

Does Religion Distribution Matter in the Economic Growth of Latin America?

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Abstract

This research empirically analyzes the relationship between religion distribution and economic performance for a number of Latin American countries. The econometric results using time-series cross-sectional data yield consistent yet relatively mild estimates. Religion as a conduit for modifying values, behaviors, and outcomes does influence aggregate rates of per-capita economic growth and total factor productivity ratios in the region. However, once broken down by religious beliefs, the Catholic religion plays by far the largest role, rendering other well-known religious affiliations less important.

Key words: religion; religious affiliations; growth; Latin America

JEL classification: F43; O47; O54

1. Introduction

Recent economic literature often regards specialization, diversification, and liberalization schemes as the engine of growth for Latin America (Ellner, 2006). Despite these policy recommendations, the overall economic performance of the region has exhibited mixed results over the last three decades. Countries like Brazil, Chile, and Mexico have achieved sustained economic growth, while others such as Colombia and Costa Rica have recorded less encouraging results, and still others such as Uruguay and Argentina have been left well behind. A raw comparison of these countries would be unfair since they differ greatly in their economic sizes. Models that assume national differentiation, monopolistic competition, or vertical integration have been used to predict how larger economies grow more than smaller ones (Hummels and Klenow, 2005). None of these models integrate other processes to allow for making convergent predictions regarding changes in the economic growth associated with, for instance, religion-driven effects.

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The seminal work of Glahe and Vohries (1989) on the economics of religion, followed by the works of Iannaccone (1998), Sacerdote and Glaeser (2001), and Montgomery (2003) on specific religious traditions, support the claim that faith in supernatural forces cannot be neglected as a rational economic response to a diverse set of changes. However, empirical research on the sources of economic growth in Latin America has omitted the impact of religion. A fairly comprehensive social, legal, economic, political, and technological framework has been proposed to draw qualitative inference about trends in economic growth as a result of regional integration (Ortiz and Tajés, 2009). Undoubtedly, these studies have helped to highlight certain methodological approaches that in turn have underscored the important consequences of omitting key explanatory variables. Iyer (2007) stated that a greater understanding of religious structures, faith-based welfare programs, and church regulation is needed to fully uncover a policy-making process that fosters economic growth.

Religious institutions and precepts play a major role within the social aspects of a country with a set of practices, rituals, and beliefs directly or indirectly affecting all levels of economic activity. For no other reason than the myriad religions practiced around the globe, multinational companies adjust corporate strategies, management styles, and human resource staffing decisions. Barro and McCleary (2003) and Noland (2005) broadly included a handful of Latin American countries in their time-series cross-sectional analyses to measure the influence of religion on economic performance. Nevertheless, their aggregate findings masked specific regions and failed to allow the recognition of any individual country. A more recent attempt, this time from a development viewpoint, came from Brañas-Garza et al. (2009), who uncovered a positive factor that religious affiliations exert on individual's attitudes towards institutions, market systems, and privatization schemes for some Latin American countries.

This study attempts to fill gaps in the literature by explicitly exploring the role of the distribution of religion on economic growth in Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, and Uruguay. These countries accounted for about 85% of total gross domestic product (GDP) in Latin America in 2008. The study is organized as follows. The next section outlines the historical context under which the distribution of religion and multi-faceted belief systems has evolved in those countries over time. Section 3 presents the theoretical model and describes a relevant data set. Section 4 presents empirical results, taking into account the potential causality relationship of an endogenous interaction between religious distribution as spiritual capital and economic growth. The final section concludes.

2. The Religious Landscape across Countries

History shows a continuous crossover between religion and economics (Guiso et al., 2003). Such intricacies have been invoked to explain norms, sanctions, and moral ethics behind issues and behaviors ranging from poverty through frugality to entrepreneurial self-interest over instant gratification vices. Along these lines,

Fudulu (2005) goes further by decoding a number of criteria based on fundamental components of religious dogmas that capture information about the opportunity costs that searching for absolute wealth and power would entail. Inglehart and Baker (2000) and Torgler (2006) argue that religious movements have gone beyond those beliefs and values, suggesting that concrete attitudes, preferences, and choices towards consumption, savings, interest, and investment are the means to increase capital formation and build a prosperous society.

Thus, the most salient mechanisms through which religion impacts economic behavior may be its teachings and practice, whether based on intellectual discipline or rooted in devotion to prayer and fasting. Empirical work at the macro and micro levels on the supply and demand sides explains how the core intent of religion affects the ways in which combined production factors trigger economic growth (Goody, 2003). Some studies have looked at the role of religious structures to alter the pattern of rational choices made by individuals. For instance, Brañas-Garza et al. (2008) empirically demonstrated the presence of high-stake incentives in relation to religious practices through individual religious actions such as church attendance and prayer. Others studies led by Mangeloja (2004) have focused on the behavioral externalities created by organized individuals through repeated interaction, and others have explored the marginal utility of consumers of religion during their lifetime and in the afterlife.

In Latin America, religion has found a fertile ground to exercise a strong spiritual leadership. Its influence has permeated throughout traditionally privileged elites in their quest for identity and inspiration (Stoll, 1982). Catholicism was spread across the region by the Spanish conquistadores in the sixteenth century and has served as one of the most hierarchical and vital institutions. It has sharply differed from the Protestant wave that penetrated into the Anglo Saxon countries. However, the conservative stance of the latter from the successive bishops' conferences has gradually been challenged by advocates of liberation theology, political parties, government policies, and grass-roots organizations to realign with modern times (Stewart-Gambino, 1989).

Despite the religious colonial imprint, Protestant belief is rapidly growing in countries such as Argentina, Brazil, Chile, Colombia, and Costa Rica, with an active political participation to consolidate democracy (Patterson, 2005). A recent Gallup poll of 17 Latin American countries confirms the argument advanced by Gill (2004) that, consistent with its precepts, Protestantism strongly encourages the individualistic, laissez-faire values of capitalism. In fact, Protestants seem to be more entrepreneurial, innovative, and positive than Catholics, despite the fact that both religious groups are equally driven to work hard and get rich within a historically convoluted political and economic framework. Similarly, Pentecostals seem to encourage the development of a work discipline that promotes economic activity within a capitalistic society (Crabtree, 2008).

Argentina

Tolerance and free worship are guaranteed by a constitution that declares that Argentina is, unquestionably, characterized by universalism, humanism, and religious plurality owing to its large number of immigrants (Licitra, 2008). However, the Roman Catholic Church is considered the only official and most respected and trusted religious institution given its long tradition, a well-organized structure, and an especially favorable judicial status. The International Religious Freedom Report (2008) disclosed that the Roman Catholic Church receives a government subsidy of \$4 million every year in addition to payments to sustain private schools, pay for priests' salaries, and maintain parishes (Mallimaci and Cruz, 2008).

There are no official statistics regarding religious membership. The Argentinean Episcopal Conference estimated that 88% of the population was baptized in the Roman Catholic Church but weddings celebrated on their premises declined to 30%. Carballo (2005) highlighted a boost in the religious mentality as the most important social phenomenon today. Formal religious practice has declined, but the importance of God in people's lives has increased significantly.

In addition to the Roman Catholic Church, the government recognizes 2,500 other cults and religious organizations, the most predominant of which are Protestantism, Judaism, and Islam. Hence, the monopoly of the Roman Catholic Church has been partially threatened with the emergence of a religious plurality through the growth and development of Protestantism (Mallimaci and Cruz, 2008). After Catholicism, Protestantism has the second largest percentage of co-religionists with 9% of the population as followers and roughly 15,000 worship centers. In view of the Argentinean Islamic Center, one of the every three immigrants coming from the Middle East follows Islam. Today, there are about 700,000 Muslims, which represent 1.5% of the population. In contrast, the Jewish community represents just 0.8% of the population, despite being the third largest religion in the Americas, and one of the five most important outside Israel (International Religious Freedom Report, 2008).

Brazil

Brazil comprises the largest and one of the most active Catholic populations in the world. Yet it possesses a variety of religious manifestations that not only co-exist harmoniously but also intermix. Brazil has a colonial past, characterized by the introduction of Catholicism as the exclusive and universal religion. From an evangelization viewpoint, it was used as a tool of cultural domination over the indigenous and slaves brought over from Africa. This cultural contact promoted a spiritual synchronization that resulted in religious manifestations that still survive (De Theije and Mariz, 2008).

During the twentieth century, the Roman Catholic Church had various rehabilitative processes that slowly strengthened its influence. Among these phenomena was the arrival of Italian, German, and Polish immigrants who

revitalized the practice of Catholic faith (Barrett et al., 2001). However, the factor that gave the most force and notoriety to the Roman Catholic Church was the Second Vatican Council in 1970 which legitimized two large sects. While some adhered to liberation theology, others pursued the charismatic renovation movement. The former is known for its social conscience, deeply held leftist political convictions, and an anti-modernity discourse, while the latter is known for their novelty and vitality (Introvigne, 2004).

Protestants occupy a second place in the religious scene. They arrived at the beginning of the nineteenth century as a consequence of the Treaty of Commerce and Navigation that opened the doors to first English immigrants, followed by Germans and North Americans, but it failed to exert a great impact on the local population (Stewart-Gambino, 1989). However, the year 1910 represents a turning point for Protestantism when Pentecostalism reached a broad cross-section of social strata, eventually establishing its deepest roots mostly among low-income workers. Its doctrine emphasized economic success as a response to the spiritual life of an individual and has allowed Neo-Pentecostals to reach the more economically comfortable segments of society.

In contrast, there were relatively few Jews and Muslims. While there have been small Jewish communities living in Brazil since 1600, their population is smaller than other religious groups, such as those practicing Spiritualism and other traditional Afro-Brazilian religions. The prevalence of Muslims has been even lower than that of Jews. Islamic practice in Brazil began with slaves, but since the twentieth century, the majority of Muslims have been Arab immigrants distributed among 55 mosques and centers of Islamic study (De Theije and Mariz, 2008).

Chile

Religion in terms of freedom, tolerance, and plurality waited for many years to achieve the stable status that it enjoys today. It was not until the beginning of the nineteenth century that new beliefs made an appearance (Stewart-Gambino, 1989). A century after the new waves of immigrants who arrived at Chile as a result of the world wars and in search of a vibrant economy expanded the religious liberties. Catholicism maintains a significant influence on the Chilean culture and is deeply ingrained in the national identity owing to more than 300 years of ideological hegemony (Fontaine and Beyer, 1998). It kept an absolute exclusivity until 1999 when the *Ley de Igualdad Judicial de Iglesias y Credos Religiosos* was passed. A large part of this group is made up of the economic and political elite, whose wealthy majority attends private schools owned by the Roman Catholic Church. Influential lay Catholic organizations, such as Opus Dei and Legionnaires of Christ, believe in hard work as a method of spiritual sanctification and rely on successful business dealings to maintain their status (Cleary and Sepúlveda, 1997).

Protestantism is rapidly becoming distinguished as a prominent religion in Chile based on relatively high church attendance rates. It has distanced itself from participation in the rest of society through merchants and professionals who came to lend services to the newly born republican government in the mid-1880s (Canales,

2000). In 1900 Pentecostalism rose from within the Protestantism using a simple language to reach the neediest population. From that point on, Protestantism as a whole assimilated with the economically marginalized population, and through them it has gone from representing less than 1% of the population in 1970 to more than 15% in 2002. There are currently more than 1,500 Protestant churches throughout the country, compared with the 500 Catholic churches.

Judaism and Islam in Chile are characterized by their large immigrant populations dedicated to business and who, as a result of persistent work, have achieved positions among the middle and upper classes (Valenzuela et al., 2007). Other religions comprise 5% of the population, with those who consider themselves Atheists or indifferent to religion representing the remaining 8% (Instituto Nacional de Estadísticas, 2002).

Colombia

Historically, the majority of the Colombian population has belonged to the Roman Catholic Church. The government estimates that 90% of the population practice Catholicism (LaRosa, 2000). However, the International Religious Freedom Report (2008) claimed that Catholics only constitute 81% of the population and that, among them, less than 50% are involved in church activities. In spite of that, Colombia is viewed as one of the most devoted, traditional, and conservative countries of Latin America. Colombians consider that it is important to participate in its events and rituals as agents of social cohesion and as a sign of prestige (Londoño-Vega, 2002). Before 1991, the constitution recognized the separation of the church and the state. However, the very same constitution also mentions that Colombia “...is not atheist, agnostic, or indifferent to the religious sentiment of its citizens,” effectively recognizing that the Roman Catholic Church continues to be an integral part of the society (Brusco, 1999).

Beginning with the Concordat of 1973, the government established some control over certain exclusive religious activities. Thus, the Roman Catholic Church lost its rights to regulate academic activities in schools and public universities, keeping only the right to administrate private schools and teach only Catechism in public schools. Social work came under the government control in missionary territories, where the Roman Catholic Church was hegemonic. Lastly, marriage started to be administrated by the government, but it only recognized marriages celebrated by the Roman Catholic Church. However, neither the Concordat nor the Constitution of 1991 could decrease the influence of the Roman Catholic Church (Londoño-Vega, 2002).

The presence of other religions in Colombia is peripheral, owing to the hermetic nature of its Catholic culture. According to the International Religious Freedom Report (2008), the most popular religious minority is Protestantism, which constitutes 3.5% of the population. Although the first Protestants arrived in the nineteenth century, their presence remained relatively unnoticed until the 1930s. Since the 1960s, Protestantism has begun an explosive growth among the poor

owing to active proselytizing that population (Bidegain, 2004). Prior to that, most Protestants were highly educated and wealthy.

There are an estimated 5,000 Jews and 10,000 Muslims in Colombia. The Jewish community still maintains private schools, but its adherents have progressively decreased in number as a result of economically triggered emigration.

Costa Rica

The Roman Catholic Church has deep roots in the history, political power, and cultural traditions of Costa Rica. The origin and propagation of Catholicism throughout Central America was due to the Spanish Crown's efforts to civilize through evangelization (Helmuth, 2000). In 1825, the creation of the *Ley Fundamental* allowed the establishment of the Roman Catholic Church as the official religion and guaranteed its protection by the government. Since 1940, the relationship between the Roman Catholic Church and the governments was a cooperative one, because ecclesiastic leaders made efforts to promote ideas and organizations, such as *Acción Católica*, to improve the country's standard of living. However, there is a general consensus that the Roman Catholic Church is not an important political player anymore even though it has maintained its traditional influence over moral issues (Steigenga, 2003).

A survey conducted by Universidad de Costa Rica (2007) shows that 69% of Costa Ricans are Catholic, 44% actively practice Catholicism, while 26% just follow it. Although Article 75 of the current constitution establishes the right to freedom of religion, only binding ceremonies performed by the Roman Catholic Church, such as marriage, are officially recognized. Costa Ricans are characterized by being less religious than citizens of other countries, and they have a tendency towards a secular perspective. Researchers like Stewart-Gambino (1989) believed that this is the product of dictatorial governments that ruled Central America and introduced Catholicism by force.

The second most populous religious group in Costa Rica is Protestantism. Approximately 14% of the population self-identify as Protestant. When compared with other Latin American countries, Protestantism has not grown rapidly in Costa Rica, owing to the Catholic Church's opposition to the arrival of missionaries. However, a turn towards liberal governments since the beginning of the twentieth century permitted the introduction of Protestantism (Steigenga, 2003).

The Jewish community was established in the 1930s with the arrival of Polish immigrants and East Europeans. The distinctiveness of their last names in nearly every aspect of the Costa Rican society serves as clear testimony to their successful integration (Helmuth, 2000). Today, they represent 1% of the population and are mostly located in San José around the Zionist Israelite Center. In contrast, the Islamic community has been much smaller, constituting less than 0.1% of the population.

Mexico

Catholicism has historically been the most important religion in Mexican society. Its influence began with Hernán Cortéz in 1519 and the indoctrination of natives through evangelization as well as rituals and costumes (Hamnett, 2006). However, in the nineteenth century, its hegemony deteriorated with the explosive emergence of liberal and anticlerical ideas. For liberals, Catholicism was an independent state within Mexico, as Catholic institutions owned a large number of properties, schools, hospitals, and charitable organizations. In 1857, Benito Juárez's constitution abolished several governmental privileges previously enjoyed by the clergy. Consequently, Mexican society experienced the first religious war in its history, between Benito Juárez's government and those who were trying to protect Catholicism. Later, the constitution of 1917 caused a second religious war because privileges to the Roman Catholic Church were further reduced. Since then, it did not enjoy legal status again until 1992, when all the restrictions to the Church were removed to establish a better relationship with Catholicism (Ai Camp, 1997).

The Roman Catholic Church has continued to be a strong cultural component despite the government's efforts to reduce its influence on society (Nesvig, 2007). In absolute terms, next to Brazil, Mexico has the second largest Roman Catholic population in the world. Popular religiosity is far more than common that adherence to liberation theology or participation in charismatic groups. It is partly characterized by a mix of Catholic, pre-Hispanic, and African beliefs (Hernández and Juárez, 2003). A salient example of this cultural syncretism is the devotion to the *Virgen de Guadalupe* that represents the reconciliation between the two worlds, two traditions, and two cultures under the pre-Hispanic and Catholic religions.

Lately, Mexico, like other countries in Latin America, changed from a Catholic society to a pluralistic one. Its most vivid example is the explosive growth of the Protestant population from 0.4% in 1900 to 5.2% in 2002. Along these lines, Gross (2003) suggested that the religious change has had considerable social, legal, economic, political, and technological implications. Protestantism, for instance, improved modernization and democratization, ideological pluralism, and male-female egalitarianism mainly among the poor rural and native communities. The International Religious Freedom Report (2008) estimated that 45,000 Mexican Jews live in Mexico City, largely employed in businesses. Islam is also practiced mostly by Arabic immigrants, along with a small number of natives from Chiapas.

Uruguay

A great majority of Uruguayans are Catholic despite it being considered as having the most secularized individuals in Latin America. During the Spanish Imperialist era, its peripheral location and isolation from the centers of power explains the minor role of the Roman Catholic Church in building up the nation (Stewart-Gambino, 1989). In addition, a small indigenous population and a high level of difficulty in evangelism further reduced the influence of ecclesiastic

authorities. By the nineteenth century, the Roman Catholic Church was forced to confront the propagation of liberal and anticlerical ideas that challenged, along with secular laws, this already diminished social authority. As a result, at the beginning of the twentieth century, the Uruguayan institutions reflected the complete separation of Catholic Church and state, and religious freedom was guaranteed for all.

The progressive influence of the Roman Catholic Church manifested in the Uruguayan culture a century after the country's origin. By 1837, civil marriage had already been established, in 1861, the state had taken control of the cemeteries, and by 1917, divorce was completely legitimized and accepted (Barrett et al., 2001). In 1960, liberation theology and the development of social encyclicals gave rise to a leftist stream of the Roman Catholic Church, which deeply and radically polarized the population. The developing social conscience initiated a new era for Catholicism that culminated in the creation of political parties with a leftist orientation. Currently, regular church attendance is largely among members of the upper class, while middle and lower classes show unpredictable attendance. Although the teaching of religion is prohibited in public schools, private Catholic schools are still available for those who can afford them.

Protestants, Jews, and Muslims have progressively settled through the migratory waves from Europe and the Middle East (Stoll, 1983). Protestants are the most important group in terms of population, yet still have not developed as in other parts of the region. While in the rest of Latin America, Protestantism grown as much as 500% since the mid-twentieth century, it has grown only 60% in Uruguay. Jews represent only a small fraction of the population, with most living in Montevideo. Their numbers have decreased to 0.3% of the population owing to emigration. Muslims represent less than 0.1% of the population and are located on the Brazilian border attracted by the trade opportunities (Instituto Nacional de Estadísticas, 2006).

3. The Empirical Model

Our analysis of the impact of religion is based on economic, political, and institutional variables. The response variable for modeling the effect of religion on economic growth is defined in two ways: (1) yearly changes in the country's aggregate GDP evaluated at world prices and (2) total factor productivity measures to account for differences in both the levels and growth rates across countries. Following Noland (2005), the total productivity measure is given by the ratio of an index of aggregate output to an index of aggregate input based on assumptions about data-collection methodologies and the underlying production function. The basic model that guides our empirical work on religion is:

$$Y_{ij} = \beta_0 + \beta_{1ij} \text{GDP} + \beta_{2ij} \text{SCH} + \beta_{3ij} \text{PRI/PUB} + \beta_{4ij} \text{TROP} + \beta_{5ij} \text{PRCL} \\ + \beta_{6ij} \text{CP} + \beta_{7ij} \text{REL} + \varepsilon_{ij}$$

where Y_{ij} represents either yearly changes in per-capita GDP evaluated at world prices (ΔGDP) or total factor productivity ratios (TFP). The predictor variables are

per-capita GDP (GDP), average years of schooling (SCH), the private/public sector ratio (PRI/PUB), trade openness (TROP), a political rights and civil liberties index (PRCL), a corruption perception index (CP), an assortment of religion affiliations (REL), and an error term (ε_{ij}). The subscript i indexes years while the subscript j indexes countries. The model permits econometric inference concerning how the distribution of religion is associated with economic performance.

4. Data Description

All variables were adjusted by the population size to capture differential growth rates between large and small economies and to prevent the potential problem of heteroscedasticity. The statistical information based on the country was drawn from a variety of sources described below. The model was estimated for the seven Latin American countries for the periods for which the data were available.

We hypothesize that a larger degree of religiosity becomes a determinant of the magnitude of growth experienced by a country. To examine this, the presence of religion is captured in this model by adding a variable that measures the relative distribution of Catholics, Protestants, Jews, and Muslims in any given country. While Protestants comprises several groups, such as Baptists, Evangelicals, Methodists, Pentecostals, and Presbyterians, owing to the lack of disaggregated information, all these denominations were combined into a single category. The data on religion were gathered from various sources. The *World Value Survey* and the *International Social Survey Program Series* provided the most meaningful data.

Most macroeconomic indicators, such as per capita GDP, the private/public sector ratio, and trade openness, were retrieved from the Inter American Development Bank. Data on schooling years and schooling quality were obtained from the World Bank's database. Missing data were filled in using information taken from each country's Central Banks and other national statistics agencies.

The rationale for using the same set of covariates to predict both changes in GDP and TFP was the lack of convincing arguments for differences across the Latin American countries. Other potentially relevant variables listed in the literature on religion, such as geographical yardsticks or urbanization rates were also tested, but these yielded inconclusive results and were, therefore, left out of the analysis.

Changes in GDP and total factor productivity ratios have been used as indicators of economic prosperity. An increasing indicator would imply that households have more income available to increase their consumption and businesses will respond by expanding existing facilities or establishing new ones to satisfy growing demand. If consumption and commercial expansion are consistent with religious practice, this indicates a positive relationship between economic growth and popularity of religions. However, engaging in consumption and production carries opportunity costs in terms of time spent toward observing religious practice. Conversely, a negative growth rate could signal macroeconomic instability and market uncertainties, and economic distress could either drive greater numbers toward or else distract current practitioners away from religious activities.

The private/public sector ratio variable is included to capture the impact of government involvement in the economy. It is expected that a greater state presence would diminish competitiveness in the religious market, as both the incentives for joining a particular religious congregation and the quality of religious goods being offered by the latter would clearly be altered.

Openness to international trade represents another relevant covariate. The rationale for its inclusion is that it is a proxy for market entry restrictions to certain interest groups. It is defined by the value share of total exports and imports over GDP. Countries that are more open to international trade are expected to experience greater rates of economic growth.

An index of political rights and civil liberties is included to measure the extent by which factors such as turmoil, equity restrictions, local operations restrictions, taxation discrimination, repatriation restrictions, and exchange controls interact with religious beliefs. Dominant religions may be better positioned than others to influence the role of institutions in a way that business practices would ultimately affect economic performance. The index is published by *The International Country Risk Guide* by the *Political Risk Services Group*, which equally weighs the factors mentioned earlier.

A corruption perception index has also been used under the assumption that a strong faith promotes the kind of citizenship that discourages dishonesty. The index was obtained from *Transparency International* and measures the different forms of corruption among bureaucrats and politicians. It extracts information out of 16 surveys from 8 independent institutions to capture the inherent subjectivity of different forms of national corruption across different countries. This index has been inversely rescaled to facilitate interpretation of results. The rescaled index is expected to be negatively related to both response variables.

5. Empirical Results

The regression results for Δ GDP and TFP are shown in Tables 1 and 2, respectively. The estimates in these tables were obtained after simultaneity between the religion distribution and economic growth was checked using two-stage least squares. The set of covariates used are the same in both the cases, based on their relevance and exogeneity, to test the overall significance of the models using the standard F -statistic. Conventional macroeconomic and development variables, such as inflation, fiscal deficit, urbanization, and life expectancy rates, were all found to be correlated with the included regressors. Robustness checks were also performed by repeating the Δ GDP and TFP estimations without the shares for minor denominations such as Judaism and Muslim. The results obtained showed marginally lower statistical significance and lesser explanatory power but, more worrisome, some bizarre changes in signs. These are expected outcomes when facing problems of omitted variables.

The estimates for Δ GDP and TFP presented a remarkable consistency for Latin America as a whole and for each individual country. However, TFP showed a larger number of parameters becoming more robust and statistically significant than Δ GDP.

Table 1. Fitted Regression Model Estimates for Response Variable Δ GDP

	All	Argentina	Brazil	Chile	Colombia	Costa Rica	Mexico	Uruguay
Constant	0.442 (1.42)	0.371 (1.21)	-0.690 (-1.24)	-0.442 (-0.97)	0.519 (1.07)	-0.625 (-0.62)	0.662 (0.94)	0.558** (1.92)
Per-capita GDP	0.0023 (1.77)	0.0012 (1.71)	0.0033* (1.78)	0.0022** (2.03)	0.0027* (1.90)	0.0029 (1.70)	0.0061 (1.51)	0.0058 (1.72)
Schooling	0.179 (1.71)	0.161 (1.72)	0.202 (1.69)	0.224* (1.80)	0.157* (1.88)	0.180 (1.65)	0.089 (1.75)	0.231** (2.02)
Private/Public Sector Ratio	-0.025 (-1.75)	-0.031 (-1.48)	-0.056* (-1.81)	-0.033** (-1.93)	-0.072 (-1.45)	-0.053 (-1.23)	-0.098 (-1.74)	-0.022 (-1.44)
Trade Openness	0.049 (1.61)	0.012 (1.60)	0.097 (1.72)	0.123** (2.01)	0.078* (1.78)	0.023** (2.00)	0.099* (1.88)	0.009 (1.62)
Political Rights and Civil Liberties Index	0.268* (1.86)	0.156 (1.68)	0.231 (1.75)	0.444** (1.99)	0.399 (1.52)	0.226** (2.03)	0.321 (1.53)	0.246** (1.98)
Corruption Perception Index	-0.178* (-1.86)	-0.288** (-2.05)	-0.345** (-2.19)	-0.222 (-1.33)	-0.231** (-2.04)	-0.171* (-1.82)	-0.322** (-2.05)	-0.219** (-2.02)
Catholic Share	0.046* (1.83)	0.051* (1.80)	0.047** (1.94)	0.061* (1.78)	0.057*** (2.38)	0.070** (2.00)	0.044*** (2.43)	0.013 (1.61)
Protestant Share	0.023 (1.00)	0.021 (1.12)	0.067 (1.08)	0.039 (1.69)	0.012 (1.08)	0.021 (1.68)	0.034 (0.85)	0.027 (0.87)
Judaism Share	0.0017 (0.72)	0.0027* (1.73)	0.00011 (0.70)	0.0020 (0.52)	0.0016 (0.28)	0.0009 (0.11)	0.0003 (0.19)	0.0022 (0.21)
Islam Share	0.0014 (0.87)	0.0015 (0.45)	0.0014* (1.78)	0.0016 (0.50)	0.0010 (0.21)	0.0007 (0.28)	0.0002 (0.23)	0.0038 (0.12)
R² adjusted	0.296	0.255	0.262	0.319	0.301	0.226	0.301	0.288
F-statistics	2.22*	1.75	2.22**	2.89***	2.97***	2.61**	2.01**	1.66
Number of observations	50	42	45	48	44	47	50	47

Notes: ρ -values in parentheses are based on the Cook-Weisberg test for heteroscedasticity. ***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

The constant term captures either the non-Catholic religiosity or simply the apathy and disenchantment shown to commit to any religion. The rank denominations omitted from the regressions are known for the strict behavioral standards of their members and have been broadly identified as Mormonism,

Seventh-Day Adventism, Jehovah's Witnesses, and Atheism. These categorizations, along with other cult expressions, have little weight in terms of population size. Only the constant term for Uruguay was statistically significance at the 1% level in both regressions. It is interesting to note mixed signs for the constant across different countries, despite their non-significance.

Table 2. Fitted Regression Model Estimates for Response Variable TFP

	All	Argentina	Brazil	Chile	Colombia	Costa Rica	Mexico	Uruguay
Constant	0.555 (1.42)	0.402 (1.34)	-0.678 (-1.37)	-0.478 (-1.20)	0.790 (1.00)	-0.688 (-0.78)	0.980 (1.16)	0.621** (1.90)
Per-capita GDP	0.0041* (1.88)	0.0027* (1.89)	0.0028** (1.96)	0.0037*** (2.40)	0.0031** (2.18)	0.0044** (1.97)	0.0052 (1.54)	0.0050* (1.72)
Schooling	0.193* (1.91)	0.178* (1.84)	0.205* (1.91)	0.282** (2.05)	0.187* (1.92)	0.231** (1.97)	0.108* (1.86)	0.266** (2.13)
Private/Public Sector Ratio	-0.030* (-1.82)	-0.038 (-1.59)	-0.077* (-1.89)	-0.025*** (-2.37)	-0.066 (-1.67)	-0.063 (-1.57)	-0.101* (-1.85)	-0.035 (-1.43)
Trade Openness	0.055* (1.89)	0.009 (1.62)	0.109* (1.85)	0.140** (2.07)	0.111* (1.87)	0.067** (2.03)	0.109** (1.91)	0.012 (1.77)
Political Rights and Civil Liberties Index	0.221** (1.99)	0.189* (1.79)	0.244* (1.82)	0.321** (2.23)	0.390 (1.63)	0.234** (2.02)	0.333 (1.64)	0.201* (1.93)
Corruption Perception Index	-0.189** (-1.91)	-0.272** (-2.07)	-0.303** (-2.26)	-0.184** (-1.96)	-0.277** (-2.06)	-0.164 (-1.93)	-0.353** (-2.09)	-0.202** (-2.19)
Catholic Share	0.050* (1.88)	0.069** (2.07)	0.068** (2.10)	0.067** (1.97)	0.087*** (2.45)	0.064** (2.14)	0.033*** (2.51)	0.022 (1.73)
Protestant Share	0.035 (1.03)	0.033 (1.28)	0.048 (1.13)	0.036** (1.76)	0.014 (1.19)	0.023** (1.71)	0.036 (1.00)	0.030 (0.89)
Judaism Share	0.0014 (0.73)	0.0039* (1.79)	0.0028 (0.72)	0.0024 (0.58)	0.0022 (0.33)	0.0009 (0.23)	0.0009 (0.26)	0.0023 (0.33)
Islam Share	0.0019 (0.88)	0.0021 (0.46)	0.0017* (1.81)	0.0020 (0.57)	0.0017 (0.27)	0.0008 (0.30)	0.0003 (0.31)	0.0040 (0.18)
R² adjusted	0.300	0.278	0.287	0.333	0.301	0.321	0.321	0.316**
F-statistic	2.29**	1.93*	2.23**	3.02***	3.38***	3.27***	2.54**	1.42
Number of observations	50	42	45	48	44	47	50	47

Notes: ρ -values in parentheses are based on the Cook-Weisberg test for heteroscedasticity. ***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

The per-capita GDP used as a proxy for the level of economic development was positive, although not always significant, in the Δ GDP regression and

significant in all TFP regressions except in Mexico. Accordingly, the relative modernization and progressive secularism shown by some Latin American countries have not yet been translated into a demise of religion.

Years of schooling have been observed to exert a positive impact on both measures of economic growth, particularly in the cases of Chile, Colombia, and Uruguay. These results are consistent with those obtained by Glaeser and Sacerdote (2002), as the role taken up by almost every religious institution is observed to increase both the opportunities to develop resource development skills and the depth at which they acquire them. In turn, parishioners are found to reinforce their religious beliefs and expand social connections.

The private/public sector ratio variable under the Δ GDP regression only showed Chile to have statistical significance at the 5% level. However, these estimates became significant in the TFP regression for Latin America and individually for Brazil, Chile, and Mexico.

The trade openness variable was consistently positive in both regressions although not always statistically significant. These results confirm the findings from Stulz and Williamsons (2001) given the importance of Catholicism. It is worth mentioning that the statistical significance was observed for Brazil, Chile, Colombia, Costa Rica, and Mexico, consistent with the magnitudes of their trade operations and outward-looking trade policies.

The political rights and civil liberties variable was always positive in both the regressions, but was only statistically significant for Brazil, Chile, Costa Rica, and Uruguay (and for Latin America as a whole). It appears that democratic and pluralistic societies allow religion to flourish rather than counteract a secularization trend. The corruption perception index was found to exert a significantly negative influence on growth across different countries under both the Δ GDP and TFP regressions. As expected, the magnitude of the coefficients was higher for those countries with well-known high levels of corruption highlighted in the economic literature. These results greatly contradict the moral fundamentals for economic activities such as trust and honesty embedded in most common religious beliefs.

Consistent with its longstanding historical tradition from colonial times to the present, Catholicism is observed to exert a dominant influence on every country examined, except Uruguay, over the other religions analyzed. It has been statistically significant at all conventional levels, reaching the highest for Mexico and Colombia at the 1% level. Protestantism is less prevalent and just shows its importance in Chile and Costa Rica at the 5% level. Lastly, the influence of non-Christian religions, such as Judaism and Islam, on both yardsticks of economic growth is observed to be negligible, with some marginal statistical significance at the 10% level in Argentina and Brazil.

6. Conclusion

Religion does play a role in the long-term economic growth of capitalistic societies by altering the way material wealth is viewed as a sign of spiritual growth.

Latin America has slowly expanded its religious pluralism to accept beliefs that change work ethics. The distribution of religion and economic performance are observed to be related in the countries examined. Pooled and individual country regressions confirm the existence of such a relationship. The sign and magnitude of the coefficients observed consistently in this study rejected the null hypothesis of no association (we informally interpret associations as causal). Catholicism showed a strong positive relationship with economic performance in all Latin American countries except Uruguay where Protestantism prevails. Other specific religions are observed to exert a statistically negligible influence on the pattern of economic growth with the mild exceptions of Judaism in Argentina and Islam in Brazil. Future research needs to further disaggregate broad religious affiliations and cultural variables for Latin America to address, for instance, how the intensity of religious activities, measured as the type of beliefs and church attendance, influence certain economic consequences.

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