WHY IS THE NUMBER OF CATHOLIC PRIESTS DIMINISHING IN PORTUGAL? ANALYSIS OF THE PERIOD 1960-2002

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Abstract: This work aims at testing a large range of hypotheses that focus on the evidence of the diminishing number of catholic priests. The data are from the Portuguese reality observed between 1960 and 2002. These hypotheses are related to the recent socio-economic evolution verified in Portugal. As main findings, it is highlighted that the strongest long-term factor is the rate of fertility. Other relevant causes are the "fear of the future" in the youth and the descending number of other religious people. The economic growth (suggested by the real GDP per capita) is not characterized by a significant coefficient.
Key Words: Economic Growth; Religion; Cointegration
JEL Codes: C22, J13, Z12

1.Introduction

Year after year, the Vatican publishes the Statistical Yearbook of the Church, where we can easily confirm that the number of catholic priests has been decreasing for more than twenty years in most industrialized countries.

In Portugal, mainly in the last 25 years, the total number of catholic priests has been diminishing too. Why? Some hypotheses of answers that the Economics of Religion has been highlighting to a generalized space point the social transformation, the demographic evolution, the changes in the family structure, the "crisis of vocations" or the economic growth (accused by the secularization theory as the most important determinant).

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This paper aims at testing some of these most cited hypotheses (Section 2), using variables that can be statistically confirmed as responsible for the problem. These variables have been suggested by the referenced readings: the percentage of young Portuguese resident, the percentage of graduated Portuguese resident, the percentage of urban people, the percentage of self-confessed Portuguese Catholics, the Total Number of Religious people, the fertility rate, the ratio between the Total Female First Marriage and Total Female Divorce Rate, and the Gross National Product. For this purpose, the chosen methodology (Section 3) was the cointegration analysis, following Johansen (1991). It was my strongest motivation to find long-term relationships between the pointed variables and the dependent one: the Total Number of Catholic Priests, signalling the true influential ones and the degree (elasticity) of the achievable influences, as discussed in Section 4. Finally, Section 5 presents the Conclusions.
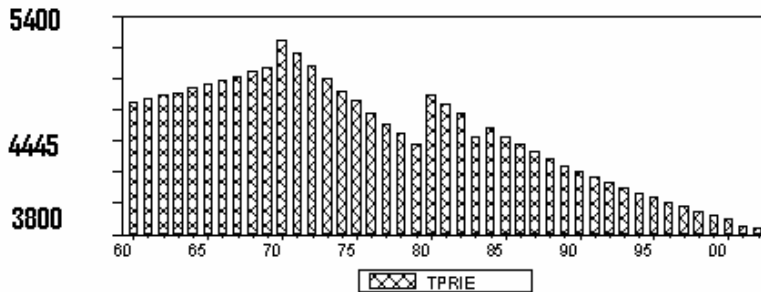
1.   The hypotheses

Nowadays, there is a large discussion about the most influential social movements that can be signalled as responsible for the diminishing number of catholic priests in most industrialized countries in the most recent years. For instances, in Australia, the review *OnLine Catholics* had promoted a recent number (edition 28), in which national statistics were discussed, mainly related to the reality of the catholic seminaries. Across the United States of American, there are a substantial number of dioceses that possess specific departments whose main objective is to yearly monitor the evolution of priests at each parish, considering the actual situation faced by the believers[1]. Azevedo (2003) provides a general framework on the current situation of the number of catholic priests.

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[1] See, for a detailed example, the Archdiocese of Detroit (http://www.aodonline.org/AODOnline/Together+In+Faith+12019/Charts+and+Graphs+14016/Archdiocesan+Priests+By+the+Numbers.htm).

The figure below intends to suggest the respective phenomenon observed in one of these countries, Portugal, for more than 40 years. In year 2004 (data published in 2005): 3936 including diocesans and religious http://www.catholic-hierarchy.org/country/sc1.html

Figure 1 – Total Number of Portuguese Catholic Priests 1960-2002

Source: Statistical Yearbook of the Church (various years)

As Figure 1 shows, since 1970 there is a diminishing trend affecting the Total Number of Portuguese Catholic Priests. Although a not very significant raise on the beginnings of the eighties is observed, the trend has not been inverted since that period. The main demographic reason behind this movement is associated with the gap between the number of yearly entrant priests and the number of dead priests in the same period (according to the most recent Portuguese report, related to 2005, the ratio is 1:2 – one entrant for two dead priests).

Although the demographic forces can explain the *natural* movement that is being focused, deep sociological and economic factors can be discussed as responsible for the seeming unattractiveness of catholic priesthood and the decreasing number of entrant priests.

After proceeding with a review of the concerning Literature, an eventual researcher will find an amplified range of variables that can be pointed as reasonably justifying the international distribution of the number of catholic priests. However, we can try to group these

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numerous hypotheses into a smaller number of compact sets. As a result of this exercise, four main hypotheses can be achieved from the cited references.

The Hypothesis 1 (H1) suggests that a responsible factor is the context of "crisis of religious vocations" – less religious, less priests *(Message of the 13th Synod of the Cistercian Order,* 2002). According to this purpose of explanation, an evolving eminent secular culture promotes a decreasing in practices of religiosity, which lowers the number of religious people, including priests. Thus, a potential explicative variable suggested by this hypothesis is the Number of other Religious People (brothers and nuns) in the evolving space (in this case, in Portugal).

The Hypothesis 2 (H2) purposes that a responsible determinant is the fear of a lifelong commitment – being a catholic priest (or just being married) has a high opportunity cost according to the youth (*Final Document of the Congress on Vocations to the Priesthood*, 1997). When there is an option for the catholic priesthood, a young man knows that he must face a series of social restrictions, including the impossibility of marriage for his entire life. According to some documents (the cited one is a simple example), the "crisis of the marriage" realized in many developed countries is just a reflex of that fear of the youth on being committed for a long time (it is supposed that a normal marriage promotes a long term co-habitation between two people in order to constitute a family). Consequently, it is expectable that there will be a strong correlation between some variables related to the youth preferences (like the rising of the number of divorces or the postponement of the marriage) and the diminishing number of newcomer priests. The variable that researchers have often chosen to test this hypothesis is the Ratio between the Total Female First Marriage rate and the Total Female Divorce rate, which has the advantage of relating two of the most relevant characteristics of these changing patterns: the decreasing number of first marriage in the youngest and the increasing number of divorced people.

The Hypothesis 3 (H3) implies that the regression of the fertility rate is a key factor – families with only one child (or at most, two kids) tend to prefer that the descendent opt for a secular professional career (*Message of the 13th Synod of the Cistercian Order,* 2002 and Sander, 1992). Besides this hypothesis supports further sociological implications, like the modifying familiar structure, it also carries the pointed implication of a long-term influence on the religious vocational option of the kids. Families with a small number of children usually prepare them to follow laic activities, namely related to the *status quo* of the parents. Conversely, families with a large number of children may induce a higher level of freedom in their vocational choices. Naturally, a suggested explicative variable would be the Total Fertility Rate.

Finally, the Hypothesis 4 (H4) is related to the idea that economic growth can be pointed as influential – more comfort and more private endowments depreciate the choice for the priesthood and reduce the wage differential between priests and a laic worker (Franco Infante, 1970). The increasing level of per capita welfare may promote strong substitution effects on the supply of individual labor, as the well-cited works of Anaya (1999) and Borjas (2005) refer. According to the secularization theory, cited for instance by Barro and McCleary (2003), the rising income per capita tends to promote a weakness of the vigour of the religious practices, eminently substituted by leisure activities. Alternatively, a young man may find less (social and economic) attractive to follow a religious vocation, when he has the possibility of being well succeeded on following a secular professional career. Consequently, combining these two arguments, we may find reasonability in the secularization hypothesis. To test it, I will recur to the variable of real per capita Gross National Product.

Table 2.1 suggests the variables (and their sources and expected signals) associated to the previous hypotheses.
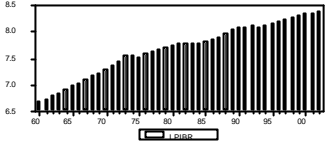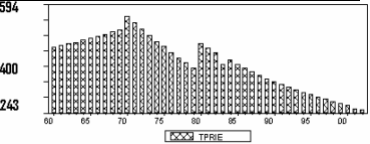
TABLE 2.1 – Hypotheses and Variables in the Model

Hypothesis	Variable	Source	Expected Effect
H1	Total Number of Religious in Portugal (Brothers and Nuns)	Statistical Yearbook of the Church (see note below)	+
H2	Ratio between Total Female First Marriage rate and Total Divorce Rate	Annuaire Demographique, Conseil de l'Europe, 2002 [1960-2002]	+
H3	Total Fertility Rate	Annuaire Demographique, Conseil de l'Europe, 2002 [1960-2002]	+
H4	Real GDP per capita	Pinheiro, 1997 [1960-1995]; GEE [1996-2002]; INE [1960-2002]	-
Dependent Variable	Total Number of Portuguese Catholic Priests	Statistical Yearbook of the Church (see note below)	1

Note: Although there were only data, from the Statistical Yearbook of the Church, for the years of 1950, 1960, 1970, 1980,1990, 1999, 2000, 2001 and 2002 in each diocese, there was a previous interpolation for the years between these dates recurring to a cubic conversion (EVIEWS package, 3.1). The resulted series (used prioritary in this work) reveal national values

The Table 2.2 introduces the designation associated to each variable and the respective temporal graphic.

TABLE 2.2 - Hypotheses and Variables in the Model (continuation)

Variable	Designation	Motivation	Graphic view (1960-2002)
Logarithm of the Total Number of Religious in Portugal (Brothers and Nuns)	LFREI	An increasing number of religious people (signalizing an effervescent catholic culture) promotes the appearance of more priests	
Logarithm of the Ratio between Total Female First Marriage rate and Total Divorce rate	CASDIV	This *proxy* has the main purpose of identifying the propension to a lifelong personal commitment (on the presupposition that the success of the marriage institution is a strong evidence of this justification)	
Logarithm of the Total Fertility Rate	LRFERT	This variable focuses on the deep demographic transition	

			operated in Portugal in the observed period.	
Logarithm of the Real GDP per capita	LPIBRPC		This variable is usually identified to measure the economic growth.	
Logarithm of the Total Number of Portuguese Catholic Priests	LTPRIE		The dependent variable of the model. The estimations of the logarithmized variables return the respective elasticities, with the traditional powerful (economic and social) interpretations.	

Observing other authors, like Barro and McCleary (2002), Mangeloja (2003) or Brown and Taylor (2003), I also included the percentage of young Portuguese residents, the percentage of graduated Portuguese residents, the percentage of urban people and the percentage of self-confessed Portuguese Catholics as independent variables for controlling the significance of the prior ones (suggested by the four nuclear hypotheses). But, after Krolzig and Hendry (2000) procedures, these last variables did not reveal significant coefficients

and, consequently, for avoiding possible misspecifications, they were omitted in the further estimation.

3. **Methodology and Findings**

The methodology followed Johansen (1991). It was my aim to test if there was a relationship between the number of Portuguese priests and the set of exogenous variables. The well-known methodology of the cointegration analysis was the preferred. According to this suggestion, I only remark that if there is a stable relationship among the variables, they must be cointegrated. Otherwise, if they are not cointegrated, then we can not infer a stable relationship among them and, consequently, the supported model structure is not valid. For more details, please see Hamilton (1994) or Hayashi (2000) as useful covering books.

The steps that characterize this methodology are nowadays straightforward. Firstly, the researcher has to analyse the stationarity of the series. According to the statistical values from the Augmented Dickey-Fuller test, all the (logs of the) variables of the Table 2.1 are I(1) – integrated of first order.

After these proceedings, the researcher has to test the null hypothesis of no cointegration relation among the logaritmized variables. If this hypothesis is rejected, then he has to test the null hypothesis of only one cointegration relation against two, and so on.

Johansen (1991) suggests on deriving the statistical values from the likelihood ratio. According to the Bayesian Information Criteria, the maximum length of the lags inserted in the regressions was 2. The Likelihood ratios test for the hypothesized number of cointegration equations favours the hypothesis of 1 cointegrating equation (according to other tests that are not here exhibited, it was allowed the presence of a linear deterministic trend affecting the interception). Alternatively, following Ericsson and MacKinnon (2002) and using a Error Correction Model, we also find cointegration at a significance level of 5%.

When the coefficients are normalized, from Johansen (1991) procedures, then the observed equation (3.1) results in the next form (the standard errors appear between parentheses):

Eq. 3.1:

$$LTPRIE \underset{(0,023)}{-0,119* LCASDIV} \underset{(0,006)}{-0,018* LCASDIV} \underset{(0,032)}{-0,160* LRFERT} \underset{(0,013)}{-0,005* LPIBRPC} - c = e_t$$

$e_t : error\_term$

$c : constnt$

As it can be inferred, all the estimated coefficients are statistically significant with a significance level of 1%, except the coefficient that is related with the GDP per capita (LPIBRPC), contrasting with the theory of secularisation hypothesis, cited by Barro and McCleary (2003).

As a suggestion of interpretation, we can purpose that the variables that increase (with a minus signal in the previous regression because of the process of normalization) the number of Portuguese priests are: the total number of other religious (LFREI), the rate of fertility (LRFERT) and the relative success of the rate of nuptiality (CASDIV). These findings are in accord with our primary expectations.

The most influential variable is the rate of fertility, whose percentual unit increase promotes a rise in the dependent variable of almost 0,16%. Particularly, this finding follows Barro and McCleary (2002) estimations.

4. **Discussion**

Synthesizing the findings, we can report that the declining number of Portuguese priests is mainly related to the diminishing values of the fertility rates. This hypothesis is justified in the observation that a larger number of children in each house allows a more diversified set of vocations avoiding the strong pressing that parents usually put on the eldest sons to follow a certain professional career.

Secondly, in Portugal, the "crisis of vocations" can also be responsible for the evolution of the number of catholic priests. Our results demonstrated that if there was a rise in the number of catholic religious (brothers and nuns) – mainly as a result of deep social changes promoting a more intense individual religious living - this fact could promote a larger number of priests.

Thirdly, we can confirm a certain context of "fear of the future" in the youth. Portuguese young people are avoiding matching relations for a long term (suggested by the declining of the nuptiality contrasting to the ascension of the number of divorces). Thus, being a catholic priest can also seem too adventurous or too compromising.

Finally, the economic growth (suggested by the evolution of real GDP per capita) seems not to influence the total number of priests. This (important) finding shows that the economic evolution carries a better quality of life, better commodities and certainly strong incentives to discuss traditional patterns. But, according to our results, it cannot be pointed like a convincing factor behind the diminishing number of priests – as suggested, the causes are structurally demographic and sociological, in Portugal.

5. Conclusion

This work focused on the decreasing number of catholic priests in Portugal, since 1970. Particularly, it aimed to test which variables could be statistically pointed as relevant to the denoted movement.

In Section 2, the test hypotheses were shown. These hypotheses were built after the necessary review of the socio-economic literature of the theme and they are specifically related to the context of "crisis of religious vocations", to the individual high opportunity cost due to the priesthood, to the changes in the familiar structure and to the economic growth.

In Section 3, the associated test proceedings are evidenced. The chosen methodology was the cointegration analysis, in order to

identify stable relations among the variables. We could identify one stable relationship among the dependent variable (the log of the total number of Portuguese catholic priests) and (the logs of) the total number of other religious people, the ratio between the Total Female First Marriage rate and the Total Female Divorce rate, and the rate of Fertility. The coefficient related to the economic growth (log of real GNP) is not characterized by significant values, implying that, in the Portuguese case, the implications of the secularization theory are not verified.

A brief discussion is synthesized in Section 4. It condensates the main findings, signalling that the responsible factors for the decreasing number of newcomer priests are more likely associated to deep social movements (focused on the familiar structure changes) than to the economic development of the country in particular. However, I do not deny that additional determinants can be pointed as responsible for the observed decreasing movement, especially in different countries. Therefore, a panel-data study can be challenged.

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