

## Exploring the Relationship between Religion and Production: Evidence from Protestantism and Agriculture

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### Abstract:

*The main object of the paper relies on examining the possible connection between religion and growth, the purpose of the survey not being a recent issue in economics. It seems that several papers have merely attempted to identify the fundamental aspect of the question. The topic made heated debate through the first theoretical advances of the classical economic school. However, it continued to make up the discussion of several recent surveys and academic researches, as an attempt to identify new evidence about the solid relationship between religion and economic growth.*

*The paper attempted to explore the essence of the relationship between religion and efficiency of production in agriculture. Thus, we carried out an empirical investigation to demonstrate the influence of religion on production, from an efficiency perspective. In other terms, the survey made up an illuminating attempt to find out if the religion could affect the production efficiency in agriculture. It also allowed us to account for the principal causes of the religion influence on production in overall, and especially on agriculture.*

*The empirical investigation conducted in this manuscript relied on estimating the impact of the Protestants on the agriculture production. The econometric model is a cross-sectional panel including the bulk of the European countries in 2000. The outcome of the empirical investigation has revealed the positive impact of Protestant on agriculture cross-sectional, more important and statistically significant compared with other religious groups of workers, from the efficiency perspective.*

**Key words:** growth, religion, agriculture, efficiency, Protestantism

## **1. Introduction:**

The solid relationship between religion and economic performance did not make up a recent debate but it often emerged to become a modern subject to discuss. The review of historical advances in economics showed that many doctrines attempted to explore the possible correlation connecting religion to economic growth. Since the classical examination, many other authors provided their proper explanation for the topic, which made up already the fundamental problem of several recent papers.

The analysis of the connection between economics and religion made up the prime problem debated in many papers and books. Owing to the significance of the topic, many authors carried out a series of empirical investigations in an attempt to illuminate the aspects of the mysterious relationship between religion and economic performance.

The emergence of the same question in recent surveys remains the result of the advent of several new approaches in econometrics. The contribution of recent studies, for the knowledge about the present topic, is valuable. They provided strong evidence to bear out or to reject the statements already raised in previous papers.

The bulk of authors interested by the issue of the pair “religion and economics”, attempted to explore the possible role of belief and morality as factors to conduct an effective work in production activities.

The monotheistic religions preconized sacred place for labor, and considered it as the highway to rise the wealth of the community. The major outcome of the present paper remains in exploring thoroughly the relationship tying the agricultural production to the efficient work of Protestants.

## **2. Literature review:**

The review of the economic literature about the connection between religion and economic growth revealed the raise of many statements in favor of positive relationship joining the two concepts.

In the present paper we put forward the various theoretical advances to elucidate the essence of the relationship between religion and economic performance by authors, as following:

### **2.1. Adam Smith:**

A. Smith, (2005) had thoroughly discussed the issue in his manuscript entitled: “An inquiry into the nature and causes of the wealth of nature”. The author was the first to pose the question of religious thought and economic growth. He developed also his own theory about the significance of the moral background on economic performance, through giving prime attention to the religion as producer of moral information that in return contributed in stimulating productivity of believers.

The author also investigated thoroughly the same issue in his book entitled “Theory of Moral Sentiments”, the major conclusion to imply from the theory of Smith relying on the significance of religion in public life. According to the author, the religion diversity in a country raises the competition between the different economic agents, driving to improvement in production.

Adam Smith raised the statement that moral structure has a pivotal role in motivating the person to exert more efforts at work, and in return, to improve the economic performance.

### **2.2. Max Weber:**

Weber (1904) attempted to find out the significant effect of religion on economic development, by exploring the effect of the Protestant ethic and the development of capitalist doctrine. The author underlined that Protestants gained rational economic

behavior from respecting their religious foundations. According to Weber, the religious beliefs of the Protestants tended to raise the economic performance through accumulating material wealth.

It seems obvious that the Protestant religion relies on attributing sacred value for working involvement. It considered the wealth creation as a godsend and it remains the direct result of the rational behavior that seems to be reinforced by the value of their religion in their current life.

According to Weber, the capitalism diffused in the world is not highly focused on Protestant ethics, but the following of such ethics is facilitating the spread of capitalist doctrine through implementing the rational behavior in the economic agents and creating competition among them.

### **2.3. Hanssmann (1984) and Millendorfer (2000):**

The authors consider that the Protestant ethics inserted in economic agents the devotion for working, which played a pivotal role in raising the efficiency of using the production factors. The effect arose obviously through the efficiency of the labor factor. Furthermore, given the appropriate planning in production activities, the authors assumed that the Protestant ethics contributed significantly to improving the economic outcome in overall.

The authors also stressed that religion could rise the economic development through inserting positive ethics in the economic actors, like honesty and sincerity. Therefore, it should contribute in reducing corruption and embedding good governance. Such notions are adequate for attracting foreign investment and stimulating domestic opportunities in business.

The authors presumed also that religion could lead to improve the health standard, through preventing gambling activities or alcohol drinking. The enhancement in health standards of the workers tends to increase the quality of working and in return, it raised the labor productivity in

overall.

#### **2.4. Barro and Mc Cleary (2002):**

In the analytical framework advanced in their survey, the authors presumed that religion is highly involved with economic growth, through affecting the consumers' activities and choices. Overall, they suppose that evolution and changes in consumption should definitely alter the market demand.

In their paper, Barro and Mc Cleary (2002) carried out an empirical investigation to gather new evidence about illustrating the nature of the relationship existing between religion and economic growth.

The authors conducted their empirical research relying on rigorous methodology, and in accordance with the recent improvements of econometrics. They found some significant findings that enabled them to raise an interesting statement. From the model constructed, it seems that economic performance depends more on "believing" than "belonging". In other terms, they inferred that religious belief tends to increase the economic growth, and thus, it consolidated the pivotal role of religion in modern economy.

### **3. The empirical investigation:**

The present paper attempted to explore the relationship between religion and economic performance, in accordance with the efficiency perspective. In other terms, the author carried out an empirical research to find out if the religion disparities affect the efficiency of production factors in the economic performance; the present paper considers the agriculture sector as an example.

#### **3.1. The efficiency concept:**

The efficiency notion relies on the optimized use of production factors to realize the best output. The extended review of the

economic literature asserts that several theoretical advances focus on finding out rigorous methodologies towards determining an obvious framework about reaching the efficiency.

The efficiency relies on summarizing the objective to produce with the best production method. It enabled us to presume that the efficiency concept attributed prime attention to the exploit of least inputs to manufacture the best output. In other terms, efficiency is focused on the notion of optimal use of resources to produce the best level with minimum costs. Examining the economic literature, it enabled us to denote that the efficiency topic remains focused on two major approaches:

#### **A. The cost approach:**

The main objective of the cost approach focuses on determining the proper function of costs related to the production of the firm or the sector, then it attempted to minimize that function for a given production level.

#### **B. The production approach:**

For the production approach, the principal aim of the methodology is based on assuming a specific production function as reference, and then, we attempt to maximize the level of output for given quantity of factors.

For the current paper, it is in line with the production approach to assess the efficiency of the agriculture production, in which the author distinguished among Catholic, Protestant and others to find out if there are some discrepancies.

### **3.2. Assumptions:**

To carry out the present empirical research, it stems the need to mention some important assumptions related to the empirical investigation:

- The author assumed that European countries kept in the panel of study of the present empirical investigation,

have the same agricultural production function.

- The author supposed that the proportion of religion in the laborer is in accordance with the proportion of religion in overall country.
- The author assumed that population of the countries included in the survey contains solely: Protestants, Catholics, Buddhists, non-religious people and other Christians.
- The author supposed that agricultural production is following the Cobb Douglas production function. Therefore, in the final equation of the estimation, we made the logarithm of the formula to render the model linear.

### **3.3. The empirical model:**

The empirical research conducted in this paper relies on estimating the effect of religious disparities on growth for a group of European countries.

In the present investigation, we adopted the method of cross-sectional panel on 2000, due to the stability of proportions of religious shares in these countries and the availability of data.

The methodology adopted relied on the production approach due to the nature of data, and to the nature of the variables used in the estimation.

#### **3.3.1. The model presentation and the sources of data:**

The present paper relied on carrying out an empirical research. In the pattern conducted, the dependent variable is the production value of agriculture as share from the GDP. The author considered that variable as best indicator of the production in agricultural sector.

$$\text{Log}(\text{value added of agriculture})_i = \text{Constant} + \alpha \text{Log}(\text{capital})_i + \beta \text{Log}(\text{arable land})_i + \gamma \text{Log}(\text{other Christians})_i + \delta \text{Log}(\text{Christians})_i + \theta \text{Log}(\text{Protestants})_i + \vartheta \text{Log}(\text{Buddhists})_i + \mu \text{Log}(\text{non religious})_i + \rho_i + \varepsilon_i$$

With:  $\alpha, \beta, \gamma, \delta, \theta, \vartheta$  and  $\mu$  are the coefficients that the author attempted to estimate in the pattern.

In the empirical model, we assume that

- $P_i$  makes up the inefficiency term compiled from estimating the relationship tying the religion discrepancy to the production of agriculture.
- $\varepsilon_i$  is the error term of the equation.

According to the nature of the model conducted in the current investigation, the author utilized a panel of explanatory variables:

- The capital factor used in agriculture: measured by the agricultural machinery.
- The land factor: the author used the variable “arable land” as share from the land area.
- For the labor factor: we used several types of labors focusing on the religion of the workers: share of Catholics, Protestants, Buddhists, others Christians and workers with no religion.

The study relied on a cross section estimation with the choice of the year 2000 as base. In the panel of the survey, we kept the following 17 countries: Austria, Belgium, Denmark, Finland, France, Greece, Iceland, Ireland, Italy, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, United Kingdom and Germany.

### **3.3.2. The source of data:**

In the empirical investigation, we used a panel of variables that we gathered from two major databases:

- The data about religion were collected from religion adherence data (2003), used by Robert Barro (2003).
- The data about production and its factors: the cross-sectional of agriculture, the arable land and the machinery used in agriculture were gathered from the World development indicators (2014).



### 3.3.3. The results:

The empirical research relies on examining the presence of discrepancies in the yield of workers focusing on the difference in their religion.

In the present investigation, we ended by identifying several patterns showing glaring discrepancies in the productivity of workers.

Applying the efficiency approach, we reached valuable outcome that we could summarize in Table 1.

Variables	Model(1)	Model(2)	Model(3)	Model(4)	Model(5)
<b>Constant</b>	-381,8 (-1,47)	-434,39 (-1,4)	-398,26 (-1,36)	-434,4 (-1,36)	-834,7** (-2,8)
<b>Log (Capital)</b>	-0,06 (-0,16)	0,01 (0,03)	0,04* (1,65)	0,01 (0,34)	-0,33 (-0,01)
<b>Log (Arable land)</b>	3,66 (0,6)	0,3 (0,03)	1,99 (0,19)	0,3 (0,03)	2,42 (0,2)
<b>Log( Other Christians)</b>	390,8 (1,3)	-- --	88,9 (0,04)	-- --	-- --
<b>Log (Catholics)</b>	-- --	531,7 (1,37)	490,08 (0,91)	531,7 (1,38)	865,7 (1,27)
<b>Log (Protestants)</b>	560,9** (2,02)	675,4* (1,74)	599,3* (1,75)	675,4* (1,74)	912,4* (1,73)
<b>Log (Buddhists)</b>	-- --	-- --	-- --	12724 (0,65)	14898 (0,65)
<b>Log (Non religious)</b>	-- --	-- --	-- --	-- --	1077,2 (0,38)

Table 1: The outcome of the empirical research.

### 3.3.4. Findings and analysis:

All the models carried out in the present paper contribute to bear out the positive contribution of Protestants in the agricultural production. From the table, it stems that Protestants are most efficient compared to others religion workers, they contribute in raising the value of the agricultural output from efficiency perspective.

It stems from Table 1 that the contribution of Protestants on agriculture is positive and statistically

significant at 5%. Thus, we can infer that the increase of the efforts exerted by Protestants triggered a positive impact in the production value recorded by the agriculture in overall. The empirical research accounts for that finding by the strong relationship connecting Protestants to wealth generation and to growth at macroeconomic scale.

The deduction about the favorable impact of Protestant workers on agricultural production remained reliable to the statement raised by R. Grier, (1997) in his research. The firm review of his paper allowed us to denote that Protestants are highly involved in wealth creation<sup>1</sup>, as stressed by the author: “a formal test of whether Protestantism is correlated with economic growth rates and real per capita incomes”.

In all the patterns conducted through the empirical research of the paper, we ended by obtaining the similar findings of several authors, concerned with the scope of identifying the essence of the relationship between religion and economic performance. The major outcome of the exploration authorized us to infer the glaring discrepancies among the yield of workers according to their religion. The findings highlight that Protestants are the most efficient workers in agriculture in the bulk of the European countries adopted in the panel of the survey.

For the Catholics, it appears that their efforts are improving the agriculture production in European countries, due to the positive impact of the coefficient, but their contribution in stimulating growth remained statistically non-significant. The present reasoning remains in line with the recommendations highlighted by W. Sander (2001). In fact, the author puts emphasis on the absence of positive correlation between Catholics and wealth generation from statistical

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<sup>1</sup> Grier, R. (1997), “The effect of religion on economic development: A cross national study of 63 former colonies”, *Kyklos*, Vol. 50, pp: 47 – 62.

perspective<sup>2</sup>.

The obtained results of the empirical investigation are consolidating the efficiency of Protestants during working in the agricultural sector. The present finding is not new conclusion but we could consider it as new argument about the principal contribution of Protestants in production, through revealing their efficiency in work. Thus, the present paper puts emphasis on the significant enhancing effect of Protestants on agriculture production due to their efficiency.

The findings are reflecting the existence of glaring discrepancy in agricultural production between Protestants and other religions. Thus, from an economic perspective, the present findings enabled us to denote that religious belief and faith could make up an advantage in production, through motivating believers to exert more efforts in working and thus, to improve their efficiency in production.

The last argument should illustrate the origin of the good reputation of Protestants in working in economic literature. It is highly underlined in economic literature that the efficient effect of specific religious group remains merely obvious and significant through the empirical investigations, in overall.

#### **4. Conclusion:**

The present paper is an attempt to reveal the validity of the fact about the positive impact of Protestants in economic production. Therefore, the author carried an empirical investigation that allowed reinforcing the positive correlation between Protestants and economic performance in agriculture.

The survey also revealed that Protestants seem to be more efficient in working in agricultural sector than other

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<sup>2</sup> Sander, W. (2001), "The effects of Catholic Schools on religiosity, education and competition", Occasional paper N°32, National Center for the study of Privatization in education teachers college, Colombia University.

religions. In fact, the findings remain in line with several arguments raised by many authors arguing that Protestants are more efficient in working because of the sacred value of working in their religion.

The overall contribution of the present research relies on providing a new framework of analysis about the validity of the arguments, consolidating the fact of the Protestants influence on economic performance. The major purpose of this paper focuses on illuminating the reality about the significance of the efficiency concept in the relationship existing between Protestants labor force and the improvement of the value of the production of the agricultural sector.

The lack of updated of information and data about the religion parts in several countries constituted the major problem faced during the elaboration of a more extensive study about discrepancies among religions and productivity or production in overall. The availability of more explanatory indicators about religion shares should allow finding out the possible discrepancy in gender in other economic sectors.

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