	59.17%
Taiwan	2.52	67.90%	76.92%	59.40%	76.70%	66.89%	43.88%	11.19%	23.74%	56.05%
Turkey	3.52	88.61%	97.56%	88.28%	88.88%	76.69%	91.70%	38.26%	41.23%	65.71%
Ukraine	2.55	88.55%	76.53%	44.24%	67.62%	47.25%	72.78%	10.12%	17.60%	56.12%
United Kingdom	2.42	47.88%	81.15%	61.38%	69.92%	33.11%	72.80%	14.07%	24.08%	43.72%
United States	3.30	81.04%	96.55%	87.28%	92.84%	71.91%	89.76%	42.94%	57.59%	74.56%
Uruguay	2.53	54.97%	86.65%	50.85%	60.96%	27.16%	52.53%	13.25%	23.27%	33.79%
Venezuela, RB	3.41	88.68%	99.08%	88.44%	90.19%	58.17%	93.51%	30.92%	49.33%	77.92%

Table 1 (b): Summary Statistics II: Index of Religiosity

Countries (Highest to Lowest Index Value)	Index of Attendance	Fraction of Religious population	Index of Religious Attitude	Index of Religious Belief	Religiosity Index
Bangladesh	0.760	1.000	0.970	0.956	3.685
Philippines	0.774	1.000	0.935	0.973	3.682
Pakistan	0.760	1.000	0.955	0.956	3.671
Nigeria	0.836	1.000	0.973	0.841	3.651
Ghana	0.751	1.000	0.959	0.881	3.591
Puerto Rico	0.636	1.000	0.896	0.923	3.455
Ireland	0.781	0.984	0.807	0.826	3.397
Peru	0.619	1.000	0.880	0.873	3.372
Poland	0.711	0.946	0.843	0.808	3.307
Colombia	0.616	1.000	0.873	0.788	3.277
Venezuela, RB	0.543	1.000	0.869	0.859	3.272
South Africa	0.592	0.980	0.893	0.800	3.265
Dominican Republic	0.585	1.000	0.821	0.844	3.250
United States	0.566	0.984	0.818	0.877	3.244
Turkey	0.487	0.985	0.883	0.886	3.241
India	0.691	1.000	0.853	0.691	3.236
Brazil	0.535	1.000	0.868	0.794	3.197
Mexico	0.630	1.000	0.803	0.756	3.189
Chile	0.465	1.000	0.803	0.797	3.064
Romania	0.520	1.000	0.766	0.692	2.978
Argentina	0.534	1.000	0.693	0.702	2.929
Italy	0.544	0.995	0.696	0.645	2.880
Canada	0.466	0.949	0.672	0.739	2.827
Azerbaijan	0.387	0.808	0.825	0.702	2.722
Spain	0.460	0.985	0.632	0.640	2.717
Lithuania	0.472	0.801	0.649	0.781	2.703
Georgia	0.442	0.692	0.810	0.740	2.684
Portugal	0.438	0.970	0.656	0.607	2.672
Macedonia, FYR	0.422	0.927	0.648	0.660	2.657
Korea, Rep.	0.422	1.000	0.654	0.582	2.657
Austria	0.478	0.926	0.641	0.591	2.636
Iceland	0.287	0.990	0.709	0.632	2.619
Moldova	0.429	0.655	0.821	0.690	2.595
Australia	0.433	0.916	0.560	0.682	2.592
Taiwan	0.301	0.971	0.654	0.648	2.574
Switzerland	0.400	0.956	0.583	0.605	2.545
Finland	0.336	0.974	0.552	0.643	2.505
Ukraine	0.325	0.771	0.761	0.617	2.474
Slovak Republic	0.454	0.907	0.578	0.455	2.394
Slovenia	0.424	0.921	0.568	0.460	2.373
Armenia	0.422	0.653	0.702	0.595	2.372
United Kingdom	0.293	0.890	0.541	0.637	2.361
Germany	0.388	0.853	0.539	0.554	2.333
Belgium	0.361	0.926	0.545	0.489	2.320
Norway	0.275	1.000	0.494	0.501	2.271
Uruguay	0.246	0.843	0.591	0.556	2.237
Netherlands	0.369	0.856	0.520	0.490	2.234

Table 1 (b), Contd.: Summary Statistics II: Index of Religiosity

Countries (Highest to Lowest Index Value)	Index of Attendance	Fraction of Religious population	Index of Religious Attitude	Index of Religious Belief	Religiosity Index
Hungary	0.376	0.890	0.548	0.343	2.156
Japan	0.373	0.879	0.441	0.442	2.135
France	0.242	0.968	0.472	0.424	2.105
Sweden	0.228	1.000	0.410	0.388	2.026
Bulgaria	0.275	0.899	0.503	0.349	2.026
Latvia	0.309	0.630	0.577	0.496	2.011
Belarus	0.247	0.660	0.581	0.480	1.967
Estonia	0.257	0.576	0.662	0.437	1.932
Denmark	0.221	0.954	0.381	0.301	1.856
Czech Republic	0.207	0.685	0.442	0.455	1.789
Russian Federation	0.174	0.609	0.509	0.455	1.747
China	0.021	0.467	0.206	0.147	0.842

Table 1 (c) : Summary Statistics III: All Variables

Variable	Observations	Mean	Std. Dev.	Min	Max
Dependent Variable					
GDP per capita in 2000 (in 1996 intern'l \$)	130	8454.19	8529.20	481.84	44008.48
Religion Variables ^a					
Religion Important (on a scale of 1-4)	59	2.79	0.58	1.51	3.87
% find Comfort and strength in Religion	56	68.20%	0.22	3.43%	98.78%
% Believe in God	55	83.12%	0.15	51.77%	99.75%
% Believe in Heaven	55	58.63%	0.23	16.01%	98.23%
% Believe in Soul	55	74.88%	0.14	29.91%	97.99%
% Believe in Devil	55	42.94%	0.21	9.89%	95.91%
% Believe in Sin	55	69.22%	0.18	24.27%	99.83%
% Attend at least Weekly	58	26.04%	0.22	0.35%	83.09%
% Attend at least Monthly	58	37.61%	0.24	0.88%	89.92%
% Attend at least Yearly	58	64.37%	0.18	2.85%	97.33%
Religiosity Index (on a scale of 0-4)	59	2.69	0.59	0.84	3.69
Other Explanatory Variables					
Contract Intensive Money (CIM) ^a	107	76.34	13.95	32.99	94.52
Rule of Law (Average for the 1990s)	171	0.01	0.97	-1.83	2.21
Import Tarrifs ^a	145	9.40	14.08	0.03	160.65
Trade Share ^a	164	72.64	43.95	0.18	242.92
Malaria Ecology	160	3.71	6.52	0.00	31.55
Variables used as Instruments					
<i>Instruments for Institutions^b</i>					
Confidence in Government ^a	45	2.33	0.32	1.81	3.30
Confidence in Army ^a	59	2.65	0.39	1.95	3.76
Confidence in Parliament ^a	58	2.36	0.34	1.76	3.44
Confidence in Police ^a	59	2.50	0.37	1.85	3.20
<i>Instruments for Trade^c</i>					
Attitude Towards Competetion ^a	58	7.49	0.53	6.27	8.98
Attitude Towards Hard Work ^a	58	6.59	0.81	4.24	8.63
Attitude Towards Wealth Accumulation ^a	58	6.45	0.77	2.64	7.78
<i>Instruments for Religion^a</i>					
Presence of State Religion	59	0.36	0.48	0	1
Index of Government Regulation of Religion	57	2.55	2.72	0	9.2
Hirfendahl Index of Religious Preference [†]	173	0.58	0.24	0.09	0.98

a: Variables are time varying. Cross section averages are reported in the table.

b: These variables are drawn from the WVS. Individual responses ranged from 1-4

c: These variables are drawn from the WVS. Individual responses ranged from 1-10

†: Data from World Christian Encyclopedia, which has religious preference data for 173 countries

Table 2: Impact of Religious Attitudes - Cross Section Results

	1	2	3	4	5	6	7
Ln CIM	3.070 (2.68)*	5.079 (2.80)***	4.152 (2.96)***	2.530 (0.98)	3.750 (1.56)	2.929 (1.97)**	1.267 (0.69)
Ln Import Tariff	-0.084 (1.66)	-0.340 (2.29)**	-0.283 (2.44)**	-0.303 (1.17)	-0.241 (1.23)	-0.014 (0.22)	-0.011 (0.15)
Malaria Ecology	-0.015 (0.74)	-0.016 (0.62)	-0.021 (1.02)	-0.041 (1.32)	0.012 (0.29)	-0.015 (0.71)	0.008 (0.30)
Religion Important	4.280 (2.43)*	4.734 (2.89)***	4.259 (2.26)**	4.027 (2.23)**	9.446 (2.01)**	4.047 (2.43)**	8.999 (1.68)*
Religion Important Sq	-0.887 (2.92)**	-0.926 (3.31)***	-0.863 (2.75)***	-0.820 (2.76)***	-1.776 (2.23)**	-0.874 (3.05)***	-1.775 (2.00)**
Observations	35	22	21	22	21	35	34
R-squared	0.86	0.91	0.94	0.91	0.88	0.85	0.83
Joint Test of Religion Var.	<i>0.0000</i>	<i>0.0000</i>	<i>0.0000</i>	<i>0.0001</i>	<i>0.0000</i>	<i>0.0000</i>	<i>0.0002</i>
H1 Endogeneity Test		<i>0.0087</i>		<i>0.7225</i>		<i>0.1438</i>	
H2 Endogeneity Test			<i>1.0000</i>		<i>0.0558</i>		<i>0.3097</i>
CD Underid. Test		<i>0.0000</i>	<i>0.2011</i>	<i>0.0906</i>	<i>0.4351</i>	<i>0.0000</i>	<i>0.5133</i>
AR Underid. Test		<i>0.0000</i>	<i>0.0000</i>	<i>0.3432</i>	<i>0.0000</i>	<i>0.0120</i>	<i>0.0001</i>
Shea's Partial R ² : Instn		0.79	0.78	0.40	0.56	0.53	0.41
Shea's Partial R ² : Trade		0.75	0.78	0.25	0.57	0.62	0.49
Shea's Partial R ² : Relgn			0.46		0.15		0.11
Shea's Partial R ² : Relgn ²			0.48		0.16		0.12
CD F stat		0.81	0.20	1.03	0.31	6.57	0.34
Sargan Overid. Test		<i>0.6101</i>	<i>0.1277</i>	<i>0.1421</i>	<i>0.8421</i>	<i>0.0180</i>	<i>0.2461</i>
PH Heteroscedasticity test		<i>0.9474</i>	<i>0.5286</i>	<i>0.9792</i>	<i>0.9944</i>	<i>0.8686</i>	<i>0.8057</i>
Reported Model ^a	OLS	IV (A)	IV-R (A)	IV (B)	IV-R (B)	IV (C)	IV-R (C)

a: IV(A): Uses attitudes towards hard work, competition and wealth accumulation and their square terms as instruments for trade and confidence in government, parliament, army and police and their square terms for institutions. IV(B): Uses first principal components of (i) levels and (ii) squares of the variables in IV(A) as instruments for institutions and trade. IV(C): Uses the second and third order centered moments of the endogenous variables as instruments. In IV-R, we use as instruments not only instrument for trade and institution variables but also for the religion variables. Specifically, we use the Hirschfeld index of religious preference, an index of government regulation of religion, and the presence of a state religion as instruments in sets A, B and C.

Notes: Dependent variable is Ln GDP per capita in 2000 (in 1996 international \$). All explanatory variables are defined in Section 3. Absolute value of z statistics in parentheses ; +/**/***: significant at 10% / 5% /1%, respectively; p values of test statistics in italics.

Explanation of the various diagnostic and specification tests reported:

Joint test of religion var.: The Wald test of the null that the two variables are not jointly significant.

H1 (Hausman, 1978) Endogeneity Test: Specification test of OLS null vs. IV alternative; H2 (Hausman, 1978) Endogeneity Test: Specification test of IV null vs. IV-R alternative.

CD (Cragg and Donald, 1993) Underid. Test: CD chi square test of the null that the matrix of reduced form coefficients has rank=K-1 where K=number of regressors.

AR (Anderson-Rubin) Underid. Test (Hall et al., 1996): Similar to CD Underid. Test but robust to the presence of weak instruments. We report the chi-square version of the test.

Shea's Partial R² : Shea's (1997) "partial R-squared" is a diagnostic statistic for determining the strengths of instruments when there are multiple endogenous variables.

CD (Cragg and Donald, 1993) F stat: Test for weak instruments (Stock and Yogo, 2002). For example, the null of a 30% bias in the IV estimator is rejected if the CD F stat. is larger than 4.73 for the case of 2 endogenous variables and 4 instruments.

Sargan Overidentification Test: Tests the validity of the null of the exclusion restrictions in the second stage regression;

PH (Pagan and Hall, 1983) Heteroscedasticity test: Under the null the errors are homoskedastic.

Table 2 (contd.): Impact of Religious Attitudes - Cross Section Results

	8	9	10	11	12	13	14
Ln CIM	2.864 (2.47)*	3.439 (2.04)**	1.432 (0.86)	1.792 (0.71)	1.629 (0.90)	2.450 (1.65)*	1.062 (0.63)
Ln Import Tariff	-0.059 (1.07)	-0.417 (2.61)***	-0.509 (2.67)***	-0.329 (1.10)	-0.377 (1.57)	0.013 (0.20)	-0.003 (0.040)
Malaria Ecology	-0.028 (1.46)	-0.038 (1.79)*	-0.038 (1.88)*	-0.053 (1.99)**	-0.039 (1.84)*	-0.030 (1.49)	-0.025 (1.28)
Comfort in Religion	7.280 (2.95)**	9.775 (3.39)***	15.345 (2.70)***	9.027 (2.65)***	13.901 (1.96)*	7.240 (3.12)***	12.332 (1.55)
Comfort in Religion Sq	-7.427 (3.83)**	-8.537 (4.05)***	-12.668 (3.21)***	-8.272 (3.62)***	-11.847 (2.46)**	-7.769 (4.21)***	-11.891 (2.15)**
Observations	34	21	20	21	20	34	33
R-squared	0.87	0.92	0.93	0.92	0.94	0.86	0.86
Joint test of Religion	<i>0.0000</i>	<i>0.0000</i>	<i>0.0000</i>	<i>0.0000</i>	<i>0.0000</i>	<i>0.0000</i>	<i>0.0001</i>
H1 Endogeneity Test		<i>0.0141</i>		<i>0.6840</i>		<i>0.1648</i>	
H2 Endogeneity Test			<i>0.0000</i>		<i>0.0845</i>		<i>0.8102</i>
CD Underid. Test		<i>0.0001</i>	<i>0.8923</i>	<i>0.1796</i>	<i>0.6172</i>	<i>0.0000</i>	<i>0.7467</i>
AR Underid. Test		<i>0.0000</i>	<i>0.0000</i>	<i>0.3835</i>	<i>0.0000</i>	<i>0.0407</i>	<i>0.0002</i>
Shea's Partial R ² : Instn		0.79	0.74	0.38	0.56	0.53	0.41
Shea's Partial R ² : Trade		0.66	0.46	0.20	0.26	0.63	0.42
Shea's Partial R ² : Relgn			0.24		0.14		0.08
Shea's Partial R ² : Relgn ²			0.26		0.16		0.11
CD F stat		0.41	0.08	0.76	0.21	6.66	0.20
Sargan Overid. Test		<i>0.4475</i>	<i>0.6459</i>	<i>0.1425</i>	<i>0.6839</i>	<i>0.0445</i>	<i>0.1540</i>
PH Heteroscedasticity test		<i>0.9540</i>	<i>0.9415</i>	<i>0.9005</i>	<i>0.8655</i>	<i>0.9623</i>	<i>0.9542</i>
Reported Model ^a	OLS	IV (A)	IV-R (A)	IV (B)	IV-R (B)	IV (C)	IV-R (C)

a: Same as Table 2

Notes: Same as Table 2

Table 3: Impact of Religious Beliefs - Cross Section Results

	1	2	3	4	5	6	7	8	9	10	11
Ln CIM	3.224 (1.96)+	4.426 (1.96)*	3.883 (2.26)*	8.131 (3.94)**	-1.216 (0.44)	4.101 (2.41)*	4.366 (1.98)*	5.522 (2.99)**	10.536 (4.57)**	9.126 (2.08)*	-0.955 (0.30)
Ln Import Tariff	-0.088 (1.38)	-0.383 (2.16)*				-0.138 (2.03)+	-0.548 (3.42)**				
Ln Trade Share			0.058 (0.30)	0.168 (0.76)	-0.213 (0.80)			0.231 (1.14)	0.438 (1.80)+	0.799 (1.79)+	0.001 0.00
Malaria Ecology	-0.056 (2.18)*	-0.066 (2.53)*	-0.049 (1.84)+	-0.044 (1.52)	-0.099 (2.80)**	-0.037 (1.28)	-0.043 (1.52)	-0.027 (0.85)	-0.002 (0.07)	-0.023 (0.43)	-0.103 (2.27)*
Belief in God	19.892 (2.26)*	17.908 (2.24)*	22.119 (2.41)*	19.774 (2.05)*	25.699 (2.62)**						
Belief in God Sq	-13.933 (2.47)*	-12.319 (2.39)*	-15.774 (2.71)*	-14.266 (2.32)*	-18.355 (2.94)**						
Belief in Heaven						3.42 (1.29)	7.924 (2.27)*	1.53 (0.56)	6.018 (1.28)	6.769 (1.16)	-0.279 (0.09)
Belief in Heaven Sq						-3.763 (1.82)+	-6.625 (2.60)**	-2.716 (1.23)	-6.139 (1.74)+	-6.685 (1.53)	-1.356 (0.55)
	34	22	35	22	35	34	22	35	22	22	35
R-squared	0.79		0.76	0.80	0.69	0.77	0.87	0.72	0.76	0.68	0.60
Joint test of Religion	0.0098	0.0228	0.0003	0.0001	0.0000	0.0255	0.0058	0.0028	0.0004	0.0024	0.0015
H1 Endogeneity Test		0.0584		0.0363	0.0161		0.0250		0.0073	0.0351	0.0076
CD Underid. Test		0.0000		0.0000	0.0000		0.0000		0.0000	0.0836	0.0000
AR Underid. Test		0.0000		0.0000	0.6483		0.0000		0.0000	0.1051	0.8943
Shea's Partial R ² : Institution		0.00		0.86	0.43		0.82		0.86	0.31	0.39
Shea's Partial R ² : Trade		0.00		0.77	0.58		0.81		0.78	0.30	0.61
CD F stat		0.86		0.76	4.89		1.11		0.78	1.06	4.36
Sargan Overid. Test		0.2279		0.3701	0.5029		0.3615		0.6397	0.4798	0.6423
PH Heteroscedasticity test		0.7977		0.8627	0.4521		0.7630		0.9175	0.8166	0.6067
Reported Model ^b	OLS	IV (A)	OLS	IV (A)	IV (C)	OLS	IV (A)	OLS	IV (A)	IV (B)	IV (C)

a: Same as Table 2

Notes: Same as Table 2

Table 3 (contd.): Impact of Religious Beliefs - Cross Section Results

	12	13	14	15	16	17	18	19	20	21
Ln CIM	4.217 (2.29)*	2.424 (0.98)	5.904 (3.01)**	10.877 (4.16)**	9.604 (2.01)*	-2.046 (0.55)	3.539 (2.09)*	3.363 (1.51)	3.497 (1.93)+	3.692 (1.56)
Ln Import Tariff	-0.153 (2.20)*	-0.709 (3.97)**					-0.144 (2.27)*	-0.553 (3.36)**	-0.144 (2.15)*	-0.528 (2.99)**
Ln Trade Share			0.266 (1.24)	0.511 (1.77)+	0.989 (1.96)*	-0.019 (0.06)				
Malaria Ecology	-0.055 (1.85)+	-0.085 (3.10)**	-0.042 (1.33)	-0.036 (0.96)	-0.059 (1.09)	-0.134 (2.68)**	-0.056 (2.10)*	-0.082 (3.18)**	-0.071 (2.51)*	-0.090 (3.47)**
Belief in Soul	9.254 (1.28)	24.572 (2.62)**	8.81 (1.13)	21.741 (1.51)	28.873 (1.58)	3.139 (0.34)				
Belief in Soul Sq	-7.219 (1.46)	-15.941 (2.69)**	-7.67 (1.44)	-15.796 (1.70)+	-20.273 (1.72)+	-3.875 (0.62)				
Belief in Devil							0.836 (0.45)	2.521 (1.32)		
Belief in Devil Sq							-2.096 (1.23)	2.933 (-1.86)*		
Belief in Sin									2.214 (0.72)	3.668 (1.24)
Belief in Sin Sq									-2.576 (1.08)	-3.316 (1.50)
Observations	34	22	35	22	22	35	34	22	34	22
R-squared	0.73	0.86	0.69	0.68	0.57	0.51	0.77	0.86	0.74	0.84
Joint Test of Religion Var.	0.1862	0.0245	0.0166	0.0156	0.0382	0.0336	0.0240	0.0319	0.1739	0.1780
H1 Endogeneity Test		0.0297		0.0076	0.0125	0.0030		0.0371		0.0646
CD Underid. Test		0.0000		0.0000	0.0437	0.0002		0.0000		0.0000
AR Underid. Test		0.0000		0.0000	0.0000	0.7712		0.0000		0.0000
Shea's Partial R2: Institution		0.72		0.84	0.35	0.37		0.79		0.82
Shea's Partial R2: Trade		0.68		0.76	0.34	0.60		0.77		0.77
CD F stat		0.57		0.69	1.29	3.88		0.86		0.94
Sargan Overid. Test		0.3507		0.6665	0.5339	0.5687		0.3132		0.2369
PH Heteroscedasticity test		0.4300		0.9642	0.7870	0.6970		0.4149		0.5755
Reported Model ^a	OLS	IV (A)	OLS	IV (A)	IV (B)	IV (C)	OLS	IV (A)	OLS	IV (A)

a: Same as Table 2

Notes: Same as Table 2

Table 4: Impact of Religious Participation - Cross Section Results

	1	2	3	4	5	6	7	8	9	10
Ln CIM	1.885 (0.99)	3.193 (1.42)	-6.022 (1.40)	2.177 (1.14)	2.429 (1.33)	1.586 (0.56)	3.006 (1.52)	5.935 (2.43)*	8.437 (1.43)	-4.531 (1.26)
Ln Import Tariff	-0.168 (2.89)**			-0.157 (2.60)*	-0.155 (2.45)*	-0.055 (0.71)				
Ln Trade Share		0.168 (0.71)	-0.119 (0.34)				0.212 (1.01)	0.169 (0.72)	0.767 (1.32)	-0.099 (0.32)
Malaria Ecology	-0.089 (2.68)*	-0.075 (1.90)+	-0.171 (2.96)***	-0.069 (2.32)*	-0.069 (2.53)*	-0.08 (2.25)*	-0.068 (2.36)*	-0.058 (1.90)+	-0.057 (1.23)	-0.14 (3.31)**
Attend Weekly	-3.264 (2.19)*	-3.189 (1.70)	-5.818 (2.40)**							
Attend Weekly Sq	3.013 (1.54)	2.416 (0.98)	4.712 (1.56)							
Attend Monthly				-1.573 (0.94)						
Attend Monthly Sq				0.449 (0.25)						
Attend Yearly					6.325 (1.56)	6.12 (1.56)	6.466 (1.46)	8.805 (1.99)*	10.635 (1.85)*	7.724 (1.54)
Attend Yearly Sq					-5.83 (1.87)+	-6.169 (2.02)*	-6.581 (1.95)+	-8.307 (2.46)*	-9.094 (2.07)**	-8.251 (2.13)*
Observations	34	35	35	34	34	34	35	22	22	35
R-squared	0.75	0.66	0.46	0.74	0.75	0.73	0.71		0.63	0.57
Joint Test of Religion Var.	0.0622	0.0636	0.0064	0.1093	0.0639	0.0135	0.0045	0.0029	0.0958	0.0003
H1 Endogeneity Test			0.0036			0.0975		0.0868	0.0911	0.0042
CD Underid. Test			0.0002			0.0003		0.0000	0.2517	0.0001
AR Underid. Test			0.5060			0.0808		0.0000	0.0064	0.6215
Shea's Partial R ² : Institution			0.36			0.37		0.85	0.23	0.38
Shea's Partial R ² : Trade			0.60			0.60		0.86	0.22	0.58
CD F stat			3.70			3.61		1.09	0.65	4.09
Sargan Overid. Test			0.9727			0.0292		0.2058	0.1646	0.9253
PH Heteroscedasticity test			0.7381			0.1494		0.8202	0.9589	0.6266
Reported Model ^a	OLS	OLS	IV (C)	OLS	OLS	IV (C)	OLS	IV (A)	IV (B)	IV (C)

a: Same as Table 2

Notes: Same as Table 2

Table 5: Impact of Religiosity Index - Cross Section Results

	1	2	3	4	5	6
Ln CIM	3.355 (3.38)**	2.988 (2.40)**	3.656 (3.54)**	5.582 (4.70)***	10.671 (1.30)	0.369 (0.21)
Ln Import Tariff	-0.096 (1.85)+	-0.379 (2.52)**				
Ln Trade Share			0.191 (1.31)	0.308 (1.84)*	0.953 (1.23)	0.045 (0.22)
Malaria Ecology	-0.029 (1.51)	-0.048 (2.50)**	-0.033 (1.60)	-0.042 (1.72)*	-0.032 (0.59)	-0.056 (2.37)**
Religiosity Index	3.860 (2.06)*	5.774 (3.26)***	3.119 (1.66)	4.866 (2.14)**	4.914 (1.16)	3.840 (1.91)*
Religiosity Index Sq	-0.800 (2.42)*	-1.104 (3.56)***	-0.702 (2.08)*	-0.986 (2.45)**	-0.910 (1.21)	-0.884 (2.42)**
Observations	36	22	36	22	22	36
R-squared	0.83	0.92	0.83	0.86	0.51	0.77
Joint Test of Religion Var.	0.0037	0.0001	0.0003	0.0002	0.4775	0.0000
H1 Endogeneity Test		0.0155		0.0020	0.0131	0.0150
CD Underid. Test		0.0000		0.0000	0.7506	0.0002
AR Underid. Test		0.0000		0.0000	0.3207	0.9279
Shea's Partial R ² : Institution		0.79		0.92	0.07	0.38
Shea's Partial R ² : Trade		0.68		0.82	0.13	0.58
CD F stat		0.60		1.03	0.19	3.81
Sargan Overid. Test		0.5294		0.8676	0.9951	0.6543
PH Heteroscedasticity test		0.6278		0.8829	0.9978	0.7325
Reported Model ^a	OLS	IV (A)	OLS	IV (A)	IV (B)	IV (C)

a: Same as Table 2

Notes: Same as Table 2

Table 6: Impact of Religious Attitudes and Beliefs - Panel Data Results

	1	2	3	4	5	6	7
Ln CIM	3.576 (4.64)**	1.678 (2.29)*	1.265 (2.16)*	-0.164 (0.33)	4.544 (4.37)**	1.521 (2.07)*	1.917 (2.55)**
Ln Import Tariff	-0.039 (1.22)	-0.053 (2.18)*	-0.012 (0.57)	-0.008 (0.45)			
Ln Trade Share					0.089 (0.80)	-0.176 (2.06)*	-0.251 (2.83)***
Malaria Ecology	-0.022 (1.44)	-0.049 (2.93)**	-0.065 (5.01)**	-0.088 (5.10)**	-0.035 (1.70)+	-0.069 (4.21)**	-0.062 (3.94)***
Comfort in Religion	4.532 (2.84)**	0.796 (0.51)	0.625 (0.56)	-0.989 (1.03)			
Comfort in Religion Sq	-5.023 (3.87)**	-2.113 (1.69)+	-1.436 (1.50)	-0.060 (0.074)			
Belief in God					11.642 (2.33)*	7.347 (2.33)*	7.654 (2.74)***
Belief in God Sq					-8.662 (2.69)**	-5.569 (2.65)*	-5.759 (3.09)***
East Asia and Pacific			-0.206 (1.64)	-0.392 (2.00)*		-0.525 (3.86)**	-0.588 (4.65)***
East Europe and Central Asia			-0.614 (2.98)**	-0.767 (2.33)*		-0.813 (3.71)**	-0.801 (4.11)***
Latin America			-0.500 (3.92)**	-0.734 (4.28)**		-0.669 (4.53)**	-0.698 (5.15)***
North America			0.526 (4.07)**	0.508 (2.19)*		0.408 (2.51)*	0.337 (2.28)**
South Asia			-1.491 (7.35)**	-1.800 (7.21)**		-1.945 (8.64)**	-1.993 (9.50)***
Sub-Saharan Africa			-0.262 (1.42)	-0.334 (1.02)		-0.431 (2.15)*	-0.470 (2.63)***
Middle East and North Africa			-0.299 (1.20)	-0.339 (1.08)		-0.448 (1.59)	-0.457 (1.83)*
1980			0.070 (0.80)	0.153 (3.74)**		0.127 (1.35)	0.117 (1.38)
1990			0.224 (2.41)*	0.324 (6.55)**		0.333 (2.92)**	0.342 (3.22)***
Observations	61	61	61	61	63	63	63
Number of countries	34	34	34	34	35	35	35
R-squared	0.80	.	0.94	.	0.67	0.91	0.91
Joint Test of Religion Var.	0.0000	0.0000	0.0003	0.0013	0.0000	0.0011	0.0000
BP error components test		0.0000		0.0448			
H Test of Pooled (P) OLS vs. P IV							0.0589
CD Underid. Test							0.0000
AR Underid. Test							0.0000
Shea's Partial R ² : Institution							0.75
Shea's Partial R ² : Trade							0.73
CD F stat							30.15
Sargan Overid. Test							0.1867
PH Heteroscedasticity test							0.0630
Reported Model ^a	OLS	RE	OLS	RE	OLS	OLS	IV (C)

a: Same as Table 2

Notes: Same as Table 2

Table 7: Impact of Religious Participation - Panel Data Results

	1	2	3	4	5	6	7
Ln CIM ^a	3.762 (3.29)**	1.933 (2.60)**	0.681 (0.95)	0.887 (1.38)	3.655 (3.45)**	1.593 (2.10)*	-0.009 (0.01)
Ln Trade Share ^a	0.177 (1.57)	0.372 (3.69)**	-0.151 (1.89)+	-0.087 (0.91)			
Ln Import Tariff ^a					-0.104 (2.95)**	-0.029 (1.13)	0.023 (0.74)
Malaria Ecology	-0.042 (2.26)*	-0.059 (2.70)**	-0.069 (4.69)**	-0.064 (3.62)**	-0.051 (2.75)**	-0.06 (3.54)**	-0.082 (4.13)**
Attend Weekly	-1.298 (3.65)**	-1.334 (3.30)**	-0.874 (4.08)**	-0.97 (3.71)**			
Attend Yearly					2.905 (1.15)	2.731 (1.59)	3.156 (1.91)+
Attend Yearly Sq					-3.017 (1.57)	-2.524 (1.91)+	-3.015 (2.37)*
East Asia and Pacific			-0.52 (4.45)**	-0.559 (3.37)**		-0.237 (1.81)+	-0.297 (2.35)*
East Europe and Central Asia			-1.106 (6.52)**	-1.122 (5.26)**		-1.096 (4.76)**	-1.234 (5.54)**
Latin America			-0.892 (7.21)**	-0.925 (6.08)**		-0.762 (5.42)**	-0.942 (6.38)**
North America			0.309 (2.07)*	0.338 (1.55)		0.31 (1.98)+	0.294 (1.95)+
South Asia			-2.07 (9.80)**	-1.966 (7.62)**		-1.74 (7.58)**	-1.976 (8.47)**
Sub-Saharan Africa			-0.582 (2.74)**	-0.58 (1.98)*		-0.718 (3.07)**	-0.699 (3.09)**
Middle East and North Africa			-0.413 (1.50)	-0.403 (1.35)		-0.491 (1.59)	-0.651 (2.19)*
1980			0.164 (1.84)+	0.179 (3.30)**		0.099 (0.98)	0.217 (2.04)*
1990			0.343 (3.26)**	0.369 (4.84)**		0.222 (2.04)*	0.315 (2.85)**
Observations	68	68	68	68	65	65	65
Number of countries	35	35	35	35	34	34	34
R-squared	0.66		0.92		0.67	0.89	0.87
Joint Test of Religion Var.					0.0163	0.0340	0.0096
BP error components test		0.0000		0.0001			
H Test of Pooled (P) OLS vs. P IV							0.0079
CD Underid. Test							0.0000
AR Underid. Test							0.0000
Shea's Partial R ² : Institution							0.38
Shea's Partial R ² : Trade							0.61
CD F stat							7.22
Sargan Overid. Test							0.2552
PH Heteroscedasticity test							0.0818
Reported Model ^a	OLS	RE	OLS	RE	OLS	OLS	IV (C)

a: Same as Table 2

Notes: Same as Table 2

Figures 1(a) – (d)

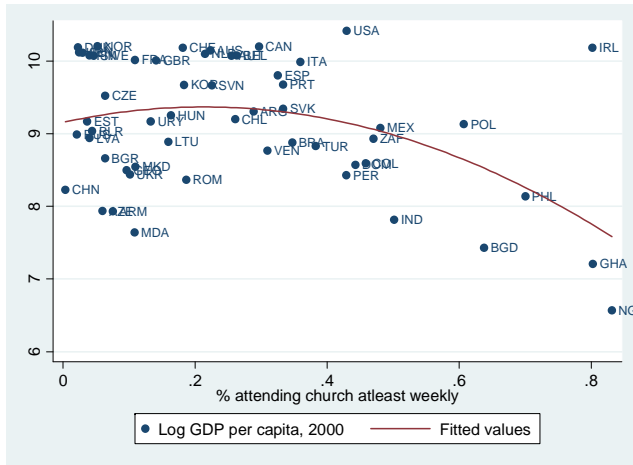


Figure 1(a): Relationship Between % of Population Attending Religious Ceremonies At Least One a Week and Per Capita Income.

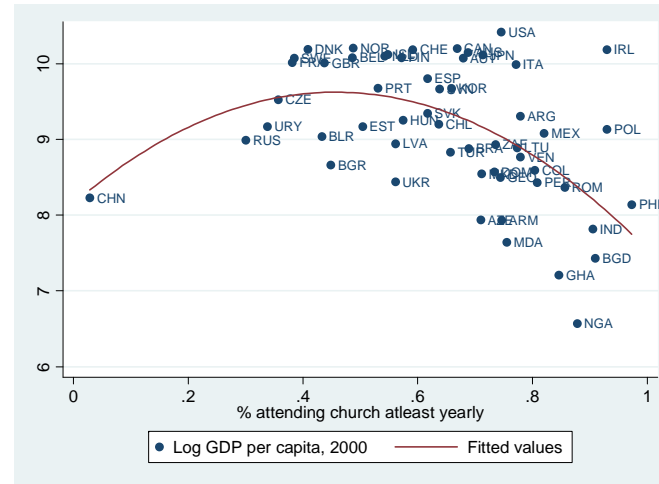


Figure 1(b): Relationship Between % of Population Attending Religious Ceremonies At Least One a Year and Per Capita Income.

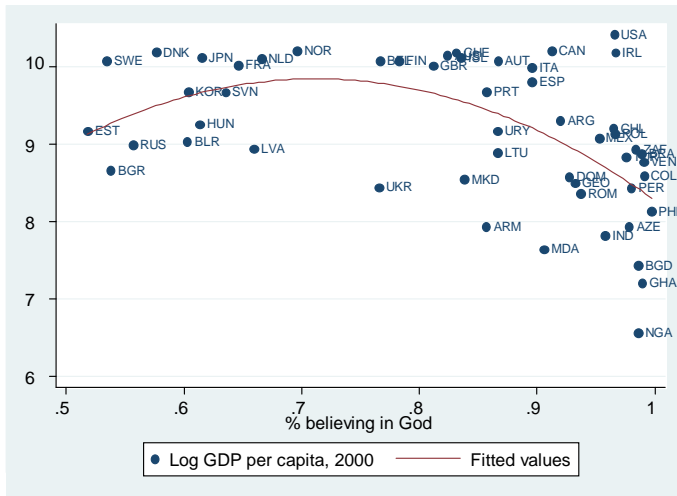


Figure 1(c): Relationship Between % of Population Believing in God and Per Capita Income.

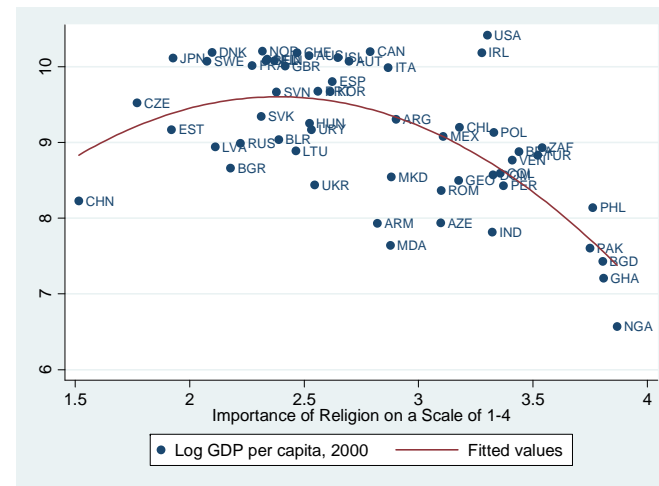


Figure 1(d): Relationship Between Importance of Religion (scale: 1-4) and Per Capita Income.

that economic growth corresponds positively to religious beliefs, notably beliefs in hell and heaven, but negatively to church attendance. That is, growth depends on the extent of believing relative to belonging. These results accord with a model in which religious beliefs influence individual traits that enhance economic performance. However, the impact of religious beliefs on economic attitude and performance varies amongst different religious denominations. The conclusions drawn and policy implications depend on a broad array of factors including countries considered, data and definition of variables. In case of Islam, religious beliefs are contingent on the virtue of interpretation of Islamic sources (Qur'Ān and Sunnah) by the jurists. The economics of religion concerns both the application of the techniques of economics to the study of religion and the relationship between economic and religious behaviours. Max Weber first identified the relationship between religion and economic behaviour, attributing in 1905 the modern advent of capitalism to the Protestant reformation. Adam Smith laid the foundation for economic analysis for religion in *The Wealth of Nations* (1776), stating that religious organisations are subject to market. Nevertheless, the distribution of religious beliefs, values, and practice is not uniform across countries. While the people in some countries such as Bangladesh, the Philippines, and Nigeria are predominantly religious both in expressed opinion and religious practice, other countries such as China, Russia, and Denmark display very low levels of religiosity (see Table 1(b) in the Appendix for a ranking of countries by our religiosity index). This study contributes to the existing literature on religion and economic development in the following ways. First, our approach can be regarded as a synthesis of two different strands in the development literature: Economics of religion (Barro and McCleary, 2003) on the one hand, and deep determinants of development (Rodrik et al., 2004) on the other.