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**Religiosity:  
A comparison between Latin Europe and Latin America**

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**Resumen**

Se presenta una breve discusión sobre el comportamiento religioso desde una perspectiva microeconómica, teniendo en cuenta las decisiones individuales sobre asistencia al templo religioso y su frecuencia, en algunos países americanos y europeos de origen latino. Con este objetivo, se analizan los vínculos entre el grado de religiosidad de los individuos y varias variables socioeconómicas. Se confirmó que los uruguayos son los menos religiosos. Adicionalmente, se encontró que la actividad religiosa es más intensa para las mujeres y las personas de edad avanzada, y el efecto del nivel educativo es ambiguo. Por último, se encontró que las personas más ricas son más religiosas, pero los países con mayor ingreso per cápita son menos religiosos.

**Palabras clave:** actividad religiosa, asistencia al templo, religión y variables socioeconómicas.

**Abstract**

We present a brief discussion about religious behavior from a microeconomic perspective considering individual decisions about church attendance and its frequency in some Latin European and American countries. With this aim, we analyze the links between individuals' religiosity and several socioeconomic variables. We confirmed that Uruguayans are the least religious. We also found that religious activity is more intense for women and older people, and the education level has an ambiguous effect on the intensity of religious activity. In addition, we find that richer people are more religious, but countries with higher income per capita are less religious.

**Keywords:** church attendance, religious activity, religion and socioeconomic variables.

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## **1. Why?**

We will concentrate on modeling individuals' religiosity. Nevertheless, the international evidence on the economic effects of religion is quite vast and interesting. There are numerous studies explaining the effects of religion on different social behavior, such as crime, alcohol and drugs abuse, physical and mental health, corruption, allocation of time, school attendance, labor activity, suicide, satisfaction with life, marriage, fertility and divorce.

Religious activity has been traditionally considered by social sciences as a non-rational behavior, anticipating that religions would disappear with the progress of science and the increase in the levels of formal education among populations (Iannaccone 1998 and Finke et al 1996). However, the empirical evidence strongly contradicts this conclusion. The information available shows the continuity of religious activity all around the world.

## **2. What can be found in “economic writings”?**

Analyzing the economic consequences of religion, Weber concluded that the Protestant Reform impelled a mental revolution which made modern capitalism possible. Finke et al (1996) indicates that this hypothesis of the “Protestant Ethic” does not have empirical support.

In USA, Iannaccone (1998) among others, analyze the effects of several socioeconomic variables on religiosity. The main findings are: i) Family income have a small effect on church attendance but a great impact on donations to churches. ii) Education has a positive effect on church attendance, which can be explained by the fact that education increases social networks in general. iii) Women have higher rates of church attendance than men, which would lead us to think that they are more religious than men. v) Age predicts religiosity

levels: older people go to church more often, especially over age 60 when the opportunity cost is lower and the "salvation" motive is dominant.

In Spain, Brañas Garza and Neuman (2003) find that most men and women believe in God. However, less than half of men do not believe in life after death (41.7%), heaven (37.1%), hell and miracles (33.4%). These figures are in all cases higher for women: 55.1%, 53.6% and 48.8%, respectively.

Musick (1996) finds that the effect of religion on subjective health status is important for all those who undergo physical problems. Private religious activities (such as praying and reading sacred texts) have positive effects on subjective health status because religion is a source of comfort: it provides a sense of control and hope. Public religious activities (such as church attendance) also have a positive impact. This is attributed to the integrating aspects of religious activity in general. In this sense, research has shown that social integration has a positive effect on an individual's health status. Social integration provides instruments or resources to avoid diseases or to recover more quickly once a disease is contracted. In addition, religious networks, like most social networks, provide social support for their members, reducing stress levels. Also, social integration stimulates individuals to actually use available health care facilities and to follow the indications given by health professionals. Finally, religious involvement often keeps individuals from risky behavior that would negatively affect their health status.

Many studies analyze the effect of religion on marriage stability. Lehrer and Chiswick (1993) study the religious composition of marriages as a determinant of couples' stability. They find that, except for Mormons and those who do not have religion, stability is similar for all intra-religious unions. Inter-religious marriages have much higher rates of dissolution than intra-religious unions. Religions that share similar beliefs and are tolerant towards other religious practices lessen this destabilizing effect.

Studies on women labor supply confirm that religiosity affects women's time allocation. Heineck (2002) finds that women for whom religion is very important tend to work less than women with weaker convictions. Also, a husband with strong religious convictions negatively affects the wife's labor supply.

In addition, inter-religious marriages affect women's incentives to invest in different forms of human capital and therefore affect their labor supply and the number of children they have. Since these unions are less stable, women have incentives to make low investments in children and to concentrate their efforts on specific labor market investments, which will be profitable in case of divorce (Becker et al, 1977, Lehrer, 1996).

We focus only on the individual decision about church attendance and its frequency.

### **3. The origins**

We can find the first elements of the economics of religion in the well-known masterpiece written by Adam Smith "The Wealth of Nations", and more extensively in "The Theory of Moral Sentiments". According to Smith, one of the most significant economic functions of religion is to provide incentives to follow a strict moral code that serves as a support for civil society. He explained that the concept of God works as a mechanism that makes believers obey norms and mould their conduct, complementing the efforts of public authorities and other incentives that individuals have to control their own conduct.

In Smith's view, the production of religion is similar to the production of any other commodity, market forces operate in churches like they do in firms and

religion benefits from competition. He claimed that costs and benefits of religious practice, like any other observable behavior, can be identified and measured. Smith tried to explain why rational selfish individuals participate in religious activities, basing his explanation on the value of reputation as social capital. In this sense, religion gives information about the moral values of the members of a group, diminishing risk in transactions.

#### **4. Two Hundred Years Later...**

The idea that religious behavior is motivated by a rational choice was first modeled by Azzi and Ehrenberg in 1975. According to this model, there are three reasons for dedicating time to religious activities: "salvation motive" (is an investment made today in order to obtain expected benefits in the afterlife); "consumption motive" (individuals obtain satisfaction from their religious practices due to their inherent religious beliefs); and the "social pressures motive" (participation in religious activities can increase the chances of success in different social activities).

Considering the "salvation motive", we can expect to find a positive correlation between age and time dedicated to religious activities. Concentrating investments in the last years of life, individuals minimize the investments' costs since they are closer to the moment they expect to obtain the benefits associated with these investments.

The "social pressure motive" reflects utilitarian behavior and offers an explanation for public religious behavior, like church attendance, but it does not explain private acts of religion such as praying, where only the "salvation motive" is relevant.

Azzi and Erhenberg (1975) formalize religious activity using a household production model of attendance and contribution to church, given religious

beliefs. These ideas can be framed into the analysis of time allocation of household's members among several market and non-market activities. Individuals allocate resources among religious activities and secular commodities in order to maximize their utility through time, which depends on consumption in every period throughout life and consumption expected in the afterlife. These authors point out that consumption in the afterlife is the main cause for religious involvement.

The main conclusions are: i) if the husband's market wage is greater than the wife's wage in any period, the wife will dedicate more time to religious activities than the husband; ii) the number of hours allocated to religious activities will increase with age.

From these basic ideas and the literature, we expect to find the following facts:

First, we expect to find that women dedicate more time to religious activities than men. Given that religious activities are time-intensive and the opportunity cost of time is lower for women than for men, since both rate of participation in the labor market and wage are lower for the former.

In the same way, time dedicated to religious activities would increase with age, since individuals would find it better to concentrate investments in the last stages of their lives when they are closer to the moment they would receive the expected benefits.

We also expect to find a positive relation between religion and marital status, the duration of marriage and the religiousness of the spouse as well. Religion imposes certain moral rules, such as getting married and remaining married. Also, spouses who profess the same religion could have chosen each other in order to avoid potential conflicts on moral values, thus diminishing the probability of dissolution of the marriage.

Similarly, the number of children would increase the time dedicated to religious activity as it would be a way to inculcate certain values into new generations.

Also, we will test the effect of education on religious behavior since the sign of this effect is ambiguous in the literature. On the one hand, we expect to find a negative correlation between education and religion since the number of years of schooling usually increases the opportunity cost of time. On the other hand, better educated people would participate in group activities more often, increasing their social capital.

## **5. What do people "confess"?**

We use the information from the survey of "Citizenship" carried out by the International Social Survey Network members. We characterize the religiosity degree of individuals using the following question:

*How often do you attend religious services?*

1) Several times a week; 2) Once a week; 3) Two or three times a month; 4) Once a month; 5) Several times a year; 6) Once a year; 7) With less frequency; 8) Never; 9) Do not know; 10) Do not answer.

We create a religiosity variable taking values from 1 to 4 recoding the former values: 7 or 8 equal 1, 5 or 6 equal 2, 3 or 4 equal 3 and 1 or 2 equal 4.

We must keep in mind that this variable does not represent the total time dedicated to religious activities since it ignores private religious activities, as praying, and other religious activities which take place outside the church, as voluntary work in religious organizations, etc.

The surveys also include information about different personal characteristics as age, education, marital status, etc.



In Table 1 we explain the main independent variables used.

[Insert Table 1]

## **6. “Revelations”**

In order to test the hypotheses, we estimate religiosity equations. The dependent variable is an ordinal variable designed to represent not only if the individuals are religious or not but also how religious people are, by checking how often they attend their church. The independent variable takes values from 1 to 4, 4 means that the individual attends church at least once a week, the other values represent less intense religious activity. We used an ordered logit model in order to estimate the relation between this ordinal dependent variable and several socioeconomic variables. It is worth noticing that the dependent variable does not measure with exactitude individuals’ religious activities, since it only captures some public religious activities.

We estimate four different models: two including all countries (Spain, Portugal, Mexico, Venezuela, Chile and Uruguay), one of them with country fixed effects (Uruguay omitted) and the other including some countries characteristics (income and language); one only for Latin European countries and one only for Latin American countries.

We present estimations in Table 2 (models) and Table 3 (marginal effects).

[Insert Table 2 and Table 3]

There are significant differences in individuals’ religiosity levels across countries. However, Catholics are the main denomination.

Our main findings are:

**Sex:** We find that in all cases the sex variable (equal one if the respondent is a woman) is significant and positive. This result confirms the theoretical hypothesis and it agrees with the international empirical evidence: women are more religious than men.

**Age:** The coefficient for age is positive and significant in all four models. Thus, people become more religious as they become older. This finding goes hand in hand with the theoretical hypothesis.

**Education:** As we have already indicated, the impact of years of education on religiosity is ambiguous. In our analysis, we omit the dummy variable corresponding to primary school, and we find that people with other levels of schooling are less religious. Nevertheless, there are not statistical differences between the religiosity degree of people with primary education and university.

**Marital Status:** Those who are married or widowed tend to be more religious than single people.

**Children:** In all cases, the presence of just one child in the family implies a lower religiosity level than families with two children or not children at all.

**Income:** The variable *topbot* shows that richer people are more religious. However, countries with higher income per capita are less religious.

**Countries and regions:** We confirmed that Uruguay is the least religious in Latin America (Rossi and Rossi, 2004) and also the least religious of all the countries considered. Spain is less religious than Portugal and, in general, Portuguese speakers are more religious than Spanish speakers.

Considering the marginal effects, in model 1, when we consider control for country using fixed effects, we find that being a woman and widowed have the most important positive impact on religiosity (11 and 10 percent points, respectively). Meanwhile, living in a big city has the biggest negative effect (8 percent points).

In model 2, we find that income per capita and language have the most important marginal effects. While income reduces in 13 percent points the probability to attend church one or more times a week, being a Portuguese speaker increases it in 17 percent points.

## **7. "Final Judgment"**

We attempt to measure and explain, from an economic perspective, the religious behavior in some Latin American and Latin European countries.

We confirmed that Uruguayans are the least religious in Latin America and of all the countries considered, that religious activity is more intense for women and older people, and that education level has an ambiguous effect. In addition, Portuguese speakers are more religious than Spanish speakers.

Another interesting result is about the relation between religiosity and income. Personal income has a positive impact on religious activity, but countries with higher income per capita are less religious.

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## TABLES

Table 1. Description of independent variables

Variable	Values	Mean
Sex	1 if respondent is a woman	0.556
Age	Age of the respondent	43.849
Age2	Age square	2236.755
Educ2	1 if respondent is above lowest qualification	0.226
Educ3	1 if respondent has completed higher secondary education	0.157
Educ4	1 if respondent is above higher secondary level	0.080
Educ5	1 if respondent has a university degree	0.087
Married	1 if married or living as married	0.490
Widowed	1 if widowed	0.091
Onechild	1 if respondent has one child	0.089
Twochildren	1 if respondent has two children	0.080
More4persons	1 if respondent lives in a household that live more that 4 persons	0.173
Divorced	1 if divorced	0.033
Separate	1 if separate	0.039
Employedft	1 if respondent is employed full time	0.399
Employedpt	1 if respondent is employed part time	0.065
Employedlpt	1 if respondent is employed less that part time	0.028
Unemployed	1 if unemployed	0.005
Topbot	Income status (self-placement 10 pt scale)	4.534
Bigcity	1 if respondent lives in a big city	0.411
Suburb	1 if respondent lives in a suburb	0.044
Spain	1 if respondent lives in Spain	0.195
Portugal	1 if respondent lives in Portugal	0.144
Brazil	1 if respondent lives in Brazil	0.175
Chile	1 if respondent lives in Chile	0.143
Mexico	1 if respondent lives in Mexico	0.113
Venezuela	1 if respondent lives in Venezuela	0.118
Uruguay	1 if respondent lives in Uruguay	0.110
Language	1 if the respondent speaks portuguese	9.346
Incomepercap	Log income per capita	0.068

**Table 2. Results**

	All 1	All 2	Spain & Portugal	Latin American countries
Observations	9684	9684	3220	6464
Sex	0.354*** (0.026)	0.314*** (0.026)	0.377*** (0.049)	0.351*** (0.031)
Age	0.009* (0.004)	0.008* (0.004)	0.018* (0.009)	0.016*** (0.005)
Age2	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000* (0.000)
Educ2	-0.078** (0.035)	-0.149*** (0.034)	-0.186*** (0.065)	0.010 (0.042)
Educ3	-0.049 (0.039)	-0.134*** (0.038)	-0.208** (0.085)	0.022 (0.044)
Educ4	0.029 (0.048)	-0.134*** (0.047)	-0.024 (0.101)	0.042 (0.056)
Educ5	0.023 (0.046)	0.018 (0.046)	0.025 (0.096)	0.019 (0.053)
Married	0.178*** (0.034)	0.205*** (0.033)	0.064 (0.087)	0.193*** (0.037)
Widowed	0.296*** (0.063)	0.349*** (0.060)	0.228* (0.128)	0.270*** (0.071)
Onechild	-0.145*** (0.046)	-0.188*** (0.045)	-0.083 (0.081)	-0.118** (0.057)
Twochildren	0.008 (0.049)	-0.017 (0.047)	0.127 (0.095)	-0.024 (0.057)
More4persons	-0.030 (0.036)	-0.018 (0.034)	0.076 (0.077)	-0.062 (0.041)
Divorced	-0.014 (0.081)	-0.063 (0.077)	-0.232 (0.167)	0.040 (0.091)
Separated	-0.084 (0.065)	-0.065 (0.062)	-0.376** (0.182)	-0.036 (0.070)
Employedft	-0.105*** (0.030)	-0.141*** (0.029)	-0.132** (0.057)	-0.075** (0.035)
Employedpt	-0.018 (0.049)	-0.037 (0.049)	-0.030 (0.096)	-0.009 (0.058)
Employedlpt	-0.102 (0.076)	-0.216*** (0.073)	0.089 (0.158)	-0.128 (0.085)
Unemployed	-0.180 (0.190)	-0.049 (0.208)	-0.812** (0.391)	0.116 (0.189)
Topbot	0.024*** (0.008)	0.030*** (0.007)	0.050** (0.020)	0.020** (0.008)
Bigcity	-0.255*** (0.035)	-0.197*** (0.030)	-0.262*** (0.057)	-0.248*** (0.043)
Suburb	-0.049 (0.066)	-0.190*** (0.064)	0.099 (0.079)	-0.386*** (0.129)
Spain	0.325*** (0.051)		-0.463*** (0.058)	

**Table 2. Results – Continue**

	<b>All 1</b>	<b>All 2</b>	<b>Spain &amp; Portugal</b>	<b>Latin American countries</b>
Portugal	0.765*** (0.061)			
Brazil	1.388*** (0.056)			1.343*** (0.059)
Chile	0.379*** (0.057)			0.334*** (0.059)
Mexico	1.308*** (0.057)			1.254*** (0.058)
Venezuela	0.877*** (0.061)			0.822*** (0.063)
Incomepercap		-0.386*** (0.027)		
Language		0.492*** (0.034)		

Notes: Robust standard errors in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 3: Marginal Effects**

Variable	dy/dx	
	All 1	All 2
Predict outcome relig=4	0.257	0.268
Sex	0.113	0.103
Age	0.003	0.002
Age2	/*/	/*/
Educ2	-0.025	-0.048
Educ3	/*/	-0.043
Educ4	/*/	-0.042
Educ5	/*/	0.006
Married	0.057	0.068
Widowed	0.102	0.124
Onechild	-0.045	-0.059
Twochildren	/*/	/*/
More4person	/*/	/*/
Divorced	/*/	/*/
Separated	/*/	/*/
Employedft	-0.034	-0.046
Employedpt	/*/	/*/
Employedlpt	/*/	-0.067
Unemployment	/*/	/*/
Topbot	0.008	0.01
Bigcity	-0.081	-0.064
Suburb	/*/	-0.06
Incomepercap		-0.127
Language		0.169
Spain	0.111	
Portugal	0.278	
Brazil	0.504	
Chile	0.131	
Mexico	0.482	
Venezuela	0.323	

Note: /\*/ not significant