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Religiosity, income and wellbeing in developing countries

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Abstract This study examines the relationship between religiosity, income and subjective wellbeing in a sample of developing countries using data from the World Values Survey Waves 2–6 (1990–2014). Beyond examining the effects of religiosity and income on subjective wellbeing separately and independently, we also examine how the interaction between religiosity and income affects wellbeing. Our results suggest that while both religiosity and income positively affect wellbeing, the effect of income on wellbeing is relatively stronger (quantitatively larger in size) than the effects of religiosity. Furthermore, we find evidence in favour of complementarity between religiosity and income which show stronger effects on wellbeing than the individual effects of income and religiosity.

Keywords Religion · Religiosity · Income · Wellbeing · Life satisfaction · Developing countries

JEL Classification Z12 · I31

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1 Introduction and background

The last few decades have seen a significant surge in studies examining the determinants of wellbeing, and the emergence of the relatively new field referred to as the economics of wellbeing. The heightened interest in this area of research, in part, is due to the significance of such elements as wellbeing, optimal health and human capital in promoting economic development. The importance of wellbeing is therefore recognised by governments, policymakers and academics. Although psychologists and sociologists have a long history in the study of wellbeing, the seminal works of Easterlin represent a milestone for research into understanding the economics of wellbeing (see, Easterlin 1973, 1974, 1995). Following Easterlin's work which examined the association between income and individual self-reported life satisfaction (also known more broadly as subjective wellbeing), a relatively large body of literature has explored the various determinants of subjective wellbeing.

Along these lines, the social and economic determinants of wellbeing have received much attention in the literature. One determinant that has received much attention is religiosity. Existing work on religiosity as a determinant of wellbeing cuts across various disciplines including economics, psychology and sociology. Within this strand of literature, the majority of the studies report a positive association between religiosity and wellbeing, measured by such outcomes as depressions, life satisfaction, self-esteem, mental health and emotional maturity, among others (see for example, Diener et al. 1999; Ellison 1995, 1998; Emmons et al. 1998; George et al. 2002, 2000; Levin et al. 1996; Mickley et al. 1995). Similarly, systematic reviews of the literature on religiosity and wellbeing often report positive effects of religiosity on subjective wellbeing (for example see, Ellison and Levin 1998; Hackney and Sanders 2003). However, some studies report a negative effect of religiosity on wellbeing. For instance, King and Schafer (1992) find evidence of a negative impact of religiosity on wellbeing measured by personal distress. Along these lines, Hackney and Sanders (2003) suggest that the observed relationship between religiosity and wellbeing depends on the dimensions of religiosity and wellbeing being examined.[1]

In the tradition of Easterlin, several studies have also examined the effect of income on wellbeing, while several others have controlled for income in wellbeing regressions (see, Awaworyi Churchill and Mishra 2017; Cummins 2000; Diener and Oishi 2000; Diener et al. 1993; Headey and Wooden 2004).

Our study seeks to broaden knowledge on the interaction between religiosity and income, and how this affects wellbeing in a developing country context. Specifically, we address the question; what is the interplay among religiosity, income, and wellbeing in developing countries? Existing studies have focussed on examining empirically the effect of religiosity, and the effect of income on wellbeing in isolation. Empirical

[1] A vast body of literature examines the association between religiosity and wellbeing. Our attempt and claim is not to provide an exhaustive review of the extant literature; rather we provide a brief overview of selected empirics in order to identify gaps and motivate our study. For exhaustive reviews on the subject, see systematic reviews and meta-analyses such as Witter et al. (1985), Hackney and Sanders (2003), Sawatzky et al. (2005).

studies examining the possible interactive effect of religiosity and income on wellbeing remain scarce although it is inferred in the literature (Hoverd and Sibley 2013).

Our choice of estimation sample (namely, developing countries) is informed by existing surveys such as the *Gallup Poll* which report developing countries as the most religious in the world (Crabtree 2010). It is interesting to explore the potential reasons for these above average levels of religiosity in developing countries. Furthermore, while a relatively large body of literature examines the impact of religiosity on wellbeing, not much has been done in the context of developing countries, yet they constitute the world's poorest and most religious. We argue that the returns to religiosity, especially in terms of wellbeing, is a major factor contributing to the level of religiosity. In this regard, religiosity serves as support for the poor that has spill-overs in terms of wellbeing (Diener et al. 2011; Hoverd and Sibley 2013).

Additionally, while the existing literature has provided a relatively clear overview of the association between religiosity and wellbeing, the potential endogeneity between these two variables have not been rigorously considered and addressed. For instance, it is likely that individuals with higher levels of wellbeing or life satisfaction would be more inclined to join certain social groups including religious groups (Awaworyi Churchill and Mishra 2017). However, it is also likely that individuals with lower levels of life satisfaction, would want to seek solace in a higher power or deity, or perhaps seek support from religion (Diener et al. 2011), thereby raising their levels of religiosity. There is, therefore, a possibility of reverse causality between religiosity and wellbeing, and if not addressed, reported estimates on the effect of religiosity on wellbeing may be flawed and biased. We adopt the Lewbel (2012) heteroscedasticity adjusted instruments to control for the potential endogeneity and also as a robust check to our main results.

Additionally, some researchers (e.g. Chakravarti 2006; Sen 2001) have argued that poverty and wellbeing transcend measures of income to include other psychological and sociological factors including religion. However, existing research does not empirically show how these multiple measures co-constitutively affect wellbeing, whether they affect wellbeing differently or which factor has more impact, and so should be given more attention to improve wellbeing.

In this study, we contribute to the existing literature in three ways. Firstly, we examine, separately and independently, the impact of religiosity and income on subjective wellbeing in a developing country context. In doing so, we address the endogenous nature of these relationships. Secondly, we examine the interplay between religiosity and income, and how this impacts upon wellbeing. Specifically, we examine the combined effects of religiosity and income on wellbeing, by introducing an interaction term which reveals how the interplay between religiosity and income impacts upon wellbeing. To our knowledge, this relationship has not been explored empirically, and thus we contribute to the existing literature by presenting an alternative perspective on the debate concerning the environment within which religiosity affects wellbeing. Thirdly, we use a wide range of measures for religiosity, which allows us to examine the validity of our results across various constructs of religiosity. Based on arguments suggesting that the direction of the relationship between religiosity and wellbeing is dependent on the measure of religiosity used (Hackney and Sanders 2003), we ensure the robustness of our results by adopting various measures of religiosity.

The remainder of the paper is structured as follows. Section 2 presents an overview of the data and variables used in the analysis as well as the empirical framework. Section 3 presents the empirical results and discussion of results while Sect. 4 concludes.

2 Data and empirical framework

The data used in this study are drawn from the second to sixth waves of the World Values Survey (WVS).[2] Based on questionnaires designed to capture changing social issues and their impact on political and socio-economic outcomes, the WVS presents individual survey data for nationally representative samples conducted in about 100 countries.[3] Data from the WVS database have been widely utilised by researches and are considered reliable.[4] The first wave of surveys was launched in 1981, followed by five subsequent waves, with the most recent wave collected in 2010. Owing to data availability issues for developing countries for the first wave, we only use data from the second to sixth waves. Our study consists of 54 developing countries.[5] The list of countries included in our analysis is presented in appendix together with a ranking of wellbeing, religiosity and income determined by country-level means.

2.1 Variables

2.1.1 Dependent variable

The main aim of this study is to examine the impact of an individual's religiosity on their wellbeing, and hence our dependent variable is self-reported subjective wellbeing. The measure of subjective wellbeing adopted for use is consistent with the existing literature (Angner 2010). Subjective wellbeing is often defined as an individual's positive evaluation of his/her life with regard to good feelings or overall satisfaction (Pinquart and Sörensen 2000). Accordingly, the measures of subjective wellbeing, advanced in the existing literature, attempt to capture individual self-esteem, life satisfaction and happiness (see, Kozma et al. 1991; Pinquart and Sörensen 2000; Rosenberg 1979). However, given the data at hand, which provides information on respondents' satisfaction with life we focus on individual life satisfaction as the measure of subjective wellbeing. Specifically, the WVS asks the question: "All things considered, how satisfied are you with your life as a whole these days? 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied" where would you put your satisfaction with your life as a whole?". Questions of this kind are not new survey instruments. They began in the 1970s with the US General Social Survey which asked

[2] The data are collected under ethical norms in line with the mission of the World Values Survey Association. Analysis of this secondary data represents low risk and is therefore exempt from additional ethics clearance at the authors home Institutions.

[3] The mode of data collection for WVS surveys is face-to-face interviewing.

[4] For details on the WVS data, see www.worldvaluessurvey.org.

[5] Our sample reflects about 36% of developing countries in the world. The sample also covers all the geographic locations in the world.

a question of this nature but in regard to happiness as opposed to life satisfaction. The use of the phrasing 'these days' attempts to extract some medium term construct rather than the individuals mood at the time of survey. Statistical analysis of questions of this kind across cultures and time reveal plausible patterns through time and across countries (Diener et al. 1993).

In our developing country sample, the mean score of wellbeing is given as 6.32 out of 10, with a standard deviation of 2.56. This is slightly lower than the mean score of wellbeing for developed countries in the WVS data which is 7 out of 10, with a standard deviation of 2.16.

2.1.2 Independent variables

There is great diversity in the variables used in the empirical literature to capture religiosity. These variations often emerge because of the various aspects of religiosity that exist. In general, measures of religiosity focus on involvement in religious activities, religious practices, religious orientations and beliefs as well as religious behaviour and attitudes. In this study, we focus on three main measures of religiosity and for robustness introduce an additional two measures. The first two measures (*religiosity 1* and *religiosity 2*) capture the faith dimension of religion while the third measure (*religiosity 3*) pertains to the social dimension of religion. With regard to our first measure of religion (*religiosity 1*), the WVS asks the question: "how important is religion in your life?". Respondents are coded as religious if they indicate religion is rather or very important to them. For *religiosity 2*, respondents are coded as religious if they agree they get strength and comfort from religion. The term God is being used to refer to a supreme being and the principal object of a faith. Most religions, monotheists and polytheists, have deities that capture the concept of a God. The generic use of "God" permits some plasticity to enable people of different religions and cultures relate to it in their own way. For the social dimension of religion, *religiosity 3*, the WVS asks the question "how often do you attend religious services these days?" In our regressions, responses are coded on a seven-point scale such that 1 means never and 7 mean "more than once a week".

Our measure of income is an income scale, which reflects 10 income categories with 1 representing the lowest income group and 10 the highest income group. The mean income is given as 4.49 which is lower compared a mean of 4.94 for the WVS developed country sample. We also adopt a measure of income which is a dummy variable that reflects low-income and high-income categories. Individuals are coded as in the high-income category if their household income falls within the last five income groups, and low-income category if in the first five income groups. We also introduce an interaction term which captures the interaction between income and religiosity. This allows us to examine the combined effect of religiosity and income on wellbeing.

The use of an income scale instead on income values addresses problems of potential variations in relative wealth and currency value across different countries. Using a continuous variable which reflects the amount of income may not be ideal in our analysis because we are looking at different countries with different relative wealth and currencies across time. However, the use of an income scale puts each respondent

in an appropriate scale relative to the highest income category in each country, and considering the currency values in the respective countries. Income scales used in this study are thus measures of relative income and are common in cross-country studies that use survey information on at the individual level (see, e.g. Tella et al. 2003; Inglehart et al. 2008).

It is important to note, therefore, that our study does not contain a measure of absolute income (and no such measure exists in the data set). Thus, our measured income effects are those relating to relative income. Accordingly, we are capturing the effect on wellbeing of social comparisons of income rather than the impact on wellbeing from the ability of income to meet basic consumption needs. However, even if we had a measure of absolute income in the data, including this in a cross-country framework would be problematic and interpretation issues would arise due to the heterogeneity across countries in terms of different relative wealth levels and also currencies values across time.

2.1.3 Other control variables/confounders

Consistent with the existing literature on the determinants of wellbeing, we also control for other relevant factors that have been shown in the existing literature to be associated with an individual's life satisfaction. These variables include gender, age, marital status, unemployment, and other family and community factors (see, Biswas-Diener and Diener 2006; Camfield et al. 2006; Diener 2009; Diener et al. 2009; Helliwell and Putnam 2004; Helliwell and Wang 2011). For gender, marital status and unemployment, we include dummy variables for respondents that are male, married and unemployed, respectively. We also control for the age of respondents and age squared.

Other control variables attempt to capture the level of control perceived by respondents (*freedom*), financial hardship (*money*), the desire to help others and fear. With regards to *freedom*, the WVS asks the question: "how much freedom of choice and control do you have over your life?", where 1 means "no choice and control at all" and 10 means "a great deal of choice and control". For financial hardship (*money*), the dummy variable equals to one if respondent has in the past gone without money to afford basic needs. We also include variables in our analysis, which capture the respondents' fear or worry of civil war (*war*), and also whether respondents have felt unsafe from crime in the past (*unsafe*). Our inclusion of measures of freedom is consistent with scholars like Sen (2001) who suggest that personal freedom has an important impact on subjective wellbeing. We include a dummy variable, which captures whether or not it is important for a respondent to help people nearby (*help*).The inclusion of this variable is drawn from the literature which suggests that some individuals gain satisfaction from helping others in need (see, Rose-Ackerman 1996). As additional covariates, we include dummy variables for respondents that are Christian and Muslim, respectively, while excluding other denominations such as Hindu and Buddhist as the base category. To capture country-level fixed effects, we also include country dummies in our regressions.

Table 1 presents a list and description of variables used in the analysis, along with the summary statistics, while Table 2 presents an overview of the mean levels of religiosity and income by religious denomination.

Table 1 Description and summary statistics of variables

Variable	Description	Mean	Std. dev
Wellbeing	All things considered, how satisfied are you with your life as a whole these days? 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied" where would you put your satisfaction with your life as a whole?	6.32	2.56
Religion 1	Dummy variable equals to 1 if religion is important to respondent	0.79	0.40
Religion 2	Dummy variable equals to 1 if respondent is gets strength and comfort from religion	0.34	0.47
Religion 3	How often do you attend religious services these days?" where 1 means "never" and 7 mean "more than once a week"	5.17	2.52
Religion 4	How important is God in your life? scale where 1 means "not at all important" and 10 means "very important"	8.55	2.46
Religion 5	Dummy variable equals to 1 if respondent believes in God	0.63	0.48
Income	Scale of income	4.49	2.25
Income dummy	Dummy variable equals to 1 if respondent is in high-income category	0.32	0.47
Male	Dummy variable equals to 1 if respondent is male	0.48	0.49
Married	Dummy variable equals to 1 if respondent is married	0.64	0.47
Unemployed	Dummy variable equals to 1 if respondent is unemployed	0.11	0.31
Education	Dummy variable equals to 1 if respondent has a tertiary education (both degree and non-degree)	0.20	0.39
Christian	Dummy variable equals to 1 if respondent is Christian	0.41	0.49
Islam	Dummy variable equals to 1 if respondent is Muslim	0.32	0.48
Age	Age of respondent	38.24	14.97
Age squared	Square of age/100	16.87	13.18
Freedom	How much freedom of choice and control do you have over your life? scale where 1 means "no choice at all" and 10 means "a great deal of choice"	6.72	2.53
Money	Dummy variable equals to 1 if respondent has in the past gone without money	0.89	0.31
Unsafe	Dummy variable equals to 1 if respondent has in the past felt unsafe from crime	0.84	0.35
Help	Dummy variable equals to 1 if It is important for respondent to help people nearby	0.98	0.13
War	Dummy variable equals to 1 if respondent worries about a civil war	0.18	0.38

Table 2 Average by religious denominations

Denomination	Wellbeing	Income scale	Religion 1	Religion 2	Religion 3
Catholic	7.10	4.17	0.78	0.74	4.74
Protestant	6.39	4.65	0.88	0.70	5.65
Orthodox	5.34	4.43	0.72	0.61	4.11
Jew	5.74	4.89	0.68	0.79	3.99
Muslim	6.11	4.53	0.93	0.68	5.13
Hindu	6.15	4.14	0.81	0.75	3.62
Buddhist	7.11	5.23	0.83	0.23	4.81
Other	6.57	4.71	0.78	0.73	3.16

2.2 Empirical specification

In order to examine the impact of religiosity on subjective wellbeing, we estimate the following equation:

$$WB_i = \alpha + \beta_1 R_i + \beta_2 I_i + \sum_n \beta_n X_{n,i} + \varepsilon_i \tag{1}$$

where i indexes the individuals, WB is the measure of subjective wellbeing, R_i is the measure of religiosity, I_i is the measure of income, X_n is a set of control variables described earlier, β_1, β_2 and β_n are parameters to be estimated, and ε is the random error term assumed to be normally distributed with mean zero.

We also examine if the interaction between income and religion would present some additional insight into understanding the role played by these factors in shaping individual life satisfaction. Thus, we introduce an interaction term (income*religiosity) in the wellbeing regressions. Our wellbeing regressions can be re-expressed as follows:

$$WB_i = \alpha + \beta_1 R_i + \beta_2 I_i + \beta_3 I_i R_i + \sum_n \beta_n X_{n,i} + \varepsilon_i \tag{2}$$

where i indexes the individuals and X_n is a set of control variables described earlier. WB is the measure of subjective wellbeing, R_i is the measure of religiosity, I_i is the measure of income, and $I_i R_i$ is the interaction between income and religiosity. For ease of interpretation of the interaction term, the measure of income used in this model is a dummy variable which reflects low-income and high-income categories. As indicated earlier, our measure of income is an income scale which reflects 10 income categories with 1 representing the lowest income group and 10 the highest income group. Our dummy variable in this regression takes the value 1 if individuals fall within the last five income groups (high-income), and 0 if in the first five income groups (low-income). We interact this with measures of religiosity that are dummy variables (*religiosity 1*, *religiosity 2* and *religiosity 4*). Thus, *religiosity 2*, which is captured using an ordinal scale is not used in this regression.

We estimate Eqs. (1) and (2) using ordered logit estimation techniques. Ordered logit regressions have been justified in the literature given the ordinal nature of the measure of subjective wellbeing (see, Portela et al. 2013). However, for robustness, we also run OLS and 2SLS regressions.

2.2.1 Endogeneity

As discussed earlier, while religiosity affects wellbeing, it is likely that wellbeing could affect religiosity as well. For instance, Awaworyi Churchill and Mishra (2017) argue that individuals with higher levels of life satisfaction would be more inclined to join certain groups, such as religious groups, than those with lower levels of life satisfaction. Similarly, it is also likely that those with lower levels of life satisfaction would be more inclined to seek solace within religious groups. This bi-directional causal nature of the relationship between religiosity and wellbeing raises endogeneity concerns, and this has not been resolved in the literature mainly due to difficulty in finding appropriate instruments. Finding suitable instruments in survey data are a well-recognised problem and the use of weak instruments is a cause for concern, especially when consideration is given to meeting the necessary exclusion restrictions. The empirical literature often turns to pseudo- experimental/natural experimental situations to resolve exogeneity concerns. However, it is difficult to think of a naturally ethical situation in which an instrument of this nature would occur in relation to the research questions addressed in this paper. The paucity of strong instruments and natural experiments has led researchers to adopt statistical solutions to solve endogeneity concerns, and there is now an existing literature that has addressed endogeneity using the Lewbel 2SLS approach including subjective wellbeing studies (see, e.g. Awaworyi Churchill and Mishra 2017; Belfield and Kelly 2012; Buch et al. 2014; Emran and Shilpi 2012; Mishra and Smyth 2015).

Here, we also adopt the Lewbel (2012) heteroskedasticity adjusted instruments to control for potential endogeneity. Lewbel (2012) proposed a new methodology to identify the structural parameters in models with endogenous regressors. This methodology is particularly useful for applications where other sources of identification, such as external instrumental variables, are either not available or are very weak. A precondition for identification is that the regressors should be uncorrelated with the heteroskedasticity errors, which is often a standard feature in many models, where the error correlations are due to unobserved common factors. Therefore, as long as there is some heteroskedasticity in the data, one can achieve identification using the Lewbel method. This methodology can be briefly explained as follows.

In the context of our current study one can argue that some individuals live in an environment characterised by high levels of religiosity, and this could partly explain high scores of reported subjective wellbeing for such individuals. On the other hand, the unobserved social factors that promote individuals wellbeing are also responsible for higher reported levels of religiosity for individuals.

The resulting estimation problem in the context of the current study can be summarised as:

$$WB_i = \alpha + X'\beta_1 + R_i\gamma_1 + \epsilon_1 \qquad \epsilon_1 = \alpha_1 U + V_1 \tag{3}$$

$$R_i = X'\beta_2 + \epsilon_2 \qquad \epsilon_2 = \alpha_2 U + V_2 \tag{4}$$

such that WB_i is an individual's subjective wellbeing and R_i is an individual's reported level of religiosity, U denotes the individual's unobserved social environment which affects both, his level of religiosity and his subjective wellbeing, V_1 and V_2 are idiosyncratic errors and X' is a vector of control variables.

Given that some of the structural parameters of the above equations are not identifiable, identification can be obtained either by imposing equality constraints on the coefficients of X (i.e. OLS regression) or, assuming that one or more elements of β_1 equal to zero. This permits the estimation of WB_i equation using two-stage least squares with instruments X (i.e. Instrumental Variable (IV) regression). However, there are no equality constraints on the parameters and no ordinary instruments as well. According to Lewbel (2012), $[Z - E(Z)]\epsilon_2$ can be used as instruments assuming Z is a vector of observed exogenous variables (Z could be a subset of X or could be equal to X), and as long as heteroskedasticity and the following moment conditions are met;

$$E(X\epsilon_1) = 0, \quad E(X\epsilon_2) = 0, \quad Cov(Z, \epsilon_1\epsilon_2) = 0$$

In the case of our analysis, Z is equal to X. Proof of above methodology and steps to reaching these conclusions is presented in Lewbel (2012). This method is widely used in the existing literature to address issues of endogeneity (see, Belfield and Kelly 2012; Buch et al. 2014; Emran and Shilpi 2012; Mishra and Smyth 2015). Studies such as Awaworyi Churchill and Mishra (2017) have also used it in dealing with endogeneity in the subjective wellbeing literature.

3 Results

3.1 Effects of religiosity on wellbeing

Although our focus is on developing countries, we first present results for a combined sample of developed and developing countries, to have a general overview of the relationship between religiosity, income and wellbeing. Thus, Table 3 presents ordered logit results for the association between religiosity and wellbeing in a combined sample of developed and developing countries. First, we present results for a sample that From Table 3, each of the three columns provides alternate estimations for subjective wellbeing using different measures of religiosity. Columns 1 to 3, respectively present results using *religiosity 1* to *religiosity 3* as described earlier.

Overall, from Table 3, we find a positive effect of religiosity on subjective wellbeing, and this result is consistent across all measures of religiosity. We also find a positive association between income and wellbeing. The developing country dummy included in these regressions enter the model as negative suggesting that, compared to developed countries, individuals in developing countries tend to report lower levels of wellbeing

Table 3 Religiosity and wellbeing (developed and developing countries)

Variables	(1)	(2)	(3)
	Subjective wellbeing		
Religiosity 1	0.181***		
	(0.008)		
	[0.034]		
Religiosity 2		0.234***	
		(0.011)	
		[0.044]	
Religiosity 3			0.033***
			(0.001)
			[0.045]
Income	0.125***	0.126***	0.124***
	(0.002)	(0.002)	(0.002)
	[0.119]	[0.120]	[0.119]
Developing	−0.362***	−0.328***	−0.389***
	(0.014)	(0.014)	(0.015)
Male	−0.108***	−0.109***	−0.113***
	(0.006)	(0.006)	(0.007)
Married	0.297***	0.297***	0.293***
	(0.008)	(0.008)	(0.008)
Unemployed	−0.272***	−0.284***	−0.269***
	(0.014)	(0.014)	(0.014)
Education	0.054***	0.048***	0.045***
	(0.008)	(0.008)	(0.008)
Christian	0.004	0.014	0.010
	(0.015)	(0.015)	(0.015)
Islam	−0.154***	−0.138***	−0.116***
	(0.015)	(0.015)	(0.015)
Age	−0.046***	−0.047***	−0.046***
	(0.001)	(0.001)	(0.001)
Age squared	0.047***	0.048***	0.047***
	(0.001)	(0.001)	(0.001)
Freedom	0.325***	0.326***	0.326***
	(0.002)	(0.002)	(0.002)
Money	−0.294***	−0.290***	−0.284***
	(0.013)	(0.013)	(0.013)
Unsafe	−0.180***	−0.174***	−0.188***
	(0.013)	(0.013)	(0.014)
Help	0.196***	0.209***	0.182***
	(0.024)	(0.024)	(0.025)

Table 3 continued

Variables	(1)	(2)	(3)
	Subjective wellbeing		
War	0.058***	0.072***	0.049***
	(0.012)	(0.012)	(0.012)
Country dummies	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes
Observations	283,153	283,153	266,917

Robust standard errors in parentheses, standardised coefficients in brackets
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
Estimation method—ordered logit

on average. We narrow down our analysis to focus on developing countries with results reported in Table 4.

From column 1 of Table 4, we find that the coefficient on the "is religion important" question (*religiosity 1*) is 0.19, implying a 0.19 higher individual life satisfaction, on a scale of 1 to 10, if respondents perceived religion as important. Here, a standard deviation increase in religiosity is associated with an increase of 0.03 standard deviations in subjective wellbeing. From column 2, the coefficient on religiosity 2 is 0.23, which suggests, a 0.23 higher life satisfaction if respondents get strength and comfort from religion. A standard deviation increase in religiosity is associated with an increase of 0.04 standard deviations in subjective wellbeing. Similarly, results in column 3 for *religiosity 3* suggests a 0.03 higher life satisfaction if respondents attend religious meetings regularly. The standardised coefficients in columns 3 is 0.03, indicating that a standard deviation increase in *religiosity 3* is associated with an increase of 0.03 standard deviations in wellbeing.

Thus, our measures of religiosity, which capture both faith and social dimensions of religion confirm a positive association between religion and wellbeing. Further, the social dimension of religion appears to be a stronger determinant of wellbeing than the faith dimension. This suggests that while believing in God or perceiving God as important is enhances individual wellbeing or life satisfaction, engagement in religious activities even provides further satisfaction.

Compared to other control variables, we find that the effects of religiosity on subjective wellbeing are relatively weaker (in coefficient magnitude) than the effects of control variables such as income, age and freedom on wellbeing. However, compared to control variables such as marital status and employment status, among others we find that the effects of religiosity are relatively stronger (in terms of coefficient size).

The control variables reveal that income, marriage, Christian and freedom are positively associated with subjective wellbeing. Thus, respondents with higher levels of income tend to report higher wellbeing, and this is also the case for the level of choice and freedom perceived by respondents. Similarly, marriage as opposed to being single or divorced is positively associated with wellbeing, and thus married respondents tend to report higher levels of life satisfaction as opposed to those who are single or divorced. Christians as opposed to other respondents in the base category such as

Table 4 Religiosity and wellbeing (developing countries)

Variables	(1)	(2)	(3)
	Subjective wellbeing		
Religiosity 1	0.188***		
	(0.011)		
	[0.029]		
Religiosity 2		0.232***	
		(0.015)	
		[0.043]	
Religiosity 3			0.031***
			(0.002)
			[0.051]
Income	0.148***	0.149***	0.147***
	(0.002)	(0.002)	(0.002)
	[0.130]	[0.131]	[0.129]
Male	−0.114***	−0.115***	−0.125***
	(0.008)	(0.008)	(0.009)
Married	0.243***	0.243***	0.239***
	(0.010)	(0.010)	(0.010)
Unemployed	−0.380***	−0.394***	−0.377***
	(0.019)	(0.019)	(0.019)
Education	0.013	0.009	0.007
	(0.010)	(0.010)	(0.011)
Christian	0.184***	0.211***	0.145***
	(0.019)	(0.019)	(0.019)
Islam	−0.344***	−0.347***	−0.294***
	(0.018)	(0.018)	(0.019)
Age	−0.035***	−0.035***	−0.034***
	(0.002)	(0.002)	(0.002)
Age squared	0.032***	0.032***	0.030***
	(0.002)	(0.002)	(0.002)
Freedom	0.281***	0.281***	0.279***
	(0.002)	(0.002)	(0.003)
Money	−0.148***	−0.149***	−0.142***
	(0.017)	(0.017)	(0.017)
Unsafe	−0.246***	−0.242***	−0.256***
	(0.017)	(0.017)	(0.017)
Help	0.132***	0.139***	0.122***
	(0.030)	(0.030)	(0.031)
War	0.059***	0.064***	0.044***
	(0.016)	(0.016)	(0.016)

Table 4 continued

Variables	(1)	(2)	(3)
	Subjective wellbeing		
Country dummies	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes
Observations	175,628	175,628	165,351

Robust standard errors in parentheses, standardised coefficients in brackets
$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$
Estimation method—ordered logit

Buddhists and Hindus report tend to report higher level of wellbeing, on average. However, the opposite is observed for Muslims. The pleasure of helping people is also positively associated with wellbeing.

In contrast, male respondents tend to report lower life satisfaction compared to female respondents. Furthermore, the results show that age is negatively associated with wellbeing, but this is not the case in the quadratic term. Also, unemployment, feeling unsafe because of crime, fear of war, as well as a lack of financial freedom, are found to be negatively associated with wellbeing.

3.2 The interaction between income and religion

Table 5 presents regressions with the interaction between income and religiosity. Results across all columns show a similar pattern where the effect of religiosity and income on wellbeing remains positive and significant. The effect of the interaction between income and religiosity is also positive and significant. We use results from column 1 to explain the effects of the interaction terms.[6]

Given Eq. (2), interpretation of the interaction term can be done either with respect to income or with respect to religiosity. Thus, taking the derivative of the wellbeing equation with respect to income, and with respect to religiosity, we have (5) and (6), respectively. β_1, β_2 and β_3 are drawn from Table 5, Column 1.

$$\frac{\partial WB_i}{\partial I_i} = \beta_2 + \beta_3 R_i = 0.148 + 0.118 R_i \tag{5}$$

$$\frac{\partial WB_i}{\partial R_i} = \beta_1 + \beta_3 I_i = 0.147 + 0.118 I_i \tag{6}$$

Accordingly, the results show that when individuals become religious ($R_i = 1$), a switch from the low-income to high-income level is associated with a 0.27 higher individual life satisfaction, on a scale of 1 to 10. However, when individuals are

[6] Similar trends would be observed should we use columns 2 and 3. However, to avoid repetition, we focus on only column 1 only. In results not reported here, we also use income scale in the interaction term instead of the income dummy and results remain positive and statistically significant.

Table 5 Interaction between income and religiosity

Variables	(1)	(2)	(3)
	Subjective wellbeing		
Religiosity 1	0.147***		
	(0.014)		
Religiosity 2		0.247***	
		(0.016)	
Religiosity 3			0.028***
			(0.002)
Income	0.148***	0.156***	0.148***
	(0.003)	(0.003)	(0.003)
Income*Religiosity	0.118***	0.050***	0.011***
	(0.018)	(0.019)	(0.003)
Income*Christian	0.151***	0.073***	0.117***
	(0.020)	(0.017)	(0.021)
Income*Muslim	0.045**	0.054***	0.013
	(0.023)	(0.017)	(0.022)
Male	−0.114***	−0.115***	−0.124***
	(0.008)	(0.008)	(0.009)
Married	0.244***	0.244***	0.240***
	(0.010)	(0.010)	(0.010)
Unemployed	−0374***	−0.373***	−0.75***
	(0.03)	(0.03)	(0.03)
Education	0.013	0.010	0.007
	(0.010)	(0.010)	(0.011)
Christian	0.120***	0.183***	0.098***
	(0.022)	(0.021)	(0.022)
Islam	−0.316***	−0.364***	−0.292***
	(0.022)	(0.020)	(0.022)
Age	−0.035***	−0.035***	−0.034***
	(0.002)	(0.002)	(0.002)
Age squared	0.032***	0.032***	0.030***
	(0.002)	(0.002)	(0.002)
Freedom	0.281***	0.281***	0.278***
	(0.002)	(0.002)	(0.003)
Money	−0.146***	−0.144***	−0.141***
	(0.017)	(0.017)	(0.017)
Unsafe	−0.244***	−0.239***	−0.254***
	(0.017)	(0.017)	(0.017)
Help	0.132***	0.137***	0.122***
	(0.030)	(0.030)	(0.031)

Table 5 continued

Variables	(1)	(2)	(3)
	Subjective wellbeing		
War	0.055***	0.061***	0.042***
	(0.016)	(0.016)	(0.016)
Country dummies	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes
Observations	175,628	175,628	165,351

Robust standard errors in parentheses
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
Estimation method—ordered logit

non-religious ($R_i = 0$), a switch from the low-income to high-income level this is associated with a 0.15 higher individual life satisfaction.

On the other hand, when the incomes of individuals move from the low-income category to high-income category ($I_i = 1$), becoming religious is associated with 0.27 higher individual life satisfaction. However, when individuals are in the low-income category ($I_i = 0$), a switch from non-religiosity to religiosity is associated with 0.15 higher individual life satisfaction. The interactions between income and Christian as well as, income and Muslim, presents similar results.

Thus, when individuals are non-religious the effect of income on wellbeing is lower compared to when individuals are religious. Similarly, when individuals have high income, the effect of religiosity on wellbeing is much higher than when individuals have low income. These results lead to two major conclusions; (1) higher levels of income and religiosity together provide individuals with higher subjective life satisfaction, (2) the combined effects of high income and religiosity on wellbeing is stronger (in magnitude) than the separate effects of income and religiosity.

3.3 Robustness checks

We examine the sensitivity of our results to various grouping and estimation methods. The existing literature on the determinants of subjective wellbeing often adopts OLS or ordered logit regression techniques. To ensure that our results are robust to both estimation methods adopted in the existing literature, we also run OLS regressions. We also run 2SLS regression to address potential endogeneity.

Tables 6 and 7 present OLS results, respectively. The models estimated here exactly correspond with those estimated using the ordered logit technique (Table 4). Overall, results show that the nature of the relationship between wellbeing and religiosity is not altered by the estimation strategy employed. Consistent with the ordered logit results, we find that religiosity has a positive association with wellbeing, and this finding holds across all measures of religiosity. However, we observe that ordered logit results mostly understate the effect of religiosity on wellbeing. This is evident

Table 6 Religiosity and wellbeing (OLS results)

Variables	(1)	(2)	(3)
	Subjective wellbeing		
Religiosity 1	0.234***		
	(0.015)		
	[0.037]		
Religiosity 2		0.292***	
		(0.019)	
		[0.054]	
Religiosity 3			0.039***
			(0.002)
			[0.058]
Income	0.197***	0.198***	0.195***
	(0.003)	(0.003)	(0.003)
	[0.173]	[0.174]	[0.171]
Male	−0.143***	−0.144***	−0.157***
	(0.011)	(0.011)	(0.011)
Married	0.311***	0.312***	0.305***
	(0.013)	(0.013)	(0.013)
Unemployed	−0.380***	−0.397***	−0.377***
	(0.019)	(0.019)	(0.019)
Education	0.048***	0.044***	0.040***
	(0.013)	(0.013)	(0.014)
Christian	0.270***	0.304***	0.221***
	(0.024)	(0.024)	(0.025)
Islam	−0.475***	−0.481***	−0.410***
	(0.024)	(0.024)	(0.024)
Age	−0.043***	−0.043***	−0.042***
	(0.002)	(0.002)	(0.002)
Age squared	0.039***	0.039***	0.037***
	(0.002)	(0.002)	(0.002)
Freedom	0.305***	0.306***	0.302***
	(0.003)	(0.003)	(0.003)
Money	−0.192***	−0.194***	−0.182***
	(0.022)	(0.022)	(0.022)
Unsafe	−0.325***	−0.320***	−0.330***
	(0.021)	(0.021)	(0.022)
Help	0.194***	0.200***	0.177***
	(0.041)	(0.041)	(0.041)
War	0.086***	0.073***	0.068**
	(0.027)	(0.027)	(0.028)

Table 6 continued

Variables	(1)	(2)	(3)
	Subjective wellbeing		
Constant	4.739***	4.523***	4.469***
	(0.084)	(0.085)	(0.087)
Country dummies	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes
Observations	175,628	175,628	165,351
R squared	0.248	0.248	0.251

Robust standard errors in parentheses, standardised coefficients in brackets
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

given the standardised coefficients of the OLS and Lewbel 2SLS estimations, which are relatively larger than ordered logit estimates.

We also consider two additional faith-based measures of religiosity to examine the robustness of our results. With regards to the first measure of religion (*religiosity 4*), the WVS asks the question: "How important is God in your life? On a scale where, 1 means "not at all important" and 10 means "very important". Secondly, for *religiosity 5*, respondents are coded as religious if they believe in God. These results are reported in Table 8, and we find that results for these measures of religiosity are consistent with our main results of a positive effect.

Lastly, for benchmarking purposes, we also examine the effects of religiosity on wellbeing using the WVS sample for developed countries. Results are reported in Table 9. We find that while the conclusion of a positive effect between religiosity and income still holds, the coefficients observed in the case of developing countries, consistently, are quantitatively larger in size than those reported for developed countries. This confirms our suspicion that the effects of religiosity in developing countries are stronger.

3.4 Discussion of results

The results from this study show that, first, the effect of religiosity on subjective wellbeing in developing countries is relatively weaker (in coefficient magnitude) than that of income. This suggests that individuals with higher income have higher levels of subjective wellbeing than those who are religious. This underlies the higher importance of economic factors on wellbeing and poverty alleviation (Sachs 2005). Despite justified efforts to show the multi-faceted aspects of poverty and wellbeing beyond income (Haughton and Khandker 2009), our results provide evidence that economic factors like income have a more significant contribution to wellbeing than other psychological and sociological factors like religion. This finding is consistent with existing literature which, in a developing country context, also found that income is a stronger determinant of wellbeing than sociological factors such as trust and social network (Awaworyi Churchill and Mishra 2017).

Table 7 Religiosity and wellbeing (Lewbel 2SLS results)

Variables	(1)	(2)	(3)
	Subjective wellbeing		
Religiosity 1	0.269***		
	(0.015)		
	[0.042]		
Religiosity 2		0.266***	
		(0.020)	
		[0.049]	
Religiosity 3			0.085**
			(0.036)
			[0.063]
Income	0.197***	0.198***	0.195***
	(0.003)	(0.003)	(0.003)
	[0.173]	[0.174]	[0.171]
Male	−0.141***	−0.145***	−0.152***
	(0.011)	(0.011)	(0.011)
Married	0.311***	0.312***	0.307***
	(0.013)	(0.013)	(0.013)
Unemployed	−0.381***	−0.376***	−0.387***
	(0.019)	(0.019)	(0.019)
Education	0.049***	0.044***	0.036**
	(0.013)	(0.013)	(0.014)
Christian	0.268***	0.302***	0.262***
	(0.024)	(0.024)	(0.025)
Islam	−0.479***	−0.479***	−0.464***
	(0.024)	(0.024)	(0.026)
Age	−0.043***	−0.043***	−0.041***
	(0.002)	(0.002)	(0.002)
Age squared	0.039***	0.039***	0.036***
	(0.002)	(0.002)	(0.002)
Freedom	0.305***	0.306***	0.303***
	(0.003)	(0.003)	(0.003)
Money	−0.192***	−0.194***	−0.190***
	(0.022)	(0.022)	(0.022)
Unsafe	−0.326***	−0.320***	−0.312***
	(0.021)	(0.021)	(0.022)
Help	0.192***	0.200***	0.194***
	(0.041)	(0.041)	(0.042)
War	0.073***	0.079***	0.064***
	(0.020)	(0.020)	(0.021)

Table 7 continued

Variables	(1)	(2)	(3)
	Subjective wellbeing		
Constant	4.738***	4.543***	4.829***
	(0.084)	(0.085)	(0.104)
Country dummies	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes
Observations	175,628	175,628	165,351
R squared	0.248	0.248	0.249

Robust standard errors in parentheses, standardised coefficients in brackets
$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Thus, contrary to what has been reported in the case of developed countries, suggesting that social factors are stronger determinants of wellbeing than income (Easterlin 1995), the opposite is reported here in the case of developing countries. One explanation offered by Awaworyi Churchill and Mishra (2017) suggest that individuals who have attained the desired levels of income (as in the case of developed countries), tend to seek satisfaction in elements other than income, and this could extend to relationships, and perhaps religion. Thus, it is not unexpected that income would have a relatively weaker effect on life satisfaction. In the context of developing countries, however, higher levels of income lead to greater life satisfaction given that the desire to attain physiological needs is the primary focus, and thus has priority on an average individual's hierarchy of needs (Maslow 1943).

Second, we consider the interaction between income and religiosity, and find that, when individuals are non-religious the effect of income on wellbeing is lower compared to when individuals are religious. Similarly, when individuals have high income the effect of religiosity on wellbeing is much higher than when individuals have low income. These results lead to two major conclusions; (1) higher levels of income and religiosity together provide individuals with higher life satisfaction, (2) the combined effects of high income and religiosity on wellbeing is stronger than the individual effects of income and religiosity. Here, we make significant contributions in showing the complementarity between income and religiosity on wellbeing. Existing research tends to treat income and religiosity as having a mutually exclusive effect on wellbeing (Crabtree 2010; Tay et al. 2014). We show that the interaction of income and religiosity provides better wellbeing than income or religiosity separately.

A number of arguments can be advanced to explain these results. First, religion provides some psychological wellbeing that transcends economic wellbeing, particularly in developing economies. The biggest challenge in developing countries is that the state and the markets do not function as effectively or efficiently as they should (Klitgaard 1991). Norris and Inglehart (2011) argue that such challenges create existential insecurity, where people tend to be anxious and uncertain about the guarantee of their wellbeing. In other words, the challenges associated with the lack of market information, corruption and political instability do not help guarantee one's wellbeing, even if

Table 8 Religiosity and wellbeing (alternate measures of religiosity)

Variables	(2)	(4)
Religiosity 4	0.052***	
	(0.002)	
	[0.050]	
Religiosity 5		0.318***
		(0.016)
		[0.059]
Income	0.149***	0.148***
	(0.002)	(0.002)
	[0.131]	[0.129]
Male	−0.106***	−0.116***
	(0.008)	(0.008)
Married	0.250***	0.244***
	(0.010)	(0.010)
Unemployed	−0.378***	−0.394***
	(0.019)	(0.019)
Education	0.012	0.006
	(0.010)	(0.010)
Christian	−0.196***	−0.209***
	(0.019)	(0.019)
Islam	−0.376***	−0.326***
	(0.019)	(0.018)
Age	−0.034***	−0.035***
	(0.002)	(0.002)
Age squared	0.031***	0.032***
	(0.002)	(0.002)
Freedom	0.280***	0.281***
	(0.003)	(0.002)
Money	−0.166***	−0.174***
	(0.017)	(0.017)
Unsafe	−0.193***	−0.236***
	(0.017)	(0.017)
Help	0.111***	0.124***
	(0.031)	(0.030)
War	0.084***	0.076***
	(0.016)	(0.016)
Country dummies	Yes	Yes
Wave dummies	Yes	Yes
Observations	169,211	175,628

Robust standard errors in parentheses, standardised coefficients in brackets
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
Estimation method—ordered logit

Table 9 Religiosity and wellbeing (developed countries)

Variables	(1)	(2)	(3)
Religiosity 1	0.162***		
	(0.012)		
	[0.022]		
Religiosity 2		0.187***	
		(0.018)	
		[0.032]	
Religiosity 3			0.023***
			(0.002)
			[0.018]
Income	0.100***	0.100***	0.100***
	(0.003)	(0.003)	(0.003)
	[0.114]	[0.113]	[0.114]
Male	−0.072***	−0.074***	−0.064***
	(0.011)	(0.011)	(0.011)
Married	0.392***	0.395***	0.398***
	(0.012)	(0.012)	(0.013)
Education	0.137***	0.133***	0.127***
	(0.012)	(0.012)	(0.013)
Christian	0.205***	0.244***	0.176***
	(0.032)	(0.032)	(0.032)
Islam	−0.438***	−0.463***	−0.443***
	(0.051)	(0.051)	(0.059)
Age	−0.031***	−0.032***	−0.036***
	(0.002)	(0.002)	(0.002)
Age squared	0.035***	0.037***	0.040***
	(0.002)	(0.002)	(0.002)
Freedom	0.389***	0.390***	0.391***
	(0.004)	(0.004)	(0.004)
Money	−0.431***	−0.433***	−0.422***
	(0.022)	(0.022)	(0.023)
Unsafe	−0.151***	−0.147***	−0.148***
	(0.023)	(0.023)	(0.023)
Help	0.252***	0.277***	0.221***
	(0.040)	(0.040)	(0.041)
War	0.022	0.030	0.034
	(0.021)	(0.021)	(0.022)

Table 9 continued

Variables	(1)	(2)	(3)
Country dummies	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes
Observations	108,855	108,855	102,516

Robust standard errors in parentheses, standardised coefficients in brackets
$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$
Estimation method—ordered logit

one has effective demand. They, therefore, turn to religion, which provides important existential support of divine protection from the uncertainties of the state and market, and hope for continued success (Batson et al. 1993; Bowler 2013; Comaroff and Comaroff 1999; Norris and Inglehart 2011). In fact, Oishi and Diener (2013) show that poor countries that are also highly religious report higher "meaning in life" and have lower suicide rates than wealthy nations. Our findings are, therefore, consistent with ideas that religion provides some important psychic utility, which in a developing context, is a useful complement for economic factors in contributing to wellbeing. Future research can investigate this further.

Second, developing countries tend to have communal cultures (Hofstede 1983), and religion as an element of culture is essentially social (Durkheim 1915). Hence, it is perhaps not surprising that developing countries tend to be more religious. Religion may have important socio-cultural roles in developing countries, regardless of one's economic status. As Hofstede (1984) contends, cultural factors like religion affect people's perception of wellbeing. Considering that wellbeing is socially constructed, we argue that having a higher income and being religious provides a stronger socially mediated gauge of one's wellbeing than just being religious or rich. Being religious and rich may even be useful in mitigating allegations that a person has used witchcraft to obtain their wealth (Fisiy and Geschiere 1991; Parish 2000, 2011). Therefore having high religiosity integrates a person well into his/her community, and having high income provides one with a better status within this community (Comaroff and Comaroff 1999).

4 Conclusion

Our study provides new evidence that religiosity is positively associated with subjective wellbeing in developing countries. We focus on existing developing countries mainly because of evidence from existing polls which show that poor developing countries tend to report higher levels of religiosity, compared to richer developed countries (Crabtree 2010). Given this, we provide empirical evidence that contributes to the existing discourse surrounding the relationship between religiosity and income, and further examine how this relationship affects subjective wellbeing.

Specifically, our study examines; (1) the effect of religiosity on subjective wellbeing in developing countries, and (2) the interaction between income and religiosity, and

how this interaction affects wellbeing. Our results show that both income and religiosity affect wellbeing positively; however, income is a stronger predictor of wellbeing in developing countries. Further, we find that the interaction between income and religiosity has a positive effect on life satisfaction.

Overall our research makes important contributions to the growing literature on wellbeing in the context of developing countries. We have shown that religiosity and income together have a stronger impact on individual wellbeing in these countries, than the separate effects of religiosity or income. We recommend that efforts at poverty alleviation should consolidate economic empowerment with social and psychological elements like religion and religiosity. Future research should consider the role of various religious organisations/groups and their moral regulation of member behaviour in terms of how this interacts with income and so influences subjective wellbeing. Future research might also investigate how a person's social network and entrenchment in religious groups affects wellbeing. Additionally, research could explore the difference in wellbeing between people with higher income and those with lower income in religious sects.

Appendix

See Table 10.

Table 10 Country rankings based on religion, income and wellbeing

Country	Dominant religion	Religion 1	Religion 2	Religion 3	Income	Wellbeing
Albania	Islam	47	18	7	1	47
Algeria	Islam	11	1	19	2	30
Armenia	Christian	41	20	25	3	52
Azerbaijan	Islam	39	13	17	4	34
Bangladesh	Islam	10	10	2	5	26
Belarus	Christian	51	25	35	6	48
Bosnia	Islam	44	19	6	7	36
Brazil	Christian	27	30	32	8	6
Bulgaria	Christian	52	45	37	9	50
Burkina Faso	Islam	18			10	39
China	Atheist	54	48	41	11	16
Colombia	Christian	50	31	26	12	1
Dominican Republic	Christian	33	16	5	13	11
Ecuador	Christian	29	12	29	14	4
Egypt	Islam	1	42	24	15	42
El Salvador	Christian	20	7	4	16	7
Ethiopia	Islam	23	40	36	17	49
Georgia	Christian	28	36	18	18	51

Table 10 continued

Country	Dominant religion	Religion 1	Religion 2	Religion 3	Income	Wellbeing
Ghana	Christian	9	37	11	19	25
Guatemala	Christian	19			20	2
India	Hindu	36	26	14	21	32
Indonesia	Islam	3	43	28	22	14
Iran	Islam	22	41	23	23	24
Iraq	Islam	4	34	27	24	46
Jordan	Islam	2	29	31	25	22
Kazakhstan	Christian	48	17		26	10
Kyrgyzstan	Islam	37	14	33	27	17
Lebanon	Islam	38	9		28	21
Libya	Islam	7	5		29	9
Macedonia	Christian	42	21	8	30	43
Malaysia	Islam	15	38		31	12
Mali	Islam	14			32	27
Mexico	Christian	45	22	10	33	3
Moldova	Christian	43	35	16	34	53
Morocco	Islam	5	44	34	35	41
Nigeria	Islam/Christian	12	2	22	36	20
Pakistan	Islam	16	15	13	37	28
Peru	Christian	35	27	21	38	18
Philippines	Christian	13	4	20	39	13
Romania	Christian	31	32	38	40	33
Rwanda	Christian	32	39		41	35
Serbia and Montenegro		46	28	15	42	38
South Africa	Christian	34	23	12	43	19
Tanzania	Islam/Christian	30	8	1	44	54
Thailand	Buddhism	26	46		45	8
Tunisia	Islam	8			46	40
Turkey	Islam	25	24	9	47	23
Uganda	Christian	17	3	3	48	37
Ukraine	Christian	49	33	39	49	45
Uzbekistan	Islam	40	11		50	5
Viet Nam	Vietnamese folk religion	53	47	40	51	15
Yemen	Islam	6			52	31
Zambia	Christian	24			53	29
Zimbabwe	Syncretic	21	6	30	54	44

Ranking computation based on information from WVS data
Country dominant religion source http://www.nationmaster.com/country-info/stats/Religion/Religions
Christian could refer to both Orthodox and Catholic

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