

Participating is Believing?  
An Empirical Investigation on Religious Participation,  
Religiosity, Social Attitudes, and Income

by

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# I. INTRODUCTION

Religion is one of the most fundamental elements of our society today. From missionary schools that have contributed much to education development in the third world, to organized religious organizations' involvement in political and economic decision-making processes, it is undeniable that our spiritual pursuits have had important worldly influences. Religious texts have contributed to linguistic and cultural development around the world, and religious institutions have played an important part in major historical events that determined the success or failure of nation-states and governments. No other civil society groups have similarly flexible structures: religion could be as complex as a multinational corporation (in fact many religious institutions are *de facto* multinational corporations) or as simple as a two-way relationship between a believer and his/her object of worship. No other social entity has the same ability to bond individuals or communities together, and no other social entity in the world has had such a vast influence over cultures, values, laws, customs, and behavioral patterns as religion has, even though it often contradicts scientific facts or rationality.

Academic discussions about interactions between religion, social attitudes and behaviors, and income first started with Adam Smith's attempt to explain why individuals participate in religion in the *Wealth of Nations*. Instead of exploring the unique nature of religion, he tries to explain the economic reasons behind religious participation. He argues that religious participation could generate two main economic benefits. First, religion generates and distributes information of individual members' moral history in the process of collective participation. These reputation

signals help buyers and sellers better determine the underlying risks in transactions and improve market efficiency. This is particularly important to individuals of the “lower orders”, who are in fact trustworthy despite the lack of established wealth or references, since their moral reputations might be their only way to distinguish themselves from the truly risky crowd in the market place. Smith also argues that religion provides a strong incentive for individuals to abide by social and moral norms by lowering the enforcement costs. The cost of externally monitoring individuals’ behaviors is extremely high, but religion internalizes such monitoring by promoting self-control and providing incentives to do so (e.g. salvation).

Smith’s discussion on the economics of religion was left with little follow up for almost a century, until several sociologists and philosophers picked up the topic again and approached it from a different angle. Max Weber (1905) was one of the first sociologists to propose a direct causal relationship between religious belief and economic outcome. Weber attributes the prevalence of capitalism in the western world to the “spirit of capitalism” – a combination of the rational pursuit of economic gain and the belief that work is a moral obligation. In other words, the spirit of capitalism was a triumph of rationality over traditions: commercial activities evolved from the “hand-to-mouth existence of the peasant” to economic activities based on rational planning and calculation. At the same time, efficient performance and financial success was regarded as both a duty and a virtue. Weber argues that the Protestant Reformation gave rise to this spirit of capitalism by effectively removing the Roman Catholic Church as the absolute authority to assure individuals of salvation. As a result, Protestants had to turn to other signs to assure themselves of salvation. Calvinism, in particular, preaches double predestination –

who is to be saved and who is to be damned are entirely up to the mercy of God. Weber believes that this feature of Calvinism created two conditions that were ideal for the emergence of the capitalist spirit. First, individuals were encouraged to deem themselves worthy of God's salvation (and to avoid being damned at the same time). Therefore, no one, neither the rich nor the poor, was entitled to idle luxury. Disciplined labor became the main channel to prove oneself worthy of God's mercy. Second, and perhaps more importantly, worldly pursuit of wealth became the most natural way for individuals to gain confidence in their worthiness of salvation. Serving in the clergy was no longer the only way to please God or to make one feel better about one's chances of salvation. Any occupation that was considered honest labor, however much income it generated, was given a new spiritual and moral meaning. The spirit of capitalism was therefore a byproduct of Calvinist ethics, Weber argues, instead of a goal or an end.

Similarly, Emile Durkheim (1912) also identifies links between religion and economic outcomes, but he focused more on the social functions of religion rather than its economic ideological impact. He argues that religion allows humans to experience the existence of a higher power through often intensely emotional religious rituals, and this in turn creates a "collective effervescence" that binds believers together. By dividing all things into two separate and interactive spheres, the sacred and the profane, religion acts as the unifying force for all individuals who see themselves as mortals. He believes that religion is a critical part of society because of the "collective effervescence" created by religious participation. By being a sacred and absolute authoritative figure, religion is a means to achieve social discipline and uphold moral standards. He believes that the submission to religion,

and in turn to society, is the only way in which individuals could be delivered from “blind, unintelligent physical forces” and be protected by the unified front of society. All religions are essentially an expression of social cohesion, regardless of their differing characteristics and beliefs.

Unlike Weber and Durkheim, Karl Marx (1843) seems to be skeptical, if not uninterested, in the economic or social functions of religion. He never discusses religion outside of Christianity, attempts to discuss religion participation and belief separately, nor examines the differences between various denominations. He famously claims that religion is “the opium of the people”, arguing that religion is solely determined by economic and material realities. His view differs from Weber’s and Durkheim’s in several ways. First, Marx asserted that individuals only turn to religion for “illusory” happiness when material realities fail to provide such happiness. Weber disregards this assumption and instead hypothesizes that economic activities are what individuals turn to when religion fails to satisfy their spiritual needs. Second, Marx expresses extreme skepticism of any social functions of religion. He calls religion “a sign of the oppressed creature”, and dismisses it as nothing more than drugs that provide illusory happiness. Durkheim, however, contends that the very existence of society and any collective consciousness is evidence that religion is real. Despite Marx’s claim that religion is merely “the heart of a heartless world”, Durkheim argued for the solid existence of moral discipline and social solidarity achieved by religion participation. Marx even goes so far as to claim that the abolition of religion is necessary for people’s pursuit of “real happiness” - an improved economic reality that could provide for freedom among



those who would otherwise see religion as their sole source of comfort and happiness.

Social and economic theories of religion up to this point, however, have a number of major flaws that make it difficult to compare them directly with each other. First, there is little consistency in the definition of “religion” in these discussions. Religious participation according to Smith is more religious affiliation or membership than actual participation – prayers and meditation alone would not have generated the same reputation signals. He is also uninterested in the nature of religion itself. By treating religion like any other firm and believers like any other buyers or sellers in the market, however, Smith takes away the unobservable uniqueness of religion and reduced it just another civil society group that individuals join only to improve their social and economic status. On the contrary, Weber focuses almost entirely on the religious beliefs that Calvinism promotes. The social and attitudinal changes brought about by Calvinism did not require participation in morning services, or membership in a Calvinist church. Instead, Weber argues that these changes came from changes in individuals’ fundamental belief systems, which, one might argue, may or may not have anything to do with participation in religious activities. His hypothesis also rests on the assumption that changes in religious beliefs only result in favorable changes in economic attitudes, and in turn improved economic outcomes, which, as the literature in recent years reveals, might not be true. As for Marx, religion is an ambiguous entity to which individuals turn only because of harsh economic realities. Marx was not interested in further defining whether he meant religious belief or religious participation, as it appears that they were equivalent to him. Durkheim was the first to make a clear

distinction between religious participation and religious belief, making the assumption that one leads to another.

Second, there is little consensus on whether religion is a means to or an end of social and economic circumstances. Smith appears to be less interested in the influence religion generates in society than the personal interests out of which individuals choose to participate in religion, but he does mention that religion could be regarded as a tool to achieve social discipline and order. Both Weber and Durkheim regard economic success or social cohesion as outcomes of religious influence, while Marx argued that economic realities lead to the existence of religion. When we look more closely at arguments about religion and society, we find that often the only common ground they share is a general idea of “religion” and a general consensus that it is an entity closely entwined with our worldly affairs.

In this paper, we propose that there are multiple dimensions to religion, and they have different impacts on social attitudes and behaviors, and in turn, economic outcomes. We argue that religion consists of two components: religious participation and religiosity. Religious participation is assumed to be voluntary and individuals have freedom to shop around for worship venues they deem most desirable. We hypothesize that human interactions is one of the major criteria in the selection process. Ideally, spirituality is the basis of any relationship formed in a religious context, and religious participants are expected to put aside their worldly differences in to strive for religious goals. Because of such expectation of “spiritual intimacy”, we expect individuals to self-select themselves into religious groups where they can find people they are most comfortable and connect the closest with. As a result, “religious relationships” are expected to have more influence on social

attitudes and behaviors than human relationships formed in the secular context. We argue that this quality of “religious relationships” is what makes religious participation different from participation in other civil society groups.

Unlike religious participation, which can be objectively measured by frequency of attendance or time devoted to religious activities, religiosity has been defined in different ways in the literature. In this paper, we propose that religiosity has two dimensions: religious belief and religious intensity. Religious belief is referred to belief systems, i.e. what people believe in, and religious intensity is referred to the importance of religion to an individual’s life. In other words, religiosity should reflect how religious an individual *is*, while religious participation should reflect how religiously an individual is *acting*. We also argue that religious participation and religiosity should not be treated as interchangeable, and that religious belief and religious intensity should be treated as two independent measures of religiosity. Guiso, Sapienza, and Zingales (2005) define religiosity as a combination of religious affiliation, upbringing, and attendance, while Clark and Schellenberg (2006) focus more on private religious practices in daily life. The inclusion of religious affiliation and religious attendance is based on the assumption that being a member of a religious organization or regularly participating in religious activities contributes to the intensity of religious beliefs. However, both behavioral variables could also be theoretically related to other non-religion related factors such as geography, cultural upbringing, or other family members’ religious facilitation. In contrast, Barro and McCleary (2003) consider only beliefs in heaven and in hell as indicators of religiosity. Even though these two variables could be considered core beliefs in almost all religious belief systems, they don’t capture the

intensity of these beliefs. Beliefs in heaven or hell could also be culturally related instead of religiously determined, and the two variables also show low correlations with how religious one considers oneself.

This paper is structured into four sections. Chapter Two will discuss several papers pertaining to recent development of the discussion on the economics of religion. We introduce several models and approaches used in these papers and discuss how they are related to our approach and goals. Chapter Three discusses our data, econometrics techniques, and the background of our choice of variables. Chapter Four reports and discusses the regression results. Chapter Five includes our concluding remarks and suggestions for further studies.

## II. LITERATURE REVIEW

There were few serious attempts to build upon the classical perspectives on the economics of religion until recent years, largely because religion was constantly rejected as irrational and unfit for a science of rationality. Even in recent years, similar differences in approach, methodology, and assumptions could be observed in the literature. Azzi and Ehrenberg (1975) make the first attempt to empirically analyze the relationship between church attendance and income by examining time allocation between religious and market activities. Their household time allocation model asserts that “afterlife consumption”, i.e. salvation, is the primary incentive for any individual to allocate his time between market activities and religious activities. As real wages grow over time, one could therefore expect the time investment in religious capital to decline accordingly as the opportunity cost of religious participation increases. Similarly, assuming an upward sloping age-earnings profile, one could expect to see individuals switching from more time-intensive denominations, if not religions, to less time-intensive ones as they grow older and the time cost associated with religious activities increases.

However, Azzi and Ehrenberg’s model has some major constraints. First, the household time allocation model presented in the paper assumes that individuals’ age-earnings profiles are exogenous, even though one might also argue that the steepness of life-cycle wage profiles will be partly dependent on one’s expected utility derived from afterlife consumption (i.e., individuals who have a stronger belief in afterlife will have a flatter age-earning profile than those who have a weaker belief). Second, the simple assumption that religious participation is

motivated only by the expectation of afterlife consumption is questionable. Upbringing, family background, and geographical location could also impact an individual's time spent on religious participation. Third, and perhaps most importantly, religion is assumed to affect household income only through incurred time costs, and time spent on religious participation bears little difference from time spent on any regular leisure activities. The motivation to participate in religious activities – “afterlife consumption” – could have been utility derived from a hobby or participating in any civil society group that gives a sense of purpose.

Iannaccone (1990) attempts to solve some of the limitations in Azzi and Ehrenberg's model by extending it to include “religious human capital”. He defines religious human capital as religious knowledge, familiarity with religious practices, as well as human relationships formed within religious groups. He argues that religious intermarriage, i.e., marriage between people from two different religious denominations, is “religiously inefficient”, explaining that when individuals seek out partners whose religious human capital does not complement theirs, that leads to lower levels of religious participation as they need to compete for household resources in order to engage in their respective religious activities. He also observes that people tend to preserve the value of their religious human capital even when switching between denominations, leading to low inter-denominational mobility among religious with distinctions traditions. Although Iannaccone's approach is broader than that of Azzi and Ehrenberg's, it is limited to the several mainstream denominations of the Christian faith. Again, in Iannaccone's model, religious participation is not significantly different from participation in any social activities in which individuals could gain knowledge and bond with others.

Hollander, Kahana, and Lecker (2003) further extend the household production model by considering the time allocated between 3 activities: religious studies, secular studies, and work. Also considering that time cost is not the only way religion could affect income, they argue that religious and secular human capitals are complementary in generating income, and that religious studies have a direct and positive effect on utility. They recognize the possible positive externalities in participating in religious activities, such as improved social interactions, greater trustworthiness, better mental health, etc. Assuming that individuals don't take these into account when maximizing their utility, Hollander, Kahana, and Lecker argue that this would lead to an inefficient equilibrium with suboptimal religious participation. Therefore, religious groups will have an incentive to correct this market failure by promoting stricter spiritual or behavior standards in order to promote commitment instead of merely physical participation. Although they do not elaborate much on how the externalities might affect income, their paper was one of the first to take into account the uniqueness of religion and its social functions in a household production model.

Guiso, Sapienza, and Zingales (2003) take a closer look at the externalities their paper proposed. Using the World Values Survey, which is also the primary source of data for this thesis, Guiso, Sapienza, and Zingales identify a positive relationship between religiosity and "good" economic attitudes associated with higher per capita income. While they discover a higher level of trust and cooperation among religious individuals, they also recognize a higher degree of intolerance and certain conservative values towards gender roles among them. Without constructing a set of "ideal" economic and non-economic values that are associated

with higher income and figuring the net effects of these externalities generated by religious belief, the authors can not conclude a causal relationship between religiosity and higher income.

Barro and McCleary (2003) look at the respective influence of religious participation and religiosity on country-level economic growth. They find that even though religious beliefs, defined as belief in heaven and in hell, are associated with positive economic growth, religious participation has the opposite effect. Huber (2006) questions whether it is appropriate to treat measures of belief and participation as interchangeable measures of religiosity. He argues that in any society there are participants who are not religious, and there are also religious individuals who do not participate. He hypothesizes that cross-national differences in the relationship between religious belief and religious participation are systematically related to factors such as religious pluralism and secular incentives to attend religious services for networking purposes. However, after Barro and McCleary and Huber's discussion of religious impact on country-level economic growth, little was built on the different impacts of religious participation and religiosity on human capital and social attitudes on the individual level. In the current literature, religiosity is often still defined as a one-dimensional entity that is associated with any religious involvement, and there is still little consistency in defining religion, religious participation, or religiosity. More often than not, the three are still regarded as interchangeable in discussions.

There are two goals in this paper. First, adopting Smith, Weber, and Durkheim's view on religion's social and economic functions, we make the hypothesis that religion affects income through "channels" of human capital, social



attitudes, and behaviors. Second, following Barro and McCleary's approach concerning the different impacts of religious participation and religiosity on economic growth, we will analyze whether different dimensions of religious participation and religiosity have different effects on attitudes and income at the individual level. We also examine Huber's hypotheses by investigating whether the presence of state religion and different religious denominations have different effects on how religious involvement impacts income.

### III. DATA AND METHODOLOGY

#### *I. World Values Survey*

We use the World Values Survey as our source of data. The World Values Survey (WVS) began as the European Values Study in 1981 to assess the European population's attitude towards religion, government, morality, and culture. The survey was later extended to cover countries outside of Europe and was repeated 4 times at intervals of 5-10 years. The survey was conducted in the format of face-to-face personal interviews. Respective local academic or research agencies are responsible for the translation and selection of questions to reflect local cultural and social situations, as well as the selection of participants to represent gender, racial, and religious ratios of the underlying population.

The first four waves (1981-1984, 1989-1993, 1994-1998, 1999-2004) are pooled together as an integrated file for our study, while the most recent wave (2005-2008) is analyzed separately given slight differences in variable measurement. Due to missing data and inconsistencies in terms of questions, we do not include all the countries included in the WVS surveys. Table b.3.a and Table b.3.b show the countries include in 1981-2004 and 2005-2008 respectively.

#### *II. Methodology*

Two main strategies are used to examine the relationships between religiosity, religious participation, and income. First, a path analysis model is used to examine the potential "channels" of human capital and social attitudes through which religious participation could affect income. Ordered probit regressions are used instead of ordinary least squares (OLS) regressions because of the

heteroscedasticity problem in the dependent variables. Second, we substitute religious participation with religiosity in the same path analysis model to test whether religiosity has the same effects on income as religious participation. Dummy variables for state religion and religious denominations are used to examine their effects on how religion impacts the “channels” and income.

### **Path Analysis**

Path analysis is an extension of Structural Equation Modeling (SEM), which Ullman (1996) defines as an "examination of a set of relationships between one or more independent variables, either continuous or discrete, and one or more dependent variables, either continuous or discrete". The main strength of path analysis is its ability to model simultaneously several regression relationships, i.e., a variable can be an explanatory variable in one regression and a dependent variable in another. This unique feature allows path analysis to test the fit of the correlation matrix against two or model causal models, which is particularly useful in studying the direct and indirect effects of religious participation on income through a number of mediating variables. Figure 1 illustrates how the use of these mediating variables is particularly helpful in this study. Religious participation is hypothesized to affect directly the mediating variables of civil society participation, intolerance, trust, health, and education. Finally, these variables are hypothesized to have direct effects on income.

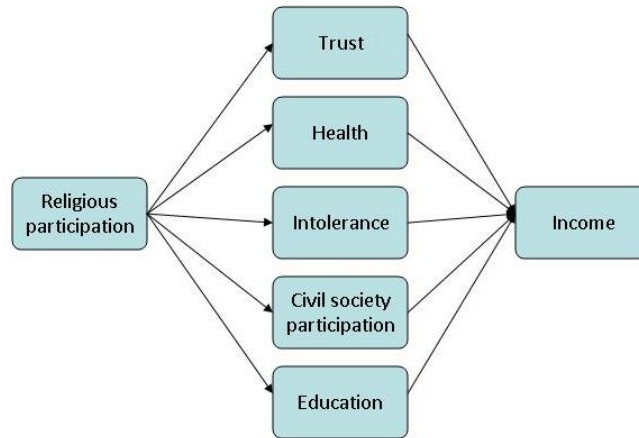


Figure 1

Note that arrows in the path diagram represent only *assumed* causality – relationships that are suggested by established knowledge, theory, or literature. Ultimately, path analysis evaluates the correlation, instead of causation, of variables so that path coefficients should be treated as tests of pre-existing theoretical propositions instead of statistical proof of causality. Everitt and Dunn (1991) note that causal inferences extracted from any path analysis models are merely "a form of statistical fantasy". Therefore at any results from path analysis model employed should be regarded only as an examination of theories and arguments proposed by the literature.

### **The heteroscedasticity problem and ordered probit regressions**

In this study, the main dependent variable, income, is ordinal and discontinuous in the sense that the coding metric is not substantively meaningful. In other words, even though household income is coded in deciles, the metric underlying income is different from the linear metric of the numerals 1 through 10. For instance, the difference between 1 (USD 0 – USD 12,500) and 3 (USD 20,001 – USD 27,500) is not the same as the different between 8 (USD 62,501 – USD 75,000)

and 10 (USD 100,001+). Similar problem is found in other dependent variables such as education and health. This might cause the error term to increase with each observation, leading to a problem of heteroscedasticity in OLS regressions.

To tackle this problem, ordered probit regressions are used in our path analysis model instead of OLS regressions. Ordered probit regression is designed to deal with an ordered multinomial dependent variable. Similar to the binary probit model, the ordered probit model can be expressed by an unobservable latent variable,  $y^*$ , which, in our case, could be treated as the “true” state of an individual’s income. The value of  $y^*$  increases with the probability of an individual falling in a higher decile of income, which will be denoted by  $y$  hereafter. Consider  $x$  as one of the mediating variables that are hypothesized to have a direct impact on  $y$ . Then,  $y^*$  is determined by:

$$y^* = \alpha + x\beta + \varepsilon$$

where  $\varepsilon$ , the error term, is assumed to be normally distributed. Let  $\mu_1 < \mu_2 < \mu_3 < \dots < \mu_{10}$  be unknown cut-offs at which an individual moves from reporting one category of income to another. Then we have the followings:

$$\begin{aligned} y &= 0 && \text{if } y^* \leq \mu_1 \\ y &= 1 && \text{if } \mu_1 < y^* \leq \mu_2 \\ & && \dots \\ y &= 10 && \text{if } y^* > \mu_{10} \end{aligned}$$

In our case, a value of the latent variable  $y^*$  lower than  $\mu_1$  will correspond to the lowest decile of household income, and a  $y^*$  falling in between  $\mu_1$  and  $\mu_2$  will correspond to the second decile of household income, and so on. Therefore,

assuming a standard normal distribution of  $\varepsilon$ , the probability of obtaining  $y = J$  given  $x$  is:

$$P(y = J | x) = P(\mu_j \leq y^* = \alpha + \beta x + \varepsilon \leq \mu_{j+1} | x) = \Phi(\mu_1 - \beta x)$$

where  $\Phi$  is the standard normal cumulative distribution function:

$$\Phi(t) = \int_{-\infty}^t \frac{1}{\sqrt{2\pi}} e^{-x^2/2} dx$$

Using ordered probit regressions allows us to estimate statistical significance of the variables in a similar fashion to OLS regressions, but we are not constrained by OLS' underlying assumption of equal variance. The use of OLS would have resulted in underestimated standard errors, overestimated t-values, which in turn yields overestimates of the coefficients' statistical significance.

### ***III. Variable Specifications***

#### **Religious Participation, Religious Belief, and Religious Intensity**

Religious participation is measured by how often one attends religious services apart from weddings, funerals, or christenings (F028)<sup>1</sup>. Religious belief is captured by five variables: belief in God (F050), belief in heaven (F053), belief in hell (F054), belief in that people have souls (F052), and belief in life after death (F051).<sup>2</sup> Belief intensity is captured by two variables: how religious one considers

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<sup>1</sup> "Apart from weddings, funerals, or christenings, about how often do you attend religious services these days?": 1: almost never; 2: once a year; 3: other specific holy days; 4: only on special holy days/Christmas/Easter; 5: once a month; 6: once a week; 7: several times a week. Note that for Muslims, frequency of prayers is asked instead.

<sup>2</sup> "Which, if any, of the following do you believe in? God; heaven; hell; people have souls; life after death" 1: yes; 0: no

oneself independent of religious attendance (F034)<sup>3</sup>, and how important God is in one's life (F063)<sup>4</sup>. Principal component analysis is used to create the indices for religious belief and religious intensity in Table b.2.a and b.2.b.

### **Mediating Variables**

We select the following five sets of mediating variables to capture the impact of religion on social attitudes and behaviors:

#### **1. *Civil society participation***

Iannaccone (1995) and Smith, Sawkin, and Seaman (1998) argue that participation in organized religion could add to human capital stock by increasing social interaction and networking opportunities. While it is assumed that individuals interact and network with each other during religious participation, it is extremely difficult to measure how many of these interactions are strictly religious and how many of them are of social, or even business, nature. Therefore, we measure potential income-generating networking opportunities<sup>5</sup> by the respondent's membership status in labor unions (A101), political parties (A102), and professional organizations (A104)<sup>6</sup>. Relationships formed within religious groups or during religious gatherings could potentially "spill over" to participants' work life, especially under the assumption that individuals self-select themselves

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<sup>3</sup> "Independently of whether you go to church or not, would you say you are...": 1: a convinced atheist; 2: not a religious person; 3: a religious person

<sup>4</sup> "How important is God in your life?": Scale of 1 (not important at all) to 10 (very important)

<sup>5</sup> It is recognized that participation in consumer groups and charitable/humanitarian organizations could also positively contribute to potential income-generating networking opportunities, but these two variables are dropped because of poor data collection.

<sup>6</sup> "For each voluntary organization, could you tell me whether you a member, active member, an inactive member, or not a member for that type of organization?": 0: not a member; 1: inactive member; 2: active member

into religious groups with whom they have the most in common. Membership in religious organizations may also serve as a reputation signal that makes entry into professional or political organizations easier, especially in countries with religious-affiliated political parties or labor unions.

## **2. Intolerance**

Guiso, Sapienza, and Zingales (2003) find that religious upbringing and whether one is currently religious contribute towards one's intolerance towards other races and immigrants. In this study, intolerance will be defined by whether the respondent shows a negative attitude towards having neighbors who are of a different race (A125), of a different religion (A135), immigrants or foreign workers (A129), AIDS carriers (A130), and homosexuals (A132)<sup>7</sup>. Religious participation has a negative impact on social intolerance because religious groups foster relationships and bonding within group members by promoting "justified" discrimination against minorities. However, intolerance should be understood as a social attitude instead of an economic one. While economic discrimination necessarily implies actions taken against individuals, groups, or businesses, intolerance, as defined in our study by the WVS questionnaire, reflects only a general social attitude or mentality. Mentioning that having a homosexual neighbor is undesirable by no means implies that the respondent is unwilling to hire or have business transaction with a homosexual individual. Therefore, even though the literature has established that discrimination impacts income negatively, it is unclear how the intolerance variables will affect income in our study.

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<sup>7</sup> "On this list are various groups of people. Could you please sort out any that you would like to have as neighbors?": 0: not mentioned; 1: mentioned



### **3. Trust**

Guiso, Sapienza, and Zingales (2003) find that being actively religious has a positive effect on trust towards others<sup>8</sup> and towards the government. The trust variable is captured by whether an individual feels that people can be trusted in general<sup>9</sup>. There is little literature or empirical data that support a strong causal relationship between an individual's trust in the government and individuals' income. However, we hypothesize at the individual level, a higher level of trust facilitates human relationships and hence business transactions.

### **4. Health**

Johnson (2002) finds that religious involvement is associated with lower substance abuse because most religions regard such indulgence as immoral and undesirable. He also finds that religious participation provides group approval, which in turn improves a participant's mental and physical health. Nativel (2003) argues that many Christian denominations play a significant role in providing welfare in the non-profit sectors for women and minorities. The effect of religious participation on health is captured by a subjective self-assessment of the respondent's health status (A009)<sup>10</sup>. Since this is not an objective measure of specific health statistic and the respondent may not be aware of certain health at the

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<sup>8</sup> For the 2005-2006 (fourth wave), trust is captured by 5 variables instead: "Could you tell me for each group whether you trust people from this group completely, somewhat, not very much, or not at all? Your family (V125); Your neighborhood (V126); People you know personally (V127); People you meet for the first time (V128); People of another religion (V129); People of another nationality (V130)." They are split into two separate principal components that represent trust towards familiar people and trust towards strangers. It would have been ideal to be able to analyze these two categories of trust, but these questions have only been included in the 2005-2006 surveys.

<sup>9</sup> "Generally speaking, would you say people can be generally trusted or that you need to be very careful in dealing with people?": 1: most people can be trusted; 0: can't be too careful

<sup>10</sup> "All in all, how would you describe your state of health these days?": 1: very poor; 2: poor; 3: fair; 4: good; 5: very good

time of interview, this variable should be treated as self-perception of the general well-being of the respondent instead of a measurement of health.

### **5. Education**

Religious involvement in education is undeniably significant. Katyi (2002) points out religious affiliation helps women in Ghana attain basic education, which is often provided by Christian churches with Western evangelical connections. Gardner (2004) argues that religious participation, which she defines as any participation in religious classes in school as well as community services associated with or organized by religious-affiliated groups, keeps adolescents in school by helping them develop interpersonal skills and gain access to education resources and role models. While it has been established in the literature that religion promotes basic education particularly among the less privileged groups in society, the impact of religion on the amount of higher education received by an individual is unclear. Education level is captured by the highest level of education the respondent has attained (X025)<sup>11</sup>, and is expected to positively related to income.

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<sup>11</sup> *“What is the highest education level you have attained?”*: 1: inadequately completed elementary education; 2: completed (compulsory) elementary education; 3: Incomplete secondary school, basic vocational qualification; 4: complete secondary school, intermediate vocational qualification; 5: Incomplete secondary school, university-preparatory-type; 6: Complete secondary school, university-preparatory-type; 7: Some university without degree, higher education – lower level tertiary; 8: University with degree, higher education – upper-level tertiary

## Dummy variables

### *State religion*

A dummy variable for the presence of state religion<sup>12</sup> is created to test its impact on how religious participation and religiosity affect the mediating variables. Barro and McCleary (2005) argue that social intolerance is likely to go hand-in-hand with the presence of a state religion, which is a measure to ensure monopoly in the religious (Corwyn, B.B. Benda et al. 2000)market. Hence, it is reasonable to expect positive relationship between religious participation and intolerance among countries with state religions. Social welfare, political participation, and civil societies are also more likely to be attached to religious participation in countries with state religions. In addition, people who are affiliated with the state religion or who participate more actively in the state religion may gain better access to healthcare, education, business opportunities, and in turn have higher income.

Adam Smith hypothesizes that monopoly makes a religion non-innovative and indolent. As participants, or more specifically, the clergy, in the state religion gain better access to resources than non-participants and create a social (and probably economic) disparity between the two groups, Smith argues religious activities will be replaced by secular activities, such as politics, and as a result, the quality of religious experience – in our terms here, religiosity - the clergy provides will necessarily decline. Barro and McCleary (2005) hypothesize that the presence

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<sup>12</sup> Barrett, Jurian, and Johnson (2001) classify several countries as countries with *de facto* state religions, but in our definition, only countries that officially designate state religions in their constitutions (or equivalent documents) are included. Variable coding: 1: with state religion; 0: without state religion

of state religion encourages religious participation because (Lipford and Tollison 2003)resources that otherwise would have been put into other sectors are more likely to be used for “production” of religion. However, it is less obvious how state religion affects the impact of religious participation or religiosity on the mediating variables or income.

### ***Religious denominations***

Eight religion denominations are included in this study: Protestant, Catholic, Jewish, Eastern Orthodox, Muslim, Hindu, Buddhist, and Asian religions<sup>13</sup>. Table b.6 shows sample size and percentage of each religion. It is important to bear in mind that we are less interested in looking at how a religion in itself directly affects our mediating variables and income. Instead, our goal is to examine if religious participation, belief, and intensity have different effects dependent on the religious denomination. We might expect religions that preach conversion to have increased intolerance and decreased trust through higher levels of participation or religiosity, while religions that are traditionally more homogeneous in terms of ethnicity and social backgrounds might encourage intolerance. Religions that place more emphasis on group worship are expected to have a more positive impact of religious participation on civil society participation, and perhaps to some extent, health as well. It will also be interesting to examine how Judaism affects the mediating variables and income, as Israel is not included in our sample so that all the respondents who identify themselves as Jewish are religious minorities in their home countries.

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<sup>13</sup> 1: Identification as Protestant; 0: Identification as Non-Protestant, etc.

## IV. RESULTS AND DISCUSSION

### *Overall Results*

Guiso, Sapienza, and Zingales (2003) mention in their analysis of the relationship between religiosity and attitudes that the relationships from an integrated data set of 1981-1997 could possibly be spurious. They contend that certain unobservable latent variables might be driving religious participation and the endogenous variables simultaneously. For instance, religious upbringing could explain for religiosity, religious participation, and certain externality variables. Personal experiences and individual traits could also explain some of the variables included in this path analysis model. However, it is impossible to include an infinite number of personal traits as independent variables in our model, and data availability is also a major constraint to be considered. To minimize the chances of committing Type I errors of rejecting true null hypotheses, all regressions we run with the pooled data of 1981-2004 are repeated with an identical set of variables from the most recent of WVS wave of 2005-2008<sup>14</sup> as a robustness check.

Table a.1.a shows the regression coefficients of the first part of our path analysis model. Each of the ten columns shows the regression coefficients of ten independent ordered probit regressions run for each data set with religious participation always being the independent variable, and each of the mediating variables being the dependent variable. The first row shows the coefficients from

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<sup>14</sup> With the exception of the religious belief variable for 2005-2008 because of missing survey questions

the pooled data of 1981-2004, while the second row shows the coefficients from 2005-2008. Note that since there are “simple” regressions with only one independent variable, the regression coefficients are essentially the same as the square of the correlation between the religious participation and the mediating variables. Table a.1.b shows the regression coefficients of the second part of our path analysis, with income always being the dependent variable, and religious participation and the mediating variables being the independent variables. The first column shows the regression coefficients from the pooled data of 1981-2004, and the second column shows the regression coefficients from 2005-2008.

Contrary to our expectations, the conflicting and statistically significant<sup>15</sup> results in 1981-2004 and 2005-2008 show that there is no statistical evidence that religious participation has any consistent impact on most of the mediating variables with the exception of labor union participation. However, we are able to obtain more consistent results from regressions of the mediating variables on income. We find that religious participation has a positive and significant direct impact on income. As expected, both sets of data show that health and education increase income. Participation in labor unions and professional organizations has positive and significant impacts on income, while participation in political parties decreases income. Intolerance towards AIDS carriers and homosexuals has negative and significant impact on income, while there is either inconsistent evidence or none at all to indicate that intolerance towards people of a different race and foreigners has

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<sup>15</sup> Only coefficients that are significant at the 1% and 5% levels are referred to as statistically significant in this paper

any impact on income. Both sets of data show that trust is positively related to income.

When we substitute religiosity, i.e., religious belief and religious intensity, for religious participation and look at their impact on our mediating variables and income, we are able to get much more robust and consistent results from the two sets of data. Again, ten independent regressions are run for the first part of our path analysis model for each set of data. The first and second rows of Table a.2.a show the regression coefficients of religious belief and religious intensity in 1981-2004 with the mediating variables as the dependent variables, and the third row shows coefficients of religious intensity in 2005-2008.

People with a higher level of religious belief (we refer to them as “believers” for simplicity’s sake) show better health, but interestingly, people with a higher level of religious intensity (“enthusiasts”) show the opposite. There is no consistent statistical evidence that suggests religiosity has any impact on participation in political parties and professional organizations, but both believers and enthusiasts have a lower level of participation in labor unions. Higher levels of intolerance towards people of a different race, AIDS carriers, and homosexuals among the respondents is found among enthusiasts, but believers show lower levels of intolerance towards AIDS carriers and homosexuals. Both religious belief and intensity are shown to be negatively related to trust.

Table a.b.2 shows the regression coefficients with income always being the dependent variable, and religious belief, religious intensity, and the mediating variables being the independent variables. The first column shows regressions results from 1981-2004, and the second column shows results from 2005-2008.

Religious belief has a negative and statistically significant impact on income in 1981-2004, and religious intensity has a negative and statistically significant impact on income in both sets of data.

As discussed previously, we repeat all regressions with 2005-2008 data as a robustness check. Our conflicting regression results from religious participation lead us to suspect that it is either that 1981-2004 and 2005-2008 have been two different samples, or there are no statistically significant relationships between religious participation and the mediating variables. To investigate the reason behind these conflicting coefficients, we standardize the two data sets by reducing them into only including observations from 22 countries in Table b.4 that are present in both data sets. The 2005-2008 data were then weighted to fit the distribution of the religious participation variable in the pooled 1981-2004 data. As the data in Table b.5.a and Table b.5.b show, the difference between the two sets of data persists. That leads us to conclude that the relationship between religious participation and our mediating variables we picked up from these regressions may be spurious. The statistical significance of the coefficients is possibly due to our sufficiently large samples that have magnified the inconsistent and non-notable effects of the participation variable. While the majority of our results in 1981-2004 are consistent with Guiso, Sapienza, and Zingales' findings, our results in 2005-2008, which were not available at the time of their study, suggest otherwise.

How should we interpret the different impacts of religious participation, belief, and intensity on the mediating variables and income? We have shown that religious belief and religious intensity have different relationships on attitudes, and in turn, income, while religious participation alone is not statistically significantly



related to most of our variables. That leads us to question whether the literature has been using an appropriate measurement of religiosity. Guiso, Sapienza, and Zingales combine religious affiliation, upbringing, and participation to examine the relationship of “religiosity” and social attitudes, but our results show that religious participation has very different impact on attitudes and behaviors when it is treated as a variable independent of religious belief or intensity. Adding religious participation to the definition of religiosity may make their regression coefficients more consistent and significant. Similarly, Barro and McCleary (2003) examine the relationship between “religiosity” – which they define as merely belief in heaven and belief in hell – and economic growth, but our results suggest that the results may have been different if they had included other belief systems or religious intensity.

Second, some of the variations and inconsistencies in our results may come from omitted variables. The quality of religious participation may be relevant in explaining religion’s impact on attitudes and behaviors. A sizable number of respondents in this study may participate in religious activities for secular reasons, which could lower the quality of their participation because they have less incentive to demand better quality stewardship or accumulate “religious capital”. However, both believers and enthusiasts should be expected to participate more frequently and intensively, and therefore “benefit” more from the same amount of religious activities. Since we have no information on why the respondents in our study choose to participate in religious activities, it is almost impossible to identify religious participants who participate for non-religious reasons from those

participating for religious reasons. Hence we might expect inconsistent relationships between participation alone and our mediating variables.

Finally, most of the mediating variables selected for the path analysis model represent values and attitudes whose social judgment is ambiguous. Corwyn and Benda (2000) argue that religion has more significant effects on unambiguous societal values (in their case it is the use of “hard” drugs), especially values that are entrenched in the culture. Participation in civil societies and trust towards others are not associated directly with religious teachings of any denomination so that no socially agreed-upon “correct” or “moral” attitude is prevalent. Intolerance, although preached by most religious denominations as an undesirable quality, is unarguably a part of our human nature. Perhaps, as Adam Smith suggests, intolerance is at times promoted by established, and particularly dominant, religions. Because of the lack of cultural and moral reinforcement, religious involvement might have no more significant impact on these variables as personal traits and preferences. In other words, even if we could determine the relationships between religious participation and religiosity and the relevant omitted variables, no significant relationship between religion and the mediating variables may exist.

***Does the impact differ with the presence of state religions?***

Table a.3.a reports the impact of religious participation, religious belief, and religious intensity of our set of mediating variables with a dummy variable of state religion added in. The top four rows report results with state religion and an interactive variable of state religion and religious participation as the independent variables, and each of the ten mediating variables as the dependent variables in ten

independent sets of regressions. The bottom three rows report results with religious participation replaced by religious belief and religious intensity in the interactive variables.

The interactive variables of state religion and religious participation should be understood as the impact of religious participation on the mediating variables given the presence of state religions. Observations with state religions have their intercepts shifted by the state religion coefficient, and their slope shifted by the interactive variable coefficient. Statistical significance of the interact variables implies religious participation affects respondents from countries with state religions differently from respondents from countries without. The same applies to religious belief and religious intensity.

State religion has a positive and statistically significant impact on health in 1981-2004, and an insignificant impact in 2005-2008. It has a negative and statistically significant impact on intolerance towards people of a different race and intolerance towards foreigners in both data sets. State religion has no significant impact on trust in 1981-2004, but is positively related to trust in 2005-2008. Our results fail to show consistent relationships between state religion and education, civil society participation, intolerance towards AIDS carriers, and intolerance towards homosexuals.

We find that religious participation has a negative and statistically significant impact on health, participation in political parties, participation in professional organizations, and trust in both data sets. Religious participation has a positive and statistically significant impact on education and the intolerance variables, and a negative impact on participation in labor unions in 2005-2008. There is no evidence

that suggests religious participation has a different impact on these variables with the presence of state religions in 1981-2004.

Compared to their counterparts from countries without state religions, believers and enthusiasts show lower levels of participation in political parties and professional organizations with the presence of state religions in both 1981-2004 and 2005-2008. Believers has a lower level of trust, but there is no evidence that suggests they have different levels of education, participation in labor unions, intolerance towards AIDS carriers, foreigners, and homosexuals compared to believers from countries without state religions. Enthusiasts show higher levels of education, intolerance towards AIDS carriers, and intolerance towards homosexuals with the presence of state religion in 2005-2008, while the effect of state religion on these variables is null in 1981-2004. The impacts of religious intensity on intolerance towards people of a different race and foreigners are inconsistent between the two data sets.

Table a.3.b reports regression coefficients with income always as the dependent variable, and the mediating variables and the interactive variables of state religion as the independent variables. The first two columns report regression results using religious participation and an interactive variable of state religion and religious participation as independent variables. The third column substitutes religious participation with religious belief for 1981-2004, and the fourth and fifth columns substitute religious participation with religious intensity. State religion has a negative and statistically insignificant impact on income only in 2005-2008, and its effect on income in 1981-2004 is null.

Results in 2005-2008 suggest that the presence of state religion has a negative impact on the effects of education and intolerance towards homosexuals on income. It has a positive impact on the effects of health, participation in labor unions, participation in professional organizations, intolerance towards AIDS carriers, intolerance towards foreigners, and trust on income. There is no consistent evidence that suggests the level of income is different among enthusiasts from countries with state religions, but believers make a higher level of income compared to their counterparts in countries without state religions in 1981-2004. Religious participation is negatively related to income with the presence of state religions in 2005-2008. The presence of state religions does not make any difference in how participation in political parties and intolerance towards people of a different race impact income in 2005-2008. Regression coefficients of the interactive variables in 1981-2004 are largely statistically insignificant, which might be explained by the smaller sample size in 1981-2004 than that in 2005-2008.

We find it interesting that state religions do not seem to have consistent and robust relationships with human capital and social attitudes on the individual level, while the literature suggests otherwise on the country level. Surprisingly, religiosity reduces civil society participation among respondents from countries with state religions, even though we expect that being believers or enthusiasts in a state religion might give better access to political parties or professional organizations. One possible explanation is that religious institutions with official state mandates might carry heavier social and political roles than those without, and therefore believers and enthusiasts have relatively little need to seek other channels to participate secularly in their communities. For example, in Islamic countries where

Syariah courts are the main judiciary body and are overseen by the religious councils, religious leaders are often considered to have important political influence even though they might not be involved with any political parties or the government.

Another interesting finding is that the presence of state religions does not have the expected effects on intolerance and trust. It is a reasonable guess that since state religion necessarily implies religious monopoly, its absence of pluralism in the religious market might extend to other social and political aspects. However, we do not find any consistent empirical evidence that religious participants or believers discriminate against minorities more (or less) in countries with state religions compared to those without. Interestingly, however, state religion has a negative impact on trust, which is a measurement of the respondent's general level of trust towards people, regardless of whether they are religious, social, or racial minorities. A possible explanation is that we have been focusing on participants, believers, and enthusiasts in countries with state religions, but not necessarily individuals who believe in or participate in the state religion. For instance, Malaysia's state religion is Islam, but a sizable proportion of its population is traditionally either Hindu or Buddhist. In countries with great degrees racial and cultural diversity, such as England, it is also common that staunch believers or frequent participants might not be related to the state religion at all.

### ***The impacts of different religions***

Table a.4 reports the regression coefficients of different religious denominations with each of the mediating variables always as the dependent

variables in the ten independent regressions run for each data set. The first four rows of each religion (shown on the left of the table) show regression results with a dummy variable for the religious denomination and an interactive variable of the religious denomination and religious participation as the independent variables. The bottom three rows show results with religious participation replaced by religious belief and religious intensity. Table a.5 reports the regression coefficients with income always as the dependent variable, and the mediating variables and the interactive variables as the independent variables. For example, the first two columns under “Protestant” show regression results with independent variables including a dummy variable for Protestantism, religious participation, the mediating variables, and the interactive variables of Protestantism and the mediating variables in 1981-2004 and 2005-2008. The third column shows regression results with religious participation replaced by religious belief in 1981-2004, and the last two columns show results with religious participation replaced by religious intensity in 1981-2004 and 2005-2008. Once again, we are able to get greater significance among variables in 2005-2008 possibly because of its larger sample size.

### ***Protestantism***

Our results show that the difference impacts on the mediating variables between religious participation and religiosity persist even after we include dummy variables for different religious denominations. Protestantism is positively related to education and trust, and negatively related to intolerance towards people of a different race and AIDS carriers in both data sets. In 2005-2008, it has a positive and statistically significant impact on health and participation in professional organizations, while its effect is null in 1981-2004. Regression coefficients for the

remaining mediating variables are either statistically insignificant or inconsistent in both data sets. Compared to non-Protestant participants, Protestant participants demonstrate similar attitudes and behaviors in 1981-2004. However, they show lower levels of participation in professional organizations and trust, and higher levels of participation in political parties, and intolerance towards people of a different race and AIDS carriers in 2005-2008.

Intolerance towards homosexuals is the only trait shared by Protestants believers and Protestant enthusiasts. We find that generally Protestant believers behave the same way as non-Protestant believers, with the exception of better health, a higher level of intolerance towards homosexuals, and lower levels of intolerance towards people of a different race and foreigners. Similarly, Protestant enthusiasts' attitudes and behaviors are largely the same as non-Protestant enthusiasts in 1981-2004 with the exceptions of their lower level of intolerance towards people of a different race. In 2005-2008, however, Protestant enthusiasts show lower levels of education, participation in professional organizations, and trust. They have higher levels of participation in political parties and intolerance towards foreigners (which is inconsistent with the 1981-2004 result). Generally, Protestant participation and Protestant religiosity have very different relationships with the mediating variables. The only similarities they share are Protestant participation and Protestant intensity's relationships with participation in professional organizations and trust in 2005-2008. There is no consistent evidence that identification as Protestant has any significant impact on income. Protestant participation has a positive and statistically significant impact on income in 1981-2004, but Protestant religiosity has no significant relationship with income in either



data sets. Identification as Protestant reduces the positive effects of education and trust on income, as well as effects of intolerances towards AIDS carriers on income. The rest of the mediating variables affect income the same way among both Protestants and non-Protestants.

### ***Catholicism***

Catholicism is shown to have robust and significant impacts on the majority of our mediating variables. It is positively related to health and education, and is negatively related to participation in political parties and all the intolerance variables in both data sets. It also has a positive and significant impact on participation in labor unions in 2005-2008. However, there is no consistent evidence that suggests identification as Catholic has any relationship with participation in professional organizations and trust.

Interestingly, Catholic participation generally has the opposite effects on the mediating variables to identification as Catholic. Both data sets show that Catholic participants have poorer health, lower levels of participation in labor unions, and a higher degree of intolerance in general compared to non-Catholics participants. Catholic participants also show lower levels of education, participation in professional organizations, and trust in 2005-2008. Our results show that Catholic participants have the same level of participation in political parties as non-Catholic participants.

Similar to Protestants, the only trait Catholic believers and enthusiasts share is their higher level of intolerance towards homosexuals in both data sets. Catholic believers also show better health, higher levels of education, and participation in labor unions, as well as lower levels of intolerance towards people of a different race

and intolerance towards foreigners. They behave the same way as non-Catholic believers in terms of participation in political parties and professional organizations, intolerance towards AIDS carriers, and trust. Catholic enthusiasts show a higher level of participation in political parties and a lower level of trust in both data sets. Catholic enthusiasts also show a higher level of participation in professional organizations in 1981-2004, and they are less educated with a higher level of intolerance towards AIDS carriers in 2005-2008. There is no evidence that shows Catholicism has any significant affect on how religious intensity impacts the rest of the mediating variables.

Both data sets show that identification as Catholic has a negative and statistically significant impact on income. Catholic participation does not have any consistent relationship with income. However, Catholic belief increases income compared to non-Catholic belief, while Catholic intensity decreases income compared to non-Catholic intensity. The impacts of health, education, participation in political parties and professional organizations, and intolerance towards people of a different race are stronger among Catholics in 2005-2008, while the effects of these mediating variables are the same among both Catholics and non-Catholics in 1981-2004. Identification as Catholic strengthens the positive effect of trust on income, but we fail to find consistent evidence that suggests it makes any different in the impact of the rest of the mediating variables on income.

### ***Eastern Orthodox***

As Table a.4 shows, Eastern Orthodox is negatively related to health, participation in political parties and professional organizations, and positively related to intolerance towards AIDS carriers and homosexuals in both data sets. It

has a positive impact on education and a negative impact on trust in 2005-2008, but these effects are null in 1981-2004. Our results fail to show any statistically significant relationship between Eastern Orthodox and participation in labor unions, and intolerance towards people of a different race and foreigners in either data set. Compared to non-Eastern Orthodox participants, Eastern Orthodox participants show better health in both data sets. That is the only consistent and statistically significant relationship between Eastern Orthodox participation and the mediating variables found in both data sets. Eastern Orthodox participants show higher levels of education and participation in labor unions and professional organizations in 1981-2004. They also lower levels of intolerance towards people of a different race, AIDS carriers, and homosexuals, and a higher level of trust in 2005-2008. They do not behave differently in terms of the rest of the mediating variables compared to non-Eastern Orthodox participants.

Both Eastern Orthodox believers and enthusiasts show better health and a lower level of participation in political parties compared to their non-Eastern Orthodox counterparts, and they are also the only traits that Eastern Orthodox believers and enthusiasts share. Eastern Orthodox believers demonstrate higher levels of education and intolerance towards foreigners and homosexuals, but they behave the same way as non-Eastern Orthodox believers in terms of the rest of the mediating variables. A higher level of participation in labor unions is observed among Eastern Orthodox enthusiasts in both data sets. Eastern Orthodox enthusiasts demonstrate a higher level of intolerance towards all our categories with the exception of foreigners in 1981-2004, and they show a higher level of trust in 2005-2008. There is no consistent evidence to show that they behave differently

in terms of education level and intolerance towards homosexuals from non-Eastern Orthodox enthusiasts.

Identification as Eastern Orthodox has a negative and statistically significant impact on income, and it also strengthens the negative impact of religious participation and reduces the positive impact of religious belief on income. The effect of religious intensity remains the same for both Eastern Orthodox and non-Eastern Orthodox. In 2005-2008, the impacts of health, education, and intolerance towards homosexuals are stronger among Eastern Orthodox, while the positive effect of participation in professional organization is reduced among them. The effects of these variables on income remain the same among both Eastern Orthodox and non-Eastern Orthodox in 1981-2004, but intolerance towards people of a different race has a weaker impact on income among Eastern Orthodox. Our results fail to show any difference in the effects of the rest of the mediating variables on income between Eastern Orthodox respondents and non-Eastern Orthodox respondents.

### ***Islam***

Our regression results show significant and robust relationships between identification as Muslim and most of the mediating variables. Both data sets reveal that Muslims have lower levels of education and trust, and generally a higher level of intolerance. They also have a lower level of health and a higher level of participation in political parties in 1981-2004, and a lower level of participation in labor unions in 2005-2008. There is no consistent evidence that shows they have a different level of participation in professional organizations from non-Muslims. Interestingly, Muslim participants show lower levels of intolerance towards AIDS

carriers and homosexuals compared to non-Muslim participants, even though identification as Muslim is shown to foster intolerance in general. The same is observed among Muslim believers. Muslim participants also show better health, lower levels of education and trust, and higher levels of participation in political parties, and intolerance towards people of a different race and foreigners in 1981-2004. They have higher levels of participation in labor unions and professional organizations in 2005-2008.

Both Muslim believers and enthusiasts demonstrate higher levels of intolerance towards people of a different race and foreigners compared to their non-Muslim counterparts in both data sets. Muslim believers shows poorer health, and as mentioned above, lower levels of intolerance towards AIDS carrier and homosexuals. There is no evidence that suggests they behave differently in terms of education, civil society participation, and trust from non-Muslim believers. A higher level of participation in professional organizations is observed among Muslim enthusiasts in 1981-2004, and a lower level of participation in political parties is observed in 2005-2008. Religious intensity affects the rest of the mediating variables by the same amount among both Muslims and non-Muslims.

Islam has a positive and statistically significant impact on income, but there is no evidence that shows religious participation impacts income differently among Muslims. The effects of both religious belief and religious intensity are stronger among Muslims in 1981-2005, while the effect is null in 2005-2008. The positive impact of education is stronger among Muslims in 1981-2004, and effects of intolerance towards people of a different race and foreigners are weaker among Muslims in 2005-2008. We do not find any consistent evidence that the rest of the

mediating variables have different effects on income among Muslims and non-Muslims.

### ***Hinduism***

We find that Hinduism directly fosters intolerance towards people of a different race and foreigners in both data sets. Hindus show poorer health, a lower level of education, and higher levels of participation in labor unions and professional organizations in 2005-2008. The coefficients for Hinduism and the rest of the mediating variables are statistically significant. Hindu participants show lower levels of participation as well as intolerance towards homosexuals in both data sets compared to non-Hindu participants. Hindu participants also have higher levels of health and intolerance towards AIDS carriers as well as lower levels of participation in political parties and professional organizations, and intolerance towards AIDS carriers in 2005-2008.

Compared to non-Hindu believers, Hindu believers demonstrate lower levels of education, civil society participation, as well as intolerance towards people of a different race, foreigners, and homosexuals. Our results show that religious belief impacts health, intolerance towards AIDS carriers, and trust by the same amount among both Hindu and non-Hindu believers. Similarly, Hindu enthusiasts also show lower levels of civil society participation and intolerance towards people of a different race and homosexuals compared to non-Hindu enthusiasts. They also have better health and a higher level of trust in both data sets, and lower levels of intolerance towards AIDS carriers and foreigners in 1981-2004.

Hinduism has a positive and statistically significant impact on income in 1981-2004, but its effect on income is null in 2005-2008. Hinduism has positive

effects on the impacts of religious belief and intensity on income in both data sets, but it does not have any impact on the way religious participation affects income. In 1981-2004, Hinduism reduces the positive effects of health and participation in political parties, and strengthens the impact of intolerance towards homosexuals on income. It also reduces the effects of participation in labor unions in 2005-2008, and trust in both data sets.

### ***Judaism, Buddhism, and Asian Religions***

Results for Judaism, Buddhism, and Asian religions are relatively less robust because of their smaller samples. Our results show that Judaism's effects on the mediating variables are largely null. Identification as Jewish is negatively related to intolerance towards people of a different race in 1981-2004, and intolerance towards AIDS carriers and homosexuals in 2005-2008. Jews show a higher level of education than non-Jews in 2005-2008. Religious participation has the same effect on the mediating variables among both Jews and non-Jews, and the only exception is the higher level of trust observed among Jews in 2005-2008. Similarly, Judaism has no impact on the effects of religious belief and intensity on the mediating variables, and the only exception is the higher level of trust observed among Jews in 2005-2008.

Judaism has no direct impact on income, but Jewish participation is positively related to income in 1981-2004. Jewish religious belief and intensity are both negatively related to income in both data sets. Judaism strengthens the effects of religious belief and health in 1981-2004, but there is no consistent and robust evidence to suggest it has any effect on the impact of the rest of the mediating variables on income.

We fail to find any consistent and statistically significant relationship between Buddhism and the mediating variables in 1981-2004, with the exception of a higher level of participation in professional organizations. Compared to non-Buddhists, Buddhists generally have a higher level of intolerance and a lower level of trust in 2005-2008. Buddhist participants do not behave differently from non-Buddhist participants in 1981-2004, but they show lower levels of education, participation in political parties, intolerance towards AIDS carriers and homosexuals, and higher levels of intolerance towards foreigners and trust in 2005-2008. Buddhist believers also behave the same way as non-Buddhist believers with the exceptions of lower levels of intolerance towards AIDS carriers and homosexuals, and trust. There is no consistent evidence that suggests religious intensity has a different impact on the mediating variables among Buddhists in 1981-2004, but Buddhists enthusiasts show better health, higher levels of participation in labor unions and professional organizations, intolerance towards people of a different race and foreigners, and trust in 2005-2008. Results from 2005-2008 show a positive and statistically significant relationship between Buddhism and income, but no evidence that suggests the same is found in 1981-2004. Buddhism is found to increase the impact of religious intensity on income in 2005-2008. It also reduces the impacts of health, education, participation in professional organizations, intolerance toward AIDS carriers, foreigners, and homosexuals on income in 2005-2008.

We find that Asian religions reduce participation in professional organizations in both data sets. In 2005-2008, they reduce the level of education and participation in labor unions, and increase participation in political parties, trust,



and intolerance towards people of a different race, AIDS carriers, and foreigners. However, there is no evidence in 1981-2004 that indicates the same effects on these mediating variables. Compared to participants in non-Asian religions, participants in Asian religions show a higher level of participation in professional organizations in both data sets, as well as higher levels of health, education, participation in labor unions, and trust in 2005-2008. They also show lower levels of intolerance towards foreigners and homosexuals. We do not find any consistent and statistically significant evidence that shows participants in Asian religions behave differently in terms of their participation in political parties, and intolerance towards people of a different race and AIDS carriers.

Religious belief has the same effect on the mediating variables among believers in both Asian religions and non-Asian religions, with the only exception of a lower level of participation in labor unions among believers in Asian religions. Results from both data sets show that enthusiasts in Asian religions have better health and a lower level of participation in political parties compared to enthusiasts in non-Asian religions. In 2005-2008, enthusiasts in Asian religions have higher levels of education and participation in labor unions. They also have lower levels of participation in political parties, and intolerance towards people of a different race, foreigners, and homosexuals.

Asian religions are positively related to income, but both data sets show that belief and intensity in Asian religions have negative and statistically significant impacts on income. The effects of religious participation, education, participation in professional organizations, and intolerance towards homosexuals on income are

also reduced in 2005-2008. However, Asian religions strengthen the impact of participation in political parties on income.

There are two interesting findings in our comparison of different religious denominations, and their respective impacts on the mediating variables and income. First, we have shown that the difference in religious participation, religious belief, and religious intensity persist even after we add in dummy variables of religious denominations. Out of all the religions included in this section, Hindu belief and intensity are the most similar in terms of their impacts on the mediating variables. Religious participation has different effects on the mediating variables from religiosity in most religions, which is consistent with our overall results.

Second, we observe some specific traits of each religion. Catholic participation promotes intolerance, while Catholic and Protestant religiosity particularly promotes intolerance towards homosexuals. Eastern Orthodox affiliation and religiosity both have negative impacts on health and participation in political parties. Muslim affiliation, participation, and religiosity promote intolerance towards people of a different race and foreigners. Hindu participation and religiosity both discourage civil society participation, as well as intolerance towards homosexuals. Interestingly, the fact that all the Jewish respondents are religious minorities in their countries does not make much difference in the effects of Jewish participation or religiosity on the mediating variables. However, the statistically insignificant coefficients might also be explained by the small proportion of Jewish respondents with Israel excluded in this study. Our findings about education and health might be more subjective of political and economic circumstances of particular regions. Hinduism, for instance, is most prevalent in

India, a developing country, which explains the lower levels of education and health among Hindus. The same applies to Islam to some extent.

## V. CONCLUSION AND NEXT STEPS

In this paper we investigate two aspects of the relationship between religion and income. First, we establish five sets of mediating variables through which religious participation might impact income using a path analysis. We also examine whether the presence of state religions and different religion denominations have different effects on the impact of religious participation on the mediating variables and income. Ordered probit regressions were used to correct for potential problems of heteroscedascity. Second, we argue that religious participation is not equivalent to religiosity and should be treated as an independent aspect of religious involvement. We define religiosity on two dimensions– religious belief and religious intensity. In order to test whether religious participation has the same effects on the mediating variables and income as religiosity, we treat religious participation and religiosity separately in all the regressions. Our results show that the relationship between religious participation and the mediating variables may be spurious, but that religiosity exhibits more robust and consistent relationships with them.

One of the major problems that we face in this study is variable measurement errors. Some variables used in this paper from the WVS, such as health and intolerance, are not objective measures of the respondent's health conditions or reflect any discriminatory actions in real life. Possible next steps to study the relationship between religion, social attitudes, and income should include more objective measurement of these variables, which might be achieved more easily with country-level data. Life expectancy, happiness indices and equality indices are potentially more objective variables to estimate social attitudes and

behaviors, since it is almost impossible to estimate individually every survey respondent's health status, and we can expect that few respondents would tell the truth about discriminatory acts they have carried out. Most precise measure of income should also replace the income quintiles used in this paper.

An interesting extension to this paper is to examine whether individuals who participate in religious activities for secular reasons have different attitudes and behaviors, and in turn income, from individuals who participate for religious reasons. However, measurement errors might persist as individuals have clear incentives not to disclose their true reasons for participation, and there are many individuals who participate for both religious and secular reasons. Another possible method is to include in surveys the respondent's self-perceived intensity of religious participation as a measurement of the quality of religious participation (e.g. active involvement vs. mere attendance, amount of tithing, importance of religious participation in life). If this could be done, the results could potentially reveal whether participation incentives make any difference in social attitudes and income.

Another possible extension is to allow for more interactions between variables in our model. Throughout this paper we have employed two assumptions: first, our path analysis is a recursive model, i.e., proposed causality flows in one single direction from religion to income through the mediating variables. Second, religious participation, religious belief, and religious intensity are hypothesized to be completely independent of each other. It will be interesting to examine the feedback effects of our path analysis model between religiosity and income, as well as the potentially bi-causal relationship between religious participation and religiosity.

Our study has added to the ongoing discussion regarding the relationship between religion and economic outcome, and we have found that different dimensions of religious involvement do not generate the same impact on our social attitudes and behaviors. It might be a baby step in terms of untangling the complex relationship between religion and our society, but figuring out the “correct” definition of our subject matter is definitely an important first step in that direction.

## VI. BIBLIOGRAPHY

- Azzi, C. and R. Ehrenberg (1975). "Household Allocation of Time and Church Attendance." Journal of Political Economy 83(1): 27-56.
- Barro, R. and R. McCleary (2003). "Religion and Economic Growth." American Sociological Review 68(5): 760-781.
- Barro, R. and R. McCleary (2005). "Which Countries Have State Religions?" The Quarterly Journal of Economics 120(4): 1331-1370.
- Clark, W. and G. Schellenberg (2006). "Who's religious?" Canadian Social Trends(81): 2-9.
- Corwyn, R. F., B.B. Benda, et al. (2000). "Religiosity and church attendance: The effects of use of hard drugs controlling for socioeconomic and theoretical." International Journal for the Psychology of Religion 10(4): 241-248.
- Durkheim, É. (1912). The Elementary Forms of Religious Life.
- Everitt, B. and G. Dunn (1991). Applied multivariate data analysis, Edward Arnold Press.
- Gardner, N. A. (2004). Does Religious Participation Help Keep Adolescents in School?, American Youth Policy Forum.
- Guiso, L., P. Sapienza, et al. (2003). "People's Opium? Religion and Economic Attitudes." Journal of Monetary Economics 50(1): 225-282.
- Huber, J. D. (2006). "Religious belief, religious participation, and social policy attitudes across countries " Annual Meetings of the Midwest Political Science Association.
- Iannaccone, L. (1990). "Religious Practice: A Human Capital Approach." Journal for the Scientific Study of Religion 29(3): 297-314.
- Johnson, B. R., R. B. Tompkins, et al. (2003). Objective Hope: Assessing the Effectiveness of Faith-Based Organizations: A Review of the Literature, University of Pennsylvania. Center for Research on Religion and Urban Civil Society.
- Kahana, N., G. Hollander, et al. (2003). "Religious and Secular Human Capital: An Economic Model." The Journal of Socio-. Economics 32(5): 489-498.
- Lipford, J. W. and R. D. Tollison (2003). "Religious participation and income." Journal of Economic Behavior & Organization 51(2): 249-260.

Marx, K. (1843). Critique of Hegel's Philosophy of Right.

Smith, A. (1776). An Inquiry into the Nature and Causes of the Wealth of Nations.

Smith, I., J. W. Sawkins, et al. (2008). "The Economics of Religious Participation: A Cross-country Study." Kyklos: International Review for Social Sciences 51(1): 25-44.

Takyi, B. K. and I. Addai (2002). "Religious Affiliation and Women's Educational Attainment and Empowerment in a Developing Society." Sociology of Religion 63(22): 177-193.

Ullman, J. B. (1996). Using Multivariate Statistics. HarperCollins College Publishers

Weber, M. (1905). The Protestant Ethic and the Spirit of Capitalism.



# **Appendix A**

**Table a.1.a Regression results for mediating variables with religious participation**

		<i>Dependent Variable</i>											<i>N</i>
		Health	Education	Participation in Labor Union	Participation in Political Party	Participation in Profession Organization	Intolerance: People of a Different Race	Intolerance: AIDS carriers	Intolerance: Foreigners	Intolerance: Homosexuals	Trust		
<i>Independent variable</i>	Religious Participation	1981- 2004	-0.016	0.029***	0.045***	-0.044***	-0.027***	-0.047***	-0.015***	-0.028***	-0.028***	0.030***	81119
		2005- 2008	-0.003	-0.083***	0.012***	0.091***	0.052***	0.043***	0.008***	0.021***	0.108***	-0.001***	43370
		<i>Pseudo R<sup>2</sup></i>	0.001	0.001	0.006	0.006	0.002	0.007	0.001	0.003	0.002	0.003	
			0.000	0.007	0.003	0.016	0.005	0.004	0.001	0.001	0.024	0.005	

\*\*\* Significant at 1% level

\*\* Significant at 5% level

\* Significant at 10% level

**Table a.1.b Regression results for income with religious participation**

<i>Independent variable</i>	<i>Dependent Variable</i>	
	<i>Income (Logged)</i>	
	1981-2004	2005-2008
Religious Participation	0.007***	0.034***
Health	0.179***	0.152***
Education	0.140***	0.133***
Participation in Labor Unions	0.038***	0.036***
Participation in Political Parties	-0.024**	-0.122***
Participation in Professional Organizations	0.116***	0.170***
Intolerance: People of a Different Race	-0.019	-0.017
Intolerance: AIDS carriers	-0.043***	-0.037***
Intolerance: Foreigners	0.054***	-0.034***
Intolerance: Homosexuals	-0.044***	-0.063***
Trust	0.115***	0.154***
<i>Pseudo R<sup>2</sup></i>	0.007	0.034
<i>N</i>	81119	43370

**Table a.2.a Regression results for mediating variables with religiosity**

		<i>Dependent Variable</i>											
		Health	Education	Participation in Labor Union	Participation in Political Party	Participation in Profession Organization	Intolerance: People of a Different Race	Intolerance: AIDS carriers	Intolerance: Foreigners	Intolerance: Homosexuals	Trust	<i>N</i>	
<i>Independent variable</i>	1981-2004	Religious Belief	0.063***	-0.045***	-0.111***	-0.006	-0.011	0.023***	-0.046***	-0.001	-0.036***	-0.025***	60271
		Religious Intensity	-0.031***	-0.082***	-0.088***	-0.004	-0.031***	0.069***	0.084***	0.049***	0.116***	-0.129***	60271
	2005-2008	Religious Intensity	-0.055***	-0.167***	-0.021***	0.144***	0.039***	0.024***	0.014**	-0.007	0.239***	-0.176***	40695
		<i>Pseudo R<sup>2</sup></i>	0.009	0.003	0.015	0.000	0.001	0.003	0.002	0.001	0.005	0.010	
			0.001	0.006	0.002	0.008	0.001	0.003	0.001	0.000	0.030	0.020	

**Table a.2.b Regression results for income with religiosity**

<i>Independent variable</i>	<i>Dependent Variable</i>	
	Income (Logged)	
	1981-2004	2005-2008
Religious Belief	-0.044***	--
Religious Intensity	-0.094***	-0.016***
Health	0.153***	0.182***
Education	0.135***	0.138***
Participation in Labor Unions	0.026**	0.038***
Participation in Political Parties	-0.119***	-0.023**
Participation in Professional Organizations	0.186***	0.120***
Intolerance: People of a Different Race	-0.015	-0.023
Intolerance: AIDS carriers	-0.056***	-0.055***
Intolerance: Foreigners	-0.02	0.042***
Intolerance: Homosexuals	-0.070***	-0.033***
Trust	0.137***	0.119***
<i>Pseudo R<sup>2</sup></i>	0.035	0.038
<i>N</i>	60271	40695

**Table a.3.a Regression results for mediating variables with state religion**

		<i>Dependent Variable</i>											
		Health	Education	Participation in Labor Unions	Participation in Political Parties	Participation in Professional Organizations	Intolerance: People of a Different Race	Intolerance: AIDS carriers	Intolerance: Foreigners	Intolerance: Homosexuals	Trust	<i>N</i>	
<i>Independent variable</i>	State Religion	1981- 2004	0.432***	-0.615***	-0.240***	0.679***	-0.02	-0.365***	0.485***	-0.226***	0.602***	-0.056	12824
		2005- 2008	0.018	0.106***	0.073***	-0.292***	0.005	-0.289***	-0.285***	-0.193***	-0.718***	0.392***	15126
	State Religion	1981- 2004	-0.352***	-0.086	-0.004	-0.417***	-0.402***	-0.148**	0.065	0.032	0.016	-0.133***	12824
	*Religious Participation	2005- 2008	-0.141***	0.039***	-0.171***	-0.085***	-0.042**	0.075***	0.211***	0.095***	0.068***	-0.077***	15126
	State Religion	1981- 2004	-0.352***	-0.086	-0.004	-0.417***	-0.402***	-0.148**	0.065	0.032	0.016	-0.133***	12824
	*Religious Belief	1981- 2004	-0.245***	0.022	0.007	-0.222***	-0.363***	-0.192***	-0.018	-0.177***	0.071	-0.043	12824
	State Religion	2005- 2008	-0.141***	0.039***	-0.171***	-0.085***	-0.042**	0.075***	0.211***	0.095***	0.068***	-0.077***	15126
	*Religious Intensity	1981- 2004	-0.245***	0.022	0.007	-0.222***	-0.363***	-0.192***	-0.018	-0.177***	0.071	-0.043	12824
		2005- 2008	-0.141***	0.039***	-0.171***	-0.085***	-0.042**	0.075***	0.211***	0.095***	0.068***	-0.077***	15126
		<i>Pseudo R<sup>2</sup></i>	0.007	0.008	0.003	0.049	0.011	0.024	0.007	0.012	0.007	0.001	
		0.001	0.008	0.004	0.02	0.005	0.011	0.014	0.008	0.058	0.021		

**Table a.3.b Regression results for income with state religion**

Independent variable	Dependent variable				
	Income (Logged)				
	Religious Participation		Religious Belief	Religious Intensity	
	1981-2004	2005-2008	1981-2004	1981-2004	2005-2008
State Religion	0.208	-0.294***	0.421	0.159	-0.389***
[Religious Participation/Religious Belief/ Religious Intensity]	0.025***	0.013***	-0.122***	-0.131***	0.012**
State Religion * [Religious Participation/Religious Belief/ Religious Intensity]	0.009	-0.038***	0.132***	0.086***	-0.148***
Health	0.125***	0.162***	0.124***	0.124***	0.166***
State Religion * Health	-0.007	0.097***	-0.046	-0.004	0.074***
Education	0.094***	0.145***	0.091***	0.090***	0.143***
State Religion * Education	0.013	-0.019***	0.006	0.018	-0.019***
Participation in Labor Union	0.081***	0.017	0.066***	0.064***	0.015
State Religion * Labor Union	-0.092	0.104***	0.002	-0.104	0.090***
Participation in Political Party	0.069**	-0.025*	0.087***	0.060**	-0.024**
State Religion * Political Party	0.038	-0.004	0.031	0.044	0.013
Participation in Professional Organization	0.215***	0.101***	0.181***	0.214***	0.105***
State Religion * Professional Organization	-0.228	0.089***	-0.108	-0.244*	0.095***
Intolerance: People of a Different Race	-0.015	-0.017	0.022	-0.001	-0.014
State Religion * Intolerance: Race	0.1	0.062	0.03	0.155	0.052
Intolerance: AIDS Carriers	-0.056***	-0.074***	-0.063***	-0.052*	-0.083***
State Religion * Intolerance: AIDS Carriers	0.081	0.192***	0.164	0.066	0.211***
Intolerance: Foreigners	0.053**	-0.002	0.082***	0.068***	-0.004
State Religion * Intolerance: Foreigners	-0.027	0.362***	0.009	-0.042	0.344***
Intolerance: Homosexuals	-0.171***	-0.005	-0.181***	-0.177***	0.002
State Religion * Intolerance: Homosexuals	0.196***	-0.428***	0.191	0.225***	-0.409***
Trust	0.142***	0.067***	0.155***	0.142***	0.070***
State Religion * Trust	-0.124	0.227***	-0.216**	-0.125	0.191***
Pseudo R <sup>2</sup>	0.022	0.041	0.034	0.050	0.046
N	16070	42050	12824	12824	40667

**Table a.4 Regression results for mediating variables (Protestant, Catholic)**

		Dependent Variable												
		Health	Education	Participation in Labor Unions	Participation in Political Parties	Participation in Professional Organizations	Intolerance: People of a Different Race	Intolerance: AIDS carriers	Intolerance: Foreigners	Intolerance: Homosexuals	Trust	N		
Independent Variable														
Protestant	Protestant	1981-2004	0.003	0.320***	0.232	-0.425***	-0.157	-0.984***	-0.478***	-0.936***	-0.123	0.369***	12898	
		2005-2008	0.302***	0.124***	0.082	0.450***	0.602***	-0.425***	-0.930***	-0.312	-0.346	0.343***	35141	
	Protestant * Religious Participation	1981-2004	-0.015	-0.023	-0.019	0.019	0.054*	0.051	-0.030	0.091	-0.067	-0.033	12824	
		2005-2008	-0.019	-0.002	-0.008	-0.028***	-0.073***	0.048***	0.118***	0.044	0.077	-0.077***	35141	
	Protestant * Religious Belief	1981-2004	0.112*	-0.007	0.111	0.116	-0.083	-0.152	0.009	-0.170*	0.199***	0.008	12824	
		2005-2008	0.04	0.02	-0.032	0.036	-0.041	-0.170*	0.088	-0.297***	0.265***	0.092	12898	
	Protestant * Religious Intensity	1981-2004	0.019	-0.090***	0.045	0.107***	-0.083***	0.056	0.035	0.105***	0.076***	-0.100***	35141	
		2005-2008												
	Catholic	Catholic	1981-2004	0.284***	0.350***	0.051	-0.336***	-0.044	-1.037***	-0.388***	-0.868***	-0.246***	-0.193***	12898
			2005-2008	0.397***	0.070*	0.115***	-0.249***	0.038	-0.645***	-1.121***	-0.718***	-1.081***	0.187***	35141
Catholic * Religious Participation		1981-2004	-0.062***	0.000	-0.067***	0.017	-0.026	0.065***	0.113***	0.046***	0.113***	-0.022	12824	
		2005-2008	-0.088***	-0.012*	-0.036***	0.011	-0.027***	0.066***	0.147***	0.074***	0.128***	-0.063***	35141	
Catholic * Religious Belief		1981-2004	0.090***	0.180***	0.136***	0.041	0.069	-0.243***	0.019	-0.210***	0.080*	-0.008	12824	
		2005-2008	0.110***	0.041	0.180***	0.100***	0.101*	-0.332***	0.027	-0.270***	0.117***	-0.123***	12898	
Catholic * Religious Intensity		1981-2004	-0.144***	-0.136***	-0.049***	0.102***	0.034	0.123***	0.160***	0.130***	0.079***	-0.096***	35141	
		2005-2008												



**Table a.4 Cont. Regression results for mediating variables (Eastern Orthodox, Muslim)**

		Dependent Variable											
		Health	Education	Participation in Labor Unions	Participation in Political Parties	Participation in Professional Organizations	Intolerance: People of a Different Race	Intolerance: AIDS carriers	Intolerance: Foreigners	Intolerance: Homosexuals	Trust	N	
Independent Variable													
Eastern Orthodox	Eastern Orthodox	1981-2004	-0.491***	-0.051	0.261***	-0.253***	-0.431***	-0.135*	0.248***	-0.289***	0.316***	-0.033	12898
		2005-2008	-0.591***	0.295***	-0.202***	-0.459***	-0.445***	0.276***	0.843***	0.280***	0.704***	-0.520***	35141
	Eastern Orthodox * Religious Participation	1981-2004	0.042*	0.042*	0.052*	0.022	0.057*	-0.010	0.005	0.019*	0.021	-0.023	12824
		2005-2008	0.057***	-0.012	0.012	0.014	-0.007	-0.044***	-0.129***	-0.070***	-0.046***	0.077***	35141
	Eastern Orthodox * Religious Belief	1981-2004	-0.118***	0.062*	0.017	-0.130***	-0.086	-0.073	0.069*	0.017	0.219***	-0.024	12824
		2005-2008	-0.138***	0.026	0.075*	-0.129***	-0.179***	-0.193***	0.113***	-0.074***	0.184***	0.021	12898
Muslim	Muslim	1981-2004	-0.123***	-0.127***	-0.062	0.428***	0.258***	0.260***	0.323***	0.368***	0.266***	-0.185***	12898
		2005-2008	-0.013	-0.194***	-0.482***	0.044	-0.219***	0.268***	0.740***	0.200***	1.002***	-0.648***	35141
	Muslim * Religious Participation	1981-2004	0.078***	-0.075***	-0.022	0.031*	-0.005	0.092***	-0.096***	0.062***	-0.110***	0.067***	12824
		2005-2008	0.008	0.000	0.043***	-0.016	0.043***	-0.002	-0.040***	0.001	-0.065***	0.112***	35141
	Muslim * Religious Belief	1981-2004	-0.203***	0.007	0.053	-0.001	0.038	0.159***	-0.099***	0.119***	-0.181***	-0.07	12824
		2005-2008	-0.204***	0.113***	0.01	-0.05	0.085*	0.400***	-0.142***	0.282***	-0.230***	-0.095***	12898
Muslim * Religious Intensity	1981-2004	0.116***	-0.106***	-0.055	-0.106***	0.058	0.143***	0.148***	0.115***	0.110***	0.252***	35141	

**Table a.4 Cont. Regression results for mediating variables (Hindu, Buddhist)**

		Dependent Variable											
		Health	Education	Participation in Labor Unions	Participation in Political Parties	Participation in Professional Organizations	Intolerance: People of a Different Race	Intolerance: AIDS carriers	Intolerance: Foreigners	Intolerance: Homosexuals	Trust	N	
Independent Variable													
<i>Hindu</i>	Hindu	1981-2004	0.080	0.022	-0.061	-0.243***	-0.073	0.644***	-0.182***	0.524***	-0.329***	0.504***	12898
		2005-2008	-0.229***	-0.226***	1.032***	1.491***	1.213***	0.304***	0.374***	0.415***	0.840***	-0.451***	35141
	Hindu * Religious Participation	1981-2004	0.020	-0.091***	-0.109***	0.018	0.015	-0.022	0.009	-0.012	-0.052***	-0.006	12824
		2005-2008	0.066***	-0.008	-0.039*	-0.133***	-0.091***	0.074***	-0.054***	-0.016	-0.215***	0.074***	35141
	Hindu * Religious Belief	1981-2004	-0.003	-0.142***	-0.236***	-0.277***	-0.181***	-0.220***	-0.051	-0.272***	-0.230***	0.087*	12824
		2005-2008	0.170***	-0.171***	-0.260***	-0.237***	-0.324***	-0.374***	-0.152***	-0.310***	-0.187***	0.242***	12898
Hindu * Religious Intensity	1981-2004	0.128***	0.155***	-0.083**	-0.314***	-0.203***	-0.150***	-0.023	-0.078	-0.272***	0.149***	35141	
	2005-2008												
<i>Buddhist</i>	Buddhist	1981-2004	0.137	-0.869***	0.287	0.263	1.044***	0.794	-0.415	0.676	-0.507	0.384	12898
		2005-2008	0.021	0.189***	-0.170	0.028	-0.001	0.183*	1.341***	0.221***	0.557***	-0.410***	35141
	Buddhist * Religious Participation	1981-2004	-0.016	0.095	0.026	0.028	-0.119	0.032	0.002	-0.013	-0.017	-0.068	12824
		2005-2008	0.018	-0.064***	0.013	-0.055***	0.002	0.016	-0.129***	0.059***	-0.173***	0.180***	35141
	Buddhist * Religious Belief	1981-2004	0.214	-0.173*	-0.597	-0.081	-0.41	-0.058	0.718*	-0.082	0.844*	0.228	12824
		2005-2008	0.094***	0.027	0.138***	0.036	0.106***	0.087*	-0.114***	0.148***	-0.342***	0.435***	12898
Buddhist * Religious Intensity	1981-2004	0.116***	-0.106***	-0.055	-0.106***	0.058	0.143***	0.148***	0.115***	0.110***	0.252***	35141	
	2005-2008												

**Table a.4 Cont. Regression results for mediating variables (Jewish, Asian Religions)**

		<i>Dependent Variable</i>											
		Health	Education	Participation in Labor Unions	Participation in Political Parties	Participation in Professional Organizations	Intolerance: People of a Different Race	Intolerance: AIDS carriers	Intolerance: Foreigners	Intolerance: Homosexuals	Trust	N	
<i>Independent Variable</i>													
<i>Jewish</i>	Jewish	1981-2004	0.228	0.444	-0.724	-0.331	-0.760	-0.684**	0.809	-0.602	-0.202	-0.043	12898
		2005-2008	-0.046	0.558*	0.317	0.546	0.499	-0.275	-0.967***	-0.480	-0.616***	-0.147	35141
	Jewish * Religious Participation	1981-2004	-0.012	-0.032	0.000	0.041	0.096	-0.005	-0.036	0.018	0.095	-0.080	12824
		2005-2008	0.015	-0.054	0.045	-0.032	-0.013	-0.013	0.132	0.016	0.069	0.139*	35141
	Jewish * Religious Belief	1981-2004	0.134	0.085	0.216	-0.193	-0.162	-0.12	0.055	0.104	0.196	0.184	12824
	Jewish * Religious Intensity	1981-2004	0.309*	0.203	0.302	0.18	0.385	0.068	0.195	0.003	-0.082	0.167	12898
		2005-2008	0.17	0.141	0.192	-0.079	0.034	-0.107	-0.099	-0.078	-0.208	0.262**	35141
<i>Asian Religions</i>	Asian Religions	1981-2004	1.041**	0.173	-0.308	-0.314	-0.941**	-0.203	0.525	0.229	0.374	-0.181	12898
		2005-2008	-0.313***	-0.566***	-0.670***	0.286***	-0.182**	1.023***	0.368***	0.980***	0.097	0.341***	35141
	Asian Religions * Religious Participation	1981-2004	-0.129*	-0.041	0.118	0.129	0.295***	0.230***	-0.150*	0.047	-0.169**	0.086	12824
		2005-2008	0.053***	0.095***	0.173***	-0.018	0.090***	-0.079***	-0.043*	-0.082***	-0.089***	0.063***	35141
	Asian Religions * Religious Belief	1981-2004	0.096	0.006	-0.599**	-0.333	-0.391	-0.34*	-0.023	-0.24	-0.095	-0.127	12824
	Asian Religions * Religious Intensity	1981-2004	0.468**	-0.026	-0.249	-0.756***	-0.16	-0.157	0.173	-0.348	0.166	0.113	12898
		2005-2008	0.130***	0.204***	0.149***	-0.118***	-0.01	-0.082***	0.045	-0.078*	-0.130***	0.059	35141

**Table a.5 Regression results for income (Protestant, Catholic)**

Independent variable	Dependent variable									
	Income (Logged)									
	Protestant					Catholic				
	Religious Participation		Religious Belief	Religious Intensity		Religious Participation		Religious Belief	Religious Intensity	
	1981-2004	2005-2008	1981-2004	1981-2004	2005-2008	1981-2004	2005-2008	1981-2004	1981-2004	2005-2008
[Religion]	-0.075	-0.259***	1.077***	0.992***	-0.215***	-0.622***	-0.462***	-0.588***	-0.387***	-0.587***
[Religious Participation/Religious Belief/ Religious Intensity]	-0.021***	-0.001	-0.045***	-0.075***	-0.055***	-0.014***	0.012***	-0.082***	-0.051***	-0.031***
[Religion] * [Religious Participation/Religious Belief/ Religious Intensity]	0.080***	0.004	-0.008	-0.047	0.007	0.045***	-0.033***	0.063**	-0.154***	-0.058***
Health	0.155***	0.180***	0.149***	0.150***	0.182***	0.158***	0.162***	0.147***	0.155***	0.166***
[Religion] * Health	-0.075*	0.047***	-0.094**	-0.07*	0.045**	-0.03	0.077***	-0.014	-0.032	0.073***
Education	0.080***	0.138***	0.081***	0.077***	0.136***	0.085***	0.131***	0.086***	0.083***	0.128***
[Religion] * Education	-0.046***	0.01	-0.039**	-0.041**	0.011	0.014	0.025***	0.019	0.015	0.025***
Participation in Labor Union	0.016	0.043***	0.011	0.001	0.035***	-0.035	0.029**	-0.048	-0.051*	0.021
[Religion] * Labor Union	0.169*	-0.025	0.163	0.16	-0.018	0.291***	0.035	0.298***	0.311***	0.038
Participation in Political Party	0.182***	-0.026*	0.206***	0.186***	-0.021	0.137***	-0.053***	0.151***	0.143***	-0.047***
[Religion] * Political Party	-0.039	-0.002	-0.15	-0.066	-0.003	0.032	0.097***	0.037	0.006	0.098***
Participation in Professional Organization	0.229***	0.081***	0.215***	0.241***	0.087***	0.194***	0.080***	0.164***	0.197***	0.086***
[Religion] * Professional Organization	-0.195*	0.066***	-0.250*	-0.271**	0.058**	0.086	0.044*	0.095	0.082	0.047*
Intolerance: People of a Different Race	0.059**	-0.037**	0.084***	0.057**	-0.039**	-0.034	-0.055***	-0.009	-0.036	-0.061***
[Religion] * Intolerance: Race	-0.281**	0.129***	-0.271	-0.153	0.114**	0.05	0.161***	0.038	0.033	0.172***
Intolerance: AIDS Carriers	0.013	-0.040***	0.004	0.008	-0.048***	-0.017	-0.045***	-0.02	-0.013	-0.058***
[Religion] * Intolerance: AIDS Carriers	-0.212**	-0.059	-0.315***	-0.228**	-0.05	-0.057	-0.054	-0.075	-0.074	-0.047
Intolerance: Foreigners	0.035	0.058***	0.095***	0.059**	0.054***	-0.014	0.038*	0.042	0.007	0.039*
[Religion] * Intolerance: Foreigners	-0.021	-0.044	-0.033	0.01	-0.031	0.015	0.028	-0.015	-0.002	0.017
Intolerance: Homosexuals	-0.131***	-0.061***	-0.143***	-0.138***	-0.049***	-0.164***	-0.051***	-0.173	-0.169***	-0.040***
[Religion] * Intolerance: Homosexuals	-0.096	0.069	0.014	-0.079	0.057	0.071	-0.054**	0.114**	0.087	-0.065*
Trust	0.161***	0.134***	0.150***	0.154***	0.123***	0.092***	0.076***	0.078***	0.085***	0.070***
[Religion] * Trust	-0.091	-0.110***	-0.008	-0.061	-0.104***	0.210***	0.103***	0.239***	0.195***	0.091***
Pseudo R <sup>2</sup>	0.003	0.039	0.024	0.024	0.039	0.026	0.041	0.029	0.028	0.041
N	12824	35141	12824	12898	35141	12824	35141	12824	12898	35141

**Table a.5 Cont. Regression results for income (Eastern Orthodox, Muslim)**

Independent variable	Dependent variable									
	Income (Logged)									
	Eastern Orthodox					Muslim				
	Religious Participation		Religious Belief	Religious Intensity		Religious Participation		Religious Belief	Religious Intensity	
	1981-2004	2005-2008	1981-2004	1981-2004	2005-2008	1981-2004	2005-2008	1981-2004	1981-2004	2005-2008
[Religion]	-0.661***	-0.190*	-0.399***	-0.395***	-0.085	0.388***	0.051	0.468***	0.183*	0.223***
[Religious Participation/Religious Belief/ Religious Intensity]	-0.007	-0.001	0.011	-0.088***	-0.073***	0.026***	-0.006**	-0.129***	-0.191***	-0.047***
[Religion] * [Religious Participation/Religious Belief/ Religious Intensity]	0.047***	0.043***	-0.364***	-0.154***	0.156***	-0.024***	0.038***	0.097***	0.204***	-0.003
Health	0.124***	0.194***	0.116***	0.120***	0.196***	0.127***	0.200***	0.131***	0.125***	0.200***
[Religion] * Health	0.057**	0.050***	0.028	0.03	0.061***	0.037	-0.061***	0.004	0.043*	-0.053***
Education	0.085***	0.132***	0.088***	0.084***	0.129***	0.086***	0.138***	0.090***	0.084***	0.136***
[Religion] * Education	-0.002	0.018***	0.001	0.001	0.017**	0.035***	0.006	0.027***	0.036***	0.003
Participation in Labor Union	0.106***	0.027**	0.107***	0.099***	0.019	0.111***	0.028***	0.093***	0.093***	0.023**
[Religion] * Labor Union	-0.03	0.05	-0.036	-0.005	0.044	-0.089	0.07	-0.045	-0.055	0.065
Participation in Political Party	0.147***	-0.018	0.161***	0.147***	-0.009	0.078**	-0.028**	0.07*	0.041	-0.024**
[Religion] * Political Party	-0.018	0.039	-0.083	-0.126	0.034	-0.058	0.002	-0.051	-0.019	0.004
Participation in Professional Organization	0.173***	0.120***	0.171***	0.174***	0.127***	0.253***	0.089***	0.193***	0.235***	0.092***
[Religion] * Professional Organization	-0.032	-0.095***	-0.127	-0.061	-0.107***	-0.210***	0.041	-0.152**	-0.202***	0.062*
Intolerance: People of a Different Race	0.069**	-0.033	0.075**	0.076**	-0.037**	-0.067***	0.017	-0.043	-0.080**	0.011
[Religion] * Intolerance: Race	-0.299***	0.002	-0.240***	-0.327***	0.007	0.094*	-0.194***	0.053	0.09	-0.189***
Intolerance: AIDS Carriers	-0.050**	-0.034**	-0.051*	-0.054**	-0.044***	-0.036	-0.042***	-0.071**	-0.041	-0.047***
[Religion] * Intolerance: AIDS Carriers	0.222***	-0.132***	0.150**	0.213***	-0.150***	0.023	-0.029	0.102	0.015	-0.055
Intolerance: Foreigners	0.106***	0.071***	0.127***	0.132***	0.069***	-0.065**	0.071***	0.004	-0.049	0.067***
[Religion] * Intolerance: Foreigners	-0.541***	-0.055	-0.417***	-0.518***	-0.066	0.063	-0.115***	-0.002	0.07	-0.099*
Intolerance: Homosexuals	-0.661***	-0.190*	-0.399***	-0.395***	-0.085	0.388***	0.051	0.468***	0.183*	0.223***
[Religion] * Intolerance: Homosexuals	-0.007	-0.001	0.011	-0.088***	-0.073***	0.026***	-0.006**	-0.129***	-0.191***	-0.047***
Trust	0.047***	0.043***	-0.364***	-0.154***	0.156***	-0.024***	0.038***	0.097***	0.204***	-0.003
[Religion] * Trust	0.124***	0.194***	0.116***	0.120***	0.196***	0.127***	0.200***	0.131***	0.125***	0.200***
Pseudo R <sup>2</sup>	0.057**	0.050***	0.028	0.03	0.061***	0.037	-0.061***	0.004	0.043*	-0.053***
N	0.085***	0.132***	0.088***	0.084***	0.129***	0.086***	0.138***	0.090***	0.084***	0.136***

**Table a.5 Cont. Regression results for income (Hindu, Buddhist)**

Independent variable	Dependent variable									
	Income (Logged)									
	Hindu					Buddhist				
	Religious Participation		Religious Belief	Religious Intensity		Religious Participation		Religious Belief	Religious Intensity	
	1981-2004	2005-2008	1981-2004	1981-2004	2005-2008	1981-2004	2005-2008	1981-2004	1981-2004	2005-2008
[Religion]	0.487***	0.132	0.374***	0.403***	0.127	0.573	0.898***	-0.225	0.144	1.129***
[Religious Participation/Religious Belief/ Religious Intensity]	-0.006	0.000	-0.072***	-0.104***	-0.060***	-0.009**	-0.005	-0.062***	-0.096***	-0.047***
[Religion] * [Religious Participation/Religious Belief/ Religious Intensity]	-0.014	0.016	0.080*	0.120***	0.133***	-0.037	0.040***	0.358*	0.318	0.124***
Health	0.159***	0.192***	0.152***	0.152***	0.193***	0.146***	0.189***	0.140***	0.141***	0.191***
[Religion] * Health	-0.134***	-0.060	-0.117***	-0.134***	-0.052	-0.066	-0.078**	0.079	0.083	-0.079***
Education	0.071***	0.141***	0.073***	0.069***	0.138***	0.077***	0.149***	0.080***	0.075***	0.147***
[Religion] * Education	0.047***	-0.043***	0.048***	0.051***	-0.039***	0.050	-0.092***	0.04	-0.009	-0.094***
Participation in Labor Union	0.043	0.065***	0.035	0.03	0.059***	0.041	0.039***	0.034	0.024	0.032***
[Religion] * Labor Union	-0.048	-0.268***	-0.033	-0.011	-0.284***	-0.381	0.063	-0.281	-0.505	0.086
Participation in Political Party	0.188***	-0.005	0.207***	0.184***	0.002	0.165***	-0.019	0.181***	0.161***	-0.016
[Religion] * Political Party	-0.25	0.049	-0.255***	-0.243***	0.032	-0.236	0.017	-0.32	-0.048	0.009
Participation in Professional Organization	0.211***	0.108***	0.183***	0.216***	0.115***	0.219***	0.097***	0.194***	0.221***	0.101***
[Religion] * Professional Organization	-0.051	-0.042	-0.021	-0.053	-0.027	-0.109	-0.127***	0.31	0.191	-0.133***
Intolerance: People of a Different Race	0.028	0.009	0.071**	0.04	0.005	0.018	0.004	0.047	0.024	0.000
[Religion] * Intolerance: Race	-0.059	-0.091	-0.1	-0.092	-0.053	-0.097	-0.033	-0.268	-0.261	-0.034
Intolerance: AIDS Carriers	-0.013	-0.054***	-0.026	-0.022	-0.064***	-0.022	-0.093***	-0.034	-0.027	-0.096***
[Religion] * Intolerance: AIDS Carriers	-0.032	0.128	-0.03	-0.008	0.174***	0.265	0.187***	0.076	0.421	0.174***
Intolerance: Foreigners	0.029	0.049	0.102***	0.061**	0.049***	0.031	0.017	0.088***	0.057**	0.015
[Religion] * Intolerance: Foreigners	0.007	0.040	-0.086	-0.025	0.01	-0.363	0.185***	0.085	-0.545	0.198***
Intolerance: Homosexuals	-0.179***	-0.056***	-0.182***	-0.178***	-0.043***	-0.154***	-0.003	-0.160***	-0.160***	0.005
[Religion] * Intolerance: Homosexuals	0.152**	0.052	0.153**	0.129	0.047*	-0.148	-0.339***	-0.071	-0.493	-0.354***
Trust	0.205***	0.120***	0.209***	0.195***	0.109***	0.160***	0.100***	0.158***	0.155***	0.091***
[Religion] * Trust	-0.252***	-0.223***	-0.236***	-0.242***	-0.232***	-0.254	-0.034	-0.289	-0.317	-0.021
Pseudo R <sup>2</sup>	0.021	0.040	0.023	0.022	0.041	0.020	0.041	0.021	0.021	0.041
N	12824	35141	12824	12898	35141	12824	35141	12824	12898	35141

**Table a.5 Cont. Regression results for income (Jewish, Asian Religions)**

Independent variable	Dependent variable									
	Income (Logged)									
	Jewish					Asian Religions				
	Religious Participation		Religious Belief	Religious Intensity		Religious Participation		Religious Belief	Religious Intensity	
	1981-2004	2005-2008	1981-2004	1981-2004	2005-2008	1981-2004	2005-2008	1981-2004	1981-2004	2005-2008
[Religion]	-1.455	1.007	-1.579	-1.553*	0.578	1.507*	1.378***	-0.399***	-0.395***	-0.085
[Religious Participation/Religious Belief/ Religious Intensity]	-0.008**	0.000	-0.065***	-0.095***	-0.053***	-0.008*	0.007***	0.011	-0.088***	-0.073***
[Religion] * [Religious Participation/Religious Belief/ Religious Intensity]	0.019	-0.038	0.492***	0.028	-0.016	-0.041	-0.057***	-0.364***	-0.154***	0.156***
Health	0.145***	0.189***	0.138***	0.140***	0.190***	0.145***	0.193***	0.116***	0.120***	0.196***
[Religion] * Health	0.354**	-0.202	0.381**	0.369*	-0.172	-0.243	-0.075	0.028	0.03	0.061***
Education	0.078***	0.139***	0.081***	0.076***	0.137***	0.078***	0.144***	0.088***	0.084***	0.129***
[Religion] * Education	-0.169	0.005	-0.144	-0.145	0.013	-0.002	-0.118***	0.001	0.001	0.017**
Participation in Labor Union	0.037	0.039	0.031	0.022	0.031***	0.043	0.047***	0.107***	0.099***	0.019
[Religion] * Labor Union	0.089	-0.101	-2.253	0.008	-0.085	-0.946*	-0.098	-0.036*	-0.005	0.044
Participation in Political Party	0.166***	-0.025**	0.182***	0.161***	-0.019	0.163***	-0.035***	0.161***	0.147***	-0.009
[Religion] * Political Party	-0.595	-0.207	-0.736	-0.341	-0.204	0.167	0.130***	-0.083	-0.126	0.034
Participation in Professional Organization	0.217***	0.095***	0.192***	0.220***	0.100***	0.221***	0.098***	0.171***	0.174***	0.127***
[Religion] * Professional Organization	0.601	-0.076	1.981***	0.607	-0.076	-0.13	-0.151***	-0.127	-0.061	-0.107***
Intolerance: People of a Different Race	0.014	-0.022	0.044	0.019	-0.026	0.016	-0.046***	0.075*	0.076*	-0.037**
[Religion] * Intolerance: Race	1.338**	0.207	1.221	1.293	0.263	0.168	0.153	-0.240***	-0.327***	0.007
Intolerance: AIDS Carriers	-0.018	-0.051***	-0.03	-0.024	-0.058***	-0.025	-0.044***	-0.051	-0.054**	-0.044***
[Religion] * Intolerance: AIDS Carriers	0.249	-0.001	0.229	0.309	-0.031	0.413	-0.059	0.150*	0.213***	-0.150***
Intolerance: Foreigners	0.027	0.053***	0.083***	0.054	0.051***	0.03	0.040***	0.127***	0.132***	0.069***
[Religion] * Intolerance: Foreigners	0.289	-0.734	0.049	0.233	-0.782	-0.243	0.032	-0.417***	-0.518***	-0.066
Intolerance: Homosexuals	-0.159***	-0.048***	-0.164***	-0.164***	-0.037***	-0.155***	-0.041***	-0.102***	-0.114***	-0.087***
[Religion] * Intolerance: Homosexuals	0.338	0.168	0.301	0.326	0.218	0.011	-0.177*	-0.046	-0.047	0.186***
Trust	0.160***	0.117***	0.159***	0.155***	0.106***	0.160***	0.103***	0.130***	0.126***	0.128***
[Religion] * Trust	-0.298	0.393	-0.887**	-0.398*	0.432**	-0.049	0.031	0.147**	0.09	-0.130***
Pseudo R <sup>2</sup>	0.020	0.038	0.022	0.021	0.039	0.0199	0.0398	0.022	0.021	0.040
N	12824	35141	12824	12898	35141	12824	35141	12824	12898	35141

## **Appendix B**



**Table b.1 Correlations of religious participation, religious belief, and religious intensity**

		Religious Participation		Religious person		Importance of God in Life		Believe in: God	Believe in: life after death	Believe in: Soul	Believe in: hell	Believe in: heaven
		1981-2004	2005-2008	1981-2004	2005-2008	1981-2004	2005-2008	1981-2004	1981-2004	1981-2004	1981-2004	1981-2004
Religious Participation	Pearson Correlation	--	--	0.464***	0.488***	0.264***	0.545***	-0.406***	-0.347***	-0.317***	0.413***	-0.446***
	N	--	--	77215	41043	78897	41622	74891	68777	72029	69561	70234
Religious person	Pearson Correlation	0.464***	0.488***	--	--	0.131***	0.612***	0.603***	0.376***	0.402***	0.377***	0.456***
	N	77215	41043	--	--	75378	40695	72624	66676	69738	67441	68113
Importance of God in Life	Pearson Correlation	0.264***	0.545***	0.131***	0.612***	--	--	0.036***	0.202***	0.148***	0.265***	0.279***
	N	78897	41622	75378	40695	--	--	74072	67982	71189	68758	69428
Believe in: God	Pearson Correlation	0.406***	--	0.603***	--	0.036***	--	--	0.399***	0.455***	0.394***	0.512***
	N	74891	--	72624	--	74072	--	--	67136	70167	67772	68541
Believe in: life after death	Pearson Correlation	0.347***	--	0.376***	--	0.202***	--	0.399***	--	0.559***	0.546***	0.604***
	N	68777	--	66676	--	67982	--	67136	--	66768	65298	65851
Believe in: Soul	Pearson Correlation	0.317***	--	0.402***	--	0.148***	--	0.455***	0.559***	--	0.476***	0.562***
	N	72029	--	69738	--	71189	--	70167	66768	--	67221	67870
Believe in: hell	Pearson Correlation	0.413***	--	0.377***	--	0.265***	--	0.394***	0.546***	0.476***	--	0.744***
	N	69561	--	67441	--	68758	--	67772	65298	67221	--	68563
Believe in: heaven	Pearson Correlation	0.446***	--	0.456***	--	0.279***	--	0.512***	0.604***	0.562***	0.744***	--
	N	70234	--	68113	--	69428	--	68541	65851	67870	68563	--

\*\*\* Significant at 1% level

\*\* Significant at 5% level

\* Significant at 10% level

**Table b.2.a Religious belief component matrix**

Religious Belief Component Matrix	
	1981-2004
Believe in: God	0.689
Believe in: life after death	0.789
Believe in: people have a soul	0.779
Believe in: hell	0.814
Believe in: heaven	0.879
<i>% of Variance Explained</i>	0.628
<i>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</i>	0.823

Extraction Method: Principal Component Analysis

**Table b.2.b Religious intensity component matrix**

Religious Intensity Component Matrix		
	1981-2004	1981-2004
Religious Person	0.752	0.879
Importance of God in Life	0.752	0.879
<i>% of Variance Explained</i>	0.565	0.806
<i>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</i>	0.500	0.500

Extraction Method: Principal Component Analysis

**Table b.3.a Countries included in 1981-2004**

Country	Number of Respondents	%	Country	Number of Respondents	%
Albania	1822	2.2	Republic of Moldova	1815	2.2
Azerbaijan	1565	1.9	Morocco	769	0.9
Argentina	2096	2.6	New Zealand	894	1.1
Australia	1769	2.2	Nigeria	1565	1.9
Bangladesh	2831	3.5	Norway	1032	1.3
Armenia	1739	2.1	Peru	2445	3.0
Bosnia and Herzegovina	2187	2.7	Philippines	1176	1.4
Brazil	2748	3.4	Puerto Rico	1712	2.1
Bulgaria	741	0.9	Romania	1170	1.4
Belarus	1853	2.3	Russian Federation	1859	2.3
Canada	1686	2.1	Slovakia	846	1.0
Chile	2008	2.5	Viet Nam	916	1.1
China	911	1.1	South Africa	4901	6.0
Taiwan	692	0.9	Zimbabwe	821	1.0
Czech Republic	851	1.0	Spain	1663	2.1
Dominican Republic	314	0.4	Sweden	894	1.1
Estonia	969	1.2	Switzerland	885	1.1
Finland	879	1.1	Turkey	1364	1.7
Georgia	1836	2.3	Uganda	544	0.7
Germany	1577	1.9	Ukraine	2071	2.6
India	3247	4.0	Macedonia, Republic of	1578	1.9
Republic of Korea	1198	1.5	Tanzania, United Republic Of	990	1.2
Kyrgyzstan	993	1.2	United States	2427	3.0
Latvia	1112	1.4	Uruguay	908	1.1
Lithuania	889	1.1	Venezuela	1092	1.3
Mexico	3132	3.9	Serbia and Montenegro	3137	3.9

**Table b.3.b Countries included in 2005-2008**

Country	Number of Respondents	%	Country	Number of Respondents	%
Andorra	908	2.2	Peru	1259	3.0
Australia	1094	2.6	Poland	846	2.0
Brazil	1374	3.3	Romania	1248	3.0
Britain	591	1.4	Russia	1224	2.9
Bulgaria	669	1.6	Rwanda	1169	2.8
Burkina Faso	968	2.3	S Africa	2607	6.2
Chile	733	1.7	S Korea	1156	2.7
China	245	0.6	Serbia	775	1.8
Cyprus	976	2.3	Slovenia	821	2.0
East Germany	756	1.8	Spain	853	2.0
Ethiopia	1081	2.6	Sweden	830	2.0
Finland	840	2.0	Switzerland	906	2.2
France	808	1.9	Taiwan	1198	2.8
Ghana	1303	3.1	Thailand	1420	3.4
India	1459	3.5	Trinidad and Tobago	917	2.2
Indonesia	1396	3.3	Turkey	1187	2.8
Italy	504	1.2	Ukraine	557	1.3
Mali	655	1.6	USA	1101	2.6
Mexico	1322	3.1	Vietnam	1263	3.0
Moldova	920	2.2	West Germany	591	1.4
Netherlands	590	1.4	Zambia	960	2.3
Andorra	908	2.2	Peru	1259	3.0

**Table b.4 Countries included in reduced data sets**

Country	Number of Respondents		%	
	1981-2004	2005-2008	1981-2004	2005-2008
Australia	1769	1094	4.4	4.5
Brazil	2748	1374	6.9	5.7
Bulgaria	741	669	1.8	2.8
Chile	2008	733	5.0	3.0
China	911	245	2.3	1.0
Finland	879	840	2.2	3.5
Germany	1577	1347	3.9	6.0
India	3247	1459	8.1	6.0
Mexico	3132	1322	7.8	5.5
Republic of Moldova	1815	920	4.5	3.8
Peru	2445	1259	6.1	5.2
Romania	1170	1248	2.9	5.1
Russian Federation	1859	1224	4.6	5.1
South Africa	4901	2607	12.2	10.8
Spain	1663	853	4.1	3.5
Sweden	894	830	2.2	3.4
Switzerland	885	906	2.2	3.7
Taiwan	692	1198	1.7	4.9
Turkey	1364	1187	3.4	4.9
Ukraine	2071	557	5.2	2.3
United States	2427	1101	6.1	4.5
Vietnam	916	1263	2.3	5.2

**Table b.5.a Regression coefficients for mediating variables with religious participation (reduced data sets)**

		<i>Dependent Variable</i>										
<i>Independent variable</i>	Religious Participation	Health	Education	Participation in Labor Union	Participation in Political Party	Participation in Profession Organization	Intolerance: People of a Different Race	Intolerance: AIDS carriers	Intolerance: Foreigners	Intolerance: Homosexuals	Trust	<i>N</i>
		1981-2004	-0.020***	0.028***	0.052***	-0.054***	-0.032***	-0.050***	-0.001	-0.038***	-0.016****	0.033****
2005-2008	0.009***	-0.052***	0.016***	0.088***	0.052***	0.021***	-0.019***	0.004	0.047****	0.061****	24236	
<i>Pseudo R<sup>2</sup></i>		0.001	0.001	0.009	0.009	0.003	0.008	0.000	0.005	0.001	0.003	
		0.001	0.003	0.001	0.014	0.005	0.001	0.001	0.000	0.004	0.008	

**Table b.5.b Regression coefficients for income with religious participation (reduced data sets)**

		<i>Dependent Variable</i>	
		Income (Logged)	
<i>Independent variable</i>	1981-2004	2005-2008	
Religious Participation	0.043***	-0.017***	
Health	0.165***	0.160***	
Education	0.140***	0.152***	
Participation in Labor Union	0.011	0.048***	
Participation in Political Party	-0.054***	-0.060***	
Participation in Profession Organization	0.299***	0.113***	
Intolerance: People of a Different Race	-0.026	-0.01	
Intolerance: AIDS carriers	-0.061***	-0.063***	
Intolerance: Foreigners	-0.090***	0.035	
Intolerance: Homosexuals	-0.015	-0.071***	
Trust	0.185***	0.167***	
<i>Pseudo R<sup>2</sup></i>	0.040	0.042	
<i>N</i>	40114	24236	

**Table b.6 Summary statistics for religious denominations**

	Number of Respondents		%	
	1981-2004	2005-2008	1981-2004	2005-2008
Protestant	10534	5372	16.3	12.8
Catholic	22717	10954	35.3	26.0
Eastern Orthodox	10773	5484	16.7	13.0
Muslim	10191	5134	15.8	12.2
Hindu	2979	1403	4.6	3.3
Buddhist	757	2193	1.2	5.2
Jewish	287	103	0.4	0.2
Asian Religions	696	963	1.1	2.3