

The Impact of Religiosity on Gender Attitudes and Outcomes

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Abstract This paper investigates the impact of religiosity and religious denomination on attitudes towards gender equality using data from the World Values Survey. The impact of religiosity on several measures of gender equality in well-being is also evaluated. Religiosity is strongly correlated with gender inequitable attitudes, controlling for a variety of demographic characteristics. In addition, men are found to hold significantly more gender inequitable attitudes than women. The empirical results further indicate that the greater the degree of religiosity in a country, the more gender inequitable well-being outcomes, even after controlling for level of GDP. The effect of religiosity is likely transmitted via a “stealth” effect on everyday behavior in a variety of transactions and interactions, such as in labor markets, in household decision resource allocation, and through impacts on government spending and resource allocation.

The Impact of Religiosity on Gender Attitudes and Outcomes

I. Introduction

Despite gratifying progress in some aspects of well-being, gender inequality persists globally in such key areas as income, education, economic security, and gender-related violence. The contribution of institutions to the perpetuation of gender stratification has received increased attention in recent years (Sen 1999; Morriison and Jütting 2003; Guiso, Sapienza, Zingales 2003; Cavalcanti and Tavares 2007; Sen 2007). Two levels of institutions are implicated in this discussion: *informal institutions* which embed social norms, thus shaping behavior and practices; and *formal institutions* whose norms, rules sanctions are inscribed in formal processes and frequently written documents (Sen 2007) There is a good deal of evidence that formal religious institutions, which shape cultural norms, social rules and behaviors, have a measurable impact on the rigidity of gender roles and attitudes (Inglehart and Norris 2003). Little research exists, however, that investigates whether there is a causal effect of those gender inequitable attitudes on unequal outcomes for women.

Why might gender attitudes, induced by religious and other institutions, have a tangible effect on gender inequality? Embedded norms and stereotypes shape a range of everyday behaviors and decision-making, from choices about whether to lay off a woman or a man during economic downturns; whether to educate daughters or sons when money is scarce; and whether to promote a man or woman into a managerial position. Measurable credentials may also influence these decisions, of course (which professional

has more experience?). Objective external constraints are also part of the decision-making process (will an education increase a boy's income more than a girl's?). But in each case, the decision-maker inevitably also refers to an internal gender ranking rule, influenced by external social conditions and the norms and stereotypes embedded in culture. That ranking rule is a reflection of an underlying set of power relations that are an enactment of the degree of gender stratification a society will tolerate.

Economists have sought to explain gender inequalities in such areas as wages, assiduously conducting statistical analyses to account for differences in women's and men's productivity characteristics – education, experience, and so forth. This large body of research finds that roughly 20 - 30 percent of wage gaps cannot be accounted for by differences in women's and men's productivity (Weichelbaumer and Winter-Ebmer 2005).¹ The unexplained portion of gender wage gaps has been attributed to discrimination, but economists have not progressed very far in empirically identifying the mechanisms that account for discriminatory decision-making. It is plausible that at least some of the unexplained one third of gender wage gaps and other forms of measured gender inequality can be traced to institutions – including religious institutions – that shape gender hierarchal attitudes.

This paper seeks to shed light on two aspects of the institutional role in perpetuating inequality. First, we evaluate the data to assess the contribution of religious institutions to the perpetuation of gender ideology, norms and stereotypes, and thus social attitudes that legitimate gender inequality in the social, economic and political sphere.

¹ Such studies underestimate the degree of gender inequality insofar as productivity differences between men and women are themselves the consequence of hierarchical gender relations, shaped by educational inequalities and the gender division of labor between paid and unpaid work. In that sense, raw gender wage gaps are a better measure of gender hierarchical relations than those that control for gender differences in productivity.

We do this, using cross-country data on gender attitudes from the World Values Survey (WVS). The WVS coverage is extensive, and includes 97 countries in five waves of data spanning the period 1981-2006. The survey data allow us to assess the effect of individuals' degree of religiosity and religious denomination on their attitudes towards gender equality. The gender attitude questions address issues of rigidity of gender identity, women's roles as mothers, and beliefs about gender hierarchy in employment, education, and politics. We take this analysis one step further to explore whether differences in religiosity of citizens can explain cross-country variation in objective measures of gender equality. The study focuses on two groups: a global sample of countries at different stages of development, and a smaller group of countries designated for focus in the UNRISD Gender and Religion project: Chile, India, Iran, Mexico, Nigeria, Pakistan, Poland, Serbia, United States, and Turkey.²

II. Religion, Religiosity, and Gender

The role of organized religions in perpetuating norms that promote gender inequitable attitudes is complex because religious institutions themselves are not monolithic. A wide variety of voices are in evidence in religious organizations, even if dominated by hierarchical authorities. Through internal debates and struggles, religious doctrines, norms, and rules can change over time, albeit at a relatively slow pace. As hierarchical structures, however, a dominant factor in shaping gender attitudes is the views held those at the top of the religious structure at any given point in time.

² Israel, one of the UNRISD *Religion, Politics, and Gender Equality* project countries, is absent from the majority of analyses in this study because WVS data are not available for most of the questions of interest. See Table A1 in the appendix for a summary of the WVS data availability for project countries by wave. Serbia and Montenegro are grouped in the WVS; that pooled data is used in this analysis, except where noted. For brevity, however, we simply refer to the country as Serbia in the report.

There are several explanations for why gender norms inculcated by religious institutions might be gender inequitable. The first relates to the role of religion as a response to economic insecurity and the second underscores the role of hierarchy in formal institutions.

With regard to the former, some theorists adhere to the modernization thesis, arguing that the intensity of religious beliefs is a response to economic insecurity and is thus inversely correlated with the stage of economic development. Adherents predict a diminished role of religion with greater and more stable material well-being. One possible explanation for this is that religion provides both a solace and explanation for harsh, difficult, and insecure lives. Norris and Inglehart (2004), for example, link economic insecurity to the stage of economic development, with low-income agrarian societies the most insecure, and industrial and post-industrial societies having relatively greater economic security.³ Economic security, however, is not necessarily correlated with economic development. As the events of recent years have shown, capitalist development is characterized by volatility. An individual's or household's economic security is strongly dependent not only on own savings and assets, but also on the depth and breadth of the social safety net that can cushion volatility in household income. Welfare state spending varies widely across country, and is not strictly determined by the level of per capita income, i.e., the stage of economic development. That said, religiosity is plausibly intensified under conditions of economic insecurity, whatever the stage of development.

³ Norris and Inglehart's (2004) categorization is based on the United Nations Development Programme's (UNDP) Human Development Index (HDI), a composite measure that includes life expectancy, educational attainment, and standard of living as measured by per capita GDP.

What are the implications for gender attitudes, and in particular, why might we expect religious institutions to advance and inculcate gender inequitable norms?

Assuming the link between religion and economic security is valid, we might anticipate that individuals under stress have a need for clear, rigid rules, including behavioral norms. Further, in such circumstances, survival instincts elevate the goal of high fertility in the face of high infant mortality and death rates. In such a scenario, attitudes towards gender roles may be rigid and dichotomous in response to a struggle for economic survival.

This view is arguably reductionist. The linkage of religiosity with the stage of development is contradicted by evidence of a continued role of religious faith in social practice in countries at varying stages of economic development. As Phillips (2009) points out, religious attachment has increased, not decreased in a wide variety of countries. Further, the operation of religious beliefs in private and public spheres is not static. Evidence of an increasingly active religious role in political debate on issues such as abortion and homosexuality is apparent in a number of countries, including the United States, a trend dubbed the “de-privatization” of religion (Casanova 1994).

The nature of religions as organizational structures, which tend to be hierarchically structured and conservative rule-based institutions, is a more plausible explanation for their inculcation of gender inequitable norms. A further impetus towards hierarchy is related to the economic role organized religions play. To varying degrees, they have access to and control over material resources, and as such, exercise power to create and maintain social norms that perpetuate structures of power that preserve their control. Elite groups tend to capture power in institutions, and thus, patriarchal dominance in the economic sphere is likely to be replicated in religious organizations.

Seen in this light, religious institutions may reflect patriarchal values in order to buttress the economic, social and political power of males to the disadvantage of women (Norris and Inglehart 2004; Kardam 2005; Sen 2007). Whatever their other roles, such as solace and even social support, if religious institutions inculcate gender norms and rules that disadvantage women, we might also expect they would hinder policy efforts aimed at closing gender gaps in important areas such as education and employment.

Where patriarchal norms dominate the social landscape, the heterosexual family and the norm that women's primary role is to care for children and others, serving as unpaid homemaker, are emphasized. Divorce, abortion, and homosexuality, because they contradict those social roles for women (and by implication, delineate different roles for men), tend to be viewed unfavorably. Further, sons tend to be more valued than daughters in patriarchal contexts.

If organized religions in their current state do indeed perpetuate gender inequitable attitudes, we might expect that those people who exhibit higher degrees of religiosity hold more gender inequitable attitudes.⁴ An important question is whether the incidence of gender unequal attitudes in a country translates into gender inequality of outcomes. In other words, is there evidence that gender inequality in real measures of well-being is more pronounced in countries exhibiting a greater degree of religiosity? There is mixed evidence in the literature on this question, much of it based on an assessment of the effect of specific religions such as Islam rather than religiosity *per se*.

⁴ It should be noted that religious institutions are malleable and can change over time, depending on the impact of contradictory internal and external social forces. Hence the empirical work in this paper makes no pronouncements on organized religions in terms of a fixed religious doctrine, but rather, at a given point in time. Indeed, as the analysis in this paper shows, the impact of dominant religions differs by country, a clear indicator that context matters, shaping the message and impact of religious teachings.

It is useful to consider why religiosity and dominant religion might have an impact not only on attitudes but also on real economic outcomes. Two transmission mechanisms exist. First, at the micro level, as noted, gender unequal attitudes act as a “stealth” factor, shaping every day decisions. Employers' choices on whom to hire and whom to lay off are affected by norms regarding who is most deserving of a job in the gender hierarchy. Families make decisions on which child to invest resources in, and which family member should undertake paid labor or unpaid caring labor. Gender norms influence whom to elect to political office. We therefore might anticipate that insofar as religion affects norms and attitudes, there will be consequent and measurable effects at the country level on gender gaps in education, shares of the population, labor force, and income, to name a few.

The second transmission mechanism is the effect of religious attitudes on government's distribution of resources (e.g., for education, health care) and regulation, such as enactment and enforcement of anti-discrimination legislation in employment, rules on access to loans, inheritance, property ownership, and so forth. In countries with dominant religions that are gender inequitable in their attitudes, it is possible that gender outcomes are worsened through the government channel as well.

As noted, gender attitudes and outcomes may be affected by the individual's religious denomination, implying that some religions may be more patriarchal than others. However, whether any one organized religion is more patriarchal than any other is an empirical question on which as yet there is no consensus. Psacharopoulos and Tzannatos (1989) find that Muslims, Hindus, and Catholics have lower rates of female labor force participation than other religions and the non-religious. Recent studies identify Islam as significantly more patriarchal than other dominant religions on such

measures as education and life expectancy (Dollar and Gatti 1999; Forsythe and Korzeniewicz 2000; Fish 2004; Balamoune-Lutz 2006), although some recent empirical evidence challenges that view (Donno and Russett 2004; Noland 2005).

For instance, Donno and Russett (2004), in a study of the determinants of gender inequality in education, political representation, and employment in 153 countries, find that the contribution of Islamic population to gender inequality holds only for women's share of parliamentary seats and the gender education ratio. If controls for Arab countries are introduced into the regressions, the effect of Islamic population becomes insignificant for measures of gender inequality in literacy, life expectancy, and economic activity rates. Read (2003) presents evidence that although Muslims are more patriarchal, it is the interaction of Muslim and ethnicity that matters most in shaping gender attitudes.

This debate is clearly not yet resolved. Nevertheless, these findings suggest that in addition to a person's religiosity, religious denomination may also influence gender attitudes, although it is not clear whether denominations differ in the degree of patriarchy exhibited in the norms they inculcate. Based on this discussion, our theoretical prediction in the analysis that follows is that the greater the degree of religiosity a person exhibits, the more likely s(he) is to hold gender inequitable attitudes. The degree of religiosity, measured both in strength of beliefs and religious participation would suggest greater exposure to religious teachings, with consequent effects on attitudes. We make no theoretical predictions vis-à-vis the effect of a person's adherence to a particular religious denomination. We also assess the effect of religiosity on gender outcomes transmitted through religion's influence on voting patterns and government policies.

III. Empirical Analysis of Gender Attitudes and Religiosity

A. Data

The empirical analysis is based on data from the World Values Survey (WVS). The survey has produced a complex data set with over 300,000 respondents, covering a range of issues including family, environment, work, religion, gender, government and politics. This large scale survey has been carried out in a series of five waves (1981-84, 1989-93, 1994-99, 1999-2004, and 2005-08). It provides coverage of 90% of the world's population, generating representative national data for 97 countries and regions. The number of countries surveyed has expanded over time.⁵ As a result, the country sample changes in each wave. In the empirical analysis that follows, for the descriptive data statistics, we use all waves where possible. For the statistical analysis, we principally rely on Waves 2 – 5, due to the limited country coverage of Wave 1.

B. Measures of Religiosity, Religious Denomination, and Gender Attitudes

We use several measures to capture the effect of religion. The intensity of religious beliefs is conveyed in a variety of WVS questions. As they are strongly correlated, we use the following question in our empirical analysis because of its broad coverage: 1) *How important is religion in your life?* The second set of questions measures exposure to religious institutions and participation in religious activities. The questions are: 2) *Do you belong to a religious denomination?* 3) *If yes, what religious denomination do you belong to?* And, 4) *Apart from weddings, funerals, and christenings, about how often do you attend religious services these days?* It should be noted that an added reason for

⁵ The number of countries covered in each survey ranges from 20 in the first wave, to a maximum of 67 in the fourth wave, and only 54 in the fifth wave. <http://www.wvs.org> accessed February 4, 2009.

measuring the intensity of religious beliefs in addition to participation in religious activities is that in some religions, such as Buddhism and Shinto, regular attendance at religious services is not a customary feature of practice. Ideally, it would have been helpful to have information on the frequency of prayer to capture religiosity in religions where frequent attendance at religious services is not the norm. Although such a question was included in the WVS, its coverage was very limited.

There is another important difference between the two sets of questions. The second set captures the intensity of an individual's exposure to religious teachings, and we might expect that those with higher levels of participation have more opportunity to be inculcated with religious teachings that influence gender attitudes.

Gender attitudes are captured in the following three groups of questions. The first group relates to attitudes towards women's role as mother, and more generally, gender roles: 5) *A woman needs children in order to be fulfilled* (agree?); 6) *Approve of woman as single parent* (agree?); 7) *A working mother can establish as warm secure a relationship with children as a mother who does not work* (agree?); and 8-10) *Can homosexuality (abortion, divorce) be justified always, never be justified, or something in between?* The second set of questions reflects attitudes towards gender hierarchies in employment, income, political power, and education: 11) *When jobs are scarce, men should have more right to a job than women* (agree?); 12) *Problem if women have more income than husband* (agree?); 13) *On the whole, men make better political leaders than women do* (agree?); and 14) *A university education is more important for a boy than for a girl* (agree?).

Finally, attitudes towards the role of religion in politics are reflected in two types of questions. The first pertains to religion's influence on the selection of political leaders:

15) *Religious leaders should not influence how people vote in elections* (disagree?). The second concerns attitudes about the degree to which religion should influence government policy: 16) *It would be better for [this country] if more people with strong religious beliefs held public office* (agree?); and 17) *Religious leaders should not influence government* (disagree?).

We use questions 5-14 to assess attitudes toward gender and questions 15-17 to assess the impact of religiosity on attitudes towards the role of religion in politics. Secularization theories predict that the influence of religion will diminish over time. We also provide some analysis of trends in religiosity to assess whether the secularization hypothesis holds, although available data cover only a limited time span and results should be viewed with caution.

Figure 1 shows the distribution of religious denominations for all countries in the WVS and for the UNRISD project countries. The distributions differ somewhat. In both cases, a large percentage of respondents are Catholics, but the UNRISD project countries are more heavily Muslim than the WVS sample and have a smaller percentage with no declared religions affiliation (which may include atheists). Table 1 gives detailed data on the distribution of respondents by religious denomination in each UNRISD project country, sorted by dominant religious denomination. Since people's attitudes towards gender may be influenced by their exposure to religious beliefs, even if they are currently not practicing, the impact of the country's dominant religion will be important to assess in our empirical analysis. Islam and Catholicism are each the dominant religions in three of the UNRISD project countries; 2 countries are Protestant, 1 Jewish, 1 Hindu, and none are dominantly Buddhist. It should be emphasized that while Nigeria is characterized as predominantly Protestant (38.5% adhere to this religion), it could more accurately be said

that culture is influenced by two dominant religions in that country, given the large percentage of respondents that adhere to Islam (28.1%).

Figure 1 and Table 1 about here.

C. Religiosity and Gender Attitudes

It is difficult to use the WVS to determine trends in religiosity since the sample of countries changes in each wave. The addition of more or less religious countries to the sample would distort the results, masking the real trends over time. To assess trends, therefore, we focus on the UNRISD project countries. Trends in religiosity are demonstrated with responses to two questions in the World Values Survey, “*How important is religion in your life?*” and “*Apart from weddings, funerals and christenings, about how often do you attend religious services these days?*” The first of these, it will be recalled, reflects intensity of beliefs, while the second reflects religious participation.

The percentage of respondents indicating that religion is important or very important in their life is shown in Table 2, *Panel A*. The far right column calculates trends from the earliest to the latest wave for which data are available. Countries are again grouped by predominant religion. Interestingly, Serbia and Mexico exhibited the lowest percentages of religiosity in the 1989-93 wave, but saw the largest percentage point increase over the next 15 years – 10.8 and 13.5 percentage points respectively in the number who say religion is important or very important in their lives. Religiosity in Turkey also shows a substantial increase of 7.2 percentage points. Four countries have experienced a decline in religiosity – Chile, Iran, Poland, and the United States (US). With regard to the US trend, it should be noted that despite that decline, the US is a much

more religious country than its developed country counterparts. While the percentage of US respondents for whom religion is important or very important averages 80% across all the WVS waves, the corresponding average is 47% across the remaining industrialized countries covered in the survey.

The data in *Panel B* indicate that the percentage attending religious services weekly or more has declined in four countries. The greatest increase in religious participation is in Nigeria, followed by Iran, while the largest declines are in India and Poland. Declines in religiosity have occurred primarily in countries in which Catholic and Protestant religions dominate. In Muslim countries, there is no change or an increase in measures of religiosity. A similar pattern emerges in religious participation with the notable difference of a sharp decline in India.

Table 2 about here.

It is useful to compare the degree of religiosity between project countries and relative to the larger sample WVS countries. Figure 2 makes the project country comparison, using the ratio of the mean of the response to the question “*How important is religion in your life*” (with a higher value indicating greater importance) for each country, relative to the mean for all project countries. Serbia stands out as having the lowest degree of religiosity as measured by this question, with Nigeria, Iran, and Pakistan exhibiting the highest degree of religiosity. This set of countries is on average more religious than the full WVS sample average as shown in Figure 3. A notable exception to this generalization is Serbia, whose mean response to this question is 6% lower. The largest gap is between project countries where the dominant religion is Islam, and

Nigeria. For each of these countries, the degree of religiosity is significantly greater than the WVS sample mean.

Figure 2 and 3 about here.

Despite the high degree of religiosity exhibited in project countries relative to the WVS, there is substantial variation in gender attitudes, with many countries exhibiting a trend towards greater gender equality in attitudes. Table 3 summarizes trends in project countries in response to three prompts, “*A women needs children in order to be fulfilled,*” “*When jobs are scarce, men have more right to a job than women,*” and “*A working mother can establish as warm secure relationship with children as a mother who does not work.*” The data in Table 3 indicate the percentages that agree with the first and second questions, and the percentage that disagrees or strongly disagrees with the third. Recall that the first question measures rigidity of attitudes towards gender roles and particularly women's role as mothers. The second measures the extent to which respondents believe there should be a gender hierarchy in access to jobs, with men designated the breadwinner in cases of agreement with the prompt. The third question addresses beliefs about the compatibility of paid and unpaid work for women.

Table 3 about here.

Rigidity with regard to women's role as mothers is much greater than attitudes towards women's paid work with 66% of the project country respondents believing that women need children in order to be fulfilled in Wave 4. That said, project countries vary

widely in their agreement with this prompt, ranging from 10% in the US to 98% in Pakistan for the period 1999-2004 (Table 3, *Panel A*).

Responses to the questions on work and gender suggest more gender equitable attitudes. (Countries in bold italicized type show statistically significant movement toward gender equality in attitudes). Despite this difference, trends for all questions show a marked shift toward more gender equitable attitudes for at least one of the three questions (the last column in *Panels A-C* of Table 3) and for Serbia, Poland, and the US, the trend toward more gender equitable attitudes holds for all three questions. Figure 4 helps to summarize the trends in each country. Bars in the negative zone indicate a trend toward greater gender equality in attitudes, and positive numbers indicate a shift to more gender inequitable attitudes between the latest and earliest wave for which data are available for each country.

Figure 4 about here.

D. Empirical Analysis of Impact of Religiosity on Gender Attitudes

Using multivariate regression techniques,⁶ we can estimate the impact of religiosity and the individual's declared religious affiliation on gender attitudes for the entire WVS sample as well as the individual project countries. Three types of religiosity variables are employed as explanatory variables. In addition to accounting for responses to the questions "*How important is religion in your life?*" and "*Apart from weddings, funerals*

⁶ Although the ordered categorical dependent variables in our analysis suggest the appropriateness of ordered probit regressions, we report least squares estimates (i.e., linear probability models) because the coefficients are easier to interpret, but probit estimates produce similar marginal effects of the independent variables. In order to account for heteroskedasticity that arises with linear probability models, we report robust standard errors.

and christenings, about how often do you attend religious services these days?,” we control for the individual’s religious denomination or lack of one, indicated by a response of “no religious affiliation” to the question “*What is your religious affiliation?*” The latter response group thus includes both atheists and those not declaring a religious affiliation.

To evaluate these relationships, we need to control for other factors that might influence the individual’s gender attitudes. We control for the gender of the respondent, coded as 1 for males and 0 for females. If men benefit materially from gender equality, regardless of whether they are religious, we hypothesize they may have more patriarchal attitudes. On the other hand, men may be less inclined to exhibit religious tendencies than women, insofar as on average men experience less economic insecurity than women. Thus, we have no *a priori* expectations about the direction or size of the effect of gender on attitudes in the presence of controls on religiosity.

In previous research, education and household income have been found to be correlated with attitudes towards women (Heineck 2004; Del Boca and Lacatelli 2006). Education is coded on an 8-point scale in response to the question “*What is the highest level of education you have attained?*,” with 1 coded as a university education or more. Income is coded in response to the question: “*Here is a scale of incomes. We would like to know in what group your household is, counting all wages, salaries, pensions, and other incomes that come in. Just give the letter your household falls into before taxes and other deductions.*” The variable used in this analysis is measured on a 3-point scale (recoded from a 10-point scale) where the highest income group is coded as 1.⁷

⁷ We also employ an alternative subjective measure of income in the country-level analysis of Serbia since the alternative question on income was not asked in this country. The subjective measure is coded in response to the question “*People sometimes describe themselves as belonging to the working class, the middle class, or the upper or lower class. Would you describe yourself as belong to the lower class(=5), working class (=4), lower middle class(=3), upper middle class (=2), or upper class(=1)?*”

Age of respondents captures cohort effects, that is, generational shifts in gender attitudes. Why might age influence attitudes? First, religious teachings may evolve over time. Second, younger people on average have had less exposure to organized religions, and as a result, maybe have had less social conditioning that could contribute to unequal attitudes. Further, as more women engage in paid work outside the home, children's attitudes may become less traditional regarding gender roles (Knudsen and Waerness 1999; Fernandez, Fogli, and Olivetti 2004; Seguino 2007a; Fogli and Vedkamp 2007). Regrettably, the data do not allow us to differentiate between the impacts of these three hypotheses in the analysis that follows. Age is measured in two ways: in years, or in three age groupings (15-29, 30-49, and 50 and over).

Religious denomination variables have been recoded into nine groupings: all major denominations (Buddhist, Catholic, Hindu, Jewish, Muslim, Orthodox, Protestant), the grouping "Other" for minor religions, and the percentage reporting no religious affiliation.⁸ A number of criticisms can be leveled against the groupings used in this analysis. Noland (2005) notes, for example, that Islamic practice varies widely across both time and space. Lumping together all countries for which Islam is the dominant religion, therefore, may be too broad to be analytically meaningful. A similar claim can be made with regard to Protestantism, a religion that sprouted a number of splinter groups

⁸ Several coding changes have been made to the data for this study. Sunni, Shia and Qadriani have been recoded as Muslim; Confucianism and Taoism as Buddhist; Greek Catholic and Catholic (doesn't follow rules) recoded as Catholic along with Roman Catholics; Anglican, Lutheran, Mennonite, Methodist, Presbyterian, Free Church, and Church of Sweden as Protestant; and Armenian Apostolic as Orthodox. Evangelical Christians are classified as "Other" due to insufficient data that would allow us to identify them as Catholic or Protestant. A number of other religions that may be offshoots of major religions are included in the category "Other" as well. This category is far from homogenous, however, and includes a wide variety of religious attitudes towards gender relations. For example, one of the minor religions in this category is Wicca, a religious group in which women are held in high esteem, implying that interpretation of the estimated effect of "Other" on attitudes is difficult.

with very different tenets than the mainstream group. These concerns suggest caution in interpreting the effects of dominant religions, but are attenuated by the fact that our predominant focus in this study is on religiosity, not the teachings of any single religion.

The individual's religious denomination is measured as a dummy variable and the omitted group is "no religion." This implies that the coefficients on the religious denomination variables measure the additional effect of an individual's religious denomination relative to the group that declares no religious affiliation. One way to interpret these coefficients is to consider them to be a response to the question, "Once we control for a person's religiosity, is there any additional effect on their gender attitudes of the religious denomination to which they belong?" We can compare the sign and size of the coefficients on each of the religious denomination dummies in order to assess whether it is more or less gender inequitable in its philosophy and teachings than other religions as well as the control group, the non-religiously affiliated. Institutions and cultural practices at the country level may also affect gender attitudes. We therefore use country controls in the cross-country analysis, and in all regressions, include dummy variables for survey waves to capture trends over time in gender attitudes.⁹

Table A2 in the appendix summarizes statistics on the WVS questions used in this study. That table also includes details on the precise wording of questions and information on how questions are measured and variables recoded. Gender attitude variables have been recoded so that a higher value, indicating degree of agreement or disagreement with the prompt, reflects a more patriarchal or gender inequitable attitude.

⁹ We also ran regressions with survey year dummies in place of wave dummies and obtained similar results on the variables of interest.

All religion variables have been recoded so that a higher value reflects a greater degree of religiosity and participation. Table A3 gives summary details on measurement of the demographic variables and descriptive statistics.

Table 4 reports the results obtained from regressing each gender attitude question on the explanatory variables for all countries in the pooled World Values Survey. While the amount of data is rather daunting to digest, the results are in fact quite straightforward and unambiguous with regard to the effect of religiosity on gender attitudes. For all gender attitudes questions (both the first set that addresses issues of gender identity and roles, and the second group that considers issues of hierarchy at work, in politics, and in education), the two religiosity variables (the importance of religion in the individual's life and the frequency of attendance at religious services) contribute to more patriarchal attitudes. Note, however, that the size of the effect of religious participation is considerably smaller than the importance of religion in a person's life. This suggests that the notion that exposure to religious doctrines by frequent attendance at services is responsible for gender inequitable attitudes is not well supported. Religious values are apparently internalized through a variety of avenues, regardless of whether a person attends services or not.¹⁰

All denominations are associated with more gender inequitable attitudes relative to the "no religious affiliation" group on at least some of the questions (although attitudes of members of the Orthodox religion do not differ significantly from those not adhering to a religious denomination on these three questions). Most religious denominations are

¹⁰ Another possible explanation for the small effect of religious participation is that the two religiosity questions are closely related, such that the question on importance of religion is really capturing some of the effect of religious participation. To test this, regressions were rerun, omitting the question on importance of religion. The size of the effect of religious participation increases, but by a small amount, consistent with the argument that the effect of religious participation is quite modest.

associated with more patriarchal attitudes on homosexuality, abortion, and divorce, compared to the reference group (the “no religion” group). An exception is Jews whose attitudes are more gender equitable than the reference group on these three questions. Note that this analysis does not include respondents residing in Israel as gender questions have not been asked in surveys conducted in that country. Thus, this rather counter-intuitive result (that Jews exhibit more gender equitable attitudes) in the context of gender critiques of Jewish religious laws (the *Halacha*) may be related to divergent practice of Judaism outside of Israel. With that caveat, overall, adherents to the Jewish religion exhibit the least gender inequality in attitudes compared to the non-religious. In only one third of the questions were their attitudes more gender unequal. It is notable that religious denomination, more generally, has only a limited effect on attitudes in response to the prompt “*It is a problem if women have more income than their husbands.*” The effect of religious denomination is statistically significant for only two religions (Muslim and Buddhist).

Table 4 about here.

In order to summarize the effects of variables on all the gender questions, a gender attitudes index was created from WVS. The index is calculated as the sum of the responses to gender questions 5-11 and 13-14 listed in Table A2 in the appendix. The scale of questions 9-11 was adjusted to achieve comparability to the scale of the remainder of the questions, and thus to ensure a relatively equal weight of each question

in the index.¹¹ Although the adjustments do not render the scales (and thus weights) on each question identical, this approach makes the index less biased in its weight on particular questions. The scale ranges from a potential minimum of 4.5 points to a maximum of 40 points. As with the individual gender attitude questions, the gender index is measured such that a higher value indicates more unequal gender attitudes.

Figure 5 compares the average gender attitudes index by religious denomination as compared to those not declaring a religious affiliation. The gap is widest for Muslims, followed by Hindus and Other, and is smallest for Protestants. Note, however, that the small gap for Protestants as compared to other religions may simply be due to the way the data was coded, with groups such as Evangelical and Born Again Christians grouped in the category “Other.” More generally, what can be said with certainty is that on average those adhering to religious denominations hold more patriarchal attitudes than those not religiously affiliated. Figure 6 shows a scatter plot of the project countries’ average gender index score and the country average of religiosity, as assessed in response to the question “*How important is religion in your life?*” Both graphs suggest that countries with greater degrees of religiosity exhibit more unequal gender attitudes. In the project countries shown in Figure 6, Nigeria, Pakistan, and Iran score the highest in both of those categories, and the US and Serbia have relatively low rankings on both scores.

Figures 5 and 6 about here.

¹¹ Questions 9-11 in the WVS are on a 10-point scale. Most other questions are on a 4-point scale. The responses to questions 9-11 were adjusted by dividing by 2, which reduces their weight in the index, although weights on all questions are not equal due to the remaining difference in scale of answers.

A notable and consistent result in this set of regressions is the effect of the respondent's gender on attitudes. Men consistently hold more gender inequitable attitudes than women on all questions in Table A4. The gender gap is sizeable, and is particularly large for questions pertaining to the legitimacy of a gender hierarchy. The remaining control variables are to varying degrees also significant and have the expected direction of effect. The older the respondent, the more gender inequitable the attitudes the person is likely to hold. Similarly, less education and being in a lower income household are associated with more gender inequitable beliefs for all questions.

We use the composite measure of gender attitudes – the gender attitudes index – to assess the total effect of religiosity for each of the project countries. To do this, the index was regressed on the explanatory variables used in the previous set of regressions for each project country. (Israel and Turkey could not be included due to missing data). The excluded group is comprised of non-religious people which, as noted, includes atheists as well as those who are simply not religious. Results are reported in Table 5. In addition to measuring the influence of importance of religion and separately, the effect of average religious participation, we also consider the combined effect of these two measures of religiosity. For this reason, we report the sum of the effects of these two variables at the bottom of the table.

The strongest cumulative effects of religiosity are in the US and Poland. The weakest effects are in Serbia, Mexico, and Pakistan. In the latter case, the direction of the effect is unexpectedly negative. That is, in Pakistan, religiosity as measured by our two variables, is associated with more gender equitable attitudes. This result may be due to collinearity with the Muslim variable, if individuals who are Muslim exhibit the greatest religiosity. If so, this would make it difficult to separately assess the effects of

religiousness and Muslim on gender attitudes. To address this, we reestimated this regression, omitting the Muslim dummy variable. The religiosity variables again were correlated with more gender equitable attitudes. An alternative explanation for this result is that the pervasive impact on attitudes of the dominant religion swamps other effects such as religiosity. That is, Islam's religious precepts regarding gender may have been internalized and inculcated in a variety of social arenas, such that the religiosity variables are capturing some other unidentified trait of individuals.

Apart from that case, an interesting pattern emerges with regard to the role of the individual's religion in these regressions. Whereas in the full sample of WVS countries, Muslim in all but one case had negative impacts on gender equality in attitudes relative to the non-religious, at the country level, that effect is insignificant in two countries – the US and Mexico. This suggests that the impact of an individual's religious denomination is not in itself determinant, but rather, it is the context that shapes how religious denomination affects gender attitudes. Also notable and consistent with the previous set of results for the full sample of WVS countries is that in Chile and the US, Jews have more gender equitable attitudes than the non-religious, even controlling for demographic factors and measures of religiosity. Apart from the case of Judaism, in most of the project countries, in cases where religious domination has a significant impact on attitudes relative to the non-religious, that effect is patriarchal – that is, a person's religious denomination appears to contribute to more unequal gender attitudes, even after controlling for religiosity.¹²

¹² The India results show that members of most religious denominations have more gender equitable attitudes than the non-religious. Here again, it may be that the dominant religion – Hindu – has pervaded social and cultural norms so that its effect in these regressions appears to be invisible.

Table 5 about here.

We turn now to the control variables, which are themselves of independent interest. A consistent result in this and the previous analysis is that men have significantly more gender unequal attitudes than women, after controlling for differences in education, age, income, and religion. That is perhaps not surprising, as men tend to benefit from gender inequality. Among the project countries, the gender gap in attitudes is the largest in the countries that are among the least religious and most gender equitable in overall attitudes – the US, Chile, and Serbia. The gender gap is narrowest in Pakistan. This may again be due to the overarching effect of Islamic culture on gender attitudes, which are absorbed by women as well as men.

Gender differences in religiosity and attitudes towards gender equality are summarized in Table 6 for the project countries and the full WVS, using data pooled across all waves. Religion is more important in women's lives than men's, and in the project countries where Protestantism and Catholicism are the dominant religions, women participate in religious activities by a much larger percentage than men. In the full sample (also portrayed graphically in Figure 7), men are more likely than women to participate weekly or more frequently in religious services, although the difference is small.

By contrast, the percentage of women who agree that men have a right to a job when jobs are scarce is substantially smaller than of men, in all project countries and in the full sample. That margin is extremely large, unlike for the question about whether women need children in order to be fulfilled. This suggests that when it comes to women's assigned role of caretaking and motherhood, norms are internalized by both

sexes to a similar degree. On the question of whether women can combine work and parenting while still being good mothers, there is again a consistent gender gap with women more equitable in attitudes, but the gap is smaller than in the question on the right to a job. A pattern emerges here (and on related work questions) that on issues of work, women are more likely to eschew dominant patriarchal views, whether inculcated by religious or other institutions. We interpret this as implying that women have a strong desire for economic autonomy.

Table 6 and Figure 7 about here.

Older individuals hold more gender inequitable attitudes than the young, on average. This could be attributable to age differences in exposure to religious beliefs. It might also capture the trend over time of more gender equitable attitudes, as demonstrated with the data presented in Tables 2 and 3. Or, quite possibly, with women's increased labor force participation in many countries, it is possible that the young hold more gender equitable attitudes because they see mothers and other adult women taking on a wider array of roles in society, including in paid work. This is consistent with social role theory, which argues that gender attitudes are strongly impacted by children's observation of the gender roles of parents and other adults (Chafetz 1989; Eagly and Diekmann 2003, 2005). The contribution of age to gender inequitable attitudes is the greatest in Poland, and the weakest in India, a country that scores high on the gender inequality index. The latter may suggest that we can expect less change over time in gender attitudes in India insofar as the young hold similar views to older members of society. But the data may not be able yet to capture the more recent effect of

industrialization and women's increased participation in the paid economy as compared to Poland. With younger generations more exposed to women's paid work in India, their attitudes toward gender might become more rapidly gender equitable than suggested by these data.

As expected, education contributes to gender-equalizing attitudes. Individuals from higher income households also hold more gender equitable attitudes, an effect that is strong in most of the project countries and consistently and significantly positive in all. Those effects are strongest in Mexico, Serbia, and the US, and weakest in Nigeria, Iran, and Pakistan, but in all countries the effect is beneficial to gender equality.

D. Religiosity and Political Attitudes

There is some concern that religiosity reduces the secular functioning of the state, a factor that may contribute to gender inequality in attitudes and outcomes. Before turning to the effect of gender attitudes on objective measures of gender equality, then, it is useful to consider variation in attitudes towards the role of religion in countries of different dominant religions. Table 7 reports on responses to three questions on the role of religion in politics and government from the WVS.

Table 7 about here.

Countries in which the majority of respondents indicate they are not religious show much less tolerance for religion's role in public life as evidenced by the small percentage that disagree or strongly disagree with the statement "*Religious leaders should not influence how people vote.*" Only Buddhist-dominant countries consistently

show a similarly secular attitude across all three questions. Orthodox-dominant countries, while exhibiting a greater degree of secularity than in countries with other dominant religions, nevertheless appear to prefer that politicians be religious people. Respondents from former communist countries Poland and Serbia more consistently eschew a role for religion in politics than other project countries. It is useful to note that for the full WVS and all project countries, there is a much stronger belief that politicians should be religious than a belief that religious leaders should influence the vote and policy.

IV. Contribution of Religiosity to Gender Outcomes

We now turn to an exploration of religiosity's influence on objective measures of gender equality in outcomes, via the effect on gender attitudes and views on the role of religion in government. It is useful to reiterate the possible transmission mechanisms from religion to gender outcomes. Insofar as religions inculcate attitudes that promote a gender hierarchy and rigid gender roles with women as caretakers, there can be direct but "stealth" effects in everyday behavior that disadvantage women. Women may feel pressured to quit work when they have children. Employers may hire or promote men over women. Parents may invest more resources in boys than girls. An indirect effect is the influence of religious attitudes on the role of religion in influencing government and policies. The stronger the belief that religion should guide government decisions, the more likely we are to observe gender inequitable policies, rules, and distribution of resources, contributing to gender inequality in material well-being. Figure 8 represents pathways by which the effects of religiosity are transmitted to gender outcomes, with arrows indicating the direction of causality and hypothesized signs of the relationships noted.

Figure 8 about here.

To conduct this analysis, other macro-level factors affecting gender equality in well-being must be controlled for. Several prior studies have explored the determinants of gender equality in well-being (without, however, exploring the impact of religiosity). Aggregate well-being measured as GDP is ubiquitously included as an explanatory variable though with contradictory evidence on its beneficial effect for equality (Forsythe and Korzeniewicz 2000); Dollar and Gatti 1999, Donno and Russett (2004); Balamoun-Lutz 2007; Seguino 2007b).¹³ Why might the level of GDP affect gender equality? As a country's per capita income rises, more resources can be shared with women: 1) at the household level, because higher incomes leave more resources for female members of the family, who previously received a smaller share; 2) due to higher levels of government spending, insofar as these increase female access to education and health care, 3) if job creation disproportionately affects women, and as a result, women have more bargaining power and are seen as more economically valuable.

The importance of any of these factors in reducing gender inequality will differ, however, depending on the context. For example, the structure of production coupled with gender norms and stereotypes can affect the distribution of jobs by sex. Iversen and Rosenbluth (2005) argue, for example, that the relative strength of patriarchal norms is related to the relationship between the mobility of male economic assets to the mobility of female economic assets, with mobility a function of the structure of the economy and

¹³ Forsythe and Korzeniewicz (2000), Dollar and Gatti (1999), and Donno and Russett (2004) use the natural log of per capita GDP while for the remaining studies, the growth rate of per capita GDP represents aggregate well-being. The latter measure differs conceptually from the former in that it emphasizes the effect of a given set of macroeconomic policies over the period of time in which growth is measured.

the gender division of labor. In labor-intensive agricultural systems, the requirement of physical strength as an agricultural input encourages a gender division of labor that gives men command over assets that are more mobile than women's household labor-specific assets. In contrast, it is argued, in post-industrial economies where brawn matters less, gender norms and attitudes are more egalitarian because families in such societies choose to socialize their daughters in more gender-neutral ways to assist them in securing a stable livelihood. Their key point is that the structure of the economy has a powerful influence on gender norms and stereotypes.

The degree of social expenditures also matters for gender well-being (related to point 2 above), net of the level of per capita income. As countries like China and Cuba have demonstrated, significant public expenditures on public health can extend life expectancy in otherwise low-income countries. It can also reduce competition over resources, potentially creating more space for movement toward gender equality.

A. Data

Dependent Variables: Gender Equality in Well-Being

We use a variety of indicators of gender equality in well-being: the ratio of female to male life expectancy, the ratio of female to male primary and secondary gross school enrollment rates, female share of the labor force, female share of professional and technical positions, the percentage of births attended by skilled personnel, and maternity leave compensation. The latter is a measure of effective weeks of paid maternity leave.¹⁴

¹⁴ Thus, for example, in cases where women are accorded say, 6 weeks at half pay, the effective compensation at full pay is measured as 3 weeks.

Each of these measures can be critiqued on conceptual grounds or in terms of measurement error. For example, life expectancy data are based on model life tables rather than real data.¹⁵ School enrollment ratios are gross, rather than net, and do not measure the quality of education (Grown 2008). The female share of the labor force is not an accurate measure of economic activity as surveys frequently under-enumerate women's economic activity in agricultural economies (classifying some women as "not in the labor force"). Women's share of professional and technical positions draws from outcomes in the formal sector of the economy, and as Cueva Betata (2006) notes, is class-biased, reflecting elite women's access to jobs of high status. Scholars have rightly raised concerns about the absence of more comprehensive measures that could assess women's differential care burden, gender-based violence, and gender empowerment (Folbre 2006; Cueva Betata 2006; Grown 2008). These problems, duly noted, are suggestive of the ongoing challenges faced in accurately measuring gender gaps in well-being.

In addition to individual measures of gender equality in well-being, we employ a composite measure, the Social Watch's Gender Equality Index (GEI). The GEI measures gender equality in three domains: empowerment (% of women in technical positions, % of women in management and government positions, % of women in parliaments, % of women in ministerial posts); economic activity (income and labor force participation gap); and education (literacy, primary, secondary school enrolment rate, and tertiary education). This measure incorporates some of Dijkstra's (2006) recommendations for formulating a true gender inequality measure, avoiding the pitfalls of previous measures

¹⁵ An alternative to this capabilities measure, highly correlated with life expectancy ratios, is female to male population ratios (FMRs). This variable captures society's relative valuation of women and may be a good proxy for a variety of other mechanisms by which women are empowered or disempowered (Seguino 2002). That variable was used in these analyses with very similar results to life expectancy ratios (available from authors on request).

such as the Gender Development Index (GDI) and the Gender Empowerment Measure (GEM), which also capture a country's level of development, and are therefore not strictly inequality measures. The GEI is calculated as an average of the average values obtained in the three dimensions.¹⁶ The data used to measure gender gaps in income, it should be noted, is based on imputing a value of the female to the male wage of 0.75 for countries in which wage data are not available, under the argument the global average wage gap is approximated by that value. To some extent then, the GEI is also suffers from measurement error.

Explanatory Variables

We used a modified version of the gender attitudes index in this portion of the analysis, representing the sum of responses to questions 6-9 and 12 in Table A2, omitting questions 5, 10-11, and 13-14. This modified measure is adopted due to missing data on omitted questions, which would have limited the size of an already small country sample. Nevertheless, the modified gender attitudes index is strongly correlated with the full gender attitudes index (correlation coefficient = 0.978).

GDP is measured as the natural log of per capita GDP measured in constant \$ 2000. It would additionally have been useful to have detailed measures that capture cross-country differences in the structure of production and gender roles in the economy. While such measures are not available, GDP serves as a proxy measure, with low incomes per capita strongly correlated with agricultural economies, middle incomes with manufacturing as a share of GDP, and high incomes with high-skilled service activities

¹⁶ For technical details on the construction of the index and data sources, see http://www.socialwatch.org/en/avancesyRetrocesos/IEG_2008/tablas/technicalNotes.html.

(e.g., finance, product design, engineering). A weakness of this measure, however, is that it gives us little indication of the role of gender in the paid economy.

To capture social expenditures, we use the infant mortality rate, a variable that reflects the extensiveness and efficacy of public health expenditures. We also include the logged square of GDP to account for non-linearities (that is, the possibility that the size of the effect of GDP on gender well-being may decline at higher levels of income).

Table 8 summarizes the gender well-being indicators for each of the project countries for which data are available. Summary statistics and data sources for the full sample of countries are given in Table A4 in the appendix along with data on the remaining independent variables used in the analysis. A matrix of correlation coefficients is given in Table A5 in the appendix.

Table 8 about here.

B. Estimation

To explore the effect of religiosity on gender equality in well-being, we regress each of the objective gender indicators on the gender attitudes index, with GDP, GDP squared, and infant mortality rates as controls. Three statistical approaches are adopted. The first is ordinary least squares (OLS). Using OLS, gender well-being variables from the most recent year available are regressed on lagged values of GDP and infant mortality rates (averaged over the period 1990-2000).¹⁷ The purpose of using lagged values of GDP is to address the problem of potential feedback effects from gender well-being to GDP.

¹⁷ The estimated equation is: $GE_i = \alpha_0 + \alpha_1 GDP_i + \alpha_2 GDP_i^2 + \alpha_3 IMR_i + \alpha_4 Attitudes + \varepsilon_i$, where GE is one of 7 gender equality variables for country i , GDP is measured in natural logs, IMR is the infant mortality rate, $Attitudes$ in the gender attitudes index, and ε is the error term.

In the second procedure, we use two-stage least squares (TSLS) estimation. In the first stage of estimation, we use the gender attitudes index as the dependent variable. This is regressed on four religiosity variables (questions 1 and 4 in Table A2), plus dummies for the dominant religion in the country, and indicators on the degree of acceptability of religious influence on politics (questions 16-17 in Table A2).¹⁸ The purpose is to isolate the proportion of gender attitudes due to religiosity. This set of regressions also provides a robustness check on the OLS regressions, since the sample size will vary due to the inclusion of instruments of varying availability. We then use the predicted values of gender attitudes as explanatory variables of objective gender outcomes, controlling for other factors that influence gender outcomes. Aside from the goal of isolating the effect of religiosity on gender attitudes and thus gender outcomes, there is a second important reason for using an instrumental variable approach. We may believe that gender attitudes are not exogenous, that is, that they are themselves influenced by women's relative material status. Thus, we might expect that if women's share of the labor force or professional or managerial jobs is low, their subordinate status will be reflected in gender attitudes. By using TSLS, we eliminate the potential bias in the gender attitudes index due to endogeneity.

The third set of regressions is a further attempt to address the concern that GDP may not be exogenous with respect to some of the gender equality indicators – in particular, female share of the labor force and measures of educational equality. The rich literature on the effect of gender inequality on economic growth suggests we should treat GDP as endogenous – that is, influenced by the degree of gender equality (Seguino 2000;

¹⁸ Tests confirm the validity of the instruments. The R^2 obtained by regressing the gender attitudes index on the instruments was 0.867 and an F-value on the sum of the coefficients in the first stage regression of 10.94, suggesting these variables are good indicators for the gender attitudes index.

Klasen 2002; Esteve-Volart 2004; Cavalcanti and Tavares 2007; Braunstein 2008). We approach this problem by using three stage least squares (3SLS), a procedure that consists of estimating a system of equations simultaneously. The system of equations we use includes one for gender equality in well-being, and one each for the remaining two endogenous variables, GDP and gender attitudes.

We discussed above the instruments used in the gender attitudes equation. With regard to GDP, a challenge in controlling for endogeneity is finding instruments that influence the level of GDP but are not correlated with gender well-being. The economic growth literature identifies a variety of possible instruments related to trade and market liberalization, such as imports and exports as a percentage of GDP, the black market premium, property rights, rule of law, and investment (business spending).¹⁹ The weakness of these instruments is the contradictory evidence on the benefits of economic openness and market liberalization for economic growth. Moreover, while investment may be a stimulus to growth, it is a component of GDP. It is not particularly meaningful to regress a trending variable on one of its subcomponents. For this paper, the following variables are used as instruments for GDP: research and development (R&D) expenditures as a percentage of GDP and squared; the money supply as a percentage of GDP and squared, and infant mortality rates.

R&D expenditures are an indicator of the pace of innovation in an economy, and thus a determinant of economic growth, and by implication can be used to explain cross country differences in the level of GDP. The money supply, measured as M2 as a % of GDP, is the sum of currency, demand deposits, savings, and foreign currency deposits. Expansion of the money supply, within limits, stimulates spending and growth, and

¹⁹ In the gender literature, see for example, Dollar and Gatti (1999).

conversely, contraction of the money supply lowers spending, employment, output, and GDP. Infant mortality rates are a proxy for the distribution of resources and social infrastructure spending, which are expected to have a positive effect on health, the quality of the labor supply, and thus, the level of development.

C. Results

Results of the three econometric exercises are presented in Table 9. With regard to the 3SLS results, because the focus of this paper is on the impact of religiosity, only the estimates associated with gender inequality in well-being are reported in Table 9. (The complete 3SLS results are reported in Table A5).

Turning to the determinants of the composite measure of gender equality in well-being (the GEI), neither GDP nor GDP squared have a statistically significant effect on gender equality using any of the three statistical methods.²⁰ The infant mortality rate has a negative effect on the GEI, suggesting that a country's social expenditures, which are reflected in infant mortality rates, improve gender equality in well-being.

The gender attitudes index has a negative effect on the GEI in all three statistical approaches. Note that the sample size changes with the three statistical methods, ranging from 49 to 84. The similarity of the results across all three methods despite the change in sample size (due to missing data for some of the variables added in the TSLS and 3SLS regressions) is indicative of the robustness of these results. The significant negative effect of gender attitudes in the TSLS and 3SLS regressions at the one percent level is notable since these methods essentially isolate the effect of that portion of gender inequality

²⁰ VIF tests for multicollinearity showed scores exceeding 10 for GDP and GDP squared, for R&D and its square, and for M2 and its square. In the GEI regression, dropping GDP squared resulted in a negative and significant coefficient on GDP. The only other variable that suffers from multicollinearity is religious beliefs, and not surprisingly, therefore, it was not found to be statistically significant in a number of the 3SLS regressions (Table A5).

attitudes related to the degree of religiosity in a country. More precisely, the TSLS and 3SLS regressions results reflect the effect of religiosity, attitudes towards politics in religion, and dominant religions on gender attitudes, and the resulting effect of gender attitudes on gender outcomes.

Using as the dependent variable each of the two capabilities measures – the ratio of female to male life expectancy and the ratio of female to male primary and secondary school gross enrollment rates – we obtain similar results to the GEI, with the exception of the effect of GDP. In contrast to the GEI, in this case, as living standards rise, gender equality measured as female to male life expectancy and educational attainment improve, but at a decreasing rate (the sign of the GDP squared variable is negative). Infant mortality rates again have a negative significant effect in all cases with the exception of TSLS for life expectancy ratios (although the sign on that coefficient is negative, as expected). The gender attitudes index has a negative effect on both measures of gender equality in capabilities and in all cases, the effect is significant. Again, note the change in sample size, with little effect on the size of the coefficients on gender attitudes index, indicating the robustness of the result.

The female share of the labor force, however, responds in the opposite manner to GDP. As living standards rise, the female share of the labor force falls and then begins to rise, implying a U-shaped curve, consistent with the work of Esther Boserup (1970) and confirmed by numerous scholars in more recent studies. Infant mortality rates have a negative and significant effect on the female share of the labor force in all three regressions. Finally, the gender attitudes index has a negative and significant effect on female share of the labor force in all regressions.

The number of countries for which data on women's share of professional and technical jobs drops to 73 for the OLS regressions, and 58 and 44 for the TSLS and 3SLS regressions, respectively. Interestingly, GDP and GDP squared do not have a significant effect on women's share of professional and technical jobs, suggesting that we can not expect that women's economic empowerment (moving into skilled jobs that reflect increased decision making power in the case of professional jobs) moves in tandem with increases in GDP. Again, the infant mortality rate and the gender attitudes index, however, have significant negative effects on women's share of professional and technical jobs.

Table 9 about here.

The variable representing the percentage of births attended by skilled health personnel has not been previously explored in the cross-country gender well-being literature to our knowledge. This variable captures women's access to medical services. The result shows that the percentage of births attended by skilled health personnel rises with the level of development at a diminishing rate, and similarly, the infant mortality rate has a negative and significant effect. In contrast to the remaining regressions, the coefficient on the gender attitudes index changes sign between the OLS, TSLS, and 3SLS regressions, and in any case, the coefficient is not significant.

The regression results on the determinants of the compensation level of maternity leave are particularly interesting. This is a policy variable, measuring the effective number of weeks of paid maternity leave, and reflects explicit government policy on support for women's dual role as parent and worker. This indicator captures a

mechanism through which we might observe religious gender attitudes on state-level decision-making. Notably, neither GDP, GDP squared, nor infant mortality rates are statistically significant determinants of the number of weeks of paid maternity leave (although signs in most cases are in the expected direction). However, gender attitudes resulting from the effect of religiosity have a negative and significant effect on maternity leave compensation. The explanatory power of this model is relatively low (explaining only 10% of variation across countries in the OLS regression). Clearly, other factors play a role in determining the level of compensation. One possibility is that that women's representation in political decision-making may have a positive effect. We reran the regressions, adding female share of parliamentary seats as an indicator of women's representation in political decision-making (results not reported here but available on request). This variable was not, however, statistically significant.

To summarize our results, we find overwhelming statistical evidence that the gender attitudes index has a negative and significant effect on all measures of gender equality in well-being with the exception of the percentage of births attended by skilled health personnel. The latter variable was found to be a positive function of the level of development and infant mortality rates. We interpret the latter variable as a measure of the effectiveness of social expenditures. The results are robust across six measures of gender equality in well-being and statistical techniques that take into account possible endogeneity of several explanatory variables.²¹ The results imply that religiosity has an

²¹ Some studies link the degree of religiosity (inversely) to the level of development (e.g., Inglehart and Norris 2004) and, in turn, religiosity has been argued to influence the level of development (see Guiso, Sapienza, and Zingales 2003, 2006). To address this, we ran another set of 3SLS regressions with religiosity measures included as explanatory variables in the GDP regression and GDP an explanatory variable in a fourth equation estimating the determinants of religiosity (in addition to equations for gender well-being equality, GDP, and the gender attitudes index), controlling for variations in the degree of economic insecurity – infant mortality, death rates, immunization rates, and access to clean water. The

independent effect on gender outcomes, via its effect on shaping gender norms and stereotypes. The transmission of this effect is not determined by the development of a country.

Figure 9 plots the partial correlation of gender attitudes with the gender equality index (GEI), after controlling for the effects of the remaining independent variables. *Panel A* demonstrates this relationship for the full sample, and *Panel B* shows the project countries. The method used to develop these scatter plots is to first remove the effect of other independent variables on the gender equality index, and to adjust the values of the gender attitudes index so that it reflects only that portion attributed to religiosity. This gives us the partial correlation or net effect of religiosity on gender equality in well-being. We used the OLS regression results for the GEI in Table 9 to make the calculations, and only adjusted for the coefficients on explanatory variables that were statistically significant. (That implies, for example, we only adjusted the GEI for the constant term and the infant mortality rate). After removing the effects of other factors, the visual inverse relationship between religiosity and the GEI is strong.

Figure 9 about here.

V. Conclusion

Two questions about the persistence of gender inequality continue to reverberate. Why do societies persistently invest less in female well-being than male? And why, even when

gender attitudes index results were the same – the variable was always negative and statistically significant at the 1% level with the exception of the percentage of births attended by skilled health personnel. We ran one final set of regressions, controlling for a summary measure of gender institutions from the Morrisson and Jütting (2005) *Gender, Institutions, and Development* (GID) database. Those authors provide evidence that an index of gender practices has a negative effect on gender equality in outcomes. In our regressions, the GID variable was negative and significant while the gender attitudes index retained its sign and significance in most regressions. The country coverage of the GID dataset, however, is limited to restricted number of developing countries. Results available from authors on request.

women reach adult life with equal abilities, do they fare so poorly in labor markets, in political representation, and in gaining access to positions where they have a seat at the table as decision-makers?

This paper seeks to shed light on those questions by investigating the impact of religiosity on attitudes towards gender equality. We find that religiosity is indeed strongly linked to gender inequitable beliefs. Not only religion matters, of course. The gender gap in attitudes is wide. In our statistical work, the effect of being male on gender inequality in attitudes was almost as great as religiosity. Perhaps more heartening in terms of what policy solutions might exist to engender conditions for greater equality, we also found that individuals with higher levels of education and income showed evidence of holding more gender equitable views. This evidence implies that apart from its intrinsic value and role in stimulating growth, broad-based education is tied to social and institutional change on the macro level.

We find overwhelming statistical evidence that the effect of religiosity extends beyond attitudes to negatively impact several measures of gendered well-being outcomes. In all but one measure of gender equality in well-being (percentage of births attended by skilled health personnel), religiosity was found to contribute to more unequal gender outcomes – even once the level of GDP and social development were controlled for. We also found that higher income countries perform better on some measures of gender equality such as life expectancy, educational attainment, and skilled health personnel attending births. But in the areas of women's share of the labor force, maternity leave compensation, and the Social Watch's gender equality index, a composite measure of gender equality in material well-being, rising GDP gives no evidence of ameliorating women's status, suggesting that more interventionist policies may be required.

It is useful to compare results in this paper with those from other macro-level studies that have examined the role of religion in influencing gender outcomes. Most of those studies focus attention on the effect of Islam on gender, using a dummy variable for countries in which Islam is the dominant religion or percentage of the population that is Islam. Some studies find a negative effect of Islam on gender equality (e.g., Dollar and Gatti 1999; Forsythe and Korzeniewicz 2002; Balamoune-Lutz 2006), while other research findings suggest the dummy variable approach is inadequate to isolate the effect of Islam (Donno and Russett 2004).

In this study, no one religion stands out as consistently more gender inequitable in its effects than all the others. Rather, the empirical evidence presented here implies that dominant religions – and not exclusively Islam – have varying effects on gender attitudes and outcomes, some positive, some negative. The emphasis in previous research placed on any one religion therefore seems misplaced – or at least, is not fully illuminating with regard to the effect on gender attitudes and outcomes. Of greater significance, however is the finding that once we control for the individual's religion, we find that religiosity itself – the intensity of religious belief and the frequency of religious participation – is consistently negatively correlated with gender attitudes and outcomes.

We may infer from these results that religiosity contributes to and perpetuates hierarchical gender ideology, norms and stereotypes. Gender norms are difficult to change. Progressively advancing the participation of women in decision-making roles, and in labor market participation, however, can hasten this advance. There is some evidence that increases in women's paid employment promotes gender equitable norms and stereotypes (Seguino 2007a). Similarly, there is evidence from India that political affirmative action can reduce gender bias in attitudes (Beaman, Chattopadhyay, Duflo,

Pande, and Topalova 2008). This suggests that expansion of efforts to expand women's paid employment – through such policies as paid parental leave, subsidized child care, and affirmative action – could serve as a fulcrum for gender equitable change, along with reservation policies (quotas) on political lists to increase political participation.

There are other potential countervailing forces to those social institutions that would hinder advancement of the goal of gender equality. Academic research identifying the beneficial impact of gender equality and women's organizations that advocate for gender sensitivity in public sector spending, for example, can play a role in shaping government policies and resource distribution.

It does not appear, however, from this analysis, that religious institutions as currently structured provide a pathway for amelioration of women's unequal status. Even if in hard times, religious organizations offer women solace and some material support, the net effect on women's well-being would appear to be negative, at least based on the empirical results presented in this paper. That said, religious institutions themselves are susceptible to change, albeit slowly, and internal groups show evidence of advocating for progressive change. Examples abound. In the United States, "Catholics for Choice" and "Catholics for Gay Marriage" are activist groups working to change church norms and rules on homosexuality, abortion, and contraception. At a recent conference in Kuala Lumpur, Muslim women, frustrated with the patriarchal interpretation of Islamic text, met to come up with ways to demand equal rights for women (Tavernise 2009). Formal religious institutions offer an organizational framework within which women's groups can operate, and this may lead to more rapid change than could have been imagined decades ago when gender outcomes were more unequal and global communication more limited.

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TABLES AND FIGURES

Table 1. Distributions of Respondents by Religious Denomination in Selected Countries, in percent

	Buddhist	Hindu	Jew	Muslim	Orthodox	Other	Protestant	Catholic	Atheist, no religious affiliation
<i>Catholic</i>									
Chile	0.0	0.1	0.2	0.0	3.0	6.5	4.9	63.3	22.1
Mexico	0.1	0.0	0.2	0.1	0.5	5.7	2.8	70.7	20.0
Poland	0.0	0.0	0.0	0.0	0.5	0.7	0.7	76.8	21.3
<i>Muslim</i>									
Iran	0.0	0.0	0.0	97.7	0.1	0.7	0.0	0.5	1.0
Pakistan	0.0	0.0	0.0	69.0	0.0	8.1	0.0	0.0	22.2
Turkey	0.0	0.0	0.0	81.7	0.0	0.2	0.1	0.3	17.7
<i>Protestant</i>									
Nigeria	0.0	0.0	0.1	28.1	3.5	13.3	38.5	14.4	2.1
United States	0.4	0.2	1.7	0.3	0.3	10.6	41.0	26.0	19.6
<i>Hindu</i>									
India	1.1	78.9	0.2	8.9	0.2	3.7	0.6	1.8	4.6
<i>Jewish</i>									
Israel	0.0	0.0	85.3	9.5	0.0	1.8	0.0	3.3	0.1
<i>Orthodox</i>									
Serbia	0.0	0.0	0.2	8.6	74.7	0.6	0.5	5.6	9.7

Source: Author's calculations from WVS data, pooled data from all waves.

Table 2. Trends in Religiosity

Panel A. Religion important or very important (in percent of respondents)

Country	1989-1993	1994-1999	1999-2004	2005-2006	Trend from earliest to latest wave
<i>Chile</i>	78.6	72.3	80.5	70.6	-8.0
Mexico	71.6	79.6	87.7	85.1	13.5
<i>Poland</i>	88.6	83.6	83.9	86.1	-2.5
Iran			95.5	94.6	-0.9
Pakistan		93.5	94.9		1.4
Turkey	84.2	90.8	91.9	91.4	7.2
Nigeria	94.7	98.3	99.1		4.4
<i>US</i>	79.2	83.3	83.3	72.6	-6.6
India	81.3	78.9	80.1	80.7	-0.6
Serbia		55.3	67.2	66.1	10.8

Note: Responses represent the percentage who indicating “important” or “very important” in response to the question “*How important is religion in your life?*” Countries for which negative changes are statistically significant at the 5% level in bold, italicized print.

Source: Author’s calculations, pooled waves of WVS.

Panel B Religious Participation (in percent of respondents)

	1981-1984	1989-1993	1994-1999	1999-2004	2005-06	Trend from earliest to latest wave
<i>Chile</i>		27.7	25.0	31.3	25.3	-2.4
Mexico		43.4	46.4	54.8	46.3	2.9
<i>Poland</i>		65.6	56.1	59.2	57.4	-8.2
Iran				27.4	35.5	8.1
Pakistan				74.2		
Turkey		34.7	41.9	36.0	34.3	-0.4
Nigeria		83.7	89.2	92.2		8.5
<i>US</i>	42.6	44.1	44.0	46.2	36.8	-5.8
<i>India</i>		54.6	42.4	32.6	44.2	-10.4
Serbia			6.0	7.8	11.1	5.1

Note: Responses to the question “*Apart from weddings, funerals and christenings, about how often do you attend religious services these days?*” Percent is of those attending services weekly or more frequently. Countries for which negative changes are statistically significant at the 5% level in bold, italicized print.

Table 3. Trends in Gender Attitudes Among Project Countries

Panel A. Women Need Children to Be Fulfilled, in percent

	1989-1993	1994-1999	1999-2004	Trend from earliest to latest wave
Chile	63.7	61.1	64.5	0.8
<i>Mexico</i>	52.1	42.5	43.0	-9.1
<i>Poland</i>	75.2	69.7	70.6	-4.6
Iran			49.0	
Pakistan			98.3	
Turkey	71.9	72.6	72.2	0.3
Nigeria	87.0	82.5	91.7	4.7
<i>US</i>	23.8	21.2	9.8	-14.0
<i>India</i>	88.6	84.4	85.4	-3.2
<i>Serbia</i>		75.6	72.1	-4.0

Note: Percentage represents the proportion of respondents agreeing with the prompt. Countries for which negative changes are statistically significant at the 5% level in bold, italicized print.

Panel B. When jobs scarce, men have more right to job, in percent

	1989-1993	1994-1999	1999-2004	2005-2006	Trend from earliest to latest wave
<i>Chile</i>	37.0	29.9	25.4	27.8	-9.2
Mexico	22.6	24.8	31.1	25.3	2.7
<i>Poland</i>	55.4	44.6	37.9	31.1	-24.3
<i>Iran</i>			72.8	69.4	-3.4
<i>Pakistan</i>		76.1	67.4		-8.7
Turkey	50.7	58.7	58.3	53.3	2.6
Nigeria	48.4	57.2	60.3		11.9
<i>US</i>	23.8	21.2	9.8	6.8	-17.0
India	49.0	50.8	57.2	51.4	2.4
<i>Serbia</i>		33.3	30.5	12.5	-20.8

Note: Percentage represents the proportion of respondents who agree with the prompt. Countries for which negative changes are statistically significant at the 5% level in bold, italicized print.

Panel C. Working women can be good mothers (% who disagree)

	1989-1993	1994-1999	1999-2004	Trend from earliest to latest wave
<i>Chile</i>	28.4	30.7	22.0	-6.4
<i>Mexico</i>	35.9	47.1	29.7	-6.2
<i>Poland</i>	62.2	50.9	46.9	-15.3
Iran			22.7	
Pakistan		56.2	81.7	25.5
<i>Turkey</i>	43.3	50.7	30.2	-13.1
<i>Nigeria</i>	34.5	36.3	26.2	-8.3
<i>US</i>	28.2	24.8	20.6	-7.6
<i>India</i>	42.5	35.0	38.0	-4.5
<i>Serbia</i>		23.6	22.0	-1.6

Note: Variable designed such that higher numbers indicate more patriarchal attitudes to be consistent with Panels A and B. Thus, percentage represents the proportion of respondents who disagree or disagree strongly with the prompt. Countries for which negative changes are statistically significant at the 5% level in bold, italicized print.

Table 4. Religion and Gender Attitudes

	Woman needs children to be fulfilled (agree?)	Approve of woman as single parent (disagree?)	A working mother can establish as warm secure relationship with children as mother who does not work (disagree?)	Can homosexuality be justified, always, never, or something in between? (Never justified?)	Can abortion be justified, always, never, or something in between? (Never justified?)	Can divorce be justified, always, never, or something in between? (Never justified?)	When jobs scarce, men deserve jobs more than women (agree?)	Problem if women have more income than husband (agree?)	Men make better political leaders than women (agree?)	A university education is more important for boy than girl (agree?)
Religion important	0.023 (0.002)***	0.058 (0.003)***	0.012 (0.004)***	0.282 (0.008)***	0.521 (0.007)***	0.414 (0.008)***	0.059 (0.002)***	0.033 (0.005)***	0.040 (0.003)***	0.038 (0.003)***
Religious participation	0.005 (0.004)***	0.021 (0.001)***	0.009 (0.005)***	0.065 (0.003)***	0.109 (0.003)***	0.108 (0.003)***	0.007 (0.004)***	0.003 (0.002)	0.004 (0.004)***	0.008 (0.001)***
Male	0.009 (0.002)***	0.071 (0.004)***	0.160 (0.005)***	0.426 (0.012)***	0.154 (0.011)***	0.149 (0.012)***	0.174 (0.004)***	0.044 (0.008)***	0.275 (0.004)***	0.221 (0.004)***
Age	0.003 (0.0001)***	0.004 (0.0001)***	0.001 (0.0001)***	0.023 (0.0003)***	0.010 (0.0003)***	0.014 (0.0004)***	0.004 (0.0001)***	0.0001 (0.0002)***	0.003 (0.0001)***	0.003 (0.0001)***
Education	0.015 (0.0006)***	0.016 (0.001)***	0.025 (0.001)***	0.066 (0.003)***	0.062 (0.002)***	0.076 (0.003)***	0.033 (0.0001)***	0.026 (0.002)***	0.024 (0.001)***	0.032 (0.001)***
Income	0.016 (0.002)***	0.004 (0.001)	0.036 (0.003)***	0.125 (0.004)***	0.107 (0.004)***	0.089 (0.005)***	0.023 (0.001)***	0.040 (0.002)***	0.025 (0.001)***	0.030 (0.002)***
Buddhist	0.009 (0.010)	-0.005 (0.017)	0.045 (0.022)***	0.234 (0.048)***	-0.042 (0.048)	0.258 (0.052)***	0.034 (0.015)**	0.087 (0.040)**	0.068 (0.018)***	0.100 (0.018)***
Hindu	0.062 (0.011)***	0.152 (0.019)***	0.027 (0.022)	0.396 (0.060)***	0.319 (0.057)***	0.604 (0.061)***	0.005 (0.017)	0.042 (0.041)	-0.040 (0.021)*	-0.065 (0.021)***
Jew	0.064 (0.023)***	0.080 (0.039)***	-0.012 (0.046)	-0.688 (0.118)***	-0.760 (0.118)***	-0.464 (0.128)***	-0.050 (0.037)	-0.058 (0.070)	-0.024 (0.042)	0.093 (0.042)**
Muslim	0.056 (0.006)***	0.129 (0.010)***	0.041 (0.012)***	0.552 (0.032)***	0.418 (0.031)***	0.237 (0.033)***	0.068 (0.009)***	0.060 (0.025)**	0.057 (0.011)***	0.014 (0.011)
Orthodox	0.014 (0.006)**	0.072 (0.010)***	-0.012 (0.011)	0.025 (0.030)	-0.037 (0.030)	-0.072 (0.032)	-0.040 (0.009)***	-0.006 (0.017)	-0.044 (0.012)***	-0.024 (0.012)**
Other religion	0.024 (0.007)	0.125 (0.010)***	0.086 (0.013)***	0.551 (0.030)***	0.352 (0.029)***	0.548 (0.032)***	0.030 (0.009)***	0.025 (0.021)	-0.0005 (0.011)	-0.024 (0.011)
Protestant	-0.001 (0.005)	0.047 (0.008)***	0.029 (0.010)***	0.412 (0.025)***	0.228 (0.029)***	0.295 (0.026)***	-0.055 (0.007)***	0.020 (0.017)	-0.001 (0.001)	-0.049 (0.010)***
Catholic	0.028 (0.005)***	0.005 (0.007)	0.002 (0.008)*	0.117 (0.021)***	0.284 (0.021)***	0.182 (0.023)***	0.001 (0.006)	0.009 (0.014)	-0.008 (0.008)	-0.009 (0.008)
Constant	0.214 (0.015)***	0.228 (0.014)***	1.444 (0.031)***	4.540 (0.058)***	3.013 (0.057)***	2.378 (0.045)***	1.260 (0.012)***	1.848 (0.047)***	1.585 (0.016)***	1.037 (0.016)***
Number of obs.	139729	194996	138232	185220	195447	198040	204128	52028	158479	161563
Adj. R ²	0.043	0.109	0.0310	0.1095	0.1835	0.1201	0.089	0.0146	0.0524	0.0405
No. of countries	81	92	77	91	93	93	93	44	81	81

Notes: All variables are defined in Table A3 in the appendix. Standard errors in parentheses. *** denotes $p < 0.01$, ** $p < 0.05$, and * $p < 0.10$. All regressions include a country fixed effect and wave dummy variables.

Table 5. The Impact of Religiosity on a Composite Index of Gender Attitudes in Project Countries

Independent variables	Chile	India	Iran	Mexico	Nigeria	Pakistan	Poland	Serbia	United States
Religion important	0.482 (0.131)***	0.969 (0.102)***	0.950 (0.157)***	0.493 (0.118)**	0.600 (0.151)***	-0.018 (0.129)	1.110 (0.024)**	0.557 (0.104)***	1.035 (0.146)***
Religious participation	0.248 (0.047)***	0.145 (0.053)***	0.382 (0.057)***	0.159 (0.047)**	0.099 (0.039)**	-0.219 (0.062)***	0.395 (0.111)***	-0.0001 (0.495)	0.660 (0.053)***
Male	1.881 (0.208)***	0.825 (0.198)***	0.861 (0.176)***	1.105 (0.184)***	1.391 (0.108)***	0.653 (0.118)***	1.449 (0.321)***	2.449 (0.167)***	2.182 (0.204)***
Age	0.048 (0.007)***	0.014 (0.007)*	0.018 (0.006)***	0.025 (0.007)***	-0.009 (0.004)*	0.040 (0.005)***	0.076 (0.010)***	0.053 (0.006)***	0.046 (0.006)***
Education	0.246 (0.057)**	0.238 (0.039)***	0.113 (0.042)***	0.695 (0.049)***	0.174 (0.025)***	0.139 (0.032)***	0.320 (0.090)***	0.587 (0.041)***	0.465 (0.049)***
Income	0.532 (0.143)***	0.390 (0.133)***	0.438 (0.123)***	0.046 (0.127)***	0.192 (0.069)***	0.172 (0.092)*	0.485 (0.220)**	0.307 (0.104)***	0.462 (0.049)***
Buddhist		-3.691 (0.974)***							-0.739 (1.333)
Hindu		-1.454 (0.435)***							3.556 (2.192)
Jew	-0.994 (2.999)	-8.801 (4.229)**		2.933 (2.268)	0.978 (1.816)			-0.788 (2.926)	-2.994 (0.632)***
Muslim		-1.065 (0.512)**	1.614 (0.856)***	1.726 (2.618)	1.375 (0.519)***	-0.121 (0.135)		2.354 (0.398)***	3.433 (2.52)
Orthodox		-5.275 (3.002)*					0.969 (2.565)	0.745 (0.291)***	0.322 (1.275)
Other religion	1.737 (0.400)***	-2.288 (0.664)***	1.076 (1.387)	1.965 (0.410)***	1.525 (0.529)***	-0.613 (0.258)**		-1.682 (0.907)*	0.441 (0.351)
Protestant	3.699 (0.72)***	-1.159 (1.402)		0.749 (0.532)	0.519 (0.532)		-1.360 (1.637)	3.177 (0.229)**	0.380 (0.315)
Catholic	0.088 (0.278)	-2.807 (0.648)***	0.207 (1.335)**	0.708 (0.232)***	0.702 (0.532)		0.576 (0.874)	0.864 (0.144)*	-0.085 (-0.324)
Constant	5.727 (1.347)***	14.624 (1.285)***	11.614 (1.496)***	10.105 (1.200)***	17.697 (0.988)***	23.949 (0.887)***	4.460 (2.148)**	8.242 (0.550)***	-0.489 (-1.337)
<i>Religion important + Religious Participation</i>	0.730	1.114	1.332	0.652	0.699	-0.237	1.505	0.557	1.695
Wald on sum of coeff.	(29.05)***	(58.32)***	(57.16)***	(19.69)***	(12.68)***	(10.19)***	(32.51)***	(17.16)***	(160.2)***
Number of obs.	1761	2054	1272	2483	3238	1834	723	2435	1918
Adj. R ²	0.198	0.116	0.156	0.205	0.096	0.148	0.257	0.279	0.337

Notes. Standard errors in parentheses. *** denotes $p < 0.01$, ** $p < 0.05$, and * $p < 0.10$. For Serbia, income is proxied by social class (subjective measure of income). Wald statistic tests the hypothesis that the sum of the coefficients on Religion Important and Religious Participation is equal to 0. In all cases, that hypothesis is rejected. The gender attitudes index is a composite of the gender attitude variables, calculated as follows. Responses to questions 5-11. and 13-14 are summed, with questions 8-10 divided by 2 to bring their scale with that of the remaining questions.

Table 6. Gender Differences in Religiosity and Gender Attitudes (in percent)

	Chile		India		Iran		Mexico		Nigeria		Pakistan		Poland		Serbia		US		Turkey		Full Sample		Gender Gap · Full Sample (Female - Male)
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	
Religion important	82	71	84	78	97	94	85	77	99	97	95	94	90	81	66	61	85	74	92	89	87	82	5
Religious participation	33	21	48	41	28	35	56	40	91	89	77	72	66	52	9	7	48	37	9	64	43	45	-2
When jobs scarce, men more right to job (agree?)	28	34	43	58	64	77	23	29	46	67	66	74	42	47	20	35	15	18	51	63	35	50	-15
Women need children (agree?)	64	62	88	85	49	49	46	46	88	87	98	99	70	74	73	74	17	20	74	71	64	65	-1
Working mother can have good relationship with children (disagree?)	25	29	38	40	26	20	36	42	30	35	67	82	49	58	19	27	20	31	35	42	34	40	-6

Note: Figures on religion's importance represent the percentage for which religion is important or very important. Religious participation percentages are on those who attend services weekly or more frequently.

Source: WVS, pooled data. Author's calculations.

Table 7. Attitudes Towards Role of Religion in Government (in percent)

WVS countries in which dominant religion is:	Religious leaders should not influence how people vote (% disagree/disagree strongly)	Better if more people with strong religious beliefs in office (% agree/agree strongly)	Religious leaders should not influence government (% disagree/disagree strongly)
Buddhist	8.7	23.8	9.5
Hindu	18.7	34.5	17.0
Muslim	17.8	56.2	18.2
Orthodox	9.7	44.5	12.1
Protestant	16.8	41.0	22.0
Catholic	15.0	32.1	17.3
No religion	9.0	14.6	10.1
<i>Total</i>	15.1	40.8	17.2
Project countries:			
Chile	24.1	41.4	27.3
Mexico	27.0	44.2	26.8
Poland	9.1	29.3	9.7
Pakistan	13.7	17.3	
Turkey	13.2	53.8	18.5
Nigeria	16.7	87.2	
United States	13.2	53.8	18.5
India	21.4	31.2	16.1
Serbia	7.7	38.7	8.0

Note: WVS. Data only available from Wave 4 (1999-2004). Higher values imply a stronger belief that religion should play a role in government decision-making.

Table 8. Gender Well-Being Indicators for Project Countries

	<i>WVS Gender Attitudes Index (1989- 2005)</i>	<i>Gender equality index (2008)</i>	<i>F/M life expectancy (2005)</i>	<i>Ratio F/M primary and secondary education (2005)</i>	<i>Female share labor force (2005)</i>	<i>Female share professional and technical positions (latest year 1997 - 2006)</i>	<i>Births attended by skilled health personnel in % (latest year 2003-2005)</i>	<i>Paid weeks maternity leave equivalency (2001)</i>
<i>Chile</i>	13.9	62.0	1.08	99.9	34.9	50.0	100.0	18.0
<i>India</i>	16.5	40.0	1.04	76.1	28.0		47.0	12.0
<i>Iran</i>	17.2	54.0	1.05	91.1	33.7	34.0	97.0	12.4
<i>Israel</i>		73.0	1.05	101.2	46.6	52.0		10.5
<i>Mexico</i>	13.7	60.0	1.08	98.4	34.7	42.0	94.0	12.0
<i>Nigeria</i>	17.5	43.0	1.03	79.0	35.4		36.3	6.0
<i>Pakistan</i>	18.5	42.0	1.02	0.0	26.9	26.0	54.0	12.0
<i>Poland</i>	14.5	71.0	1.12	99.1	45.6		100.0	17.0
<i>Serbia</i>	12.8		1.08	0.0		61.0	99.0	
<i>Turkey</i>	16.0	46.0	1.07	80.8	26.4	56.0	83.0	8.0
<i>United States</i>	12.2	75.0	1.08	99.6	45.7	33.0	100.0	0.0
<i>Sample Average</i>	15.0	60.5	1.07	91.4	35.8	55.0	89.4	10.8

Note: Gender attitudes index is calculated from Waves 2-5 of World Values Survey. This measure of the gender attitudes index differs from the one used in regressions shown in Table 5. It sums responses to questions 6-9 and 12 in Table A2, omitting 5, 10-11, and 13-14. This modified measure is adopted due to missing data on omitted questions, which would have limited the size of an already small sample. Nevertheless, the modified gender attitudes index is strongly correlated with the full gender attitudes index (correlation coefficient = 0.978). For details on data sources, see Table A4. Sample average refers to all project countries with the exception of Israel for which data are lacking on gender attitudes.

Source: See Table A4.

Table 9. Influence of Religiosity on Gender Well-Being Outcomes

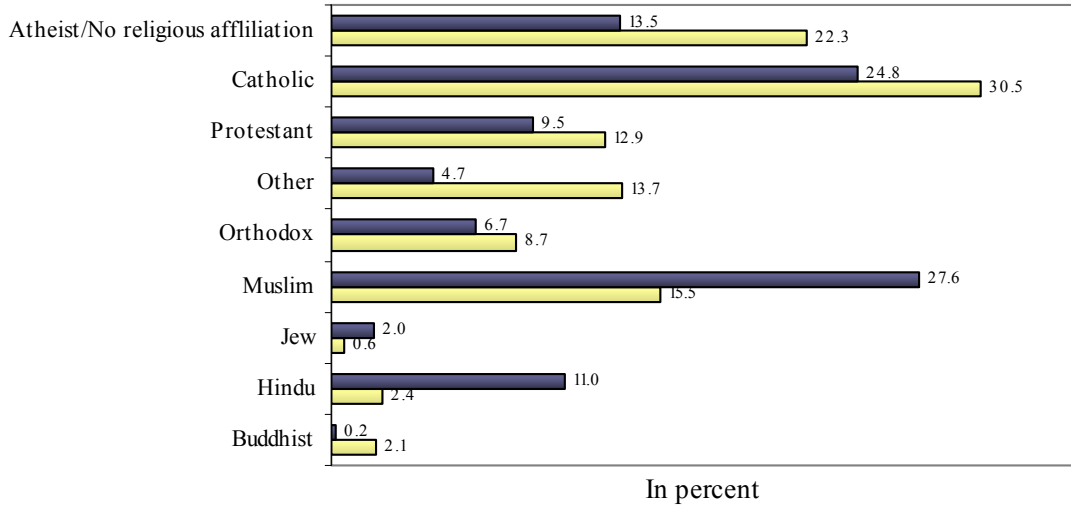
	<i>Gender Equality Index</i>			<i>F/M life expectancy</i>			<i>F/M primary and secondary school enrollment ratio</i>		
	OLS	TSLs	3SLS	OLS	TSLs	3SLS	OLS	TSLs	3SLS
GDP	-19.243 (16.4)	-7.823 (17.4)	-6.271 (18.6)	0.219 (0.07)***	0.278 (0.09)***	0.025 (0.11)	0.257 (0.13)**	0.302 (0.14)**	0.484 (0.19)***
GDP ²	1.604 (2.24)	-0.037 (2.37)	-0.018 (2.61)	-0.037 (0.01)***	-0.047 (0.01)***	-0.014 (0.02)	-0.042 (0.02)**	-0.049 (0.02)***	-0.073 (0.03)***
Infant Mortality	-0.201 (0.05)***	-0.154 (0.07)**	-0.168 (0.06)***	-0.0005 (0.0002)**	-0.0003 (0.0002)	-0.001 (0.0003)**	-0.002 (0.0004)***	-0.001 (0.001)**	-0.001 (0.0006)*
Gender index	-2.973 (0.50)***	-3.413 (0.56)***	-3.267 (0.55)***	-0.009 (0.002)***	-0.014 (0.004)***	-0.012 (0.003)***	-0.011 (0.004)***	-0.013 (0.005)***	-0.022 (0.005)***
Constant	161.05 (30.1)***	146.74 (31.9)***	139.05 (32.3)***	0.911 (0.13)***	0.908 (0.14)***	1.366 (0.19)***	0.867 (0.23)***	0.812 (0.25)***	0.576 (0.33)*
Number of obs.	84	68	49	85	69	49	83	68	48
Adj. R ²	0.563			0.365			0.551		

Notes: Robust standard errors in parentheses. *** denotes $p < 0.001$, ** $p < 0.05$, and * $p < 0.10$. GDP measured in natural logs. Since R^2 is an unreliable measure of fit in TSLs and 3SLS estimation, it is not reported here. Instruments in TSLs and 3SLS for the gender attitudes index are: percentage of country population for whom religion important or very important, dominant religion dummies, percentage of population that believes political leaders should be religious, and disagree that religious leaders should not influence government, and independent variables. Instruments for GDP in 3SLS are: R&D and its square, M2 and its square, female share of the labor force, and ratio of female to male gross school enrollment rates. See Table A5 for full 3SLS results. Coefficients in the first stage TSLs regressions are jointly significant at the 1% level. Results available from authors on request. All well-being variables measured such that higher values correlate with a higher status for women. The gender attitudes index is measured such that a higher value indicates more gender inequitable attitudes.

Table 9. Influence of Religiosity on Gender Well-Being Outcomes, *continued*

	<i>Female share of labor force</i>			<i>Female share of professional and technical positions</i>			<i>Births attended by skill health personnel %</i>			<i>Maternity leave compensation</i>		
	OLS	TSLs	3SLS	OLS	TSLs	3SLS	OLS	TSLs	3SLS	OLS	TSLs	3SLS
GDP	-41.667 (10.8)***	-32.22 (9.7)***	-37.59 (14.6)***	11.574 (15.5)	16.75 (19.1)	-1.601 (21.7)	97.109 (26.0)***	68.24 (22.7)***	59.68 (33.9)*	-1.356 (15.71)	12.45 (13.6)	5.456 (24.1)
GDP ²	4.637 (1.49)***	3.526 (1.35)***	3.965 (2.04)**	-3.651 (2.15)*	-4.447 (2.58)*	-2.041 (3.03)	-14.102 (3.66)***	-9.91 (3.04)	-8.056 (4.82)*	-0.438 (2.16)	-2.666 (1.93)	-2.073 (3.42)
Infant Mortality	-0.100 (0.04)***	-0.072 (0.03)**	-0.117 (0.05)***	-0.347 (0.067)***	-0.354 (0.07)***	-0.423 (0.08)***	-0.511 (0.09)***	-0.656 (0.10)***	-0.557 (0.11)***	-0.058 (0.05)	-0.051 (0.04)	-0.116 (0.08)
Gender index	-2.214 (0.33)***	-1.861 (0.45)***	-2.333 (0.42)***	-2.037 (0.49)***	-2.236 (0.61)***	-2.467 (0.68)***	-0.568 (0.91)	0.994 (0.75)	-0.608 (0.127)	-1.251 (0.47)***	-1.662 (0.59)***	-1.899 (0.72)***
Constant	162.78 (19.6)***	138.39 (17.7)***	158.61 (25.5)***	93.34 (27.8)***	88.33 (35.9)**	127.13 (38.1)***	-47.89 (46.1)	-18.93 (46.1)	3.966 (60.29)	42.74 (28.3)	28.23 (24.4)	50.09 (44.1)
Number of obs.	86	69	49	73	58	44	59	46	44	71	57	38
Adj. R ²	0.481			0.582			0.795			0.101		

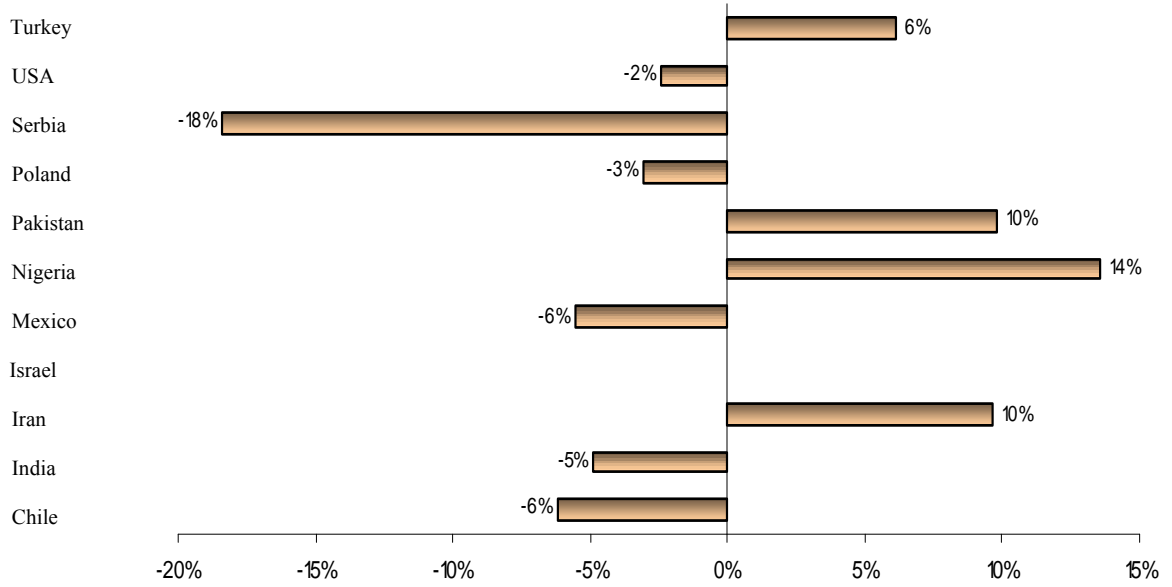
Figure 1. Distribution of Respondents by Religious Denominations



■ World Values Survey - Full sample ■ World Values Survey - UNRISD project countries

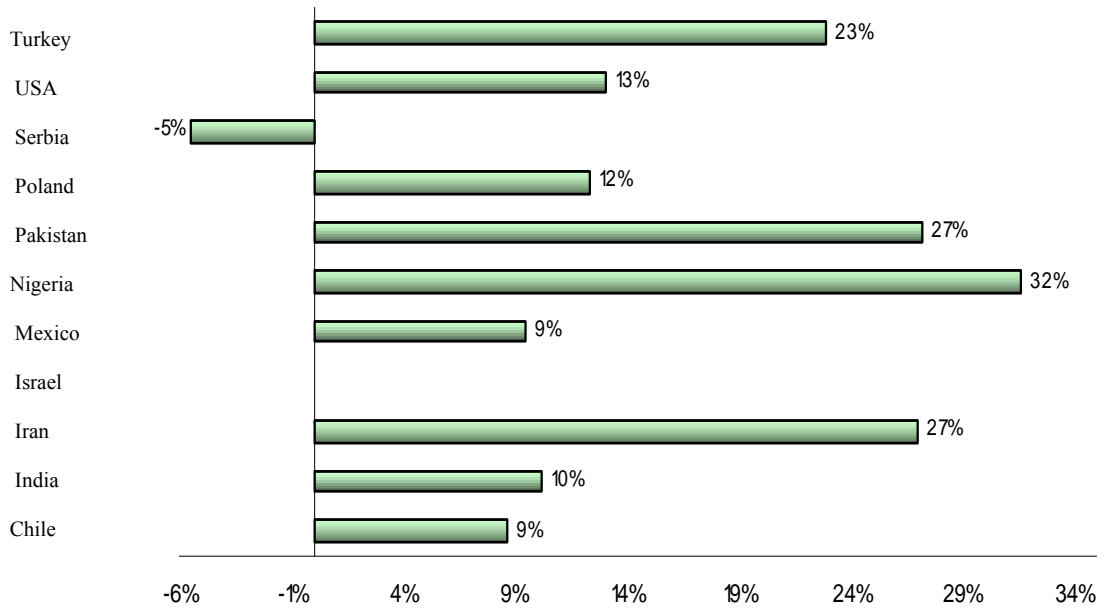
Note. The sample is all UNRISD project countries, all WVS waves.

Figure 2: Importance of Religion in Project Countries Relative to Sample Mean



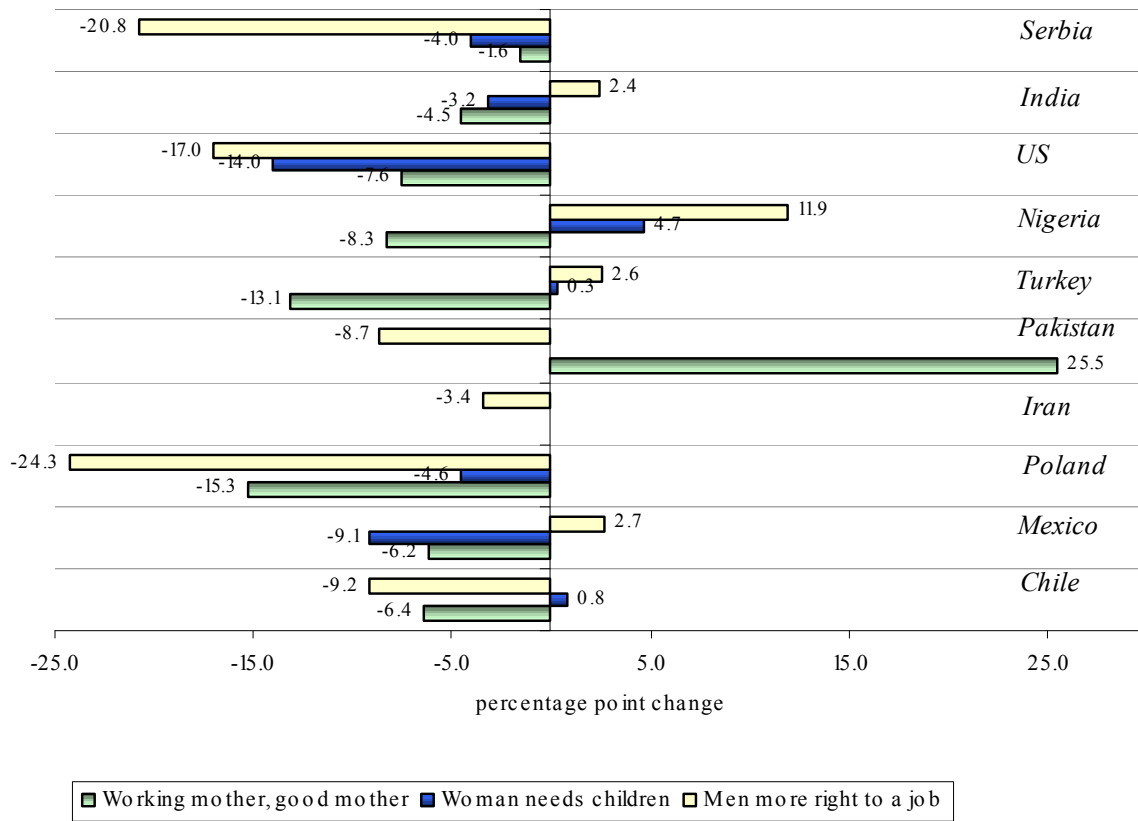
Note: The bars in the table represent the country mean of religion's importance relative to the project country sample mean. Higher values reflect greater importance of religion in life.

Figure 3: Importance of Religion in Project Countries
Relative to WVS Sample Mean



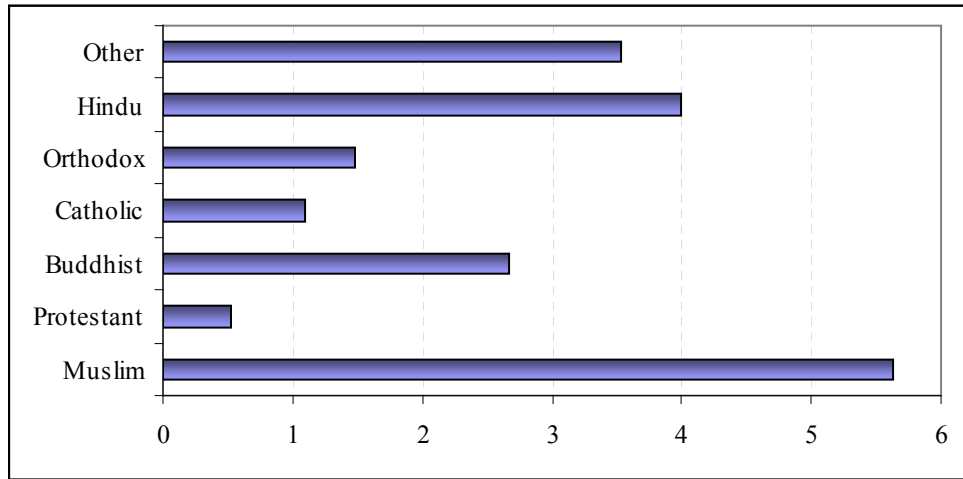
Note: The bars in the table represent the country mean of religion's importance relative to the World Values Survey sample mean. Higher values reflect greater importance of religion in life.

Figure 4. Trends in Gender Attitudes in Project Countries



Note. Changes are calculated for each country as the difference in percentages holding gender inequitable attitudes between the most recent and earliest wave. Negative changes indicate a trend toward more gender equitable attitudes.

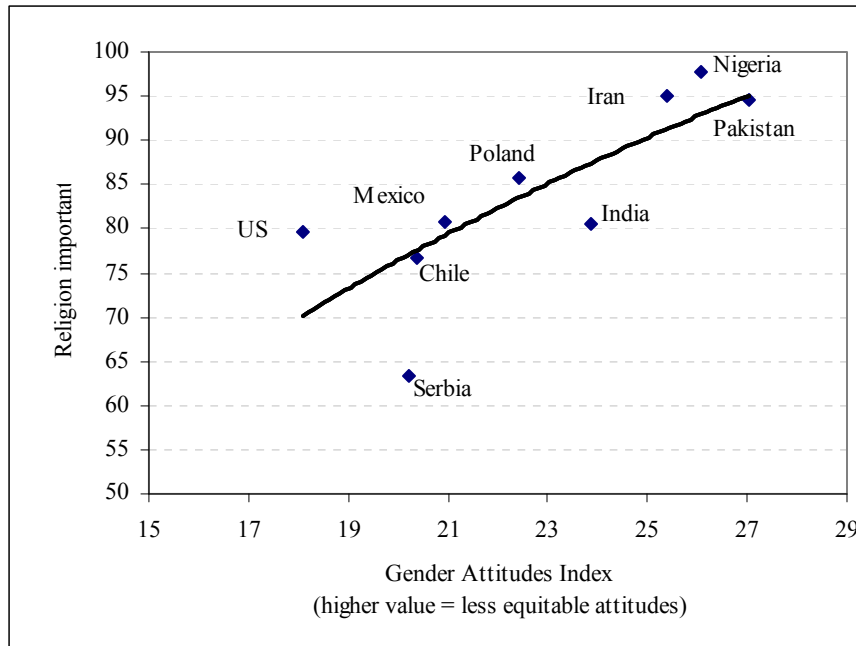
Figure 5. Gender Attitudes Index by Religious Affiliation Compared to “No Religious Denomination” in the World Values Survey



Notes: Higher values of the gender attitudes index indicate greater inequality in attitudes. The gender attitudes index gap is measured as the difference between the average value of the index of each religious denomination and the average for those not declaring a religious affiliation.

Source: Sample is the pooled waves of the WVS.

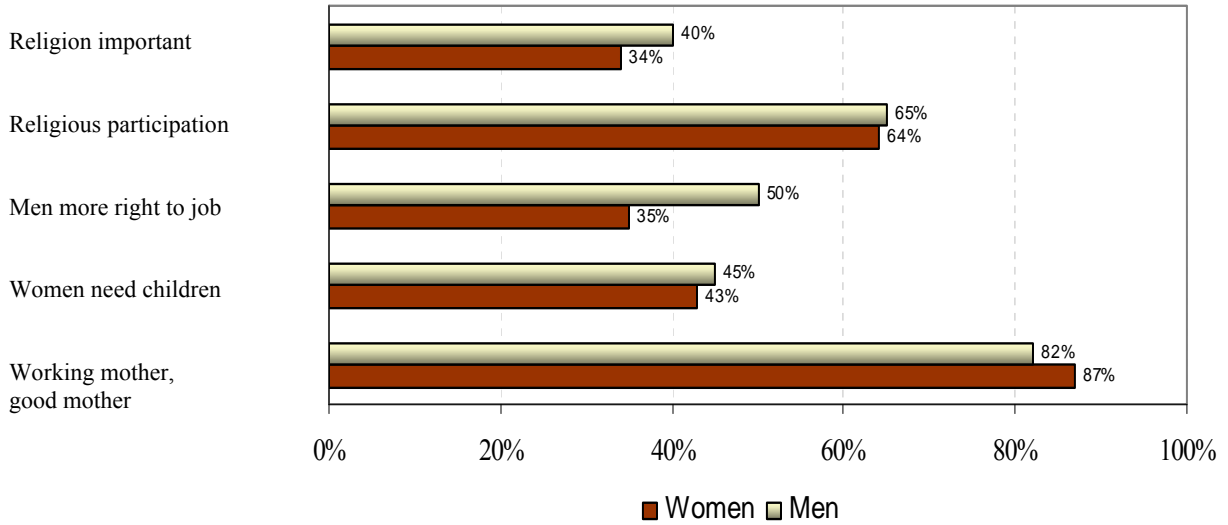
Figure 6. Religiosity and Gender Attitudes Index



Note. The religiosity variable is measured as the percentage of individuals in each country for whom religion is important or very important in response to the question “*How important is religion in your life?*” Turkey and Israel are omitted due to missing data. The R^2 for the trend line is 0.605.

Source: Data are from all waves of the WVS. Author’s calculations.

Figure 7. Gender Differences in Attitudes Towards Religion and Gender Equality



Note: “Religion important” is the percentage for whom religion is important or very important. “Religious participation” is the percentage attending religious services weekly or more. “Men more right to job” is the percentage who agrees with the prompt that “*When jobs are scarce, men have more right to a job than women.*” “Women need children” is percentage that agree with the prompt “*Women need children in order to be fulfilled.*” “Working mother, good mother” is percentage who disagree with the prompt “*A working mother can establish as warm secure a relationship with her children as a mother who does not work.*” Data is for the full WVS sample, pooled across all waves.

Figure 8. Religiosity Impacts on Gender Well-Being Outcomes

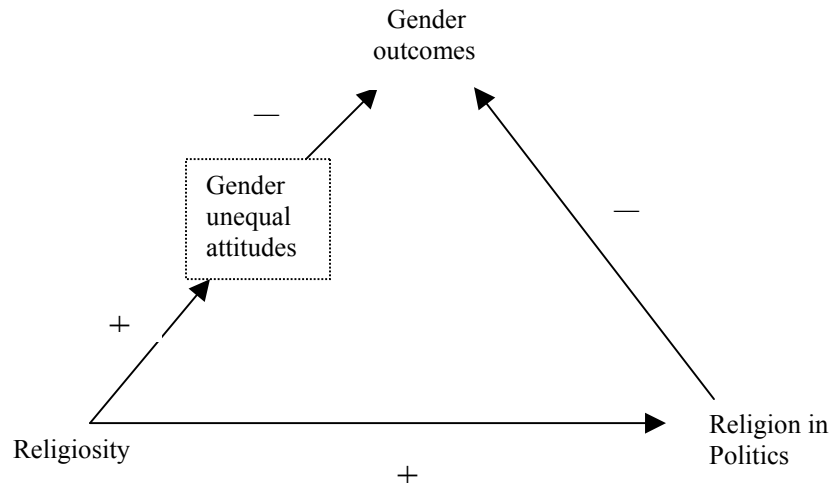
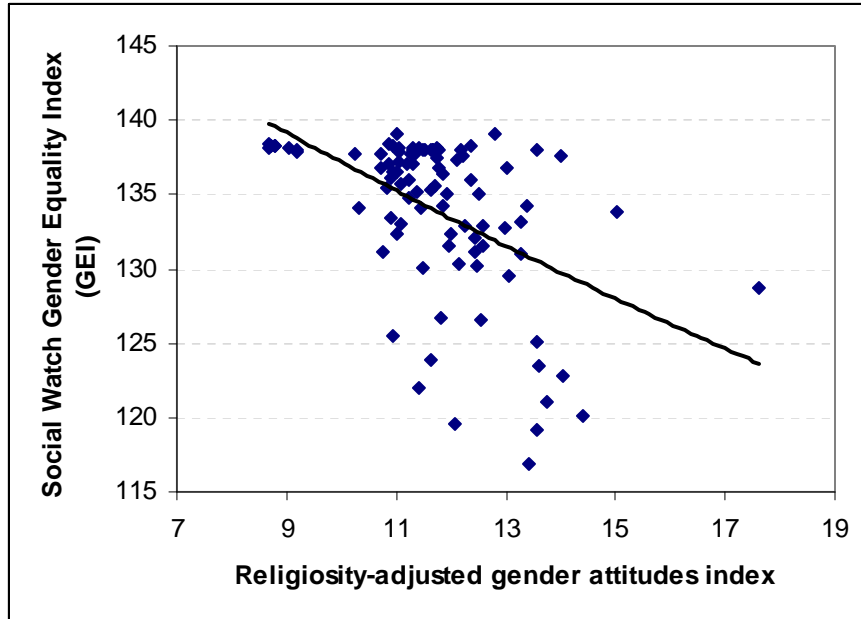
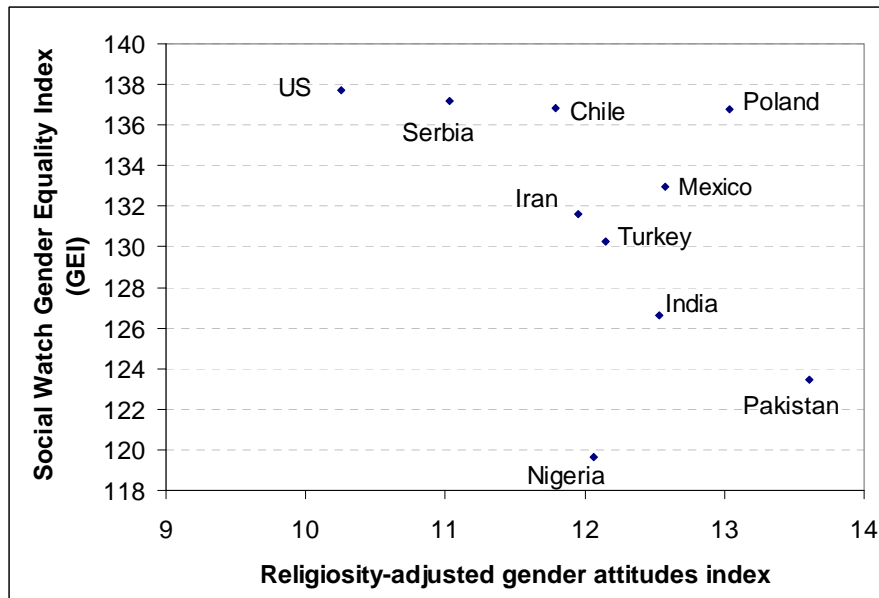


Figure 9. Partial Correlation: Religiosity Adjusted Gender Attitudes and Social Watch's Gender Equality Index (GEI)

Panel A. Full Sample



Panel B. Project Countries



Note: The gender attitudes index is adjusted for religiosity using the coefficients from the OLS regressions in Table 9. The GEI is adjusted for the effect of infant mortality rates. The relationship shown in Figure 9 represents then the partial correlation between religiosity (via gender attitudes) on the gender equality index.

APPENDIX

Table A1. World Values Survey Data Availability for UNRISD Project Countries

Country List	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5
Chile		1990	1996	2000	2006
India		1990	1995	2001	2006
Iran				2000	2005
Israel				2001	
Mexico		1990	1996	2000	2005
Nigeria		1990	1995	2000	
Pakistan			1997	2001	
Poland		1990	1997	1999	2005
Serbia			1996	2001	2006
Turkey		1990	1996	2001	2007
USA	1982	1990	1995	1999	2006

Source: Information for waves 1 through 4 from page 866 of the Integrated Questionnaire.

Information for wave 5 from the <http://www.worldvaluessurvey.org/> from the documentation for wave 5.

Table A2. Summary Statistics of Religion, Gender, and Politics Attitudes

		Mean	Std. Dev.	Min	Max	Number of obs.	Original coding	Recoded
Religiosity, Beliefs, and Religious Participation								
1	How important is religion in your life?	2.949	1.075	1	4	306,376	Very impt =1	Very impt =4
2	Do you belong to a religious denomination?	0.801	0.400	0	1	256,487	Yes = 1	no change
3	Religious denomination (See table)			1	8			
4	Apart from weddings, funerals and christenings, about how often do you attend religious services these days?	4.517	2.507	0	1	324,765	More than once a week = 1	More than once a week = 8
Gender attitudes and beliefs								
5	Do you think that a woman has to have children in order to be fulfilled or is this not necessary?	0.613	0.487	0	2	242,724	Needs children = 1	no change
6	If a woman wants to have a child as a single parent but she doesn't want to have a stable relationship with a man, do you approve or disapprove?	1.100	0.952	1	4	317,100	Approve = 1, disapprove=0, depends=2	Disapprove =2, 1=depends, 0 = approve
7	A working mother can establish as warm secure relationship with children as a mother who does not work.	2.047	0.873	1	4	219,094	Agree strongly = 1	no change
8	Can homosexuality be justified always, never be justified, or something in between?	7.766	3.062	1	10	305,343	Never justified = 1	Never justified = 10
9	Can abortion be justified always, never be justified, or something in between?	7.287	2.935	1	10	318,944	Never justified = 1	Never justified = 10
10	Can divorce be justified always, never be justified, or something in between?	6.206	3.047	1	10	322,810	Never justified = 1	Never justified = 10
11	Agree or disagree? When jobs are scarce men should have more right to a job than women.	1.982	0.881	1	3	302,968	Agree = 1	Agree = 3, neither = 2, disagree = 1
<i>Do you agree strongly, agree, disagree, or disagree strongly with the following?</i>								
12	If a woman earns more money than her husband, it's almost certain to cause problems.	2.527	0.900	1	4	67,990	Agree strongly = 1	Agree strongly = 4
13	On the whole, men make better political leaders than women do.	2.569	0.974	1	4	196,642	Agree strongly = 1	no change
14	A university education is more important for a boy than for a girl.	2.038	0.918	1	4	201,094	Agree strongly = 1	Agree strongly = 4
The role of government and church								
15	Religious leaders should not influence how people vote in elections	2.156	1.106	1	5	144,015	Agree strongly = 1	no change
16	It would be better for [this country] if more people with strong religious beliefs held public office.	3.081	1.271	1	5	140,341	Agree strongly = 1	Agree strongly = 5
17	Religious leaders should not influence government	2.258	1.129	1	5	127,205	Agree strongly = 1	no change

Table A3. Summary Statistics on Demographic Variables

	Variable	Mean	Std. Dev.	Min	Max	Original coding	Recoded	Number of obs.
x001	Gender	1.481	0.500	1	2	Male = 1	Female = 1	343,876
x003	Age	41.211	16.339	15	101	Age	<i>no change</i>	340,896
x003r2	Age, recoded	2.006	0.771	1	3	15-29 years = 1, 30-49 = 2, 50+ years = 3	<i>no change</i>	264,839
x025	Education	4.701	2.369	1	8	University education = 8	University education = 1	263,414
x025r	Education, recoded	2.151	0.741	1	3	Upper = 3	Upper = 1	187,668
x045	Social class (subjective)	3.349	0.990	1	5	Upper class = 1	<i>no change</i>	197,269
x047r	Scale of income, recoded	8.433	1.713	1	10	High = 3	High = 1	296,061

Table A4. Summary Statistics for Gender Well-Being Regressions

Variable	Mean	S.D.	Minimum	Maximum	Number of obs.	Period	Source
Gender Equality Index	66.26	1.19	40.00	89.00	87	2008	Social Watch
F/M life expectancy	1.08	0.04	0.97	1.23	91	2005	<i>Human Development Report 2008</i>
F/M gross primary and secondary school enrollment (%)	0.97	0.06	0.63	1.03	63	2005	World Development Indicators CD-ROM 2008
Female share of labor force (%)	41.80	7.40	14.82	51.38	89	2005	World Development Indicators CD-ROM 2008
Female share of professional and technical workers	49.51	10.26	22.00	71.00	89	latest year 1997-2006	<i>Human Development Report 2008</i>
Births attended by skilled health personnel	87.54	2.93	6.00	100.00	61	latest year 2003-05	World Development Indicators CD-ROM 2008
Paid maternity leave equivalency in weeks	12.70	6.68	0.00	45.00	74	2001	APESMA Professional Women's Network
Log per capita GDP constant 2000 \$	3.54	0.69	2.09	4.65	92	Average 1995-05	World Development Indicators CD-ROM 2006
Gender Attitudes Index	13.83	2.57	6.81	18.95	90	Average 1989-2005	World Values Survey
Infant mortality rate	27.60	30.46	3.00	125.00	95	Average 1995-2005	World Development Indicators CD-ROM 2008
R&D as % GDP	1.03	0.93	0.02	4.21	79	Average 1995-2005	World Development Indicators CD-ROM 2008
M2 as % GDP	52.29	42.83	9.69	218.69	77	Average 1995-2005	World Development Indicators CD-ROM 2008

Note: Paid maternity leave equivalency in weeks calculated from data on weeks paid time and percentage of pay replaced. GID scores summed exclude mean age at marriage and percentage of women in early marriages. See Table A2 for more detail on religion questions in WVS. See notes to Table 5 on measurement of gender attitudes index.

Table A5. Correlation Coefficients

	GEI	F/M life expectancy	F/M school enrollment rate	Female share labor force	Births attended by skilled health personnel	Maternity leave	GDP	R&D as % GDP	M2 as % GDP	Infant Mortality Rate	Gender attitudes index	Religious belief	Religious participation	Religious politicians
GEI	1.00													
F/M life expectancy	0.30	1.00												
F/M school enrollment rate	0.85	0.40	1.00											
Female share labor force	0.77	0.49	0.65	1.00										
Births attended by skilled health personnel	0.54	0.48	0.42	0.30	1.00									
Maternity leave	-0.09	0.62	0.13	-0.03	0.19	1.00								
Log GDP	0.33	-0.19	0.17	0.01	0.66	-0.39	1.00							
R&D as % GDP	-0.01	-0.07	-0.17	0.10	0.28	-0.42	0.66	1.00						
M2 as % GDP	-0.05	-0.22	-0.13	-0.12	0.22	-0.37	0.61	0.61	1.00					
Infant mortality rate	-0.50	-0.32	-0.34	-0.29	-0.93	0.02	-0.77	-0.46	-0.40	1.00				
Gender attitudes index	-0.61	-0.06	-0.42	-0.35	-0.62	0.26	-0.70	-0.45	-0.29	0.73	1.00			
Religious belief	-0.20	-0.30	-0.07	-0.25	-0.42	0.01	-0.37	-0.50	-0.41	0.57	0.65	1.00		
Religious participation	-0.26	-0.52	-0.17	-0.22	-0.59	-0.23	-0.31	-0.33	-0.28	0.65	0.62	0.89	1.00	
Religious politicians	0.05	0.12	0.16	0.07	-0.33	0.18	-0.54	-0.59	-0.54	0.56	0.62	0.75	0.54	1.00
Religious leaders influence govt	0.03	-0.38	0.09	-0.23	-0.23	-0.20	0.05	-0.17	-0.34	0.36	0.17	0.60	0.54	0.61

Note: Gender well-being data are from most recent year available (see notes to Table 8 for years). GDP (measured in natural logs in constant 2000 \$), M2, and infant mortality rates are averaged over 1990-2000. R&D is averaged over 1996-2000. The gender attitudes index is measured as described in the notes to Table 8. The variables religious belief, religious participation, religious politicians, and religious leaders influence government correspond to questions 1, 4, 16, and 17 in Table A2, respectively.