

Religion, Ethnicity and Economic Development

INTRODUCTION

Hence, just as capital has the tendency on one side to create ever more surplus labour, so it has the complementary tendency to create more points of exchange; i.e. here, seen from the standpoint of absolute surplus value or surplus labour, to summon up more surplus labour as complement itself; i.e. at bottom, to propagate production based on capital, or the mode of production corresponding to it. The tendency to create the world market is directly given in the concept of capital itself. Every limit appears as barriers to be overcome. Initially, to subjugate every moment of production itself to exchange and to suspend the production of direct use values not entering into exchange, i.e. precisely to posit production based on capital in place of earlier modes of production, which appear primitive from its standpoint. [Marx (1857)]

In this thesis, I explore the relationship between social heterogeneity and economic development, specifically in the way that religious organizations and ethnic groups represent social heterogeneity and that national states represent actual functioning capitalism.

Social heterogeneity is linked to capitalism in two ways. Firstly, identification with others is an intrinsic human characteristic and forms the underlying psychological basis of adherence to ethno-religious groups. People adhere to these groups, and as a result develop an essence which makes the division between the groups

seem real. A person who perceives oneself as a member of an ethno-religious group gains a sort of immortality, as the group goes on even if the individual does not. This makes members place particular importance on the survival of the group, which is special with respect to the unifying dominant culture. Consequently, belonging to a specific group affects the economic behaviour of citizens and their choices, eventually affecting economic development and thus the shape of capitalism. Secondly, the dominant global culture and hence the economic development tends to homogenize tastes and values, which increases the importance of ethno-religious identity. As a matter of fact, ethno-religious identities are an essential social tie, as they provide a sense of community, social welfare and values, and as a result become increasingly violent against the shrinking of the world due to the expansion of capitalism. Here, capitalism is conceived as the sole way to get economic development; it is expanding its boundaries to envelop the entire globe, to the degree that the world seems to be becoming flat, even if people are increasingly averse to such homogenization.

Although social cohesion, cultural belonging, and political participation are no longer strictly defined within the geographical and administrative boundaries of a state, this research utilizes the state as the unit of measurement. Above all, in the globalized era, states and nations conceived as imagined communities do not exist anymore – instead, it is possible to consider nation states as bureaucratic apparatuses of capitalistic function, existing to manage the flow of people and commodities. Further, in order to allow capitalism and the world market to expand, states must permit the propagation of the capitalist mode of production, at first within the boundaries of a nation state and then beyond its borders. The globalization of capitalist production generates a contradiction between nation states and multinational capital. On the one hand, the states should act

as a social gendarme by increasing labour surplus for its citizens; on the other, globalization reduces its ability to mitigate civil conflict, due to the importance of assuring the best economic conditions for capital production in order to increase the state's wealth. Therefore, globalization of capitalist production generates a contradiction between nation states and people. Today, states shape the will of multinationals, which allocate capital toward the pursuit of "peace" and "justice" - yet who can determine what defines "peace" and "justice"? Consequently, people fight against modern states, the global system they represent, and the soulless "peace" and "justice" they implement.

All these reasons make the study of the impact of religiosity and ethnicity on states an interesting topic. In fact, the exposed view of the secular world and the way it is affected by capitalism, states, global society and heterogeneity is the main reasons that my research began to focus on the effect of religious organizations on states. The present research began by attaining familiarity with literature concerning Economics of Religion and the theory of nation states, and then focused on case-studies, all the while questioning the point of world evolution and capitalism.

Mainstream economic literature surrounding Religion is divided into a supply-side approach and a demand-side approach. Social thinkers, who founded social sciences, all agreed that the rationalization process within modernity would reduce the role of religion. As long as laws determine the criteria for proper behaviour, science offers an understanding of the world and psychological science provides an explanation for evil, religion will lose its importance in the life of individuals. The demand-side theories focus on the way that demand varies with socioeconomic changes. Economic reasoning predicts that an increased cost of activities would, *caeteris paribus*, reduce those activities - since economic development leads

to an increase in the value of time and thus the opportunity cost to participate in religious activities, it tends to reduce attendance at religious services. As a consequence, demand-side supposes that the demand for religiosity decreases with the economic development of societies. The supply-side theory instead examines the conditions affecting religious organizations, and works under the assumption that the level of religious demand is constant. This theory supposes that participation in religious activities increases as the number of religious entrepreneurs increases, in accordance with Adam Smith's ideas. Specifically, Smith supposes that a larger number of religious organizations would increase the consumer surplus in the market of religion, as other firms do in other markets. At the heart of all rational choice perspectives is the application of the market analogy to religion; religious markets involve exchanges for supernatural compensator promises of future rewards and supernatural explanations for life events and meaning. Like other commodities, religious goods are produced, chosen, and consumed. Religious organizations are firms dedicated to the production of religious goods and they are franchises led by entrepreneurial salespeople, creating value for the customers.

In the first and second papers, these two approaches to the economics of religion are synthesized and is considered the modern theory of the state too. According to the supply-side theory, humans have the same innate desire for spiritual life, while according to the demand-side theory, the differentiation process characterizing modern societies leads to the modification of participation levels in religious activities. Furthermore, the "modern approach" to the study of nations and states affirms that the concept of a nation and a state is intrinsic to the evolution of society toward a capitalist economy - the rise of secular power is necessary to create the institutional conditions for the spread of a market economy.

In the first paper of the present thesis, it is assumed that at the beginning of humanity, no secular institution existed to improve the conditions of human life and hence, religions and religious organizations evolved to satisfy both spiritual and material needs of individuals. Insuring the well-being of members when facing adversity, supporting norms of cooperation, increasing the number of exchanges and maintaining peace between groups are means of providing “temporal bliss,” improving life conditions, and sustaining the credibility of “deferred perpetuity.” Nevertheless, putting different ethnic groups together increases the heterogeneity of preferences with respect to the moral code and decreases the possibility of receiving help from other members of the community, which consequently decreases the level of temporal bliss that can be achieved. In this paper, a simple model of religious organization formation is presented, implying that the organization’s goal is to maximize the individual’s utility by increasing the value of both temporal bliss and deferred perpetuity. This maximization results from the trade-off between the benefits of belonging to a large organization and the heterogeneity cost resulting from the increasing membership. The model used here is structurally similar to that proposed by Alesina and Spalaore (1997), which determines the optimal size of a nation and a further explores the way that a religious organization’s size is modified by the rise of one or more states, and vice-versa.

When the rise of nations is explained by considering the utility that it provides to individuals, the competition between the state and religious organizations becomes immediately clear, as does their possibility to affect each other’s size. The two institutions homogenize the behaviour of people and offer social protection to individuals, and although they have different objectives, they converge in maximizing the utility of individuals. The goal of each state’s government is to be re-elected, while the mission of religious organi-

zations is to spread the message of salvation. As a result, this paper demonstrates the dynamics of deferred perpetuity and heterogeneity costs when one or more states rise on the territory of one universal religion, and shows the effect that the rise of one or more religious organizations has on the optimal size of a nation. The main finding is that increased welfare spending increases the size of religious organizations, all the while decreasing participation levels and thus religious strictness.

Nowadays, in a time when such institutions are formed, they are kept under siege by people's movements, so that the state's relationship with religious organizations is under pressure too as well. Actually, state involvement in religion means either that the government funds religious organizations, or that the state gives up its exclusive sovereignty in some matters – often, the state allows religious organizations to provide local public goods. Therefore, the second paper analyzes the government interventions necessary to cope with evolving social needs, as is required by changes in social diversity indices caused by the process of globalization. Assuming that the state exists to advance the welfare of all its citizens, state subsidies to religious organizations are justified by the fact that they provide a public service with positive externalities to the entire national community. This line of justification is easy in states where all citizens are members of the same religion. However, subsidies to religious organizations become problematic when the two communities do not coincide.

Alesina and Spalaore (2003) demonstrate that when there are two types of public goods about which preferences vary and when the heterogeneity cost is lower for the essential public service than it is for the other public services, a pyramidal system of government is the optimal solution. In this situation, the state provides the essential public service, while the public good with the higher het-

erogeneity cost is decentralized and provided by one or more small jurisdictions; by supposing that these jurisdictions are religious organizations, a similar model is used, and the second paper presents a speculation on their possible behaviour. Especially, when the participation criteria of membership, values, and preferences over the public goods are incompatible, conflict is likely to arise between overlapping national and religious communities. In other words, if the distance between preferences is very large, it is possible that the religious organization may seek complete autonomy and the civil conflict can be extremely intense. Consequently, the religious organization would seek secession from the state that is running its community so that it may devote part of its members' income to preferred public good, instead of paying taxes to a central government that finances public goods that are not preferred. Therefore, drawing on the work of Spalaore (2008), I propose a model for examining the conditions under which different communities divert costly resources to fight each other, ultimately suggesting that the state supports religious organizations to reduce the probability of social conflict. This outcome is perfectly in line with the conclusion drawn in the previous paper.

Finally, in the third paper, the subject of inquiry is the interaction between the state's financial and political support of religious organizations and ethnic groups, as well as its affect on a country's economic growth. Thereby, the topic of scrutiny is the way in which social heterogeneity affects a country's economic development and thus, indirectly, the world market and the global culture imposed by capitalism. This investigation uses a number of empirical exercises. The paper begins with the study of an updated version of the model proposed by Montalvo and Reynal-Querol (2005) and an explanation of the way that empirical results are interpreted using institutional economics. Furthermore, I expand upon the model by

exploring the group dynamics and special features of four groups of countries with different social heterogeneity compositions.

A general analysis of the entire set of countries considered in the third paper results in a hump-shaped relationship between religious phenomena and the common well-being indicator, and a downward-sloping curve between ethnic phenomena and the common good. Theoretically, the hump-shaped pattern is strictly related to Mancur Olson's idea (1982,1965), which demonstrates that organized interests are most harmful when they are strong enough to cause major disruptions, but are not broad enough to bear a significant fraction of their action's cost to society. Ethnic phenomena instead can be interpreted differently because ethnic groups are mainly special interest groups whose unifying factor is cultural and linguistic homogeneity. Nevertheless, if a language spoken by a special ethnic group is different from that spoken in society, language is likely to undermine the common good. Empirically, the hump-shaped pattern for religious phenomena is represented by a positive relationship between religious fractionalization and private investment, while the downward-sloping curve related to ethnic phenomena is represented by a negative relationship between ethnic fractionalization and private investment.

Additionally, the paper investigates the four sets of countries distinguished by different levels of religious and ethnic heterogeneity – in particular, one or more dominant religious groups and one or more dominant ethnic groups. The results of this analysis are consistent with the analysis that examines the countries together. Respectively, social heterogeneity affects the economic conditions of society, but does not directly affect growth. Social fractionalization has some effect on economic conditions, while social polarization has a negative impact and is able to address public spending. This analysis allows me to predict that we are following a path toward

a more fragmented yet more unified world simultaneously, which in some conditions can increase the probability of civil conflicts and results in the events that we are witnessing in our postmodern world today.

References

- [1] Alesina A. and Spolaore E. (1997). "On the Number and Size of Nations" *The Quarterly Journal of Economics*
- [2] Alesina A. and Spolaore E. (2003). "The Size of Nations. Cambridge" (MIT Press)
- [3] Florida R. (2002). "The Rise of the Creative Class" (Basic Books)
- [4] Friedman T.L. (2007). "The World Is Flat 3.0: A Brief History of the Twenty-first Century " (Picador)
- [5] Marx K. (1857). "*Grundrisse*" (Harmondsworth: Penguin, (1973))

- [6] Montalvo, J.G., Reynal-Querol, M., (2005). "Ethnic diversity and economic development" *Journal of Development Economics*
- [7] Naim M. (2013). "The End of Power" (Basic Books)
- [8] Negri A., Hardt M. (2000). "Empire" (Cambridge, Massachusetts & London, England: Harvard University Press)
- [9] Negri A., Hardt M. (2004). "Multitude: War and Democracy in the Age of Empire" (New York: Penguin Press)
- [10] Ortega y Gasset (1939). "Las rebellion de las masas" (Los Esenciales de Filosofia (2008))
- [11] Olson M. (1982). "The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities". (New Haven: Yale University Press).
- [12] Olson, M. (1965). "The Logic of Collective Action: Public Goods and the Theory of Groups", (Revised edition ed.). (Harvard University Press)
- [13] Screpanti E. (2014). "Global Imperialism and the Great Crisis: The Uncertain Future of Capitalism" (Monthly Review Press)
- [14] Spolaore E. (2008) "Federalism, Regional Redistribution, and Country Stability" 'Studies in Fiscal Federalism and State-Local Finance,' (Edward Elgar Publishing).
- [15] Varoufakis Y. (2015). "The Global Minotaur" (Zed Books London)

Religious Organization's Size and the State

Abstract

The purpose of this paper is to analyze the relationship between the size of religious organizations and the state. Both of these institutions maximize the utility of individuals to modify one another's size. The literature regarding the economics of religion recognizes that the size of a religious organization is inversely related to the level of participation in religious activities and that religious organizations provide temporal bliss and deferred perpetuity. Empirical analysis and history suggest that an increase in the number of members of a religious organization increases deferred perpetuity credibility but decreases the level of temporal bliss that can be achieved. Empirical evidence also highlights that the state can change participation levels in religious activities. This paper proposes a model whereby the religious organization's size is determined by the trade-off between the goods provided and is modified by the rise of one or more states.

JEL codes: B52, F52, H11, O50.

1 Introduction

Religion is an explanatory intelligent account of cosmos, and religious beliefs are different from others because they involve a metaphysical claim about reality.¹ Beliefs sustain the behaviors of believers, who are characterized by their level of attachment to rules, a high level of mutual insurance, and their value of group altruism.²

The concept of deprivation is often cited as the reason for the existence of religion and for the level of religiosity³. Deprivation is defined as a situation in which individuals are unable to satisfy one or several needs. "When individuals find themselves in this situation they will seek a solution to their problems. Religions can help by referring to myths and thus providing meaning to deprivations; embedding suffering into ritual actions; promising hope and good outcomes in the future. A part from this intangible goods, "religious organization may also give a concrete help"⁴. As a result, individu-

¹Leiter (2008)

²For example, experimental studies suggest that being members of religious organizations positively affect sharing tendencies (Anderson & Mellor (2007), Ruffle & Sosis (2007)).

³For example: Weber 1956 (1905), Norris and Inglehart (2004), Chen (2010)

⁴Stolz (2009)

als develop religious preferences depending on how important these actions are as means of reaching their final goals.

As at the beginning of humanity no secular institution existed to improve the conditions of human life, religions and religious organizations evolved to satisfy both spiritual and material needs of individuals ⁵. Religious organizations offer the expectation of life after death and they spread a common moral code for achieving it. The existence of a common moral code leads to homogenized culture of many different ethnic groups belonging to the religious organization, establishing at the same time a sort of social safety net between people based on the principle of mutual help. Insuring the well-being of members when facing adversity, supporting norms of cooperation, increasing the number of exchanges, and maintaining peace between groups are means to providing “temporal bliss,” improving life conditions, and sustaining the credibility of the “deferred perpetuity”⁶. Nevertheless, putting together different ethnic groups increases the heterogeneity of preferences with respect to the moral code and decreases the possibility of receiving help from other members of the community, which consequently decreases the level of temporal bliss that can be achieved. In this paper I will propose a simple model of religious organization formation, supposing that the organization’s goal is to maximize the individual’s utility by increasing the value of both temporal bliss and deferred perpetuity. This maximization results from the trade-off between the benefits of belonging to a large organization and heterogeneity cost resulting from the increasing membership.

The relatively recent division of temporal and spiritual power has decreased the religious organizations’ role as provider of utility to the population. According to the concept of deprivation, in modern societies there is no longer need for religion. However, this is not the

⁵Levy & Razin (2009)

⁶Hull & Bold (1989)

case. Empirical evidence demonstrates the importance of religious movements, highlighting that in societies characterized by a clear division between spiritual and temporal power, religion is important to individuals with respect to facing adversity and developing an identity.

Drawing on deprivation theory again, the different participation levels can be explained by considering the state's policy. When the government offers services substituting for those offered by religious organizations, people will begin to drift away from an active participation in religion activities and resulting in a change in size of the religious organizations. The literature surrounding the economics of religion characterizes small religious groups as having a high level of participation and supplying a high level of religious good, to be interpreted in terms of mutual help. In large groups there is a low level of participation and a low level of religious good. In fact, when people do not actively participate in religious activities the institutional role played by religion is important because: "(people) entrust to religious institutions very specific responsibilities and complain if these are inadequately fulfilled"⁷.

This study explores the size of religious organizations in modern societies through a two step procedure. First I will examine the trade-off between the benefits and the cost of increasing membership of the religious organizations; then I will consider the existence of the state and how it impacts the optimal size of religious organizations.

The remainder of the paper is organized as follows: section 2 provides a brief overview of the related literature; section 3 illustrates the determinants of the size of religious organizations and presents a simple model to that effect; section 4 examines how the state's intervention can affect the size of religious organizations and briefly outlines the inverse relationship between the two institutions; sec-

⁷Davie (2000)

tion 5 discusses consequences and concludes the paper.

2 Related Literature

The literature surrounding the economics of religion considers the religious dimension of life as if religion were a product to sell on the market. It can be divided into two major theories of religiosity: supply-side theories and demand-side theories.

Demand-side theory treats the supply side of the religious market as exogenous and fixed, and focuses on how demand varies with socio-economic changes. Economic reasoning predicts that an increased cost of activities would, *ceteris paribus*, reduce those activities; since economic development leads to an increase in the value of time and thus the opportunity cost to participate in religious activities, it tends to reduce attendance at religious services. As a consequence, demand-side supposes that the demand for religiosity decreases with the economic development of societies. Supply-side theory, instead, examines the conditions affecting the religious organizations and works under the assumption that the level of religious demand is constant. This theory supposes that participation in religious activities increases as the number of religious entrepreneurs increases, in accordance with Adam Smith's ideas⁸.

Specifically, demand-side theory research can be divided roughly into two branches: secularization theory and functional theory. The secularization thesis states that with scientific progress the role of religion in society would diminish over time, since rationality would have rendered beliefs implausible. The argument of functional theory focuses on the practical tasks of religious organizations; it states that the activities of religious organizations would have been displaced by other institutions, due to the process of functional differ-

⁸Adam Smith talks about church in the *Wealth of Nation*: he supposes that more religious organization would have increased the consumer surplus in the market of religion, as well as other firms do on different other markets.

entiation in modern societies and consequently religion would have lost its appeal.

In his critical review of the economic analysis of religion, Kumar (2008) states that no conclusive evidence exists in favor of supply-side or demand-side theory. Nowadays, what is clear is that the importance of religion in the lives of individuals is not declining. As a result, this paper synthesizes the two approaches of the economics of religion. On the one hand, according to the supply-side theory, it is assumed that all humans have the same innate desire for spiritual life. On the other hand, according to the demand-side theory, it is assumed that the differentiation process characterizing modern societies leads to the modification of participation levels in religious activities. Consequently, the number of members and the participation level in religious activities determines the size of religious organizations.

The existing economics of religion literature has examined the characteristics of religious organizations of different sizes in terms of membership and participation. The concept of participation does not coincide with the concept of membership: while the former refers to active involvement in religious activity, the latter is more concerned with the act of believing⁹. The analyses of many scholars of the economics of religion converge with Iannaccone's (1988,1991,1992,1993,1994) research on sects and churches. Religious organizations are conceived as team productions where religious activity provides each member with the production's outcome in proportion to the resources given to them. According to the traditional interpretation, this paper supposes that sects, or small religious groups, require high levels of participation with high levels of the social production, conceived as mutual help. Churches and religious groups with large memberships require a low level of par-

⁹The difference between participation and membership is recognized by some authors, such as Barro & McCleary (2003), Huber (2005) and Betterndorf & Dijkgraaf (2008).

ticipation and thus provide a low level of social production that is among members.

The level of participation is determined by maximizing the utility of individuals, and people maximize utility by receiving both types of religious goods. The first good is related to the provision of public good in the form of deferred perpetuity, and is achieved through a given moral code. In addition to their goal of proselytism, religious organizations increase their memberships as means to provide insurance to the quality of the good, because “life after death” is a credence good. Moreover, increasing membership decreases the level of contribution that each member must give to spread the message of salvation, that is the set of behavior prescribed by common moral code, which in turn increases the utility of individuals. The utility of individuals is also increased by the expectation of life after death, which decreases the uncertainty and pain of worldly life. The second religious good is related to the level of reciprocal help between the members of the community, constituting a social safety net that helps members reach temporal bliss; as the level of participation in religion activities rises, the level of mutual help increases and the religious organization’s membership and size decreases.

Existing literature provides some evidence that religious organizations provide public goods (Hull & Bold (1995), Iannaccone (1998)) and there is also some evidence of the religious organization’s role as a provider of social protection (Hungerman and Gruber (2005), Hungerman (2005), Gill and Lundsgaarde (2004), Chen & Lind (2007), Reda (2010), Chen (2010), Iyer et al (2011)). In fact, religious organizations are well positioned to provide consumption insurance against income shocks (Dehejia et al (2007); Clark & Lelks (2005)) and psychological benefits for individuals who have suffered through difficult life events (Ellison & George (1994), Sheve & Stasavage (2006)). Furthermore, religious organizations are the

guardians of identity issues and of collective memory as the basis of community existence, as recognized by many sociologists of religion (Bruce e Willis (1995), Hervieu-Lèger (2000), Grace Davie (2000)).

10

The relative importance of the two religious goods based on the maximization of the utility of individuals can be partially determined by the existence of secular authority. The existence of the state affects the optimal size of religious organizations due to the “competition” between secular and religious activities. In the models proposed by Barro and Garraupa (2002) and Iyer et al (2011), the size of religious organizations is driven by the competition that exists between them. Specifically, the authors of the second article recognizes that the state plays an active role in determining the nature of the goods provided by religious organizations. The paper argues that state intervention modifies the participation levels in religious activities because of the state’s ability to offer a substitute to the religious organization’s functions to maximize the utility of individuals. Pagano and D’antoni (2002) and Pagano and Bowles (2003) affirm that in order to provide people with insurance and to decrease the risk involved in labor, the state standardizes working culture and offers social protections.

Even the mechanisms used by the two institutes to maximize the utility of individuals are similar and can affect each other, and the contemporary existence of religious organizations and modern states proves that they are imperfectly substitutable. Overall, while religious organizations maximize the utility of individuals with respect to an infinite time horizon, the state generally takes the constraint of life span as given. Nations offer public goods connected with the

¹⁰Extensively, Bruce and Willis (1995) recognize the role of religious organizations for “cultural transition” and for “cultural defense”. The former concept refers to the fact that religious groups act as social structure that integrate immigrants in host societies while the second concept is based on the evidence that religious groups are ways to express identity when it is threatened. Hervieu-Lèger (2000) also focuses his research of the role of religion to maintain the tradition at the basis of community existence; in particular, he notes that although modern society are corrosive of the traditional forms of religious life, at one and the same time, in modern society people are encouraged to seek answers and so they are closer to religion.

provision of a common defense, foreign, fiscal and monetary policy, market regulation, taxation, and possibly identity and the meaning of life. Religion instead provides public goods relating to issues of identity and the meaning of life. The state can avoid the provision of social protections; however, as a consequence the social safety net can be only partial. Even if the insurance were complete, the private information of people facing adverse life events would lead to severe adverse selection and moral hazard that could not be supported by state. According to DeJia et al (2007a), religious organizations instead have the ability to monitor the behavior of their members by means of reference to spiritual power, so to avoid the problems of formal insurance and as a result can deal with adverse life events by increasing the level of trust and cooperation between members.

This paper supposes that religious organizations exist a priori within the state, and after proposing a model to define the determinants of the size of a religious organization, is examined the ways that a state's appearance can modify the religious organization's size characterized by the division between temporal and spiritual power.¹¹

3 Optimal Size of Religious Organization

The public good offered by religious organizations is a credence good¹² with a value that cannot be determined until a future point in time; consequently, increasing membership is the religious organization's main objective, with the aim of insuring the quality of the public good offered. The public good offered is the expectation of life after death to be achieved by adopting a moral and behavioural code; it is provided by means of costly services that are financed by members' contributions¹³. To encourage membership, religious organizations increase the utility of individuals by reducing the level of individual contributions. Nevertheless, increasing membership increases the distance of individuals from their most preferred behavior for achieving life after death and it reduces the level of the

¹¹The idea that the religious organization depend on the function of state is just proposed by Berman & Laitin (2008): using a club good model they explain the formation of Hezbollah, Hamas and Taliban, drawing on the ability to provide public good while state does not.

¹²Hull & Bold (1989), Iannaccone (1995), Gill & Lundesgarde (2004)

¹³It is assumed that the cost of spreading a common moral code, thus a uniform code of behavior, does not depend on size of membership

cooperation between individuals. As a result, the level of temporal bliss that can be obtained, or the individual's utility, is reduced. Therefore, there exists a trade-off between the benefits and the cost of membership in the determination of religious organization's size that has to be set in order to maximize the individual's utility. ¹⁴

For instance, a well-known strategy to spread the universal message of salvation was to diffuse a common language and law between members. The role of religion in the evolution of linguistic standards is discussed by Ghosh and Kumar (2005) as well as by Cosgel & Minkler (2004); they specifically recognize that the religious consumption norms serve as standardized communication devices. Better communication allows social networks to increase in size, and the most important function of these networks is to provide social insurance against the risk of agriculture and production, through an elaborate system of social exchange ¹⁵. The role of religion in the emergence of the rule of law is studied by many authors; the majority of authors examine the European case and the effect of the Roman Catholic church on the formation of secular institutions. For example, Berman (1983) and North and Gwin (2007), based their consideration on the division of Church of Power and Church of Piety. The Church of power was the main body of the church, it was related to the role of clergy, financed by the immense wealth accumulated by the religious organization through donations and the management of rural lands that promote the public good; church of piety instead refers to monasteries, the institutions that, by providing mutual help between members, sustained the church of power's credibility. Since after the fall of Roman Empire a multitude of

¹⁴In the economic literature there are various explanation of the religious organization's as related to clergy objective: for example Iannaccone (1991), (1998), Shy (2001) explains the existence of religious organizations with the aim to maximize profit of clergy; Ekelund et al (1996, 2008), Hull & Bold (1989) and Stonebracker (1993) maximizes the revenue of rent seeking activities. Our interpretation that religious organization maximizes the welfare of its members agree with a significant part of sociological author and specifically considering the economic theory, it is in accordance with the same position Berman (2000), (2008) and Barros & Garoupa (2002) among others.

¹⁵Neettle (1996)

European secular powers tried to exploit the church's wealth, many scholars argue that the papal reform of the eleventh century led the emergence of ecclesiastical court. The court's role was to protect the church, and as a consequence, to force temporal authorities to set clear boundaries regarding the extension of secular power¹⁶. The role of religion as provider of Law was also studied by Hull & Bold (1995), who note that the Roman Catholic Church was able to enforce property right system through the low-cost invention of heaven and hell. The income distribution provided by religious organizations can be seen as a cost-minimizing method of enforcing property rights, which prevents the poor from being incentivized to steal.

The strategy of spreading a common law, language, and belief system of life after death allows the number of exchanges to grow by reducing the transaction costs and the level of each individual member's contribution. Therefore, expanding the religious organization's membership also enhances the utility of each individual by increasing their wealth.

However, an increase in membership also has negative effects on the utility of members. A conflict in ideas regarding which behavior is leads to salvation decreases the level of mutual support between members and decreases the level of temporal bliss. In fact, an increase in heterogeneity has negative repercussions on community life. Hungerman (2008) shows that increasing heterogeneity in a religious group decreases the amount of voluntary contributions provided. Moreover, Bowles (2004) and La Ferrara (2003) proved theoretically and practically that heterogeneity within a group negatively affects the mechanisms that support the individual's interaction in repeated games: sanctioning devices and reciprocity mechanisms are less effective. Consequently, increasing membership increases

¹⁶Moreover, since from the twelve and sixteen centuries Canon Law of the Roman Catholic Church was interpreted as a reflection of natural law and the secular order was considered more imperfect, the former idea of order served as a model for the latter.

the distance of each individual from his or her ideal behavior, which in turn reduces the level of the members' utility. ¹⁷

Members receive utility from religious organizations because they provide two kind of goods, and the relationship of the two goods with the number of members reflects the trade-off that determines the optimal size of religious organizations. While the value of deferred perpetuity increases with the religious organization's membership, the temporal bliss decreases. In the next section I will propose a model structurally similar to that proposed by Alesina and Spalaore (1997, 2003) with respect to an analogous trade-off that determines the optimal size of a nation.

3.1 Model

3.1.1 Assumptions

- Individuals Utility: $U = y + b - hd_i - c_i$

Where:

y : Exogenous Income: assumed to be equal for all individuals

b : Benefit from Public Good. It is a parameter that measures the maximum utility of the public good when the distance from the ideal behavior for achieving deferred perpetuity is zero.

h : Heterogeneity Cost. It is a positive parameter that measures the loss of utility that individual suffers with increase heterogeneity in the group.

d_i : Distance from Public Good. As the membership increase the preferences become more heterogeneous and the ideological distance of each individual from the ideal behavior

¹⁷Here, the distance from the ideal behavior, the one centered in the middle of the distribution of preferences is taken as cost, as it is done also by Enswaran (2011).

increases.

c_i : Contribution to Religious Organization: same proportion of income for all individuals. It is a voluntary contribution that all people pay to support the daily functioning of religious rituals and thus to spread the message of salvation. The contribution decreases as membership increases.

- All individuals belong to one Religious Organization.
- The objective of the Religious Organization is to increase membership.
- The size of the Religious Organization is reflected by its membership size.

3.1.2 Analytical Model

The mass of world population is equal to 1, with individual preferences distributed uniformly on a segment $[0, 1]$. The utility of individuals decreases as heterogeneity increases, in other words, as the distance increases between the behavior promoted by the religious organization and the ideal behavior.

Religious organization borders are endogenously determined by a social planner that maximizes the sum of individuals' utilities. The problem that the social planner has to solve is the following:

R : numbers of Religious Organizations

x : Religious Organization

s_x : Size of Religious Organization x

v : value of Public Good (not dependent on size)

$$\max \int u_i di$$

$$s.to \int_0^1 c_i di = Rv$$

The sum of the individuals utility from 0 to 1 is:

$$\int_0^1 u_i di = \sum_{x=1}^R s_x (b - hd_{ix} + y - c_{ix})$$

The maximization of the utility involves the minimization of individual contributions for the public good¹⁸ and of the ideological distance from the behavioral rules to achieve deferred perpetuity. The distance from the behavior is minimized if the public good is located in the middle of the distribution of the members' preferences. Consequently, it must be located halfway along the segment from 0 to 1; the average distance of individuals from it is $1/4$. Therefore, the social planner's problem can be written as:

$$\min\left(\frac{h}{4} \sum_{x=1}^R s_x^2 + Rv\right)$$

Given the uniform distribution of preferences, the sum of squares is minimized, or the average utility is maximized, by choosing religious organizations of equal size. $\rightarrow s = \frac{1}{R}; \sum_1^R s = 1$

$$\min\left(Rv + \frac{h}{4R}\right)$$

The Optimal Number of Religious Organization is the integer closest to:

¹⁸The value of public good increases with increasing membership for two related reasons. Increasing membership increases the credibility of the good for a spillover effect between people and for members are induced to believe by the fact that they pay a few for getting a huge benefit (Pascal's Wager *docet*). Therefore, minimizing contribution for each individual maximizes membership and so it maximizes utility.

$$R = \sqrt{\frac{h}{4v}}$$

The number of religious organizations is optimized by the trade-off between the average benefit of increasing size and cost of heterogeneity; R is decreasing in the value of deferred utility and it is increasing in the cost of heterogeneity. It follows that the optimal size of a religious organization increases with the value of public good and decreases with the heterogeneity cost. Thus, the higher the ratio between the two, the smaller the optimal size of the religious organization. For a low ratio between the heterogeneity cost and the value of public good there exist a few larger religious organizations.

3.1.3 The Individual's choice of which religious organization to join

The borders of religious organizations, which are determined by the social planner by maximizing average welfare, are not stable if individuals choose to which religious organization they wish to belong. Since the membership's moral code corresponds to the median position of the preference's distribution and all members give equal contributions to the religious organization, individuals with ideals that are closer to the public good enjoy a higher level of utility with respect to those with ideals that are further away from the median position. The latter carry a disproportionate share of the heterogeneity cost. As they have an incentive to break away the group, individuals at the edges of the group make the difference.

To determine the equilibrium number, consider an individual whose ideal behavior is equidistant ($1/2$) from two different behaviors spread by two adjacent religious organizations of size s_1 and s_2 . This individual is indifferent with respect to the two organizations if and only if he or she were to get the same utility from both.

Hence, the following equation must be satisfied:

$$y - h \frac{s_1}{2} - \frac{v}{s_1} = y - h \frac{s_2}{2} - \frac{v}{s_2}$$

The above condition is satisfied if:

$$s_1 = s_2$$

or for a religious organization of a different size:

$$s_1 s_2 = 2v/h^{19}$$

By definition of equilibrium stability, a perturbation in the population composition of the religious organizations would result in a return to the original equilibrium size. Thereby, the number and the size of the religious organizations is determined by considering a perturbation ε , that changes the size. The size of the two religious organizations becomes $(s_1 - \varepsilon)$ and $(s_2 + \varepsilon)$. The equilibrium at which the religious organizations are equal in size is stable if and only if the individual at the border strictly prefers the smaller religious organization to the larger one.

$$y - h \left(\frac{s_1 - \varepsilon}{2} \right) - \frac{v}{s_1 - \varepsilon} > y - h \left(\frac{s_2 + \varepsilon}{2} \right) - \frac{v}{s_2 + \varepsilon}$$

which implies that²⁰:

$$(s_1 - \varepsilon)(s_2 + \varepsilon) > \frac{2v}{h}$$

for ε that tends to zero, the condition becomes:

$$s_1 s_2 > \frac{2v}{h}$$

Since the product of the religious organization's size cannot be simultaneously equal to and bigger than $2v/h$, there can be no stability if the two organizations are different sizes.

Maximizing the utility of the individuals at the borders deter-

$$^{19} y - h \frac{s_1}{2} - \frac{v}{s_1} = y - h \frac{s_2}{2} - \frac{v}{s_2}$$

$$\frac{-hs_1 + hs_2}{2} = \frac{s_2 v - s_1 v}{s_1 s_2}$$

$$s_1 s_2 = \frac{2v}{h}$$

$$^{20} y - h \left(\frac{s_1 - \varepsilon}{2} \right) - \frac{v}{s_1 - \varepsilon} > y - h \left(\frac{s_2 + \varepsilon}{2} \right) - \frac{v}{s_2 + \varepsilon}$$

$$\frac{-h(s_1 - \varepsilon) + h(s_2 + \varepsilon)}{2} = \frac{v(s_2 + \varepsilon) - v(s_1 - \varepsilon)}{(s_1 - \varepsilon)(s_2 + \varepsilon)}$$

$$(s_1 - \varepsilon)(s_2 + \varepsilon) > \frac{2v}{h}$$

mines the optimal, stable number of religious organizations²¹; it is the largest integer strictly less than $R = \sqrt{\frac{h}{2v}}$. Therefore, the equilibrium number of the religious organizations is larger than the optimal number: maximizing the utility of individuals at the borders, rather than the average-utility, leads to smaller religious organizations.²²

When a group of individuals decides autonomously to leave the religious organization, a religious entrepreneur immediately creates a new religious organization; however, if the borders of the religious organization are determined by individuals, the unilateral secession would not take place because the religious organizations are not large enough to be advantageous for a border group to break away.

²³

²¹In the following of this paper the label “optimal religious organization’s size” will refer also to the equilibrium size of religious organizations.

²²The assumption of the previous argument is that a benevolent social planner set the religious organization’s borders by maximizing average welfare. It is possible if the individuals can choose to which religious organization to belong to, starting with a sufficiently large number of small sets as it is given on the basis of the assumption stated, the system will stabilize with $R^* < \sqrt{\frac{h}{2v}}$. Supposing instead that the system starts with $R < R^*$, we shall consider two cases. For instance, it happens after an exogenous perturbation.

- A group of size g secede from a group of size s . The marginal individual in the break way group has utility $f(g)$. The utility if this individual remains in the old group is $f(s - g)$. This individual will be indifferent if $f(s - g) = f(g)$. For the equilibrium to be stable this requires that $g = s/2$. It also requires that $s > 2\sqrt{2v/h}$. To be robust against unilateral secession requires that $R > \sqrt{\frac{h}{8v}}$.

- Suppose that $s_1 = s_2 = s$ and that a breakaway group of size g_2 secedes from A_2 and draws g_1 members from A_1 . The marginal individuals will be as well off in the new group if $f(s - g) = f(s - g) = f(g_1 + g_2)$. For this to be stable we require that $g_1 = g_2 = s$. In the new situation all three groups will have size $2s/3$. This will be stable if $4s^2/9 > 2v/h$ and hence $R = 1/s < \sqrt{(2h)/(9v)}$. Thus, if $R > \sqrt{(2h)/(9v)}$ it is not possible for a new group to break in, even if it draws members from both adjacent groups.

²³Suppose a group of g connected individuals in a country of size s are considering whether to officially leave the religious organization. Clearly, the individual in the middle of the group would never secede, so that: $g < s/2$. The g individuals will agree upon secession if and only if the individual who is least well-off in the secession agrees; such individual is the one who stay at distance $s/2 - g$ in the original organization. This individual would not agree on the secession if and only if:

$$b - h\frac{g}{2} + y - \frac{v}{g} \leq b - h\left(\frac{s}{2} - g\right) + y - \frac{v}{s} \\ + \frac{3hg}{2} + \frac{v}{g} \geq \frac{hs}{2} + \frac{v}{s}$$

For s to be robust to unilateral secession this equation must hold for $g < s/2$. It is true only for the value of g that minimize $(3hg/2) + (v/g)$.

$$\frac{d(3hg/2) + (v/g)}{dg} = 0 \implies g' = \sqrt{\frac{2v}{3h}}$$

4 Optimal Size of Religious Organizations and State Intervention

The “modern approach” to nations affirms that the concept of the nation is intrinsic to the evolution of society toward a capitalistic economy²⁴; the rise of secular power is necessary to create the institutional conditions for the spread of the market economy. Since the market economy is characterized by a continuous process of “creative destruction” in which old labor skills are continuously replaced by new skills, the existence of a secular institutions allows this process to happen. Secular institutions homogenize the culture of society to which they belong, they increase the labor mobility and thus decrease the risk that a worker with specialized skills could not find employment in another job. Nations can reduce the risk involved in labor specialization also by providing social protection to the people. Therefore, the existence of nations is conceived as a necessary device to make possible the transition from the agricultural system to the industrial system of production; practically, the role played by secular institutions is to permit an increase of the utility of individuals during the process. However, the policies for maximizing the utility varies among countries. All nations homogenize the culture of the several ethnic groups located within their borders. The role of providing social insurance through welfare spending is not part of their nature.

When the rise of nations is explained by considering the utility that it provides to individuals, the competition between the state

$$\text{By substituting: } +\frac{3h\sqrt{2v/3h}}{2} + \frac{v}{\sqrt{2v/3h}} \geq +\frac{hs}{2} + \frac{v}{s} \implies s \leq (\sqrt{6} + 2)\sqrt{\frac{v}{h}} \Rightarrow R \geq \frac{1}{\sqrt{6} + 2}\sqrt{\frac{h}{v}}$$

Since the number of religious organization determined by individuals is bigger then this value, the religious organizations are not big enough to be advantageous for a border group to break it away. Therefore, the borders of religious organization would not be destroyed by unilateral secession.

²⁴the terms “nation” and “state” will be used as substitutes

and religious organizations becomes immediately clear. The two institutions homogenize the behavior of people and offer social protection to individuals; although they have different objectives, they converge in maximizing the utility of individuals. The goal of each state's government is to be reelected, and for this purpose is necessary to maximize individual utility; the mission of religious organizations is to spread a message of salvation, and to sustain the credibility of this good it must maximize individual utility.

The emergence of an institution in the area previously "governed" by the other institution can have two effects as it modifies the public good value and the heterogeneity cost. Supposing that the new institution is formed by temporal power, it could modify the value that the people attribute to life after death by changing the level of contribution that people are willing to give to the religious organization. Temporal power could also change the heterogeneity cost supported by the religious organization. Either effect strictly depends on the policies characterizing the institutions, and ultimately the size of the incumbent institution is adjusted because of the new institution's presence. For instance, an increase in the size of a religious organization means that it has expanded geographically, that its borders are more stable, or that there is a process of internal definition of priorities that tends to put emphasis on doctrinal strictness. The functional choice between behavioral and doctrinal strictness, with respect to size²⁵, is the religious organization's choice of whether it should be more concerned about temporal bliss or deferred perpetuity, and whether it should be more involved in promoting the mutual help among members or by playing an institutional role.²⁶

²⁵Ferraro (2008), using a spatial model, explains the passage between sect to church of Catholic Roman Church by suggesting that behavioral strictness characterizes more strict denomination while doctrinal strictness characterizes religious organization with large membership.

²⁶The expression "institutional role" can be explained by two considerations. First, Inglehart and Norris (2004) highlight that religion is perceived in postindustrial, industrial and agricultural societies as having functions related not only to moral problem but also to social one. Specifically, they make an empirical analysis based on WVS 1981-2000 on the "perceived function of religion organizations", that among other questions respond to the following: "Generally speaking, do you think that the religious authorities in your country are giving adequate answers to the social problems facing our country today"; the percentage of people who agree to this sentence are the following, respectively: 58%; 76%; 80%. Second, Grace Davie (1994, 2000) coins the label of "believing without belonging" for European religiosity, pointing out that religious have to "remember to European what they have in common".

In the rest of the paper I consider how a change in an organization's size is caused by the emergence of a new institution, given that it is a very slow and abstract process.

4.1 Universal Religious Organizations and the National State

As there is only one state in the territorial extent of each religious organization, it implies that the relationship between the number of states (N) and the religious organizations is represented by the average: $R \geq N$.

When considering the effect of the religious organization's size the heterogeneity cost is no longer a parameter, but instead has a functional form. Suppose the heterogeneity cost (h) is formed by two components: an autonomous component and a component that has a negative relationship with the heterogeneity expenditure by state. This cost is a result of the different ethnic groups that comprise the religious organization and it determined by the level that people care about having a uniform moral code and thus uniform behavior of members of the same religious group.

The nation reduces the heterogeneity cost supported by the religious organization through welfare spending²⁷. In fact, when all members of the population enjoy some sort of social protection, they feel less insecure and are more likely to consider the behaviors of different groups valuable and helpful²⁸. In the present paper only the case of increasing welfare spending is considered.²⁹

²⁷In principle the state could spend an unlimited amount of money without worrying about where the money came from (usually from taxes levied on citizens).

As well, I do not consider where the money for welfare spending come from because I suppose that rising of states is a phenomenon going together with the diffusion of market economy and it leads to an increasing of wealth. For this reason, I assume that rise of states is neutral with respect to the contribution level; the increasing wealth offsets the payment of taxes by individuals, without affecting the contribution level to religious organizations. Hence, I can not consider taxation's effect at all.

²⁸Inglehart & Baker (2000)

²⁹Otherwise, it would need to suppose that state and religious organization coexist; this assumption would have impeded to examine the effect of one contender institution on the incumbent one.

$$h(w) = h_o(N) + \frac{h_1}{w}$$

where:

w : Welfare Spending, and $h_0 > 0$

Following a slightly modified version of the procedure in section 1.2, ³⁰

$$R = \sqrt{\frac{h_0}{2v} + \frac{h_1}{2vw}} \quad (1)$$

The number and size of religious organizations depend on deferred perpetuity, the autonomous component of the heterogeneity cost, and on the expenditure by state to reduce heterogeneity. The number of religious organizations decreases with a rise in the value of deferred perpetuity and a rise in welfare spending. As a result, the importance of mutual help between the members of a group and thus their appreciation of the religious organization's smaller size as the state provides more tangible services.. These relationships are expressed by the following equations.

$$\frac{\partial R}{\partial v} = \left(\frac{1}{2}\right) \left(\frac{h_0}{2v} + \frac{h_1}{2vw}\right)^{-\frac{1}{2}} \left(-\frac{h_0}{2v^2} - \frac{h_1}{2wv^2}\right) < 0$$

$$\frac{\partial R}{\partial w} = \left(\frac{1}{2}\right) \left(\frac{h_0}{2v} + \frac{h_1}{2vw}\right)^{-\frac{1}{2}} \left(-\frac{h_1}{2wv}\right) < 0$$

$$\frac{\partial R}{\partial h_0} = \left(\frac{1}{2}\right) \left(\frac{h_0}{2v} + \frac{h_1}{2vw}\right)^{-\frac{1}{2}} (2v)^{-1} > 0$$

$$w, h, R > 0$$

4.1.1 Changing the value of Deferred Perpetuity through constant Welfare Spending

Generally the rise of a modern state decreases the utility of large

$$\begin{aligned} &^{30} \max \int u_i di \\ & \text{s.to } \int_0^1 c_i di = vR \\ & \int_0^1 u_i di = \sum_{x=1}^R s_x \left[b - \left(h_0 + \frac{h_1}{R} \right) d_{ix} + y - c_i \right] \\ & \min(KR + w + \frac{h_0}{2R} + \frac{h_1}{2Nw}) \\ & \text{FOC : } h_0w + h_1 + 2wR^2v = 0 \end{aligned}$$

religious organizations because the state implements a set of common behaviors by creating secular institutions that fulfill the roles previously held by religion. For instance, the state can have many different effects on the value of deferred perpetuity. When state supports nationalistic policies, or promotes “nationalism”, the value of deferred perpetuity decreases. In fact, both religion and nationalism increase the well-being of individuals by providing symbolic utility. Since nationalism is concerned with death and immortality it permits individuals to overcome the fragility of human existence, and as a result provides a fairly sufficient substitute of deferred perpetuity. It then decreases the importance of life after death as a common good and consequently reduces the religious organization’s size.

It is possible however that the existence of the state could increase the value of deferred perpetuity. This would occur when the emerging state needs the incumbent religious organization to legitimize its newfound political power. The state can also augment the value of the public good by emphasizing the importance of a common moral code set by the religious organization, which also allows the state to maintain the status quo of the social structure of collectivity ³¹.

4.1.2 Changing the value of Deferred Perpetuity and Welfare Spending

When the state’s welfare spending results in larger religious organizations, this is mainly because a high level of mutual help no longer exists between members. As a result the size of religious organizations increases or at least remains constant by exploiting the economies of scale. Using Implicit Function Theorem it is possible to determine the amount of the state’s expenditure for reducing the heterogeneity cost that results in a constant number of religious or-

³¹As it is involved in the famous Marxian statement equating religion to the “opium of people”

ganizations, when the deferred utility value is changed by the state's intervention.

$$-\frac{\frac{\partial v}{\partial R}}{\frac{\partial w}{\partial R}} = 0 \Leftrightarrow dw = - \left[\frac{h_1 v}{w (h_1 + w h_0)} \right] dv$$

This relationship is negative because when the value of the public good decreases, the heterogeneity expenditure by the state has to be increased by the amount defined in the previous equation. Specifically, for the religious organization's size to remain constant, the ratio between a marginal change in the deferred perpetuity value and welfare spending must be $\frac{dv}{dw} = - \left(\frac{h_1 v}{w h_0} + v \right)$.

When instead the value of deferred perpetuity increases as the welfare spending increases, the cumulative effect is an increase in the religious organization's size.

4.2 Universal Religious Organizations and Multinational States

When $N \geq R$, more than one state arises in the territorial extent of one religious organization. It is assumed that the emerging states will enact the same policies relating to welfare spending and the value of life after death as the religious organization.

The emergence of more than one state in the territorial extent of a given number of religious organizations increases the autonomous component of the heterogeneity cost that must be supported. In fact, the existence of more national states highlights the differences in behaviors between ethnic groups. The creation of these national states could encourage individuals to gather into one homogeneous group, which would increase the heterogeneity cost supported by the religious organization. Thus, the emergence of multiple national states in the territorial extent of one religious organization causes a reduction of the religious organization's size.

4.2.1 Changing the value of Deferred Perpetuity and Heterogeneity Cost through constant Welfare Spending

From a standard application of the Implicit Function Theorem³², it follows that in order to leave the religious organization's size constant while the value of the public good changes and the autonomous component of the heterogeneity cost increases, both values must change in the same direction, in accordance with:

$$dv = \frac{vh_1 + vvh_0}{h_0h_1}dh_0$$

If the equation above is not satisfied because the value of life after death decreases while the autonomous part of heterogeneity cost increases or because the marginal change does not satisfy the equation, the size of religious organization decreases.

4.2.2 Changing the value of Deferred Perpetuity, Heterogeneity Cost and Welfare Spending

When the ratio of the value of deferred perpetuity to the heterogeneity cost satisfies the equation $\frac{dh_0}{dv} = \frac{h_0}{v} + \frac{h_1}{vw}$, welfare spending does not change and the size of religious organization remains constant. However, if the state partakes in welfare spending, then three different cases must be considered.

In this first case, welfare spending is the total amount of outflow by states. Increasing welfare spending decreases the dependent component of the heterogeneity cost; it leads to an increase in the size of religious organizations. If the existence of more nations increases the autonomous component of the heterogeneity cost of religious organizations, the state's intervention could counterbalance the heterogeneity cost.

Using the Implicit Function Theorem, we arrive at the equation that determines the variation in the value of deferred perpetuity should the number of religious organizations remain constant, when

$${}^{32}dR = 0 = \frac{\partial R}{\partial v}dv + \frac{\partial R}{\partial h_0}dh_0 + \frac{\partial R}{\partial w}dw$$

welfare spending and the autonomous component of the heterogeneity cost differ.

$$dv = \left(\frac{v}{h_0} + \frac{wv}{h_1} \right) dh_0 - \left(\frac{h_1 v}{wh_0} + v \right) dw$$

It follows that the variations of the heterogeneity cost and public spending offset each other when the following equation is satisfied: $\frac{dh_0}{dw} = \frac{h_1}{w}$. In this case there is no change in the value of deferred perpetuity and the size of religious organizations remains constant.

When the value of the public good provided by religious organizations changes, the effect on the number and size of religious organizations depends on the satisfaction of the corresponding inequalities. When the value of deferred perpetuity decreases, if the ratio between the marginal change of the autonomous cost and welfare spending does not satisfy $\frac{dh_0}{dw} < \frac{h_1}{w}$, the number of religious organizations is likely to increase and the size of the religious organizations is likely to decrease. When rising nations enact policies to increase the value of deferred perpetuity but the condition for the constancy of size³³ is not satisfied, the size of religious organizations is likely to increase.

The same process of modification of the sizes of religious organizations and thus the net effect of nation's existence can be viewed as a result of welfare spending, rather than by the public good's value as determined by the state's policy. If welfare spending varies, to leave the number of religious organizations unchanged, the value of the public good provided by religious organizations and the autonomous component of the heterogeneity cost has to change according to the following equation:

$$dw = -\frac{wh_0 + h_1}{h_1 v} dv + \frac{w}{h_1} dh_0$$

Specifically, when welfare spending increases and the value of deferred perpetuity or the autonomous component of the heterogeneity

³³it is given by $\frac{dh_0}{dw} > \frac{h_1}{w}$

cost do not vary in such a way that $\frac{dh_0}{dv} > \frac{h_0}{v} + \frac{h_1}{vw}$, it is highly possible that the size of the religious organizations will increase.

The net effect of a nation's rise can be understood by considering the change in the autonomous component of the heterogeneity cost. For the religious organization's size to remain constant, when the changes in the values of deferred perpetuity and welfare spending offset each other, the heterogeneity cost must not change³⁴. Otherwise, if welfare spending and the deferred perpetuity value both increase, the cumulative effect of these changes is likely to be stronger than the effect of increasing the autonomous part of heterogeneity cost, as the number of religious organizations will decrease and the size of each organization is likely to increase.

4.3 Optimal size of Nations and one or more Religious Organizations

According to Alesina and Spalaore (1997, 2003), the size of national states is a result of the trade-off between the benefits of size and the cost of the public good and policies. The benefits of the size come from the fact that the per-capita cost of the public good is lower in larger states as more taxpayers can pay for them, and the large market increases individual productivity and thus wealth. However, since in large nations there are more divergent preferences within the population, heterogeneity threatens the stability of the border. The same idea about the existence of this trade-off is applied to the determination of the religious organization's size.

Supposing that the religious organization has an effect on the willingness of people to pay taxes, for example by avoiding additional expenditures to collect taxes, it modifies the cost of the public goods provided by nations. Furthermore, religious organizations influence the heterogeneity cost faced by state very effectively. This

³⁴See case 4.1.2

allows us to use the framework proposed by Alesina and Spalaore and, thereby, to shed light on the modification of the state's size after the emergence of the religious organizations on its territory.

If one universal religious organization exists in the geographical extent of one nation, the heterogeneity cost supported by the state is decreased by the religious organization's ability to homogenize the behaviors of people to achieve the utility of life after death. Decreasing heterogeneity cost augments the size of the state, or the stability of its border. On the contrary, the existence of more religious organizations is likely to increase the heterogeneity cost supported by the state because the religious organizations play a role of cultural defense³⁵ for the ethnic groups composing the nation. The smaller religious organizations can cultivate dissatisfaction of people toward the central government's policies, resulting in a centrifugal force toward secession. This happened in Slobodan Milosevic's Yugoslavia. Future research should explore the relationship between the state and religious organizations, expanding upon the reasoning provided in this paper³⁶.

As the model proposed in this paper suggests, to maintain its size when centrifugal tendency exists, the state can increase the value of the public goods it provides to citizens or decrease the heterogeneity cost of preferences regarding the central government's policies. For instance, for state size to remain unchanged, the government could increase the nation's power and prestige with respect to other states to encourage its citizens to feel more proud of their country and thus creating more stability at its borders. The situation in the United States of America after World War II is an example of the state's ability to create a sense of nationality through its policies. The U.S. government has built up a strong sense of nationality and national

³⁵Bruce & Willis (1995); Hervieu-Léger (2000); Davie (2000). (see note 8)

³⁶Actually, in other paper of this dissertation it is studied the relationship between the heterogeneity cost and the border stability by considering whether increasing the religious heterogeneity in a society affect the probability of civil wars.

power that allows it to impede any secession, while also decreasing the heterogeneity cost supported by the state by involving faith-based organizations in the provision of social justice.

4.4 Summary Chart

Universal Religious Organizations and One State			
	$\mapsto dh_0 = 0$	$dv > 0$	$dv < 0$
	$dw = 0$	$ds > 0$	$ds < 0$
	$dw > 0$	$ds > 0$	$ds = 0$
Universal Religious Organizations and Multi-States			
	$\mapsto dh_0 > 0$	$dv > 0$	$dv < 0$
	$dw = 0$	$ds = 0$	$ds < 0$
	$dw > 0$	$\dashrightarrow ds > 0$	$\dashrightarrow ds < 0$

One State and One Universal Religious Organization
$dh < 0 \rightarrow d(Size) > 0$
One State and Multi-Religious Organizations
$dh > 0 \rightarrow d(Size) < 0$

5 Conclusion

This paper suggests that the size of religious organization is determined by the trade-off between the determinants of membership. The benefits and the cost of size are related respectively to an increase in the value of deferred perpetuity and to a decrease in the level of temporal bliss that can be achieved through the mutual insurance between members. Although historically the rise of secular institutions has decreased the utility of large religious organizations, by changing the principle according to which the people's behavior is homogenized, states can also have no impact on the size of religious organizations; for example, when the state increases welfare spending.

Empirical evidence confirms that increasing welfare spending de-

creases participation in religious activities³⁷. This paper suggests that this is a result of the inverse relationship between the optimal size of religious organizations and the heterogeneity cost. Since the state's welfare spending provides tangible services that a homogeneous religious group could provide, it augments the size of religious organizations. Moreover, according to the traditional interpretation of sects and the church, lower participation levels in religious activities results in larger religious organizations. Henceforth, increased welfare spending increases the size of religious organizations and decreases the participation levels.³⁸

This relationship between welfare spending and the size of religious organization results in an implication for economic policies which aim to reduce the level of tension in society. Iannaccone (1994) and others suggest that the smaller the religious organization in size, the larger the gap between religious traditions and social norms, as there is likely to be tension between members of strict religious organizations and members of other religious organizations and members of society as a whole. Therefore increasing state welfare spending would decrease the level of religious conflicts in society.

A historical example of the process of sectarian secession due to the rise of secular institutions is the transition from the Roman Catholic Church's monopoly of power to the introduction of Protestantism in the religious market. Ekelund et al (1996) argue that the Catholic Roman Church lost its appeal in the sixteen century because new secular institutions began providing the same public goods to the population as religious organizations and thus

³⁷A growing amount of literature finds that government crowds out church participation (Hungerman and Gruber (2005), Hungerman (2005), Gill and Lundsgaarde (2004), Reda (2010)).

³⁸The economics of religion literature recognize also that churches are inclusive, lenient and tolerant to secular values, while the sects, exclusive and strict, are critical of secular society; hence a policy implication of the model proposed here for decreasing the tension between religious organizations and the state is to increase the level of social protection to the citizens.

decreased the cost of the products provided by the existing religious organizations, opening the religious market to the emergence of new religious organizations. Since secular institutions provided common law and language, the importance of the existence of a behavioral code to achieve life after death was decreased, so the church's power to homogenize the behavior of the people decreased. As a result, the religious organization would be only a "church of piety" rather than a "church of power" and the religious product's price would be reduced. Specifically, Ekelund et al consider this transition a result of the change in consumer preferences: as consumers that tend to switch brands when the competition offers a lower price for a similar product, believers switch religions in the same conditions. This phenomenon mirrors the explanation offered in this paper because in both cases the intervention of secular institution affects the value of the public good provided by religious organization and hence its size. According to these other authors, the effect is indirect and operates through the change in consumer preferences, while this paper suggests that the effect is direct. I also suggest that the process of sectarian secession is explained by the fact that when secular institutions decrease the value of the public good, people cluster into smaller religious organization to receive more benefits from the particular behavior they prefer.

Nowadays, the explanatory power of the model proposed in this paper can be confirmed by the difference of religiosity in the United States and the countries in the European Union. In fact, these countries all present very different levels of religiosity and hold different sets of governmental policies. Sociological literature compares the case of the "religious U.S.", having a high level of participation in religious activity, and the case of the "secular E.U.", with a lower level of participation. An attempt to explore the difference between U.S. and E.U. religiosity is made by Inglebert and Norris (2004)

with their “existential uncertainty theory”: it affirms that the population’s drivers toward religiosity are not simply the national economic resources but also their distribution. Because the U.S. is the most unequal post-industrial society while European states are the most egalitarian societies, the former has a high level of religiosity and thus smaller religious organizations. The authors recognize that “Americans face greater anxieties than citizens in other advanced industrialized countries about whether they will be covered by medical insurance, whether they will be fired arbitrarily, or whether they will be forced to choose between losing their job and devoting themselves to their newborn child”³⁹. Europe, instead, is a union of egalitarian countries with high levels of social spending. Key differences between the U.S. and E.U. welfare systems are that the former relies more heavily on private provision of pension and healthcare, places more importance on work-conditioned benefit and selective scheme⁴⁰. Since the US system is “work-conditioned,” in contrast with the generous European system, the former induces more feelings of uncertainty about the futures and as a result Americans tend to be more religious to receive a higher level of religious good and thus mutual support. The European system instead induces lower levels of participation in religious activities, as is expressed by the size of religious organizations. This does not mean that religious institutions have no role; in Europe religion is considered a guardian of identity and its importance can be explained by the notion of “Believing without belonging”⁴¹ and by the concept of vicarious memory⁴². Vicarious memory means that a relatively small number of active

³⁹Ekelund (2008) confirms this view by showing that some of the fastest growing sect in US, that places high demand on followers, have higher average education and income levels. It means that belonging to a small religious group is not directly related to income, as indirectly involved in the traditional interpretation of sect and church, but a more general issue related to the well-being of a community. Moreover, on the same line of reasoning, Bettendorf & Dijkstra (2008) show the existence of a positive effect of income on membership and participation.

⁴⁰Alber (2010)

⁴¹Davie (1994)

⁴²Davie (2000)

believers may be able to look after memory on behalf of others as it is demonstrated by the vigilant attitude of European society toward the religious organization's behaviors.

To summarize, this paper expands upon the "existential security thesis" of Inglehart and Norris (2004) by considering religiosity determinants around the world. The U.S. case can be represented as a situation where the state provides a public good yielding a high level of wealth to the people, but it does not provide security. As a result, the people gather together in groups which provide high levels of mutual insurance. The E.U. case can be portrayed as a situation where the concomitant change of the deferred perpetuity value, of welfare spending, and of the autonomous part of the autonomous heterogeneity cost leads to an increase in the religious organization's size, increasing the importance of religion's institutional role. In the E.U., the effect of policies sustaining the value of deferred perpetuity ⁴³ on the number of religious organizations could be offset by the effects of an increased heterogeneity cost, due to the existence of different nations; the generous welfare spending permits the sustenance of larger religious organization sizes and further permits emphasis to be placed on their institutional role.

⁴³Branas and Solano (2007)

References

- [1] Alber J. (2010). "What the European and the American welfare states have in common and where they differ: facts and fiction in comparisons of the European Social Model and the United States". *Journal of European Social Policy*
- [2] Alesina A. and Spalaore E (1997). "On the Number and Size of Nations" *The Quarterly Journal of Economics*
- [3] Alesina A. and Spolaore E.. (2003). "The Size of Nations. Cambridge" MIT Press.
- [4] Anderson, Lisa R. and Jennifer M. Mellor (2007), "Did the Devil Make Them Do It? The Effect of Religion in Public Goods and Trust Games", College of William and Mary, Department of Economics, Working Paper
- [5] Barro R. and McCleary R., (2003). "Religion and Economic Growth," NBER Working Papers, National Bureau of Economic Research
- [6] Barros P. and Garoupa N. (2002), "An Economic Theory of Church Strictness", *Economic Journal*
- [7] Bettendorf L. and. Dijkgraaf E., (2008). "Religion and Income," Tinbergen Institute Discussion Papers, Tinbergen Institute.
- [8] Berman H.J. (1983). "Law and Revolution: the formation of Western Legal Tradition". Harvard University Press (Cambridge, Mass.).
- [9] Berman E. (2000), "Sect, Subsidy, and Sacrifice: An Economist's View of Ultra-Orthodox Jews," *Quarterly Journal of Economics*.
- [10] Berman E. and Laitin D., (2008). "Religion, terrorism and public goods: Testing the club model," *Journal of Public Economics*, Elsevier.
- [11] Bowles S. (2004), "Microeconomics: Behavior, Institutions and Evolution" - Princeton University Press.
- [12] Branas P. and Solano G. (2007), "Why do European Governamet favor Religion?". Workng Paper, University de Granada.
- [13] Bruce S. (2000). "The supply-side model of religion: the Nordic and Baltic states", *Journal for the Scientific Study of Religion*.
- [14] Casanova J. (2001), "Religion, the New Millennium and Globalization," *Sociology of Religion*.
- [15] Chaves M. and Gorski P. (2001), "Religious Pluralism and Religious Participation", *American Sociological Review*.
- [16] Chen D. and Lind J. (2007). "Religion, Welfare Politics and Church-State Separation" . *Journal of Ecumenical Studies*.

- [17] Chen D. (2010), "Club Goods and Group Identity: Evidence from Islamic Resurgence During the Indonesian Financial Crisis." *Journal of Political Economy*.
- [18] Clark A. E. and Lelkes O. (2009), "Let us pray: religious interactions in life satisfaction," PSE Working Papers.
- [19] Clark A.E. and Lelkes O. (2005), "Deliver us from evil: religion as insurance," PSE Working Papers.
- [20] Coşgel, Metin M. and Lanse Minkler (2004b), "Rationality, integrity, and religious behaviour", *Journal of Socio-Economics*.
- [21] Davie G, (1994), "Religion in Britain since 1945: Believing Without Belonging", Oxford: Blacwell.
- [22] Davie Grace (2000), "Religion in modern Europe: a memory mutates". New York: Oxford University Press.
- [23] Dehejia R. and DeLeire T. and Luttmer E.F.P., (2007). "Insuring consumption and happiness through religious organizations," *Journal of Public Economics*.
- [24] Dehejia R. and DeLeire T. and Luttmer E.F.P. and Mitchell J. (2007). "The Role of Religious and Social Organizations in the Lives of Disadvantaged Youth," Working Paper Series, Harvard University.
- [25] Ekelund R. Jr. and Hebert R. and Tollison R. and Anderson G. and Davidson A. (1996), "Sacred Trust: The Medieval Church as an Economic Firm", Oxford University Press (New York).
- [26] Ekelund R. Jr. and Hebert R. and Tollison R., (2008), "The Marketplace of Christianity," MIT Press Books.
- [27] Ellison, C.G. and L.K. George. (1994), "Religious Involvement, Social Ties, and Social Support in a Southeastern Community." *Journal for the Scientific Study of Religion*.
- [28] Enswaran M. (2011) "Competition and Performance in the Marketplace for Religion: A Theoretical Perspective". *The B.E. Journal of Economic Analysis & Policy*.
- [29] Ferrero M. (2008). "The triumph of Christianity in the Roman empire: An economic interpretation," *European Journal of Political Economy*.
- [30] Ghosh K. and Kumar V. (2005a), "Urdu, Yiddish and Sectarian Nationalism: Role of Script & Linguistic Exclusion Principle" - Part I, *Mainstream*, XLIII (50).

- [31] Ghosh K. and Kumar V. (2005b), "Urdu, Yiddish and Sectarian Nationalism: Role of Script & Linguistic Exclusion Principle" - Part II, Mainstream, XLIII (51).
- [32] Gill A. and Lundsgaarde E. (2004), "State Welfare Spending and Religiosity: A Cross-National Analysis," *Rationality and Society*.
- [33] Huber J. (2005), "Religious belief, religious participation, and social policy attitudes across countries" - Annual Meetings of the Midwest Political Science Association of Chicago.
- [34] Hull B. and Bold F. (1989). "Towards an Economic Theory of the Church." *International Journal of Social Economics*.
- [35] Hull B. and Bold F. (1995): "Preaching Matters: Replication and Extension," *Journal of Economic Behavior and Organization*.
- [36] Hungerman D. and Gruber J. (2005), "Charitable Church Giving and the Rise of the Welfare State," National Bureau of Economic Research Working Paper.
- [37] Hungerman D. (2005), "Are Church and State Substitutes? Evidence from the 1996 Welfare Reform," *Journal of Public Economics*.
- [38] Hungerman D, (2008), "Race And Charitable Church Activity," *Economic Inquiry*, Western Economic Association International.
- [39] Hervieu-Lège, D. (2000), "Religion as a chain of memory". Cambridge: Polity Press.
- [40] Iannaccone L. R. (1988), "A formal model of church and sect", *American Journal of Sociology*.
- [41] Iannaccone L. R. (1991). "The Consequences of Religious Market Structure: Adam Smith and the Economics of Religion," *Rationality & Society*.
- [42] Iannaccone L. R. (1992), "Sacrifice and Stigma: Reducing Free-riding in Cults, Communes, and Other Collectives," *Journal of Political Economy*.
- [43] Iannaccone L. R. and Finke R. (1993), "Supply-Side Explanations for Religious Change" *Annals of the American Academy of Political and Social Science*.
- [44] Iannaccone L. R. (1994), "Why Strict Churches Are Strong". *The American Journal of Sociology*.
- [45] Iannaccone Laurence L. R. (1998). "Introduction to the Economics of Religion," *Journal of Economic Literature*, American Economic Association.
- [46] Inglehart, R and W.E. Baker. (2000). "Modernization, cultural change, and the persistence of traditional values." *American Sociological Review*.

- [47] Inglehart R. and Norris P. (2004), "Sacred and Secular. Religion and Politics Worldwide", Cambridge University Press.
- [48] Kumar V. (2008), "A Critical Review of Economic Analyses of Religion".
- [49] La Ferrara E. (2004) "Solidarity in Heterogeneous Communities". In: Van Parijs P. (eds.) Cultural Diversity versus Economic Solidarity. De Boeck, Brussels.
- [50] Leiter B. (2008), "Why Europe Tolerate Religion?", Constitutional Commentary.
- [51] Levy G. and Razin R. (2009) "Religious organizations". Discussion paper, London School of Economics and Political Science.
- [52] Montgomery J. (1996), "Dynamics of the Religious Economy: Exit, Voice and Denominational Secularization", Rationality and Society.
- [53] Nettle D. (1996). "Language diversity in West Africa". J. Anthropol. Archaeol.
- [54] North C.M. and Gwin C.R., (2007). "The Emergence of the Rule of Law". Religion, Economy, and Cooperation.
- [55] Olson D., Voas, D., Crockett A. (2002). "Religious pluralism and participation: Why previous research is wrong." American Sociological Review.
- [56] Pagano U. and Bowles S., (2003). "Economic Integration, Cultural Standardization, and the Politics of Social Insurance," Working Papers, University of Massachusetts at Amherst.
- [57] Pagano U. and D'Antoni M., (2002). "National cultures and social protection as alternative insurance devices," Structural Change and Economic Dynamics.
- [58] Redaa Ayman (2010), "Religious and Economic Preferences: An Empirical Analysis of State Tax Rates and Public Spending", International Economic Journal.
- [59] Ruffle B. and Sosis R. (2007), "Does it Pay to Pray? Costly Ritual and Cooperation", Journal of Economic Analysis and Policy.
- [60] Stasavage D. and Scheve K. (2006), "Religion and Preferences for Social Insurance", Quarterly Journal of Political Science.
- [61] Shy O. (2001), "The Economics of Network Industries", Cambridge Books, Cambridge University Press.
- [62] Stark R., Iannaccone L. (1994), "A Supply-Side Reinterpretation of the "Secularization" of Europe" Journal for the Scientific Study of Religion.

- [63] Stolz J. (2009), "Explaining religiosity: towards a unified theoretical model" *The British journal of sociology*.
- [64] Stonebraker R. (1993), "Optimal Church Size: The Bigger the Better?", *Journal for the Scientific Study of Religion*.
- [65] Twombly E. (2002) "Religious versus secular human service organizations: Implications for public policy" *Social Science Quarterly*.
- [66] Wallis R. and Bruce S. (1995). "Secularization: the Orthodox Model." in *the Sociology of Religion*, ed S.Bruce. Aldershot; Elgar.
- [67] Weber, M., [1956-(1905)], "The Protestant Ethic andThe Spirit of Capitalism", Unwin, London.
- [68] Wuthnow R. and Nass C, (1988) "Government Activity and Civil Privatism: Evidence from Voluntary Church Membership," *Journal for the Scientific Study of Religion*.

Why does the state support the religious organizations?

Abstract

When religious organizations and nation-states are equivalent in size, the state's support of religious organizations is justified by the fact that the latter provides some positive externalities to the collective community. A problem arises, however, when there is a disparity between the sizes of the two overlapping organizations, and the state continues to support religious organizations both financially and by allowing them to provide public goods on its behalf. This is problematic because religious organizations and the rest of the national community often have different views with respect to public policies elaborated by the central government. In this paper I propose an analytical model to explain why the state supports religious organizations. Existing literature about federalism suggests that the government should decentralize the supply of public goods, and there are many conflicting views with respect to preferences of sub-jurisdictions. Drawing on this literature, I will examine under which conditions the different communities will divert costly resources to fight each other, ultimately suggesting that the state supports religious organization to reduce the probability of social conflict.

JEL Classification: D74, H50, H73

6 Introduction

State and Religion

Huntington (1996) claims that separation of Church and State is a salient feature of the West, and this is one of the key reasons that Western countries tend to be democracies. However, a closer look at the relationship between religious organizations and the state reveals the existence of linkages between them in these countries as throughout the rest of the world. The aim of this paper is to explain this relationship by assuming that religious organizations and the state are overlapping communities with different preferences with respect to the management of public goods⁴⁴. Because of these different preferences, the coexistence of the two can lead to conflict; thus, in this paper I suggest that the state supports religious organizations to maintain social peace.

⁴⁴For example, it is likely that the religious organization prefer that the state redistribute only to the religious community while it redistribute toward all the national community.

The relationship between the state and religion dates back to the beginning of history and has changed its shape over time. The Sumerian state, the first about which we have written records, was an absolute monarchy with religion as its ideology. The king was the god's representative on earth possessing absolute power; beneath him priests and scribes ran the state with the help of a large bureaucracy. The same was true for Ancient Egypt and for others ancient states. The first major break with this pattern occurred in the first "democratic" state, Athens. All the decisions were made by the assembly of citizens without including any otherworldly power.

However, the lack of public reference to one or multiple gods was short-lived, and this situation has changed radically and persistently since the beginning of Roman civilization. From April 21, 743 BC until the 5th century AD, Rome was characterized as a superstitious civilization. In the early years of the Monarchy period, Romans believed that supernatural forces were embodied in stones, rivers, trees, and plants. The legend of its birth, the twins Romulus and Remus who were raised by a she-wolf who found them in a box floating on the Tiber River, speaks to that. As other ethnicities assimilated into Roman society throughout the Republic's years, the faith that was once placed in natural objects was replaced by that in more human-like forces. In addition, the Romans believed that the future could be predicted and altered by performing certain rituals. Every public event required the performance of rituals presided over by priests⁴⁵, who were part of the aristocracy. Consequently, the priests exercised considerable power over the state due to their role in public decision making. In 313 AD Constantine made Christianity the state religion: an act that was not only motivated by religious reasons but which also had political motivations⁴⁶. Furthermore,

⁴⁵Here the category of "priest" is very wide and refers to certain individual who officiate over any religious event.

⁴⁶Those reasons was linked with the difficulty of governing such a big empire.

this act represents the beginning of the close relationship between Church and State in Western countries.

During the following centuries, Europe was characterized by fierce conflicts between secular and spiritual powers.⁴⁷

The need to keep religion under control was at the core of the agreement that marks the beginning of modern nation-states, the Treaty of Westphalia (1648) (Philpott (2000)). Eventually there was a balance of power in which the Church provided legitimacy for the states by providing monarchs with its blessing, while states repaid the favor by protecting Church properties. This relationship came under fire during the Enlightenment. Enlightenment thinkers proposed the separation of Church and State, but their proposals were never implemented. The excess of the French Revolution and the Napoleonic period led Europeans to fight against France's atheist tyrant, reinforcing the position of religion and religious organizations in the public space. Nowadays, the world is experiencing big waves of immigration from very religious countries to less religious countries, with a positive correlation between religiosity and birthrate⁴⁸. As a result, the relationship between the state and religious organizations is becoming increasingly important.

According to Fox (2008), Europe has an atheistic but close relationship with religion, since Western states are heavily involved with the regulation of religious activities. Throughout the rest of the world, the relationship between state and religion runs the spectrum

⁴⁷Over a century before Westphalia, Protestant reformers led thousand of Europeans to defy the Catholic Church, which in turn lead the Catholic authorities to respond with armies, bringing on a century of battles, erupting finally in the holy cataclysmic of the Thirty Years War, a war that took life on a scale unrepeated until the World Wars.

⁴⁸Kaufmann (2008) affirms that "American Catholics have been able to offset large net losses to other denominations through gains arising from (largely) Hispanic-Catholic immigrants and their higher fertility. Fertility differentials can also play a key role - especially long term. Mormons, once a very small sect, now equal or surpass Jews among post-1945 birth cohorts due to their considerable fertility advantage over Jews and other denominations." Moreover, Kaufman (2011) suggests that by considering the demographic forces, immigration and fertility, Western Europe may be more religious at the end of our century than at its beginning.

from weak separation to strong government involvement in religious activities; only the United States has a complete, formal separation. Nonetheless, in academia there exists a trend of ignoring religion as a social factor. Although it is rarely explored, there are a number of possible motivations for a state's support of religious organizations. Many states want to protect their indigenous cultures, others have a symbiotic relationship with religious organizations whereby they support one other, and for some states this relationship is the result of historical inertia. Specifically in Europe, it can be interpreted as a means to maintain social peace.

By taking into account the growing importance of religious issues on public policies, I will present an analytical model that explores the possibility that the state's support is partly due to its aim to maintain social peace. In fact, since religions are belief systems that provide ordered meaning and prescribe actions, and given that almost all religions involve authoritarian power structures, overlapping authority between the state and religious organizations may cause conflict. On the basis of this consideration, here I propose a positive analysis regarding why the government regulates religious organizations.⁴⁹

The remainder of this paper is organized as follows. Section 2 reviews existing literature on the topic, first by briefly recounting the evolution of the economics of religion, and second by discussing the contemporary relationship between states and religious organizations. Section 3 presents a stylized model of the conflict probability between religious organization and the state. Section 4 concludes the paper, suggesting areas for future research.

⁴⁹This analysis is in accordance in spirit with the one of Gill (2005) and Barro & McCleary (2005): they argue that studies on the relation between religious organizations and state should take the form of positive analysis on why the government regulate the religious organization.

7 Literature

The trend of ignoring religion as social factor dates back to the foundation of the social sciences during the Enlightenment; in fact, secularization and modernization has had a profound influence on the study of religion. The social thinkers who founded the social sciences, such as Freud, Marx, Durkheim, and Weber, all agreed that the rationalization process within modernity would reduce the role of religion. To understand this relegation of religion as a significant social force, it is important to remember the historical context. The major thinkers of the Enlightenment promoted rationalism, reason, and science as the basis for guiding government, society, and human behavior. Accordingly, religion was seen as a threat to this kind of society and thus was marginalized. The secularization theory and the modernization approach suggest that the demise of religion is a result of its replacement by rationalism and science, both on individual and institutional level⁵⁰. As long as laws determine the criteria for proper behavior, science offers an understanding of the world, and psychological science provides an explanation for evil, religion will have lost its importance in individual life. Nevertheless, some existential issues still remain⁵¹.

Over the last several decades, the modernization-secularization paradigm has been increasingly called into question. World events have called attention to religion's influence on society and politics in both non-Western and Western countries. The 9/11 attacks on the United States and religious fundamentalism, the Iranian revolution, and the liberation theology movements in Latin America evidence of the need to reconsider this approach. Many scholars have begun

⁵⁰Until the latter part of the 20th Century the dominant paradigm on religion of the social scientist was alternatively known as modernization theory to political scientist and secularization theory among sociologist.

⁵¹"If we discover a complete theory (about the universe's configuration), it would be the ultimate triumph of human reason – for then we should know the mind of God." (Stephen Hawking (1989))

studying religion and social sciences together, and economists have also begun studying religious phenomena. Economics of Religion is an attempt by economists to study religion, whereby economic theory is used as a set of analytical tools and religion as the object of study.

Economic inquiry is composed of many qualitative studies examining the influence of religion on human behavior and on the two schools of rational choice thought with respect to religion: supply-side and demand-side theory. Supply-side theorists emphasize the importance of constraining and facilitating factors of the collective production of religious value and assume that underlying preferences for religious goods remain stable (Stark & Finke (2000)). Demand-side theorists highlight the shift in preferences and the influence of social constraints on the individual's choice for religiosity. At the heart of all rational choice perspectives is the application of the market analogy to religion: religious markets involve exchanges for supernatural compensator promises of future rewards and supernatural explanations for life events and meaning (Stark & Bainbridge (1987)). Like other commodities, religious goods are produced, chosen, and consumed. Supernatural compensator and explanations cannot be proven or disproved, so religious goods are credence goods. Religious organizations are firms dedicated to the production of religious value. Congregations are franchises led by entrepreneurial sales people (ministers), who create value for customers.

Demand-side theory leads to the same result as secularist theory. Supply-side is the dominant economic theory and its scholars contend that religious monopolies produce expensive, inferior religious goods⁵². Pluralism is claimed to be the natural state of religious economies, and religious monopolies can only be maintained

⁵²The supply-side theory refers his basic argument to one of the founders of the economics science, Adam Smith. In a chapter of his *Welfare of Nations* (1776) Smith states that state favoritism of a single denomination create a lazy monopoly that ill serves its parishioners.

through state regulation. Separation of Church and State ensures, on the macro level, that religious institutions compete with each others. Since religious organizations resources are scarce and voluntarily sacrificed, while states assets are extracted through taxes (Iannaccone (1991)), as a result the supply side theory suggests that the extent to which a state supports religion is inversely proportional to the state's population that is religious. On the micro level, for what concerns the individual's personal relationship with religion, the analogy of the market leads us to affirm that each religious consumer engages in a maximization of benefits and minimization of cost⁵³, while religious producers maximize the number of congregants. Therefore, in a free religious market where the religious organizations are free to compete amongst themselves, there is a virtuous dynamic whereby consumers and religion are more attractive and efficient than they would have been in a regulated market with state-supported religion.

Recently, this dominant theory is receiving increased criticism. Not only is the empirical evidence for the supply side theory mixed and challenged by the existence of a mathematical problem that undermines the validity of any empirical test, but there are also disagreements over its ability to explain the level of religiosity in different countries. In fact, the supply-side theory of religion links religious monopolies and individual religiosity, predicting that individual religiosity, conceived as individual participation, would decrease as the government involvement in religion increases. However, this outcome is empirically inconsistent⁵⁴, and Voas et al (2002) demonstrate that the religious pluralism variable used in these studies, the Herfindahl index, has a mathematical relationship with the measure

⁵³Benefits of adopting a religion include individual and social benefits, such as homogenization of the culture and mutual help between members. The cost of religious participation can be computed in term of time, behavioral restrictions or monetary costs of charity.

⁵⁴For instance, Norris and Inglehart (2004) find that regulation of religion is unrelated to religiosity but Barro and McCleary (2006) find that having a state supported religion benefits religiosity; see for example Chave & Gorsky (2001).

of religiosity. Moreover, the supply-side theory of religion, developed by American economists, is adept to explain the U.S. level of religiosity, but is inadequate to in Europe. For example, Steve Bruce (2000) shows that the monopolistic situations in Poland, Ireland, and Italy are linked with a high level of religiosity. Another problem is that supply-side theory is partly counter-intuitive, as states with larger religious populations are likely to expect a higher level of government involvement in religion due to the population's preference, which would result in a positive relationship between the state's level of involvement in religious issues and its citizens' religious behavior, rather than a negative one⁵⁵.

In recent years, many scholars of economics of religion have provided new contributions and have moved beyond the supply-side approach. There are studies which endogenize the supply and demand for religious services (Poutvaara & Wagener (2004)) and there are many qualitative studies that question the influence of religion on economic outcomes (Guiso et al (2003), Helble (2007), Lewer and Van de Berg (2007), Guo (2004)). There is also a flourishing experimental literature that focuses on the varied behavior of individuals belonging to different denominations, and there have been many studies on the effect that an unequal society has on the religiosity of individuals and the link between religious organizations and the government's size (Palani (2008), Rees (2009), Elgin et al (2010), Iyer (2011)). In sum, there is an increasing interest in the relationship between the state and religion.

On the theoretical side, Gill (2005) has studied the origin of the state's regulation of religion, proposing a theoretical approach that focuses on the political self-interest of governments officials. Specifically, Gill supposes that politicians want to regulate religious organizations because they are primarily interested in their own political

⁵⁵In this view the US case it would be an exceptional case

survival and want to minimize the cost of ruling society. These considerations lead politicians to seek ideological compliance of the population when possible, as the conveyance of ideological legitimacy frequently comes with the support of religious organizations. Cosgel and Miceli (2009) also suggest that citizens pay taxes more willingly and that the level of social tension is reduced when the state is legitimized by religious organizations. With the assumption that religious goods pacify the population and that religious teachings legitimize the state, they developed an economic model that explains the relationship between the state and religious organizations, describing the conditions under which it is optimal for the state to control religion. On the empirical side, the same line of inquiry is pursued by Barro and McCleary (2005) who have studied the determinants of the state religions. The relationship between states and religious organizations is studied by J. Fox, whose research is presented in depth in next section.

7.1 Religion and State relationship

The empirical analysis of Jonathan Fox (2008) creates a clear picture of the relationship between states and religions for countries all over the world.

By examining the extent of separation of religion and the state (SRAS) between 1990 and 2002 in 152 states, Fox draws many conclusions with respect to the relationship between the state and religion, attributing his findings mainly to historical reasons. He suggested that religion is arguably at the basis of many nationalist ideologies, that religion institutions have a symbiotic relationship with the state whereby they support one other, and that government involvement in religious activities is also due to the need to place religious organizations under state control. Specifically, Fox demonstrates that no state has full SARS except the United States and that typically economic development is positively related to

government involvement in religion (GIR)⁵⁶. He provides a deeper understanding of this relationship by dividing the world's countries into five blocks and analyzing each of them separately.⁵⁷

The Western democracies block is composed by Western Europe, North America, Australia, and New Zealand, according to a definition that gathers countries with a common culture and established tradition of government. Overall, the states in these regions have one or more official religions and actively promote them through legislating aspects of the religion, granting them control over some aspects of the law, requiring religious education for members of the religion, supporting the clergy, maintaining church properties, and collecting religious taxes. The only Western country which is openly hostile to religion is France, the cradle of Enlightenment; yet even in France religious associations enjoy a tax-exempt status, state support of religious building, and subsidies for religious schools. Although Australia and Canada practice a moderate separation of state and religion, they still legislate several aspects of religion beyond support for religious education. As previously stated, the only country in which religion is completely separated from the state is the United States. Fox affirms that this exception can be explained by the fact that the USA was established in a period during which the concepts of religion and state should not mix and it was founded by people from diverse backgrounds in a place with no history of religious conflicts.

⁵⁶The authors measures 6 aspects of GIR: a) state support for one or more religions either officially or in practice b) state hostility toward religion c) comparative government treatment of different religions d) government restrictions on the practice of religion by religion minorities e) government regulations f) legislation on religious laws. SRAS: Separation between State and Religion; no government support for religion, no government interference in religion, no government regulation of religion. It requires that the state neither help nor hinder any particular ideal than others, and it requires also that the state should not base its actions on a preference for any particular way of life.

⁵⁷Interestingly, Fox (2008) tests also the supply side theory using OLS regressions. He finds that a number of factors affect religious participation and that they affect the religious participation more than the government involvement in religious activities does; thus it undermines further the validity of the supply side theory of religion. These factors are: the religious tradition of the state, the size of its population, religious homogeneity and lack of economic development.

The states of the former Soviet bloc tend to exhibit a paternalistic attitude toward religion; in these countries, religion is subject to heavy regulation and is often restricted as it is seen as dangerous to the state. Africa is the world's most diverse region with respect to government involvement in religion; while some countries practice nearly full separation of religion and state, others are among the world's states with the lowest levels of separation. The Middle East and North Africa have the highest level of state involvement in religion. Asia has an high level of diversity both with respect to religious identity and government religious policy, where the general pattern of government involvement in religion is based on the religious identity of the majority of a state's citizens and whether the government is communist. Latin America is relatively religiously homogenous: the majority population in most states is Catholic, and most non-Catholics are Christian.⁵⁸

Drawing heavily on Fox's research, Mueller (2012) analyzes the potential dangers associated with the state's financial support for religious organizations. He highlights that in a full three quarters of countries in the West, Latin America, Asia, North Africa and the Middle East, the state directly subsidizes religious charities or other religious organizations, especially in the education and health services industries⁵⁹, and in 70% of these states clergy members are on the state payroll. Mueller also recognizes that indirect religious subsidies often arise because many states allow donations to religious organizations to be deducted from an individual's personal income or from a corporation's profits before calculating taxable income.

⁵⁸Some example follows. Tanzania: constitution guarantees religion freedom subject to maintaining the public order. there is not official state religion, though an official Muslim leader is elected periodically. Turkey: constitutions bans discrimination on the basis of religion, however Islam is the fact state's religion: government appoint local imam that are civil servants. minority religion are registered as foundations and cannot acquire new property. Bangladesh: Islam is the state religion; there is financial support for mosques. family law is determined by the religious laws of one's faith and though proselytizing is not illegal local government restricts the actions of missionaries monitoring them. Argentina: federal govern supports Roman Catholic Apostolic religion; education is secular; the government provides Catholic Church with a variety of subsidizes. Uruguay: state support no religion; religion education is prohibited; registered religious organization have tax exceptions.

⁵⁹For instance, with the exception of US, all the world democracies funds religious school directly.

Further, the state indirectly supports religious organizations by exempting religious properties from property taxes. He suggests that the state's support of the various religious organizations merely entrenches religious diversity, planting the seed of religious strife; here, in the light of recent events, we point out a diametrically opposing interpretation of the same phenomenon with respect to the one of Mueller.

In his research Fox(2006) notes that in general, more economically developed countries have higher levels of government involvement in religious activities. He asserts that this is due mainly a result of "modernization", which causes an increase in the importance of religion as the role of tradition declines, and for the sake of effective policy making, results in higher state involvement in religious activities. Consequently, the areas of modern society in which religious and political institutions are overlap are larger, which in turn increases the possibility of clashes between them. Interestingly Fox's primary explanatory variable to account for the increased levels of religion in society, "modernization", is the same variable posited by other authors to explain decreased levels of religiosity. This paradox can be solved by specifying the mechanism by which modernity leads to different outcomes in different contexts. The literature recognizes that where there already exist strong religious traditions, modernization leads to the creation of active religious movements, while the result of modernization is secular nationalism where the pre-existing levels of religiosity are low. Specifically, the model proposed in the following section focuses on communities with strong religious ties located in a nation where the majority of citizens have a different cultural background. In other words, it is assumed that there is one unifying national state with many religious organizations.

The rest of the paper presents an analytical model to explain the thesis that the state's support of the religious organizations is partly

explained by its need control them and thereby prevent them from secession.

8 The model

From the previous analysis⁶⁰, it emerges that state involvement in religion means either that the government funds the religious organizations or that the state gives up its exclusive sovereignty in some matters, as often the state allows religious organizations to provide local public goods. Assuming that the state exists to advance the welfare of all its citizens, state subsidies to religious organizations are justified by the fact that they provide a public good with positive externalities to the entire national community. This line of justification is easy in states where all citizens are members of the same religion. In states where the religious organization and the state coincide, individuals receive the maximum level of utility by paying taxes since the distribution of preferences over the public good will be the same. However, subsidies to religious organizations become problematic when the two communities do not coincide. On the one hand, the secular states construct “imagined communities” based on allegiance to a territory; on the other hand, the religious organizations can regulate membership through doctrinal strictness. When the participation criteria of membership, values, and preferences over the public goods are incompatible, conflict can arise between these communities. When the distance between different preferences is very large, the conflict can be extremely intense and it is possible that the religious organization may seek complete autonomy. In these cases, the religious organization would seek secession from the state that is running its community so that it may devote part of its members’ income to preferred public goods, instead of paying taxes

⁶⁰as well as in the previous paper composing this dissertation

to the central government that finance public goods that are not preferred.

Theoretically, a link between religion and conflict is established by the “mobilization hypothesis.” Certain religious structures such as parallel ethnic and religious identities are prone to mobilization; once politicized escalation to violent conflict become likelier. Here, I propose that the state supports religion organizations to avoid conflicts of secession. Specifically the following analysis draws attention to the crucial fact that the state’s policies toward religious organizations must involve socioeconomic policies, which is beneficial in that it creates a unified community rather than two distinct entities. ⁶¹

8.1 Optimal size of the states and optimal policy

Survey data demonstrates that members of stricter denominations devote more time and money to their religions and are more likely to describe themselves as strong members of their faith. They socialize more extensively with fellow members and are less involved in secular organizations. Sociologists characterize denominations by the level of “tension” they maintain with their local secular society, making it possible to distinguish between various denominations on this basis. Sects exist in a state of tension with the existing society because they reject the prevailing moral code, while churches exist with little tension with the rest of society (Iannaccone (1994)). These considerations allow us to conclude that members of religious sects have more different preferences than do church members with respect to the public goods provided by the central government. It follows that the stricter the religious organization, the higher the

⁶¹In detail, with respect to the literature of Ethno-national conflict management, here is proposed a “structural approach” to the issue, where the model proposed here seeks to accommodate Ethno-national difference through an institutional mechanism. According to Kaufman (2011) structural mechanism are increasingly being accepted as central to the successful management of Ethno-political conflict.

heterogeneity cost, or the cost of maintaining a public good that is different from the preferred public good. Hence, if a new state is created where sects already exist, it would be smaller than a state formed where larger religious organizations exist.⁶²

In many cases religious organizations were founded before the states in which they exist, and national governments normally do not provide all public goods, rather many policy prerogatives that they attribute to subnational jurisdiction. Consequently, the subsequent analysis focuses on determining the state's optimal policy toward religious organizations and handling situations in which religious organizations are not satisfied with the state's chosen policy. When the religious organization and the state are the same size, meaning that there exists only one national church within a state's territory, there is no difference in preference for the public good among the population. When the size of the religious organization differs from that of the state, the religious organization can

⁶²Analytically, here there will be considered three cases of how the state's size changes by changing the composition of the religious organizations located on the national territorial extent. In the first case the state is composed by two sects; in the second there are two churches; in the third case the state is composed by one church and one sect. Following Alesina & Spalore (2003; Ch II), the utility of an individual i belonging to a nation that provides public goods in a centralized manner is the following:

$$u_i = y - b - t_i - \sum_{j=1,2} a_j d_{ij}$$

Where: d_{ij} is the distance between the location of the preferences of the individual with respect to the location of the public good, on a segment with homogeneous distribution of preferences, a_i measure the marginal cost of distance, t_i is the tax level and $b - \sum_{j=1,2} a_j d_{ij}$.

For every public good j , the social planner divides the world into N jurisdiction of equal size ($1/N$), and locates the public good at the middle of each jurisdiction. When the aggregate cost of providing the two goods together is lower than providing them separately ($\sum k_j < k_c$) and if the economy of scope is large enough to offset the heterogeneity cost from centralization, the centralized jurisdiction solution is more efficient. In other words, after some manipulation, it is possible to get that the centralized jurisdictions is optimal if the utility it provides is given by $u_i = y - k_c N_c - \frac{\sum a_j}{4N}$.

It follows that average utility will be maximized by the formation of N_c jurisdiction where $N_c = \sqrt{\sum a_j / 4k_c}$, each of them providing very public goods.

Assuming that the heterogeneity cost with respect to the public good centrally provided is bigger for the sects than for the churches ($a_s > a_c$), we get that the optimal number of states is bigger when all the countries are composed by sects (N_{ss}) than when the countries are composed by one church and one sect (N_{sc}), that is further bigger than the case of states composed by two churches (N_{cc}). ($\Rightarrow N_{ss} > N_{sc} > N_{cc}$). As result, stricter are the religious organizations and smaller are the countries hosting them.

be characterized either as a small community belonging to a big supranational religious organization, such as the Roman Catholic Church, or as a small and strict religious community. The literature exploring the economics of religion recognizes that stricter religious organizations, or the sects, are likely to use the restriction of certain behaviors, stigma, and self-sacrifice to distinguish their members from the members of the national community⁶³. Friction is more likely to exist between strict religious organizations and the society's social norms and economic life, while conflicts are less likely between the churches and the national state.

Alesina and Sapalora (2003; Ch IX) studied the optimal decentralization policy of the government in a hierarchic situation in which some public goods must be shared by all individuals as precondition for the provision of other public goods⁶⁴. They demonstrate that when there are two types of public goods about which preferences vary and the heterogeneity cost is lower for the essential public good than it is for the other, a pyramidal system of government is the optimal solution. In this situation, the state provides the essential public good, while the public good with the higher heterogeneity cost is decentralized and provided by one or more small jurisdictions. In the present model, these subnational jurisdictions are represented by the religious organizations that aim to secede and whose members are just a proportion of the national population.

Assuming that Alesina and Sapalora's model is the optimal central government policy, the following model analyzes the effect of a change in the degree of political centralization and the heterogeneity cost on the religious organization's will to secede. The model demonstrates that a state's support to a religious organization, in

⁶³Iannaccone (1994) shows that these seemingly unproductive costs have a strong economic reason, serving to screen out people whose aim is to free-ride on the utility created by the religious group.

⁶⁴It is just the case of religious organizations located on the territorial extent of a national state providing members of the religious community with a local public goods.

terms of both money and power, is determined by its aim to prevent the religious organization from secession. Specifically, the desire to secede stems from the religious organization's different preferences with respect to the public goods provided by the state. In cases of social conflict between a national government and a religious organization, it follows that the heterogeneity cost would be larger than the benefit of a political union, even when the provision of the public good is partly decentralized.

8.2 Analytical model

This model follows the basic structure of a model proposed by Spolaore (2008), used to study the issue of regional distribution and country stability, in which the cost of a failed secession and the amount of resources that the organizations divert for the conflict are endogenized.

Consider a country where the government provides a continuum of public goods, indexed from 0 to 1; some public goods are provided by the central government, while some others are provided by the religious organizations locally. The utility of a member of a religious organization is determined by adding the net utility of the local public good (b) and the centrally provided public good ($b - a + k$).

$$U_{ro} = \gamma(b) + (1 - \gamma)(b - a + k)$$

The net utility of citizens of the national state is:

$$U_s = \gamma(b) + (1 - \gamma)(b - Ba + k)$$

Where⁶⁵:

⁶⁵It is assumed that the parameters are the same for all the public goods

γ : Degree of decentralization. It measures the proportion of public good provided directly by the religious organization.

B : Share of the population belonging to the religious organization.

a : Heterogeneity cost. This measures the cost associated with the central provision of the public good, resulting from the differences in preferences between the religious organization's members and the rest of the national community. The rest of the national community has a heterogeneity cost of zero.

k : Benefit of the economy of scale. Public goods are characterized by the fact that the economy of scale is positive and increases as the size of the community increases. This is true because its cost can be spread over a larger number of citizens, and the cost of production decreases as the number of different goods produced increases.

Given that we are interested in the case of potential secession, the heterogeneity cost is higher than the economies of scale ($a > k$) of the public goods.

The net utility of a religious individual is maximized when he or she enjoys full independence from the state's provision of public goods ($\gamma = 1$). The net utility of separation for the national community is the same as that for the religious community, but for the former it represents a loss with respect to the status quo, while for the latter it represents a gain. In other words, the utility from separation is b for both communities, but the state benefits more from a union than it would from separation ($U_{sU} > U_{sS}$), while the religious organization's benefits more from separation ($U_{roU} < U_{roS}$).

Consequently, the state's benefit from union over separation is:

$$\gamma(b) + (1 - \gamma)(b - Ba + k) > b \implies (1 - \gamma)(k - Ba) > 0$$

The religious organization's benefit of separation over union is:

$$\gamma(b) + (1 - \gamma)(b - a + k) < b \implies (1 - \gamma)(k - a) < 0$$

As a result, assuming that the heterogeneity cost is larger than economies of scale of the centrally provided public goods, the people of the national state prefer to remain unified, while the religious organization's members prefer to secede. For the sake of simplicity, by "people of the national state" I am referring to citizens of the state who do not belong to the religious organization being analyzed.

The members of a religious organization obtain higher utility from attempting to secede if and only if the sum of the probabilities of gaining full independence (π) and the probability of ending up with a lower utility ($1 - \pi$) is larger than the utility of the status quo. The cost associated with a failed secession is determined by the loss of the possibility of providing a proportion of the public good locally.

When the incentive to secede (S) outweighs the cost of a failed secession, the religious organization will attempt to secede. This can be represented by the following equation.

$$\pi b + (1 - \pi)(U_{ro} - \gamma b) > U_{ro}$$

From this equation we can determine that the religious organization's incentive to secede is⁶⁶:

$$\begin{aligned} & \overline{\pi b + (1 - \pi)(\gamma(b) + (1 - \gamma)(b - a + k) - \gamma b) > \gamma(b) + (1 - \gamma)(b - a + k)} \\ & \pi b + (1 - \pi)((1 - \gamma)(b - a + k)) - \gamma(b) - (1 - \gamma)(b - a + k) > 0 \\ & \pi b - \pi((1 - \gamma)(b - a + k)) > \gamma(b) \\ & \pi b - \pi((b - a + k - \gamma b + \gamma a - \gamma k)) > \gamma(b) \\ & \pi(a - k + \gamma b - \gamma a + \gamma k) > \gamma(b) \end{aligned}$$

$$\pi(1 - \gamma)(a - k) > \gamma b$$

Suppose that the probability of contest success (π) is a function of the ratio of resources diverted to the conflict by the two communities, and it increases as the religious organization becomes more capable and decreases as the state becomes more capable. Thus, the technology of conflict is determined by:

$$\pi = \pi(c, t)$$

where

t : taxes

c : voluntary contribution

and $\frac{\delta\pi}{\delta c} > 0$, $\frac{\delta\pi}{\delta t} < 0$;

we assume the specification is: $\pi = \frac{c}{c+t}$.

This function of the winning probability is known as the ratio function. The ratio function implies that if one side makes no effort while the other side commits any finite amount of resources to the conflict, the side that makes no effort will have a zero probability of success.⁶⁷

The religious organization's incentive to break up the state is determined by a number of factors, including the heterogeneity cost, the benefit of the central provision of the public good, and the level of decentralization. To understand the effect of these variables on the organization's incentive to secede we have to compute the amount of resources, c and t , that the organizations devote to the

$\pi(1 - \gamma)(a - k) > \gamma(b)$

⁶⁷An alternative specification is the logistic function: it ensures side face a positive probability of success even when investing no resources in the conflict and that the side making no effort would not lose everything but just keeping the status quo.

conflict. Contributions to religious organizations are voluntary while the state, having a coercive power, imposes taxes on its citizens. It can be assumed that in cases of conflict, members of religious organizations do not pay taxes to the national state but instead provide voluntary contributions to the religious organization equivalent to the amount requested for the conflict.

Even though the amount of resources can be increased with additional external resources provided by external actors interested in the result of the conflict⁶⁸, for our purposes we will suppose that the amount of resources involved in the conflict depends solely on the maximization of the expected utility of the union and the separation of the two communities. To determine the necessary quantity of resources required, the religious organization has to maximize its expected utility, which is determined by the sum of the probability of winning the contest, or succeeding, and the probability of keeping the status quo, minus the amount of resources available for the fight.

$$EU_{ro} = \pi b + (1 - \pi)(\gamma b + (1 - \gamma)(b - a + k)) - c$$

By substituting the expression for the contest success function we arrive at the optimal level of contribution. As a result, the best response function for the Religious Organization is to set the following amount of contributions:

$$c = -t + \sqrt{[at - a\gamma t - kt + \gamma kt]}$$

Analogously, the state expected utility is:

$$EU_s = \pi b + (1 - \pi)(\gamma b + (1 - \gamma)(b - Ba + k)) - t$$

⁶⁸For instance, external actors involved in such conflict can be a league of national states supporting the central government for keeping unchanged the borders of the state or a big supranational religion willing to form an organization where the components are independent by the secular law of the national state in which they are located in. Nonetheless, here it is not considered the existence of any external actors with respect to the relation between state and religious organization.

and the best response function for the State is the following amount of taxes:

$$t = -c + \sqrt{[-aBc + aBc\gamma + ck - c\gamma k]}$$

At the Nash equilibrium the resources devoted to the conflict are:

$$c^* = ((-1 + \gamma)(a - k)^2(aB - k))/(a^2(-1 + B)^2)$$

and

$$t^* = \frac{B(a - a\gamma - 2K + 2\gamma K) + \gamma k}{(-1 + B)^2} + \frac{((-1 + \gamma)(a - k)(aB - k))}{(a(-1 + B))} + \frac{(k^2)(2 + B - 2d - B\gamma)}{(a(-1 + B)^2)} + \frac{(k^3)(\gamma - 1)}{(a^2(-1 + B)^2)}$$

Therefore, the religious organization's probability of winning the contest is:

$$\pi^* = (a - k)/(a(1 - B))$$

Since $a > k$ and $(1 - B) > 0$, it follows that $\pi^* > 0$.

8.2.1 Reducing the incentive to secede

By substituting π^* in the function demonstrating the organization's incentive to secede, $S = \pi(1 - \gamma)(a - k) - \gamma b$, and deriving it from the heterogeneity cost, the net economy of scale from central provision of the public good, and the amount of decentralization, we can gain useful insight on the state's behavior toward the religious organizations. It will become clear that the state's behavior is determined by its will to reduce the religious organization's incentive to create conflict.

For what concerns the relationship between the incentive to secede and the heterogeneity cost we have:

$$\frac{\delta S}{\delta a} > 0$$

This means that increasing the heterogeneity cost faced by the religious organization increases the probability that it will engage in conflict. As a result, it is possible to consider the state's financial support to the religious organization as a "side payment" that serves to compensate a community with different preferences from the central government with respect to public policies, with a goal of reducing the community's level of heterogeneity cost a .

The relationship between the incentive to secede and the economy of scale of the public good is represented by the inverse function.

$$\frac{\delta S}{\delta k} < 0$$

In this case, increasing the economy of scale decreases the organization's will to secede and thus the probability that it will engage in conflict. To that end the state can increase the economy of scale/scope deriving from the union by increasing the benefits of remaining a part of the larger community, by decreasing the level of taxation for all citizens, providing the public goods in a more efficient way, and/or producing more public goods.

Finally, the incentive to secede is negatively correlated with the level of decentralization⁶⁹.

$$\frac{\delta S}{\delta \gamma} < 0$$

By increasing the degree of decentralization, the state decreases the religious organization's incentive to engage in conflict with the national community. This is a beneficial effect of the government's

⁶⁹In Appendix: $\gamma = d$

optimal policy.

This model demonstrates that the relationship between the probability a religious organization's secession and the cost and benefit of the political union with the larger community evidence that the state supports religious organizations to decrease the probability of secession. Given that cultural divides are associated with greater likelihood of intense ethno-political conflicts ⁷⁰, the goal of the state's financial support to the religious organization is to reduce the heterogeneity cost. Moreover, the state gives up with some of its sovereignty to make the cultural divide feel less prominent by allowing the religious organization to provide local public goods, such as education.

Consequently, the various levels of state involvement in religion across countries can be partly explained by the differences in preference for public policies between the national community with and the religious community. *Ceteris paribus*, an increase in the heterogeneity cost and a decrease of the economy of scope for the commonly provided public good would lead the state to increase regulation of the religious organization, both by decentralizing the provision of some public goods and by supporting the religious organization financially.

In reality, secession is unlikely as it is the most extreme outcome of the relationship between the state and the religious organizations; members of the most extreme groups are typically only a minority of the faith they represent. Moreover, the literature affirms that the outcome of this relationship is based less on doctrine than on strategic calculations, which corroborates my analysis of the importance of socio-economic policies that maximize the economy of scope of the centrally provided public goods.

⁷⁰Roeder (2003), Ellingsen (2005)

9 Conclusions

State support for religious organizations is widespread across the world, although these relationships differ based on the approaches that different governments take toward religion.

The United States is the only country that does not provide governmental support to religious organizations; however, the U.S. is characterized by centrally provided public goods with a strong economy of scale and a high level of decentralization. This permits the various American religious communities to coexist in a larger state without any explicit financial help. The model proposed in this paper helps to interpret the U.S. Supreme Court's famous decision about the Amish community, whereby Amish parents were granted the right to deny their children education beyond the eighth grade, so that they could "protect the children from exposure to ideas that might undermine their faith in the Amish religion"⁷¹. This norm is linked to a decentralized education policy that provides religious organizations with a significant level of autonomy, allowing for the peaceful coexistence of groups even without financial support and respecting the official "complete separation" of church and state.

In the Middle East, the relationship between religious organizations and the state is controversial since it is a question of the appropriate role of Shari'a, the Islamic Law. In Asia a number of religious and political conflicts have emerged as a result of the dissolution of the Soviet Union and the Yugoslav federation that have not yet been solved⁷². Latin America is unique in that most states either support a single religion or do not support any religion; however indigenous communities throughout Latin America are facing the loss of their cultural traditions and are experiencing divisive conflicts in

⁷¹Supreme Court Decision: *Wisconsin v. Yoder* (1972)

⁷²"Communist countries, such as Soviet Union, East Germany and China, attempted to destroy organized religion partly on ideological ground and partly as a way to weaken the organized competition with the state power."^[4]

the name of God (Cevallos (2005))⁷³. The “mobilization hypothesis” is supported in Africa (Basedau et al (2011)), evidenced by the recent attacks on Christian churches in Nigeria (2012). Although a low percentage of Europeans believe in God, European states provide a high level of support to religious charities⁷⁴. Contrary to the idea that religion strengthens morality, immoral behavior in the name of religion continues to harm the community, such as the train bombing in Madrid (2003) the public transportation bombings in London (2005), and the persistent violence in Northern Ireland.

This paper provides an analytical model to support the hypothesis that the state’s support to the religious organizations is a result of its goal to reduce the probability of conflict. This model provides a positive theory to explain the relationship between religious organizations and states. The hypothesis that state support to religious organizations is explained by its desire to avoid social conflicts is historically justified in Europe⁷⁵. Most European countries provide direct subsidies to religious charities, fund religious education, and often include clergy on the state payroll. The existing research about the relationship between religious organizations and the state suggests that the state support has historical motivations, including the need to control the religious organization and religion’s ability to strengthen people’s moral convictions.

There has been a partial change in the kind of social conflicts at the basis of the state’s support to religious organization. It is not only linked to the formation of a state system, but it is also linked to maintaining social peace and preventing the development of religious fundamentalism (Badet & Veit (2003)). For instance, Europe’s immigration debate has a strong religious dimension, as

⁷³What is a better unifying policy than having a Latin American Pope?

⁷⁴Fox (2008)

⁷⁵For instance, Garza & Solano (2007), claim that the European governments favor religion because the majority of the population is “secularization averse”, highlighting how consideration about religious issue are involved in the European way to behave.

Europeans are gradually becoming accustomed to living with others with different cultural backgrounds and religious identities, such as the Muslim immigrants in Germany (DeBartolo & Kladek (2008)). One way to integrate communities with different backgrounds is to decentralize the provision of the local public good and to support religious organizations economically to compensate them for the high heterogeneity cost of the essential public good. Moreover, Europe is facing increased pressure to structure the relationship between cooperation, coordination, and subordination between the state and religious norms and values by guaranteeing that faith will influence the policy maker's decision (Laudeur & Ausberg (2008)). This would increase the economy of scope for the centrally provided essential public goods. In fact, studies across Europe show that the institutional recognition of religious minorities and the official inclusion of religious organizations in policies relating to the governance of diversity positively impact the process of integration (Vertovec & Wessendorf (2005)), decreases the heterogeneity cost and increases the economy of scope, by increasing the quantity of public goods that are centrally provided. ⁷⁶

The hypothesis that European countries support religious organizations as part of their immigration policies to reduce levels of social conflict between immigrants and their host societies can be empirically tested in future research. Generally, this is supported by the empirical evidence relating to the increase in Europe's immigration rate and the state's involvement in regulating religious organizations (Fox (2010)). A fruitful line of inquiry would explore whether the interaction between the state's financial and political support of religious organizations and immigrants affects the na-

⁷⁶Nevertheless, in recent years throughout Europe have risen critiques on diversity; for example, among others scholars, Rowthorne (2003) argues that too much diversity disrupt a national identity by breaking down a society's sense of cohesion and dissipating common values. It follows that it is increasingly important to get into the understanding of the relation between the state and the religious organizations for being able to cope with this issue in the best way.

tional redistribution policies and the state's immigration crime levels related to religiously-motivated violence to persons or property⁷⁷. Another interesting line of research that question the point of the world society would analyze the relationship between ethnic and religious diversity, inquiring which dimension of social heterogeneity more frequently leads to secession, civil conflicts, and other economic conditions.

⁷⁷Empirical research shows that when the immigrants do not have different view towards religiosity with respect to the native people, increasing the percentage of the foreign-born immigrants have a relatively low negative effect on the chance of supporting national redistribution policies by natives, much lower than if the immigrant had a different view toward religiosity. [Burgoon (2011)]

Appendix

Mathematical Calculations:

The expression for EU_{ro} and EU_s can be simplify as

$$EU_{ro} = b - (1 - \pi)(1 - \gamma)(a - k) - c$$

$$EU_s = b - (1 - \pi)(1 - \gamma)(k - Ba) - t$$

Differentiating with respect to t

$$\frac{\partial EU_{ro}}{\partial c} = \frac{\partial \pi}{\partial c}(1 - \gamma)(a - k) - 1 = \frac{t(1 - \gamma)(a - k)}{(c + t)^2} - 1$$

$$\frac{\partial EU_s}{\partial t} = -\frac{\partial \pi}{\partial t}(1 - \gamma)(k - Ba) - 1 = \frac{c(1 - \gamma)(k - Ba)}{(c + t)^2} - 1$$

Putting $\frac{\partial EU_{ro}}{\partial c} = \frac{\partial EU_s}{\partial t} = 0$ yields

$$c + t = \sqrt{t(1 - \gamma)(a - k)}$$

$$c + t = \sqrt{c(1 - \gamma)(k - Ba)}$$

From above

$$t(a - k) = c(k - Ba)$$

and

$$(k - Ba)\sqrt{t(1 - \gamma)(a - k)} = (k - Ba)\left[\frac{t(a - k)}{(k - Ba)} - t\right]$$

$$(k - Ba)\sqrt{t(1 - \gamma)(a - k)} = t(a - k) + (k - Ba)t$$

Thus

$$ta^2(1 - B)^2 = (k - Ba)^2(1 - \gamma)(a - k)$$

Hence

$$t^* = \frac{(k - Ba)^2(1 - \gamma)(a - k)}{a^2(1 - B)^2}$$

$$c^* = \frac{(k - Ba)(1 - \gamma)(a - k)^2}{a^2(1 - B)^2}$$

and

$$\pi^* = \frac{c^*}{c^* + t^*} = \frac{c^*}{c^* + \frac{t^*}{c^*}} = \frac{1}{1 + \frac{k - Ba}{a - k}} = \frac{(a - k)}{a(1 - B)}$$

References

- [1] Alesina, Alberto and Enrico Spolaore (2003), *The Size of Nations*, Cambridge, MA: MIT Press.
- [2] Alesina, Alberto and Enrico Spolaore (2005), 'War, peace and the size of countries', *Journal of Public Economics*, 89 (7).
- [3] . Religious Diversity and Democratic Institutional Pluralism. *Political Theory* 31:265-94.
- [4] Barro, RJ and McCleary, RM (2005) "Which Countries Have State Religions?" *The Quarterly Journal of Economics*, 120 (4).
- [5] Barro & McCleary (2006) "Religion and Economy". *Journal of Economic Perspectives*. Spring.
- [6] Basedau, Matthias/Strüver,Georg/Vüllers, Johannes/Wegenast, Tim (2011): Do Religious Factors Impact Conflict? Empirical Evidence from Sub-Saharan Africa, GIGA Working Papers N° 168.
- [7] Pablo Brañas-Garza & Angel Solano, (2007). "Why Do European Governments Favor Religion?," *Papers on Economics of Religion* 07/01, Department of Economic Theory and Economic History of the University of Granada.
- [8] Bruce, S. (2000). *Choice and Religion. A Critique of Rational Choice Theory*. Oxford: Oxford University Press.
- [9] Burgoon B. (2011), "Immigration, Integration and support for Redistribution in Europe", Working paper Juan March Institute.
- [10] Cevallos D. (2005). RELIGION-LATIN AMERICA: Indigenous Peoples Divided by Faith" (internet source) *Development & Aid, Headlines, Human Rights, Indigenous Rights, Latin America & the Caribbean, Population*.
- [11] Chaves, Mark/Gorski, Phillip (2001): *Religious Pluralism and Religious Participation*. *Annual Review of Sociology*. Vol. 27.
- [12] Cosgel, Metin and Thomas J. Miceli. (2009). "State and Religion," *Journal of Comparative Economics* 37(3).
- [13] DeBartolo, David M. & Amanda Kadlec (2008):" Religion and State Relationships: A Middle East, U.S. and EU Dialogue," *Friedrech Ebert Stiftung*.
- [14] Michael D. P. Driessen (2010). "Religion. State and Democracy: Analyzing Two Dimensions of Church-State Arrangements" *Politics and Religion*, 3 (1).

- [15] Elgin, Ceyhun & Goksel, Turkmen & Gurdal, Mehmet Y & Orman, Cuneyt, (2010). "Religion, Income Inequality, and the Size of the Government," MPRA Paper 25760, University Library of Munich, Germany.
- [16] Ellingsen, Tanja, (2000). 'Colorful Community or Ethnic Witches' Brew? Multiethnicity and Domestic Conflict During and After the Cold War', *Journal of Conflict Resolution* 44(2).
- [17] Ellingsen, Tanja (2005), *Toward a Revival of Religion and Religious Clashes?* in: *Terrorism and Political Violence*.
- [18] Fox, J. (2004a) 'The Rise of Religious Nationalism and Conflict: Ethnic Conflict and Revolutionary Wars, 1945–2001', *Journal of Peace Research*, 41 (6).
- [19] Fox, J. (2004b) 'Are Some Religions More Conflict-Prone Than Others?', *Jewish Political Studies Review*, 16 (1/2).
- [20] Fox J (2004c) "Religion and State Failure: An Examination of the Extent and Magnitude of Religious Conflict from 1950 to 1996" *International Political Science Review*.
- [21] Fox, J. (2006) "World Separation of Religion and State Into the 21st Century" *Comparative Political Studies* 2006.
- [22] Fox, J. (2007), *The Increasing Role of Religion in State Failure. 1960 to 2004*, in: *Terrorism and Political Violence*.
- [23] Fox, J. (2008), "A World Survey of Religion and the State", Cambridge: Cambridge University Press.
- [24] Fox, J. (2010) "The Future of Civilization and State Religion Policy" *Futures*.
- [25] Erik Gartzke and Kristian Skrede Gleditsch (2006): "Identity and Conflict: Ties that Bind and Differences that Divide" *European Journal of International Relations*.
- [26] Guiso, L., Sapienza, P., Zingales, L., (2003). "People's opium? Religion and economic attitudes" *Journal of Monetary Economics*.
- [27] Gill Anthony (2001) "Religion and Comparative Politics" *Annual Review Political Science* .
- [28] Gill Anthony (2005) "The Political Origins of Religious Liberty: a Theoretical Outline" *Interdisciplinary Journal Of Research on Religion*.
- [29] Guo, Rongxing (2004) "How Culture Influences Foreign Trade: Evidence from the U.S. and China" *The Journal of Socio-Economics*.
- [30] Helble, Mathias (2007). "Is God Good for Trade?" *Kyklos*.

- [31] Hawking, S. (1989) "A Brief History of Time". Bantam Books.
- [32] Huntington, S. (1996) "The Clash of Civilizations and the Remaking of World Order" New York: Simon & Schuster.
- [33] Iannaccone L., (1991). "The Consequences of Religious Market Structure: Adam Smith and the Economics of Religion," *Rationality & Society*.
- [34] Iannaccone L. R. (1994), "Why Strict Churches Are Strong". *The American Journal of Sociology*.
- [35] Iyer, S. & Velu, C. & Xue, J. & Chakravarty, T., (2011) "Divine Innovation: Religion and Service Provision by Religious Organizations in India," *Cambridge Working Papers in Economics 1135*, Faculty of Economics, University of Cambridge.
- [36] Kaufmann E. (2008) "Human Development and the Demography of Secularization in Global Perspective".
- [37] Kaufmann E & Goujon A. & Skirbekk V. (2011) 'The End of Secularization in Europe?: A Socio-Demographic Perspective,' *Sociology of Religion*.
- [38] Kauffman E. & Woods E. & Schertzer R. (2011), 'Ethno-national conflict and its Management,' *Commonwealth and Comparative Politics*.
- [39] Ladeur K-H. (2008), "The myth of Neutral State: The relationship between state and religion in the face of new challenge". *German Law Journal*.
- [40] Joshua J. Lewer & Hendrik Van den Berg, (2007). "Religion and International Trade," *American Journal of Economics and Sociology*, Wiley Blackwell .
- [41] Mueller D. (2012), "The State and the Religion", Discussion paper, University of Vienna.
- [42] Norris & Inglehart (2004)." *Sacred and Secular: Religion and Politics Worldwide*". New York: Cambridge University Press.
- [43] Philpott D. (2000), "Westphalia, Authority and International Society", *Political Studies*.
- [44] Palani, P., (2008) *The Effect of Religiosity on Income Inequality*, *Journal of Politics and International Affairs*.
- [45] Panu Poutvaara & Andreas Wagener, (2004) "The Invisible Hand Plays Dice: Eventualities in Religious Markets" *EconWPA*.
- [46] Reynal-Querol, M. (2002) "Ethnicity, political systems, and civilwars" *Journal of Conflict Resolution*.

- [47] Rees, T. J. (2009). "Is personal insecurity a cause of cross-national differences in the intensity of religious belief?" *J. Religion and Society*.
- [48] Roeder, P. G. (2003). "Clash of civilizations and escalation of domestic ethnopolitical conflicts" *Comparative Political Studies*.
- [49] Rowthorne, B. (2003). "Migration Limits" *Prospect Magazine*.
- [50] Santiago Sanchez-Pages & Angel Solano Garcia, (2010). "Immigration, Conflict and Redistribution," *ESE Discussion Papers 195*, Edinburgh School of Economics, University of Edinburgh.
- [51] Smith Adam. (1776). "An Inquiry into the Nature and Causes of the Wealth of Nations".
- [52] Smith C, ed. (1996) "Disruptive Religion: The Force of Faith in Social Movement Activism." New York: Routledge.
- [53] Spolaore Enrico (2008a) "Federalism, Regional Redistribution, and Country Stability" 'Studies in Fiscal Federalism and State-Local Finance,' Edward Elgar Publishing.
- [54] Spolaore Enrico (2008b) "Civil conflict and secessions." *Economics of Governance*.
- [55] Stark R, Bainbridge WS. (1987). "A Theory of Religion" Toronto: Lang.
- [56] Stark, R. and R. Finke (2000) "Acts of faith. Explaining the human side of religion" Berkeley: University of California Press.
- [57] Vertovec S. & Wessendorf S. (2005) "Migration and Cultural, Religious and Linguistic Diversity in Europe: An Overview of Issues and Trends, State of the Art" Paper Prepared for Oxford: COMPAS.
- [58] Voas D. (2009), "The rise and fall of the fuzzy fidelity in Europe", *European Sociological Review*.
- [59] Voas, D., Olsen D., and Crockett A. (2002). "Religious Pluralism and Participation: Why Previous Research is Wrong," *American Sociological Review*.

Ethnic and Religious Heterogeneity and Economic Conditions

Abstract

The rule of capitalism has created a homogenization of the world's cultures while paradoxically the importance of identity has been growing on global level. This paper aims to study the effect of social heterogeneity on the expansion of the world market and, specifically, on the economic conditions of countries. To date, only one study has tried to analyze the contrasting Tendencies of globalization that are creating a more unified yet pluralistic world at the same time. In this paper I expand upon that model with more recent data, specifically by considering the composition of local heterogeneity in a large number of countries. Recent data shows that social heterogeneity does not affect growth directly, but instead indirectly. The results of this research highlight world cultural Tendencies such as the importance of religious fractionalization to increase private investment and ethnic fractionalization to decrease government spending. I additionally reflect upon the Pressure Group Theory and its ability to explain such changes. Ultimately, I discover that changes in the composition of social heterogeneity are likely to increase the probability of civil conflict. The goal of this paper is to offer an in-depth investigation of the relationship between capitalism and social heterogeneity to demonstrate that the Western method of development is not the sole possible way.

JEL Classification: D43, E21,F63

10 INTRODUCTION

This paper examines whether the presence of ethnic and religious identity differences affects a country's socioeconomic conditions.

Two phenomena linked with the evolving world scenario have resulted in my interest in this topic. The first is related to the growing importance of identity and religion. The second reason is related to the homogenization of culture as determined by capitalism and the world market. I do not deny the obvious and well-established fact that political and social factors affect economic conditions, nor do I abandon the view that economic conditions can cause or accentuate the salience of identity⁷⁸. In this paper, I seek to explain

⁷⁸“Globalization may not mean the world is being swept up by the unrelenting and unstoppable homogenizing forces of a blandly uniform globalization. What is taking place is more accurately, if awkwardly, been called “global localization” or “glocalization”. What is taking place is that worldwide processes are being adapted to local circumstances, and globalization may be a self limiting process insofar as it incorporates locality. Many of the forces that appear

a relatively new and additional phenomenon: the relationship between social heterogeneity and capitalism, where social heterogeneity is the division of a society in ethnolinguistic and religious groups and capitalism is not only a means of production and an indicator that can be computed by measuring economic growth, but also as a sum of the aspects that shape the economic organization of the social system, the capitalism, and thus the globalization process: economic growth, government policies, private investment, and civil conflicts.⁷⁹

Specifically, to achieve a broad view of social heterogeneity and capitalism at the global level, I consider a large number of countries by using a statistical model that computes this specific relationship with capitalist powers. In other words, I would like to answer questions such as the following: which type of diversity affects economic growth and in which way? How does social heterogeneity affects government spending? How does social heterogeneity affect private investment and how the probability of civil war is related? To answer these questions I analyze a “General Model” of panel data comprising a set of countries all over the world. This “General Model” results in strong empirical evidence, i.e. results that are robust to any specification, and Tendencies in the variables, or results appearing more than once during the analysis but not in all the regressions where such variables are included.

Sometimes religious diversity seems to be more relevant than ethnic diversity (conceived as linguistic diversity) when explaining these socioeconomic conditions, while other times the opposite holds, which leads to the question of why this is so. For example, there have been religious phenomena such as the secession of

to be homogenizing the global market involve subtle, but important cultural differences, and so what is actually taking place is the universalization of particularism and the particularization of universalism.” [Thomas S. (2005)]

⁷⁹Here, I am dealing with positive economics and by using the classical economics's theory words, especially the one of Pierangelo Garegnani, I am investigating the relationships outside the core economic theory.

the Christian and Animist populations in Sudan, and the tensions between the government and Islam in Ethiopia; while, in Rwanda there have been ethnic riots with the Hutu leadership, an ethnic group. There are even cases where it is impossible to indicate which aspects prominently affect economic conditions. For instance, a conflict in the former Yugoslavia started with nationalistic/ethnic motivations and later assumed a religious dimension with the use of religious symbols, and today the regional economic growth seems to be strongly affected by social heterogeneity.

As a result, I want to inquire whether the relationship between the different kinds of social heterogeneity and economic conditions is linked to the special form of social heterogeneity. I aim to answer to the following questions: What happens when there is religious diversity and a strong unifying ethnicity in a country? What happens when there is ethnic diversity and a unifying religion? What happens when there is both religious and ethnic diversity?

To answer this set of questions I used a new model, labeled “Restricted Model.” This new model is restricted not because of the assumptions it makes, but due to the additional explanatory variables involved. The “Restricted Model” is almost identical to the “General Model”, but includes dummy variables that allow different groups of countries characterized by a certain social heterogeneity form to be taken into account. Specifically, I investigate four sets of countries, distinguished by their different kinds of religious and ethnic heterogeneity: in particular, one or more dominant religious groups and one or more dominant ethnic groups. From the “General Model” one can conclude that social heterogeneity affects the economic conditions of society, but does not directly affect growth. In general, social fractionalization has some effect on the economic conditions, while social polarization has a negative impact and is able to address public spending. The “Restricted Model” confirms

all the Hard Facts revealed by the "General Model" and explores the features and dynamics of each group of countries characterized by a special social heterogeneity composition.

The rest of the paper is aligned as follows. In Section 2, in addition to reviewing the literature pertaining to this paper, I will also review the literature regarding the relationship between religious and ethnic heterogeneity and economic growth. In Section 3, I present the models of economic growth and the data set. In Section 4 I discuss the estimations and results from the regressions of the General and the Restricted Models. Finally, Section 5 concludes the paper.

11 REVIEW OF THE LITERATURE

11.1 Group Pressure Theory

Theoretically, the relationship between social heterogeneity and well-being of a society can be analyzed through Pressure Group Theory, as explained by Olson in "The Rise and Decline of Nations" (1982) and in "The Logic of Collective Action" (1965). His reasoning demonstrates that when there is one organization (or a coalition comprising several organizations), its interests coincide with the broader social collective interest and its actions are likely to increase economic growth. When there are many organizations, they tend to be too small to successfully promote their special world vision and the "right" behavior to obtain it. However, their existence allows society to benefit from the variety of abilities and experiences that trigger innovation and creativity, leading to increases in economic growth. An intermediary numbers of groups instead could be harmful for economic growth because they are too small to make their special interests coincide with the collective interest, but they compete with each other to achieve the dominant position, and once

large enough to succeed, they tend to become exclusive and limit the diversity and values of their membership. As a result, the relationship between social heterogeneity and the wealth of a country can be described by a hump-shaped curve. The hump-shaped pattern is strictly related to Mancur Olson’s idea, which demonstrates that organized interests can be most harmful when they are strong enough to cause major disruptions, but not sufficiently encompassing to bear any significant fraction of the cost to society of their action in their own interest.

This argument allows us to draw a curve of the religious phenomena as an indirect function of social conflict. The level of social conflict is very low when there are few religious organizations, high when there is an increasing number of organizations with each trying to affirm its own world view, and is low when there are so many religious organizations that tolerance among them dominates. Specifically, the social health indicator is a quadratic function of the number of religious groups. An elementary representation of this function follows⁸⁰ (Figure 1).

The reasoning proposed to demonstrate the relationship between a religious organizations and the wellbeing of a society can be roughly summarized as the indicator of economic growth, and can be applied to ethnic groups as well. However, in this case the previous reasoning does not provide an adequate representation of the distinguishing features of ethnic organizations. Instead, it is more appropriate to consider ethnic groups as special interest groups whose unifying factor is cultural and linguistic homogeneity, rather than a special world vision [Montalvo, Reynal-Querol (2005a)]. Ethnic groups are characterized above all by sharing a common language; if the language spoken by a special ethnic group is different from that spoken in society, language is likely to undermine economic growth.

⁸⁰It is possible to define it as an “escatological function”

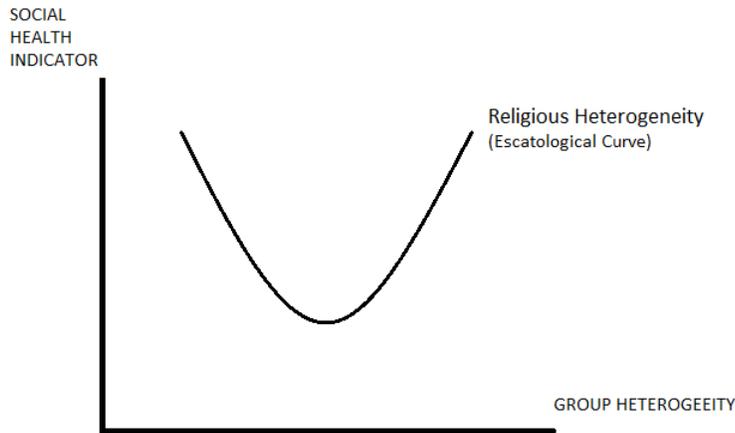


Figure 1: RELIGIOUS HETEROGENEITY PHENOMENA AND THE PRESSURE GROUP THEORY

The efficiency of a system requires zero transaction costs; increasing the transaction costs because of a lack of communication decreases voluntary exchanges, concretely impeding the system's economic growth. Therefore, I suppose that the number of ethnic groups existing in a society has a negative relationship with the indicator of collective wealth. It is possible to draw a curve representing the ethnic/linguistic phenomena where the social health indicator is a negative function of transaction costs and social conflict, which are both positive functions of group heterogeneity (Figure 2).

Nevertheless, although religious and ethnic groups are characterized mainly by one kind of relationship with economic growth, hump-shaped or downward-sloping curves, both curves coexist in the groups composing the social heterogeneity. Roughly, ethnic identity and religious identity can overlap. For example, one cannot exclude the possibility that religious groups have special internal procedures constituting an internal communication code, in the same way that one cannot exclude the possibility that ethnic groups aim to manage the world according to their own views. Consequently, the two

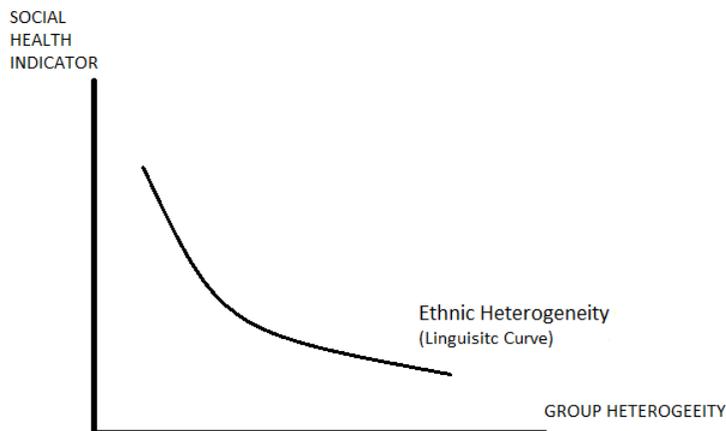


Figure 2: ETHNIC HETEROGENEITY PHENOMENA AND THE PRESSURE GROUP THEORY

curves coexist in each of the two groups even if their relative importance differs. As the two exist simultaneously I am unable to achieve the statistical results required to draw these curves; regardless, this theory will be useful as a reference framework.

11.2 Measures of social heterogeneity

A growing amount of economic literature recognizes a high degree of social heterogeneity as a crucial factor of growth⁸¹. The potential costs of diversity are clear. Population heterogeneity may impact economic growth through various channels. First, diversity can affect economic choices by directly affecting individual preferences: for example, people may gain positive utility from the well-being of members of their own group and negative utility from that of members of other groups. Second, diversity can affect economic outcomes

⁸¹In what follows I do not review in any detail the literature linking social heterogeneity to growth or the literature about the effects of social heterogeneity on other economic conditions. However, boundaries are never neatly defined and judgment calls are often necessary about which paper falls on which side of the boundary. I tried my best, but I readily plead guilty of making judgment calls that may reflect my uneven knowledge of the literature.

by influencing the behavior of individuals: for instance, a lack of communication due to linguistic diversity or an a priori incompatibility between different conceptions of the world could hinder the diffusion of ideas, innovation, and markets. Third, the private and public allocation of physical and human capital based on concern for these groups can lead to inefficiencies, such as encouraging rent-seeking activities. Finally, because religious and ethnic differences are important social cleavages, the social response to this heterogeneity could generate violence and consequently inhibit economic growth. Further, the government could increase public spending to mitigate potential conflict, causing either beneficial or detrimental effects on economic growth.

However, population diversity also provides a wide variety of abilities, experiences, and cultures which may be lead to innovation and creativity, creating a prosperous society. Since individuals differ in productivity and in the way that they interpret and problems, diversity may even be entered as a positive variable in the production function. Thus, there is a trade off between the benefits and the costs of diversity in a multi ethnic society.

To account for the trade off between their costs and benefit, it is important to capture the direct and indirect effect of social heterogeneity on economic growth. The fragmentation and polarization indices capture the effects of social heterogeneity on economic growth, through direct effects, government spending, private investment, and social conflict [M. Reynal-Querol (2002), Alesina et al (2003)]. The fractionalization index captures the probability that two randomly paired individuals in a country belong to different groups. This index increases monotonically with heterogeneity. The polarization index captures the distance of religious groups from the situation that leads to the maximum conflict. It assigns "returns" to each group size, transforming the group size into a power, so

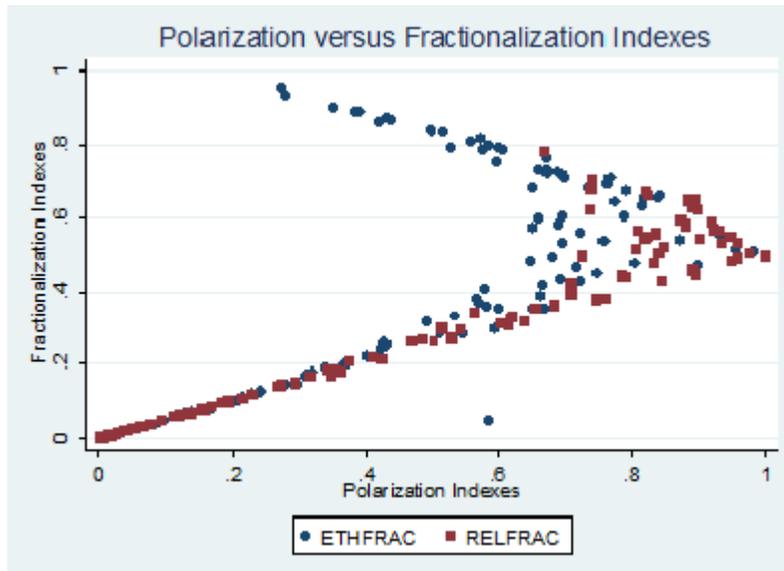


Figure 3: POLARIZATION VERSUS FRACTIONALIZATION INDEXES

that what matters is not only how many groups there are but also whether they view other groups as a threat to their interests. To study the effect of social heterogeneity on capitalism in this paper I will use both indices.

The fractionalization index allows us to consider the proportion of different groups in each society and thus the actual composition of subjectivities; instead, the polarization index allows us to determine the level of tension resulting from the existence of different groups. The relationship existing between the fractionalization and polarization indices depends on the number of organizations in a given country. A linear relationship between the two indices is observed in countries where there is a large religion that accounts for more than $2/3$ of the population. For different cases, the relationship is close to zero (Reynal-Querol (2002)); consequently, when there is ethno-religious heterogeneity the correlation is low. Also for this reason I consider both of the indices in the following analysis.

Using the fractionalization index and considering ethnic diversity, Alesina (2003) shows that ethnic fragmentation is negatively correlated with measures of infrastructure quality, literacy, and school attainment and positively correlated with infant mortality. Alesina, Glaeser and Sacerdote (2001) prove the existence of an inverse relationship between ethnic fractionalization and the amount of government social spending and transfers relative to GDP. One explanation is that altruism does not travel well across ethnic lines. Alesina, Baquir and Easterly (1999, 2000) attest that more fragmented cities provide a lower level of productive public goods, such as roads, while expenditures that more closely resemble transfers targeted to ethnic groups are larger. Using the polarization index and taking religious diversity into account, Montalvo and Reynal Querol (2003) find that religious polarization has a negative and significant effect on GDP, while religious fractionalization does not have any effect.

Montalvo and Reynal Querol (2005b), analyze the effect of different dimensions of ethnic diversity on economic development and compare the empirical performance of fractionalization and polarization indices. Specifically, by considering the effect of different dimensions of ethnic diversity on different regressions, they determine that religious polarization decreases investment, increases the proportion of government consumption to GDP and increases the probability of civil wars; in other words, ethno-fractionalization has a negative and significant effect on growth. They find that both types of heterogeneity affect growth negatively through direct and indirect channels. Contrary to this finding, Akbhari and Shabani(2011) show that religious heterogeneity measured by both indices has a positive effect on regional economic growth, which they suggest is driven by the fact that people differ in their productivity and in the ways that they interpret and solve problems.

Given the ambiguity of these results, and given the increasing im-

portance of religiosity as a social cleavage⁸², and given the increasing power of globalization, in this paper I will question whether Montalvo and Reynal Querol's argument still stands with newer data. Moreover, I will propose a comparison between the General Model and the Restricted Model to determine the relative importance of the ethnic and religious phenomena on economic growth, government spending, private investment and intrastate wars in different groups of countries characterized by their varied compositions of social heterogeneity.

11.3 The resurgence of Religion interest

Traditionally, the resurgence of religion has often been explained as a response to personal insecurity that results from a wrongful distribution of wealth in society. Generally, when placed in stressful or difficult environments, some individuals are likely to attempt to communicate with supernatural entities through prayer, causing participation and beliefs to become stronger. This is due not only to psychological reasons but also to the practical assistance provided by religious organizations.⁸³

Today, we have a new interpretation of the resurgence of religion and ethnicity, in which active social heterogeneity is seen as a form

⁸²For example, it has been shown that the increasing fervor in religious feelings leads the religious conflict to be the majority of all domestic conflict, since 2002. (Fox 2004)

⁸³Huber (2005) notes that increased inequality increases the religiosity level. Sheve and Stasavage (2006) show convincingly that personal religious beliefs can provide a buffer against adverse life events. Many other authors keep the idea of a substitution between state spending and religion on security basis. For example, Gruber and Hungerman (2005) reveal that provision of services to the poor during the New Deal crowded out the church sector; Gill and Lundusgaarde (2004) and Hungerman (2005) present a crowding out effect at work when government welfare spending depresses the level of religious participation, effectively providing an incentive for people to switch away from welfare goods provided by religious groups, since participation incurs higher transaction costs in terms of time; Chen and Lind (2006) look at religion as a substitute for state provided insurance and showed that religiosity decreases an individual demand for welfare state accordingly; Rees (2009) and Stegmuller (2011) demonstrate that state level actions reducing insecurity decreases religiosity; Reda (2010) and Ceyhun et al (2013) show that religious individuals prefer to give less to the government in the form of taxes.

of defense against forces challenging traditional values⁸⁴. Religion and ethnicity allow for the creation of alternative communities with respect to that defined by capitalism. Scott Thomas (2005) uses the term “authenticity” to describe the link between the resurgence of religion and rejection of global capitalism. As there is a scarcity of literature addressing the relationship between ethnicity and capitalism, this paper attempts to fill this gap.

The concept of authenticity allows us to interpret fundamentalism in a new way. Instead of understanding fundamentalism as an anti-modernist movement marked by a resurgence of primordial identities and values, it is more appropriate to understand the various types of fundamentalism as a powerful refusal of the contemporary historical passage in course. According to this view, the case of Islam is emblematic, as Islam has been a radical critic of the capitalist model of development. The various forms of Islamic fundamentalism are coherently united in their resolute opposition to modernity and modernization. While political and cultural modernization has been a process of secularization, Islamic fundamentalism instead poses sacred texts and religious leaders at the center of human life and society. The anti-modern movement defining fundamentalism can be then understood not as a pre-modern project, but rather as a post-modern project. The post-modernity of fundamentalism has to be recognized primarily by its refusal of modernity as a weapon against Euro-American hegemony.

The idea of Islamic economics was popularized by Maududi (1975), a Pakistani ideologist who aimed to defend Islamic culture against the influence of the West. His work set the tone for later developments. However, Islamic Economics has contributed little to relevant issues in modern economics, simply because attention is given

⁸⁴Norris and Inglehart (...): *“individuals who oppose the majority values are galvanized into unusually active and disruptive form of behaviour in order to defend the threatened values” (I: 1997 modernization and post modernization...)*

to issues of negligible importance to modern readers, instead focusing on topics covered in classical Islamic sources, as Islamic Economics has been used as a means of establishing Islamic authority. Prohibition of interest, as well as other “un-Islamic” economic practices of insurance, such as arbitrage, speculation, and indexations, can be found in the Koran or other sources of Islamic authority⁸⁵. Regardless, in this paper I am not interested specifically in the manner in which Islam deals with economics either in theory or practically. In the following analysis, I inquire if the Islamic aversion to the prospect of being assimilated into a global culture with western elements will be actualized. Consequently, I will also run one model which is identical to the general model, but with dummy variables to indicate Islamic countries. In a recent contribution, Noland (2003) demonstrates empirically that Islam is not inimical to growth, a finding in direct contrast with a larger strand of literature arguing the opposite thesis, including the work of Timur Kuran. My results are instead consistent with Noland’s work.⁸⁶

11.4 Ethnic-Religious Conflicts

Many researchers in the political sciences have emphasized that religious differences are a cause of ethnic conflict, arguing that religious differences are more important than ethnic differences as social cleavages that can develop into conflict⁸⁷. There are two main reasons why religious differences can generate more violence than other social cleavages: first, religion is exclusive; second, religious differences imply different ways of understanding the world, a varied approach to social relationships, and so on. But there are also coun-

⁸⁵Timur Kuran (1995, 2012)

⁸⁶In the empirical exercises I am referring to I used a dummy for Islamic countries and West countries; they are available from the author upon request.

⁸⁷There exist even the opposite thesis: for instance, Desmet (2009) find that ethnic heterogeneity is significantly and positively correlated with the onset of civil war.

terarguments: while religious conversion is possible, ethnic conversion is usually not, and ethnic differences may also result in different perceptions of the world.⁸⁸

Indicatively, Reynal-Querol (2002) provides empirical results supporting the view that compared with ethnic differences, religious differences, measured as religious polarization, tend to be associated with a higher incidence of conflict, while fractionalization of either type of difference has no effect. However, the findings of Montalvo and Reynal-Querol (2005b) differ: while polarization raises the risk of conflict, religious polarization has a positive impact by reducing the risk of conflict when religious fractionalization (which is represented as negative) is also included. Additionally, in this paper I will also explore the roles of ethnic or religious diversity in civil wars to determine which type of diversity is primary.

Global trends have been shifting. During the last two centuries collective action has shifted from local and private targets to national and public targets. In the last century, a substantial increase in the number of rebellions led by identity groups in the seventies and eighties was followed by a veritable explosion in the early 1990s. However, the end of the Cold War did not spur ethnic and religious rebellion at world level, empirically proved by the work of Roeder (2003). Roeder instead indirectly supports the idea that the process of rebellion is against a certain kind of development. In his research he highlights that the majority of conflicts is between Western civilization and another ethnicity, with the Western civilization representing a certain kind of development and values that can be linked

⁸⁸The increased importance of religion issue is not only linked with its level of conflictuality. For instance, there is a growing trend in the literature affirming that demography is the clue for religion increasing importance. For example, Stewart (2009) suggests that two factors influence which identity is chosen: first, which identity is used politically in the allocation of government resources and secondly, what the demographic situations is, with the mobilizing identity being one that unites a large and effective group. Kauffman (2010) is even proposing that, thanks to the high level of fertility of religious people, the world is going to be more religious than ever. However, given that demographic variables are only available for a limited set of countries, I decided to avoid a large reduction in the sample size and so in this research, demographic issue are not considered.

with capitalism.

Moreover, most of the wars of the last half century have been fought over issues of group autonomy and independence. While more of these ethno-national wars have been settled or contained through international engagement and negotiations since the early 1990s than in any decade prior, wars continue to persist. Often, federalism is viewed as the solution to avoid wars, but not always, as often religious minorities are targets of systemic discrimination. Discrimination based on doctrinal justifications is highly resistant to international arguments about minority rights. As a result, it is impossible to stop war by achieving solutions through peaceful negotiations, as it is part of the globalization process and thus in the capitalism need of expansion.

12 The Model

The purpose of this section is to analyze the effects of the different dimensions of ethnic diversity on economic development. In each empirical exercise I consider a sample of 114 countries and data from 1990 to 2010 organized in 5-year intervals. This is the maximum number of countries I could analyze due to empirical data availability. Through studying a large number of countries I was able to achieve the most comprehensive vision of the relationship between social heterogeneity and capitalism possible.

The empirical study is composed of two sections: the first section allows for a direct comparison with Montalvo and Reynal-Querol (2005b)(referred to as MRQ for the rest of the paper), with regional dummies to take the broad differences between world regions into account; the second section examines four groups of countries separately, each of which characterized by its specific social heterogeneity composition, according to the information collected by the

CIA World Factbook.

To analyze the direct effect of religious and ethnic diversity on growth, we adopt the standard specification ⁸⁹.

$$Growth_{it} = \alpha + \beta \ln GDP0_{it} + \sum_j \gamma_j X_{jit} + \delta_1 CW_{it} + \delta_2 POL_{it} + \delta_3 FRAC_{it} + \varepsilon_{it}$$

where GROWTH is the growth rate of GDP per capita and $\ln GDP0$ is the log of gross domestic product per capita of country i and year t in the initial year of each sub period. The vector X of $i=1, \dots, J$ variables includes the ratio of real government consumption to real GDP⁹⁰ (GOV), the absolute deviation of the PPP value of the investment deflator from the sample mean⁹¹ (PPDEV), the ratio of real domestic investment to GDP (INV), secondary-school enrollment rate (SECS), primary-school enrollment rate (PRIMS) and the dummies. The sample covers the countries as in Barro-Lee (2013). We add three variables to the basic growth regression (Barro 1991): civil wars (CW), ethnic (religious) fractionalization (FRAC) and ethnic (religious) polarization (POL)⁹². Contrary to MRQ, I have chosen to use only the variable civil wars (CW) rather than the sum of the following variables: civil war, revolution, coups per year, and assassinations per million of the population. I consider only CW because my interest focuses on a specific notion of civil war that is less restrictive than the notion used by MRQ, according to which a civil war had to cause over one thousand deaths. By using a wider notion of civil war used, I do not need to consider other indicators of social struggles.

⁸⁹Barro (1991), Montalvo et Reynal-Querol (2005a)

⁹⁰Expenditure on education and defense included

⁹¹In order to proxy for market distortion, I calculated the magnitude of the deviation of the price level of investment of the period from the sample mean.

⁹²With respect to Barro (1991) and to MRQ I do not consider the number of revolutions (REVOLT) or coups (COUP) per year and the proportion of assassinations per million population (ASSASS) because I have used a more sensitive CW definition.

12.1 Data

In each empirical exercises I rely upon the Penn World Tables 7.1 data set for the standard variables, and data from MRQ for the ethnic and religious heterogeneity indices. In the following models three indirect effects of ethnic/religious heterogeneity are considered: on investment, on public consumption, and on the probability of civil wars. In order to avoid variable fishing, I choose the most common specifications studied in the literature for each of these variables. Of particular importance is the definition of civil conflict, since it highlights the dimension of the present analysis. Data on civil conflicts were obtained from Armed Conflict Dataset (1946 – 2012) (UCDP/PRIO), where conflict is defined as “a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a State, results in at least 25 battle-related deaths.” Specifically, this considers internal armed conflicts that occur between the government of a State and one or more internal opposition group(s) without intervention from other States, and internationalized internal armed conflicts that occur between the government of a State and one or more internal opposition group(s) with intervention from other States (secondary parties) on one or both sides.

The sample is composed by 114 countries. Annual country data between 1990 and 2010 have been averaged over each five years to obtain four years indices (1990-1995; 1995-2000; 2000-2005; 2005-2010). As a result, my data is given by a sample of 456 observations (4years indices*114countries).

Summary statistics of the data are shown in Table1.

	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
<i>year</i>	456	1997.5	5.59631	1990	2005
<i>lnpop</i>	456	9.242908	1.651126	4.566845	14.07615
<i>lnGDP0</i>	456	8.385263	1.425607	4.878703	11.20154
<i>GOV</i>	456	9.462373	4.973945	2.746	32.438
<i>INV</i>	456	23.15649	8.507754	2.938	53.57
<i>CW</i>	456	0.252193	0.4347484	0	1
<i>pi</i>	456	73.01533	115.1063	12.5	1594.7
<i>ppdev</i>	456	-2.620868	35.2438	-484.434	225.162
<i>ethpol</i>	456	0.505512	0.2445075	0.0198523	0.9824263
<i>ethfrac</i>	456	0.4356446	0.2794737	0.009962	0.958587
<i>relpol</i>	456	0.4712887	0.3498962	0.0011994	1
<i>relfrac</i>	456	0.2873552	0.2332362	0.0005998	0.7822098
<i>prims</i>	456	18.3139	10.0021	0.69	48.28
<i>secs</i>	456	17.43452	11.97469	0.55	51.16
<i>country</i>	456	57.5	32.94384	1	114
<i>democ</i>	456	0.6140351	0.487357	0	1
<i>regdum</i>	456	0.6929825	0.4617633	0	1
<i>RRE</i>	456	0.1666667	0.3730873	0	1
<i>RE</i>	456	0.3596491	0.4804246	0	1
<i>RREE</i>	456	0.254386	0.4359938	0	1
<i>REE</i>	456	0.2192982	0.4142255	0	1

Table 1: SUMMARY STATISTICS

12.2 Estimation Procedure

The estimation procedure for the direct channel (growth equation) and the indirect channels (investment, government consumption over GDP and civil wars) is the Seemingly Unrelated Regression Estimator (SURE) developed by Zellener (1962) and commonly used in recent empirical research on growth (Montalvo and Reynal-Querol, 2005b). The seemingly unrelated regression model is a recursive model which occurs when a series of endogenous variables are considered as a group because they bear a close conceptual relationship to each other. If the disturbances of each equation are simultaneously uncorrelated, there is no relationship between the equations and OLS estimation is appropriate. If the error terms are correlated, however, efficient estimates can be obtained by using a more sophisticated technique. The SUR model involves generalized least-squares (GLS) estimation and achieves an improvement in efficiency taking into explicit account the fact that contemporaneous cross-equation error correlations may not be zero (Pyndyck and Rubinfeld, (1998)). The SUR estimator offers a gain in efficiency over equation-by-equation estimation by OLS depending on the magnitude of the cross-equation contemporaneous correlations of the residuals, measured by their covariances. The higher those correlations, the greater the gain will be. To test whether applying SUR yields a significant gain in efficiency I have performed the Breusch and Pagan (1980) test of independence to each of my regressions. Their LM statistics adds up the squared correlations between the residuals vectors of the equations, with a null hypothesis of zero contemporaneous covariance between the errors of different equations. This test is produced in STATA by the SUREG command when the CORR option is specified (Baum (2006)). If these covariances are actually zero, applying SUR produces no gain in efficiency. If the vectors of explanatory variables are identical across equations,

again there is no gain, as the GLS estimator is identical to equation-by-equation estimation by OLS. As I will demonstrate below, even though in what follows I find no contemporaneous correlation of the equation's residuals and hence there are not common unobserved factors that influence the dependent variables in the equations⁹³, the use of a SURE model is due to the fact that it allows us to draw a direct comparison with the results of MRQ analysis, which is useful to get an idea of the evolution of the world over the last 50 years. In addition, using this kind of estimator in absence of cross-equation contemporaneous correlation of the residuals does not bring about a loss of efficiency with respect to other estimators, and this procedure accounts for random effects of individual countries that are correlated across decades (Baum (2006)).⁹⁴

12.3 Polarization and Fractionalization Indexes

The Fractionalization Index measures the probability that two randomly selected individuals in a country will belong to two different groups, either ethnic or religious. It is defined as:

$$FRAC = 1 - \sum_{i=1}^N \pi_i^2$$

where π_i is the proportion of people professing religion i .

The Polarization index is a summary statistic of the ethnic/religious groups in a population. It is defined as :

$$P = k \sum_{i=1}^N \sum_{j=1}^N \pi_i^{1+\alpha} \pi_j \|y_i - y_j\|$$

where π is the size of each group in proportion to the total population,

$\|y_i - y_j\|$ measures the distance between the two groups

and α, k are two parameters⁹⁵.

⁹³The Breusch Pagan Test is used to test the assumption that the errors across equations are contemporaneously correlated. The null hypothesis is no contemporaneous correlation and it is accepted in every regression.

⁹⁴In order to deal with the issue of heteroskedasticity I calculate the standard errors using the sandwich formula instead of the usual estimator of the asymptotic variance of the seemingly unrelated regression estimates.

⁹⁵ α is an index of the "polarization sensitivity"; k : multiplicative value to use for population normalization (Esteban & Ray 1994)

In order to obtain a measure of ethnic polarization, Montalvo and Reynal-Querol (2005b) assume that the absolute distance between the two groups is equal so that there is no need to consider any measure of distance. I use the same heterogeneity index as MRQ, as using a polarization index without measuring distances is more appropriate since the identity of the groups is clearer than their relative "ethnic distances," as there are no empirical measures of distance across ethnic groups available and generally accepted. Further, by using such an index, it is possible to avoid problems related to endogeneity.

Hereafter, I utilize a Polarization index in the following form:

$$P = k \sum_{i=1}^N \sum_{j=1}^N \pi_i^{1+\alpha} \pi_j$$

This indicator of polarization has two basic proprieties:

a) If we merge the two smallest groups into a new group, the new distribution is more polarized than the original one.

b) If we shift population mass from one group equally to two other groups, of equal size, the polarization increases.

Rent-seeking literature⁹⁶ demonstrates that social tensions emerge more easily when the population is distributed in two groups of equal size. This is because the probability of the outcome depends on the resources spent by each group, meaning that two groups of the same size would face perpetual war.

13 Empirics

In this section, both in the General and in the Restricted Analysis, a Hard Fact refers to a finding that is supported both in regressions comparing the two kinds of religious/ethnolinguistic heterogeneity and in regressions where all types of social heterogeneity are taken into consideration. A Tendency, instead, is the label for a

⁹⁶ Alesina et al (1997), Spalaore (2008)

finding that appears either in systems where all social heterogeneity indices appear simultaneously or in systems where the religious and ethnolinguistic indices appears alternatively.

In the following analysis I will interpret econometric results based on the research questions and on Group Pressure Theory, explaining the relationship between heterogeneous groups and the indicators of well being. I will also compare my results with those of MRQ.

13.1 General Analysis

In this section I will compare my results with those of MRQ to account for the evolving world scenario over time, especially with respect to the relationship between heterogeneity groups and social/economic conditions. While MRQs' work considers data from 1960 to 1989, my analysis evaluates the years from 1990 to 2010. The main findings of MRQ are the following. First, ethnolinguistic fractionalization has a direct negative effect on growth. They do not provide any justification to argue that the negative effect of fractionalization on growth is due to its impact on the indirect channels mentioned above. Instead, I find that ethnic fractionalization negatively affects the indirect channels. Second, MRQ suggest that an increase in ethnic polarization has a negative indirect effect on growth, because it reduces the rate of investment and increases public consumption and the incidence of civil wars. Third, the MRQ analysis shows that religious polarization has a negative effect on the rate of private investment, a positive effect on the probability of civil wars, and a positive effect on government consumption. The results of my analysis for the case of ethnic and religious heterogeneity are partially different. In the General Model I find that the two kinds of polarization have a null effect on both direct and indirect channels. I find instead that religion fractionalization positively affects private investment and that ethnic fractionalization negatively affects government spending.

Clearly, the changes in the conditions of economic growth, investment, government spending, and civil war that took place across the two studies explain some of the differences between the two analyses. The investigation period of my research is particularly interesting due to the gathering of the capitalism expansion process, as well as the accelerating rate of the “rebellion the las masas”⁹⁷. These two phenomena are two faces of same coin. The expansion of capitalism requires that on the one side, all people are consumers possibly with homogeneous preferences, and on the other side, people as consumers have the freedom to choose their own commodities, including their identities and way of life, as much as different as they prefer.

Paradoxically, as a result of these two phenomena, the globalization process nowadays brings fewer Hard Facts into being with respect to the years analyzed by MRQ, but still confirms old Tendencies. None of my findings is truly surprising, as they represent an evolution of preexisting Tendencies. This is the case, for example, of religious fractionalization’s positive effect on private investment and the negative effect on government spending carried out by ethnic fractionalization, as these results follow the reasoning of Pressure Group Theory. Finally, the comparison between MRQ and my analysis highlights the decreasing importance of organizations and the growing importance of differences in the population composing the multitude, the subjectivities. This is registered by the fact that in recent years the Hard Facts are indicated by the fractionalization index, while in the earlier analysis they are recorded by the polarization index.⁹⁸

⁹⁷Ortega y Gasset (1939)

⁹⁸With the increasing intensity the institutions provide discrete place where the production of subjectivity is enacted. Each group has his own rules and logic of subjectivation. The general crisis of the institution that is actualizing nowadays does not mean that they no longer produce subjectivity. This crisis means that today the enclosure used to define the unilateral space of the institutions have broken down so that the logic that once functioned primarily within the institutional walls now spreads across the entire social terrain. Carceral discipline, school discipline, factory discipline and so forth interweave in a hybrid production of subjectivity. Therefor the index that is better able to describe the social and economic conditions nowadays in the fractionalization index and no longer the polarization one.

13.1.1 Religious Polarization & Religious Fractionalization

Table 1 shows the comparison between the effect of religious polarization and that of religious fractionalization on growth, investment, civil war, and government spending. This analysis allows us to shed light on the consequences of different numbers and relative sizes of the religious groups. To test the consistency of this regression, the effects of the two indices are evaluated separately (Table2).

MRQ find that “there is no direct effect of the index of religious fractionalization on economic growth. Religious polarization index does not have any statistically significant effect on growth, either.” Consistent with their findings, I find that the null hypothesis of no direct effect of the religious fractionalization and polarization indices on growth cannot be rejected. Also consistent with their findings, religious polarization also tends to decrease investment, increase the proportion of government spending over GDP, and increase the probability of civil wars. Given a particular degree of polarization, more diversity increases the investment rate, decreases the ratio of public consumption, and decreases probability of civil war. Further, since increasing religious fractionalization decreases the probability of civil conflict in both MRQ and my analysis, it is likely that increasing the number of religious groups in a country implies a higher level of tolerance in the country, as it is involved in the increasing part of the *escatological curve* (Group Pressure Theory). Instead, the fact that religious polarization tends to increase the probability of civil conflict allows us to assume that when there are fewer religious groups, they are more aggressive in their mission to spread their own world vision to the society as a whole.

Considering the effects of religious polarization and fractionalization separately, MRQ arrived at the following results. “The direct effect of religious heterogeneity on growth is again statistically in-

	<i>Growth</i>	<i>INV</i>	<i>CW</i>	<i>GOV</i>
lnGDP0	-3.6 *	5.37*	-6.15*	-6.22*
lnpop			6.59*	
democ			-2.64*	-1.67***
GOV	0.96	2.35**		
CW	-1.23	-1.9***		0.72
INV	2.14**			
pi		-5.5*		
ppdev	1.69***	-1.72***		
prims	1.8***	-1.64		
secs	1.65***	1.45		
relpol	-1.98**	-2.36**	3.25*	1.69***
relfrac	2.21**	2.92*	-3.17*	-1.86***
regdum	yes		yes	
_cons	3.87*	1.34	2.68*	10.9*
OBS	456	456	456	456
R-sq	0.0808	0.276	0.2703	0.1784

*: Significant a 1% level; **: Significant a 5% level; ***: Significant a 10% level.

Table 2: THE EFFECT OF RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

significant. However, religious polarization has a negative effect on investment and a positive effect on government consumption and the likelihood of civil wars. By contrast religious fractionalization has only a statistically significant and positive effect on government consumption”. While I achieve the same results concerning the impact of religious polarization and fractionalization on growth, my results differ from MRQ in that religious polarization has no effect on the indirect channels and fractionalization has a significant effect only on the investment rate. In Table 3 I consider the effect of religious polarization in columns I to IV, and fractionalization in columns V to VIII.

The fact that religious fractionalization positively affects the investment rate is incontrovertible (see Tables 2 and 3). It signals the growing importance of the religious dimension in the public space. Today, religious groups actualize strategies to increase group power and influence. Increasing private investment on their own goods is

	I	II	III	IV	V	VI	VII	VIII
	Growth	INV	CW	GOV	Growth	INV	CW	GOV
lnGDP0	-3.57*	5.35*	-6.79*	-6.65*	-3.43*	5.79*	-7.17*	-7.11*
lnpop			6.33				6.3*	
democ			-2.4**	-1.53			-2.59*	-1.66***
GOV	0.73	2.17*			0.71	2.2**		
CW	-1.37	-2.42**		0.94	-1.38	-2.2**		0.79
INV	2.34**				2.26**			
pi		-5.82*				-5.72*		
ppdev	1.57	-2.02**			1.61	-1.91***		
prims	2.18**	-1.18			2.29**	-1.18		
secs	1.83***	1.85**			1.74***	1.65***		
relpol	0.32	1.23	0.77	-0.21				
relfrac					1.03	2.11**	-0.32	-0.81
regdum	yes		yes		yes		yes	
_cons	3.68*	1.13	3.26*	11.4*	3.55*	0.75	3.68*	12.4*
OBS	456	456	456	456	456	456	456	456
R-sq	0.0708	0.2633	0.2546	0.1724	0.0729	0.2677	0.2537	0.1733

*: Significant a 1% level; **: Significant a 5% level; ***: Significant a 10% level.

Table 3: THE EFFECT OF RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

a successful strategy to enhance group prestige and membership⁹⁹.

13.1.2 Ethnic Polarization & Ethnic Fractionalization

Table 4 shows the effect of ethnic polarization and ethnic fractionalization on growth, investment, civil war, and government spending. As for the religious indices, this analysis reveals the various consequences of different numbers and group sizes on the social dimensions. For the sake of consistency, as in the previous analysis, Table 5 allows us to consider the effects of the two indices separately.

With respect to the direct effect, MRQ find that ethnolinguistic fractionalization has a negative effect and polarization has no statistically significant effect on economic growth. My results differ with

⁹⁹For example, Berman & Laitin (2008)

	Growth	INV	CW	GOV
lnGDP0	-3.3*	4.15*	-6.61*	-8.48*
lnpop			5.5*	
democ			-2.65*	-1.5
GOV	0.93	1.54		
CW	-1.73***	-2.33**		1.22
INV	2.27**			
pi		-5.86*		
ppdev	1.62	-2.14**		
prims	2.28**	-1.13		
secs	1.86***	1.73***		
ethpol	-0.12	2.4**	0.53	4.08*
ethfrac	1.38	-2.29**	0.92	-4.76*
regdum	yes		yes	
_cons	3.16*	2.55**	3.27*	13.14*
OBS	456	456	456	456
R-sq	0.0768	0.272	0.2581	0.2153

*: Significant a 1% level; **: Significant a 5% level; ***: Significant a 10% level.

Table 4: THE EFFECT OF ETHNOLINGUISTIC HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

respect to the effect of fractionalization: I find no significant effect of either ethnolinguistic fractionalization or polarization on growth. In addition, MRQ recognize a negative effect of polarization on investment rate, a positive effect on the probability of civil war and a positive effect on the proportion of government spending. I find a similar effect for what concerns the impact of ethnic polarization on government spending, but instead I discover a positive and significant impact of ethnic polarization on the investment rate. Further, with respect to ethnolinguistic fractionalization on indirect channels, MRQ and I both observe a null effect, except that I also discern a statistically significant negative effect of the fractionalization index of government spending.

When ethnic fractionalization and polarization are considered

	I	II	III	IV	V	VI	VII	VIII
	Growth	INV	CW	GOV	Growth	INV	CW	GOV
lnGDP0	-3.66*	5.5*	-7.01*	-6.9*	-3.32*	4.53*	-6.59*	-7.76*
lnpop			6.27*				5.51*	
democ			-2.6*	-1.62			-2.65*	-1.32
GOV	0.62	2.12**			0.93	2.01**		
CW	-1.43	-2.5**		0.89	-1.74***	-2.33**		1.28
INV	2.2**				2.28**			
pi		-5.84*				-5.86*		
ppdev	1.59	-2.07**			1.62	-2.12**		
prims	2.32	-1.17			2.34**	-1.51		
secs	1.8***	1.93***			1.86***	2.01**		
ethpol	0.94	1.23	1.41	1.47				
ethfrac					1.67***	-1.01	1.61	-2.83*
regdum	yes		yes		yes		yes	
_cons	3.69*	1.63	3.26*	12.21*	3.16*	2.42**	3.43*	12.81*
OBS	456	456	456	456	456	456	456	456
R-sq	0.0726	0.2634	0.2567	0.1761	0.0768	0.2625	0.2577	0.1868

*: Significant a 1% level; **: Significant a 5% level; ***: Significant a 10% level.

Table 5: THE EFFECT OF ETHNOLINGUISTIC HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

separately, as in Table 5, I identify no effect of either of the two indices on growth. As far as the indirect channels are considered, while MRQ find no significant impact of ethnic fractionalization, I find that it has a negative and significant impact on the share of government spending on GDP. As for religious fractionalization and ethnic fractionalization, their negative relationship with government spending can be attributed to the fact that increasing the number of groups decreases the relative power of each group to use state funds to fulfill their own interests. In other words, each group has limited power and consequently the government can avoid worrying about them, unlike when ethnic groups are very polarized.

Ultimately, I find no statistically significant impact of ethnic polarization on the indirect channels.

13.1.3 Religious Polarization, Religious Fractionalization, Ethnic Polarization & Ethnic Fractionalization

When the indicators of ethnolinguistic and religious heterogeneity are jointly considered (Table 6), my results confirm the analysis of MRQ. Likewise, when religious and ethnic polarization and religious and ethnic fractionalization are considered separately, my results are consistent with those of MRQ.

According to MRQ, ethnic fractionalization has a statistically negative effect on growth and a high level of religious polarization increases the share of government spending and the likelihood of civil conflict, while religious fractionalization tends to have the opposite effect on the same variables. I find a null effect of ethnolinguistic fractionalization on growth, a positive effect of religious fractionalization on investment and a negative effect of ethnic fractionalization on investment. It appears that religious organizations increase their number of believers by providing them with private club goods, and that the existence of ethnic groups is likely to involve differences in taste that hinder investment, in accordance with Pressure Group Theory.

When polarization and fractionalization are considered separately (Table 7)¹⁰⁰ MRQ note the following: “Ethnic fractionalization continues having an important direct effect on growth. Ethnic polarization has a negative effect on investment, a positive effect in the likelihood of civil war while religious polarization has a positive effect on government consumption”. I instead find a null effect of ethnic polarization on direct and indirect channels, a positive effect of ethnic fractionalization on the probability of civil war, a negative

¹⁰⁰ In Table 7 I consider separately the effect of religious polarization, columns I to IV, and fractionalization, columns V to VIII

	Growth	INV	CW	GOV
lnGDP0	-3.42*	4.16*	-5.5*	-7.69*
lnpop			5.37*	
democ			-2.94*	-1.42
GOV	1	1.42		
CW	-1.51	-1.42		1.17
INV	2.02**			
pi		-5.39*		
ppdev	1.71***	-1.68***		
prims	1.93***	-1.41		
secs	1.66***	0.81		
relpol	-1.91***	-3.25*	3.3*	0.57
ethpol	0.41	3.41*	-0.39	3.64*
relfrac	1.94***	3.97*	-3.53*	-0.52
ethfrac	0.74	-3.48*	1.92***	-4.47*
regdum	yes		yes	
_cons	3.41*	2.29**	2.57*	11.7*
OBS	456	456	456	456
R-sq	0.084	0.298	0.277	0.216

*: Significant a 1% level; **: Significant a 5% level; ***: Significant a 10% level.

Table 6: THE EFFECT OF ETHNOLINGUISTIC AND RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	I	II	III	IV	V	VI	VII	VII
	Growth	INV	CW	GOV	Growth	INV	CW	GOV
lnGDP0	-3.56*	5.39*	-6.77*	-6.64*	-3.22*	5.18*	-6.68*	-7.62*
lnpop			6.28*				5.25*	
democ			-2.52**	-1.75***			-2.87*	-1.22
GOV	0.62	-1.04			0.9	1.86***		
CW	-1.43	1.81***		0.78	-1.73***	-1.74***		1.28
INV	2.2**				2.25**			
pi		-5.82*				-5.71*		
ppdev	1.59	-2.02**			1.63	-1.93		
prims	2.3**	-1.04			2.37**	-1.28		
secs	1.79***	1.81***			1.79***	1.49		
relpol	0.01	0.94	0.21	-0.75				
ethpol	0.88	0.93	1.21	1.64				
ethfrac					1.39	-1.87***	1.97**	-2.72*
relfrac					0.42	2.65*	-1.15	0.23
regdum	yes		yes		yes		yes	
_cons	3.55*	0.91*	3.1*	10.95*	3.07*	1.41*	3.61*	12.25*
OBS	456	456	456	456	456	456	456	456
R-sq	0.073	0.265	0.257	0.177	0.073	0.265	0.257	0.177

*: Significant a 1% level; **: Significant a 5% level; ***: Significant a 10% level.

Table 7: THE EFFECT OF ETHNOLINGUISTIC AND RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

one on government spending, and a null effect on economic growth. I also see that while religious polarization is always not significant, religious fractionalization positively impacts the investment rate.

13.1.4 General Analysis results

Table 8 below summarizes the General Model's results.

As stated previously, a Hard Fact is a finding that appears simultaneously in regressions comparing the two kind of religious/ethnolinguistic heterogeneity and in regressions where all types of social heterogeneity are taken into consideration. A Tendency, instead, is a finding that appears either in systems where all social heterogeneity indices appear simultaneously or in systems where the religious and ethnolinguistic indices appear alternatively. Hard Facts and Tendencies are used to describe the effects of different types of social hetero-

x/y	Growth	Invest.	Gov. Spend.	Civil War
Eth. Pol.	0 (a)			0 (a)
Eth. Frac.	0 (b)	- (b)	- (a), [-(a)]*	0 (c), + (b)
Rel. Pol.			0 (b)	+ (b), + (c)
Rel. Frac.		+ (a), [(+a)]*	0 (b)	- (b), - (c)

0: x variables (on the first column) do not affect y variables (on the first row);
 +: x variables positively affect y variables; -: x variables negatively affect y
 variables. (a): hard fact; (b): all social heterogeneity indicators are consid-
 ered together; (c): only ethnolinguistic or religious heterogeneity indicators
 are considered; (*) hard fact for Islamic countries

Table 8: GENERAL MODEL RESULTS

geneity and crucial aspects of capitalism.

In summary, new Hard Facts with respect to the MRQ empirical analysis include that ethnic fractionalization has a negative effect on government spending and that religious fractionalization has a positive effect on the rate of investment. The latter can be attributed to the growing importance of the group’s visibility and power: religious groups privately invest in goods that are used as local public goods for their members to increase both power and adherence to the group. Additionally, MRQ find that large religious groups seem to be the beneficiaries of the public consumption, while in my analysis it is incontrovertible that religious heterogeneity does not influence public consumption.

The negative impact of ethnic fractionalization on government spending is likely due to the time between the two analyses and is related to the government’s approach toward social heterogeneity. The role of ethnic diversity has grown in importance since the earlier

analysis, as the recent empirics demonstrate that it has a strong effect. The Tendency of ethnic fractionalization to negatively affect government consumption has become a Hard Empirical Fact. This change can be explained by taking into account the fact that large ethnic organizations are able to address government intervention to satisfy their own needs, while an increasing number of groups does not, causing an inverse outcome as explained by Pressure Group Theory.

Although the resulting econometrics are unable to provide an exhaustive representation of the relationship between social heterogeneity and social wealth¹⁰¹, the following table shows two graphs of the most significant Hard Facts and Tendencies¹⁰² that support Group Pressure Theory. In fact, considering the level of private investment as an indicator of social well being allows us to interpret these results according to the theory proposed initially, confirming the hump-shaped relationship of the religious phenomena with the social well being (Fig.1), as well as the negative relationship of the ethnic phenomena (Fig.2). The Tendency toward a negative relationship of ethnic fractionalization and investment (Fig.5) represents the same dynamics involved in the downward sloping curve (Fig.1). Meanwhile the positive relationship between religious fractionalization and investment level represents the hump-shaped curve related to the religious phenomena (Fig.2 and Fig.4).¹⁰³

Moreover, a deeper analysis of the relationships represented in the graphs as Hard Facts and Tendencies demonstrates the difficulty of distinguishing between the different social phenomena and

¹⁰¹given the interaction of the curves where the two phenomena of linguistic heterogeneity and of the escatological function coexist with a different intensity for the ethnic and the religious groups

¹⁰²Other Tendency is the increasing relationship between ethnic fractionalization and the Civil War; it is not represented here because the latter is a dicotomic variable.

¹⁰³It accords perfectly with the Olsonian expectation of an inverse relationship between collective provision and group size (fractionalization index in this case) that is guaranteed when the elasticity of individual effort is between 0 and 1 and the collective provided good has no public attributes [Poteete, Ostrom (2004)]

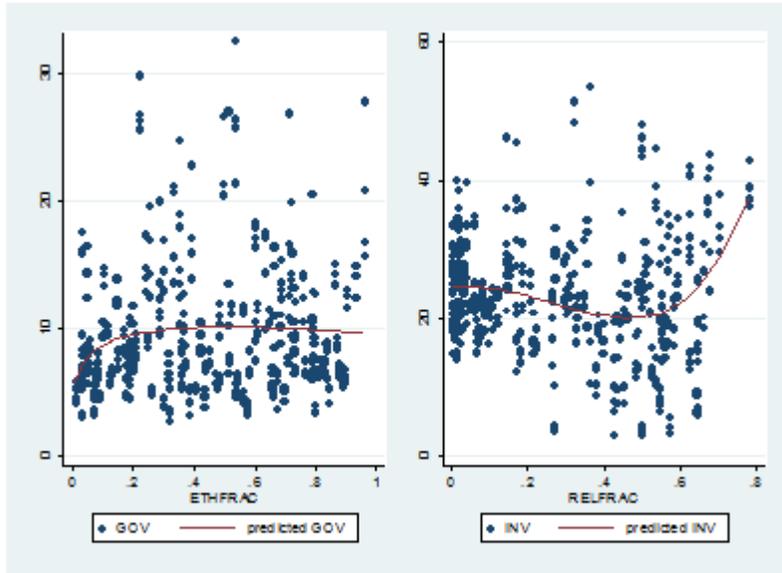


Figure 4: HARD FACTS

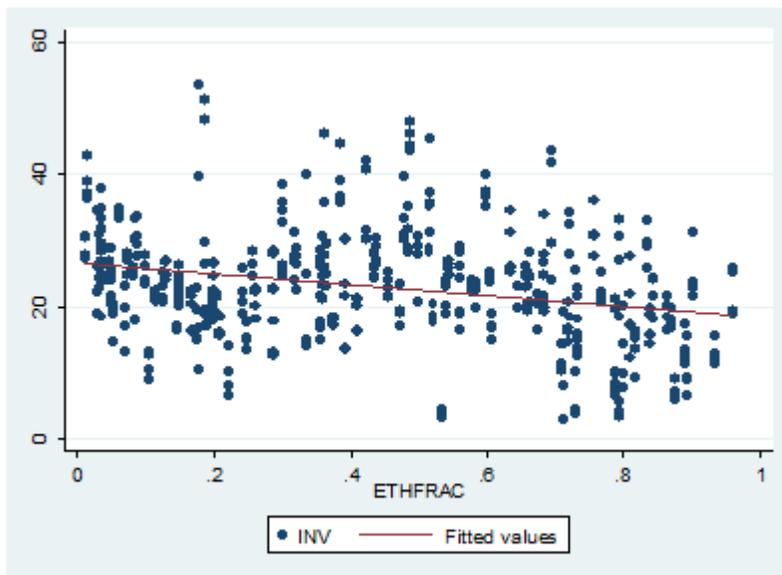


Figure 5: TENDENCY

their effects on collective well being. On the one hand, I discover that the relationships between religious fractionalization and private investment and between ethnic fractionalization and government spending are cubic functions, not simply quadratic¹⁰⁴. On the other hand, the relationship between ethnic fractionalization and investment is more complex than that of a linear relationship¹⁰⁵. Actually, the complexity of these curves, which do not allow for a simple quadratic or linear representation, can be explained by the complexity of the real world. The real world is complex not only because religious and ethnic phenomena often overlap, data can be difficult to collect, and institutional and cultural variables can play a fundamental role, but also because the influence of government spending is not well defined: according to the existing economic literature, it can be both a welfare-increasing and welfare-decreasing factor of a society's economy¹⁰⁶.

It is interesting to note that the fractionalization index, specifically the ethnic fractionalization index, can better explain the variation of the dependent variables.

Still, it is worth considering that the positive relationship between religious fractionalization and private investment seems to be in contrast with the findings of Bernabou et al (2013), who find a negative relationship between religiosity and informativeness, measured as patents per capita. However, this is not a challenge to the theory of religious Pressure Groups, because the two studies are

¹⁰⁴Statistics available from the author upon request

¹⁰⁵Specifically, intending here private investment as an indicator of the social well being, ethnic fractionalization=0.2 determine the minimum level of investment for the range of value of ethnic fractionalization that goes from 0 to 0.45; thus, it is confirmed the Olsonian hump shaped curve and it seems that 0.45 is the best possible level of ethnic heterogeneity with respect to private investment level. Then, considering the function starting from 0.45, there is the tendency to decrease private investment increasing ethnic fractionalization, confirming the supposed negative relationship between the ethnolinguistic phenomena and the collective well being as if the linguistic heterogeneity involved in an high level of ethnic heterogeneity would hinder the latter.[Statistics available from the author upon request]

¹⁰⁶ John Maynard Keynes' thought and the Neoclassical Synthesis *docet...*

rather different; the patents per capita represent only a small part of the broader category of private investment, and the results of Benabou et al are based on U.S. data while my research focuses on a large number of countries with a heterogeneous level of development, leading to other outcomes. Additionally, this theory suggests the existence of an interval where a negative relationship exists between the number of religious groups and social wealth, but the conditions of the existence of this range should be studied carefully. Additionally, the number of religious groups does not coincide perfectly with the concept of religiosity, and innovativeness does not coincide perfectly with the concept of social wealth.

Finally, if it is true that Islam is waging a battle against capitalism, my empirical results prove that Islam is not succeeding. Considering a similar system of regressions as those analyzed above and adding dummies for countries with Islamic majorities, the results do not dramatically change. It is possible to recognize the same Tendencies with respect to the effect of religious and ethnic heterogeneity on economic conditions. Those countries are characterized by two Hard Facts that can be found in the General Analysis: the positive relationship between religious fractionalization and private investment, and the negative effect of ethnic fractionalization on government spending. The analysis of the case of Islamic countries also finds the other two Hard Facts which emerge from the General Model regarding the null effect of ethnic polarization on economic growth and the probability that civil conflict will grow with the level of ethnic fractionalization in a society. Notwithstanding, in these two latter cases the Islamic dummies are insignificant¹⁰⁷.

13.2 Restricted Analysis

The following empirics focus on the question posed initially about the effect of social heterogeneity's composition on the economic con-

¹⁰⁷Statistics are available from the author upon request

dition of a country, especially relating to its effect on the dynamics identified in the General Analysis.

Considering the information about the proportions of religion and ethnic groups in each country provided by the CIA World Factbook, each country in my sample has been assigned to one and only one group¹⁰⁸. The different compositions of social heterogeneity have allowed me to identify four groups of countries: countries with more religious groups and one large ethnic group (RRE); countries with only one religious group and one ethnic group (RE); countries with one religious group and more ethnic groups (REE); countries with more than one religious group and more than one ethnic group (RREE).

I have created dummies in the following restricted analysis to characterize these groups of countries. Although the results of the General Model are confirmed, each set of countries contains some differences regarding specific trends and Hard Facts. For instance, in country set with many religious groups and one dominant ethnic group, the additional Hard Fact with respect to the General Model is the positive influence of ethnic polarization on private investment; in the country set with one dominant ethnic group and one dominant religious group, the new Hard Fact is that ethnic fractionalization has a negative influence on private investment; in the country set with many ethnic groups and many religious groups, there are no Hard Facts other than those of the General Analysis; in the country set with many ethnic groups and one preeminent religious group, the additional Hard Fact is a positive effect of ethnic polarization on government spending, where government spending is represented by cubic function.

The dummies used to perform this analysis are related to the social heterogeneity composition of each country: RRE, RE, RREE,

¹⁰⁸independently the of number of people belonging to every country

REE. In the restricted analysis there are also variables used to describe the statistical interaction between the dummies indicating the four groups of countries and the fractionalization and polarization indices. For example, in the first group of countries, the new dummies are the following: RREethnicpolariz, RREelpolariz, RREethnicfraction, RREelfraction. These additional explanatory variables increase the accuracy of results and allow us to perform a marginal analysis to make predictions on possible future scenarios, assuming the same conditions.

13.2.1 Multiple Religious Groups and One Ethnic Group (RRE)

The countries belonging to this group are: Australia, Botswana, Burundi, Germany, Hong Kong, Hungary, Japan, Korea, Republic of Netherlands, New Zealand, Rwanda, Singapore, South Africa, Tonga, United States, Uruguay, Yemen, Lesotho, and Swaziland¹⁰⁹. The proportion of the number of countries in this group and the whole set of countries is 19/114, or 16.67%.

The special social heterogeneity composition of this group of countries is significant in terms of private investment and government spending. The positive effect of the ethnic polarization on the investment rate is a Hard Fact. This can be partially explained by the ethnic groups' aim to gain importance in a social environment where there are many competing religious groups. In other words, this behavior is the expression of the product differentiation strategy: to increase the sale of a product in a market, one should differentiate the product from that of competitors. This result corresponds with Pressure Group Theory as it shows that when there is one group, it is likely to have a special interest that coincides with the collective interest and its actions are likely to increase social

¹⁰⁹Percentage of countries per continent: Africa, 36.8%; America, 10.5%; Asia, 21.1%; Europe, 15.8%; Oceania, 15.8%.

wealth.

With respect to government spending, there are two Hard Facts concerning polarization and fractionalization. While the inverse relationship between ethnic fractionalization and the government spending appears in this set of countries and in the General Model and is thus a well-known result, the fact that ethnic polarization increases government spending in countries where there are many religious groups and one prominent ethnic group is new. In the entire restricted analysis, this result is repeated only when there is one prominent religious group in a society and multiple ethnic groups. According to Group Pressure Theory, when there is an intermediate number of groups or/and an intermediate level of social heterogeneity, the public sector must spend public resources to deal with the polarized ethnic group's power. Additional research is required to understand if this is the case, given a deeper analysis of the heterogeneity composition in each country of this data set.

The following results are Tendencies where the dummy of the country's heterogeneity composition is not always significant. The General Analysis shows that religious fractionalization positively affects the investment rate, which is a Tendency for this set of countries. Moreover, there is a strong Tendency for religious fractionalization to negatively affect the probability of civil conflict. This result is consistent with the supposed hump-shaped curve of the religious organizations, given that a large number of religious groups increases tolerance in society, which increases societal welfare as a whole.

In possible future scenarios determined by means of the marginal analysis, is possible that an increase in religious polarization increases the private investment rate in the countries with many religious groups and one preeminent ethnic group.

13.2.2 One Religious Group and One Ethnic Group (RE)

The countries belonging to this category are: Argentina, Austria, Bangladesh, Barbados, Chile, China, Costa Rica, Cyprus, Denmark, Egypt, El Salvador, Finland, France, Greece, Haiti, Honduras, Iceland, Iraq, Ireland, Israel, Algeria, Italy, Jamaica, Luxembourg, Malta, Morocco, Norway, Panama, Paraguay, Poland, Portugal, Saudi Arabia, Spain, Sri Lanka, Sweden, Syria, Taiwan, Thailand, Tunisia, Turkey, and United Kingdom¹¹⁰. The proportion of the number of countries in this group and the whole set of countries is 45/114, or 35.96%.

Not surprisingly, the cluster of countries with one religion and one ethnic group is the largest aggregation and contains the largest number of European states of the four clusters (44%)¹¹¹. All the Hard Facts and Tendencies existing in the General Analysis exist in this country set, although the dummies related to the specific heterogeneity composition that typify the set are not significant. This consideration and the fact that this group of countries includes many European countries allow us to imagine that these societies are blended enough for capitalism due to the social and economic dynamics existing in each country.

The well-known Hard Facts are as follows: there is a positive relationship between religious fractionalization and private investment, possibly due to a strategy to increase the number of believers; there

¹¹⁰Percentage of countries per continent: Africa, 9.7%; America, 24.3%; Asia, 22%; Europe, 44%; Oceania, 0%.

¹¹¹*European modernity is inseparable from capitalism. This relationship between the form and the content of modern sovereignty is fully articulated in the work of the founder of political economy: Adam Smith. The capitalist intends only its own gain but the invisible hand of the market promote an end which was no part of his intention. The invisible hand of the market works thanks to a state, minimal but effective, which give content to the mediation of interests and represent the axis of rationality of that mediation. In other word, it makes the well being of private individuals coincide with the public interest reducing all social function and activities to one measure of value. Therefore, Smith's theory of value gives the substance of the concept of modern sovereign state. Modern European sovereignty is thus capitalist sovereignty, a form of command that put together the relationship between individuality and universality as a function of the development of capital.* (Negri & Hardt 2000)

is a negative relationship between ethnic fractionalization and public spending, possibly due to a negative approach of government toward ethnic groups, especially in homogeneous Europe; ethnic polarization has no direct effect on economic growth. There is a new Hard Fact that confirms one of the General Model's Tendencies: there is a negative relationship between ethnic fractionalization and private investment, in accordance with Pressure Group Theory.

The Hard Facts related to the marginal increases of religious and ethnic fractionalization that could be considered possible future scenario are alarming. Specifically, two Hard Facts demonstrate that increasing both ethnic and religious fractionalization increases the probability of civil conflict. Another Hard Fact indicates that increasing the religious fractionalization leads to an increase in government spending. This could potentially cause an increase in federalism to deal with differences where such differences could lead to an explosion of conflict. In any case, additional research regarding the nature of public expenditure would be required to understand this further. ¹¹²

13.2.3 Multiple Religious Groups and Multiple Ethnic Groups (RREE)

The countries with both religious and ethnic heterogeneity are: Benin, Cameroon, Canada, Central African Republic, Congo, Dem. Rep., Fiji, Gabon, Ghana, Guatemala, Guyana, the Ivory Coast, Kenya, Kuwait, Liberia, Malawi, Malaysia, Mauritius, Mozambique, Nicaragua, Papua New Guinea, Sierra Leone, Switzerland, Tanzania, Togo, Trinidad and Tobago, Uganda, Zambia, and Zimbabwe¹¹³. The proportion of the number of countries in this group and the

¹¹²Moreover, it is worth to know that the positive relationship between religious fractionalization and public spending is the only hard fact of a general analysis where it is considered a dummy of Western countries. This empirical exercise is available from the author upon request

¹¹³Percentage of countries per continent: Africa, 65.5%; America, 17.3%; Asia, 6.9%; Europe, 3.4%; Oceania, 6.9%.

whole set of countries is 29/114, or 25.44%.

This group of countries exhibits three Hard Facts. Religious and ethnic fractionalization and ethnolinguistic polarization significantly affect private investment and government spending. Confirming previous general empirics with a global view, one Hard Fact is that there is a positive relationship between religious fractionalization and private investment. The other Hard Facts confirm the General Analysis Result: : ethnic fractionalization negatively effects government consumption. As stated previously, increasing the number of subjectivities in the multitude decreases their individual power and consequently their ability to address government spending. This result is also confirmed by the marginal analysis. It represents a possible future scenario: increasing the number of ethnic groups in countries with higher levels of social heterogeneity could reduce the level of government spending.

13.2.4 One Religious Group and Multiple Ethnic Groups (REE)

The countries in this group are: Afghanistan, Bahrain, Belgium, Bolivia, Brazil, Colombia, Dominican Republic, Indonesia, Iran, Mali, Mauritania, Mexico, Nepal, Niger, Pakistan, Peru, Philippines, United Arab Emirates, Venezuela, Ecuador, India, Jordan, Senegal, Sudan, and the Gambia¹¹⁴. The proportion of the number of countries in this group and the whole set of countries is 25/114, or 21.93%.

This category has three Hard Facts, one of which appears as a Tendency in the General Model and as Hard Fact in the country set with one preeminent ethnic group and many religious groups. Ethnic fractionalization and polarization impact government spending in opposing ways; ethnic polarization increases government spend-

¹¹⁴Percentage of countries per continent: Africa, 28%; America, 36%; Asia, 32%; Europe, 4%; Oceania, 0%.

ing, while ethnic fractionalization decreases government spending. This demonstrates that although polarized groups can partially influence public spending, when there are many fractionalized groups, the government of the country can ignore their specific requests. Interestingly, in this country set we find that increasing ethnic polarization decreases government spending.

Another Hard Fact observed in the marginal analysis is related again to civil war: increasing ethnic fractionalization increases the probability of civil war in countries where there are many ethnic groups and one preeminent religious group.

13.2.5 Restricted Analysis results

The following table summarize the Hard Facts and Tendencies of the Restricted Model for each group of countries.

My intention in running the restricted analysis is to determine whether the effect of social heterogeneity on economic conditions is affected by the different type of social heterogeneity existing in a country. I find that ethnic groups play a more active role in economic and social life, with a recognizable effect on the variables in each set countries considered. However, neither ethnic nor religious diversity have a significant effect on economic growth, which is influenced indirectly by social heterogeneity.

Government spending has a negative relationship with ethnic fractionalization, which is confirmed in all country sets and also in the marginal analysis of countries with the maximal level of social heterogeneity. Regardless, it is relevant that the public spending phenomena are explained only by the ethnic dimension of social heterogeneity. Private Investment is affected positively by religious fractionalization, affected positively by ethnic polarization in countries with many religious groups and one dominant ethnic group, and is affected negatively by ethnic fractionalization in countries with one religious group and one ethnic group. Civil wars are af-

RRE	Growth	Invest.	Gov. Spend.	Civil War
Ethn. Pol.		+ (a)	+ (a)	0 (a)
Ethn. Frac.			- (a)	
Rel. Pol.		+ (d)		
Rel. Frac.				
RE	Growth	Invest.	Gov. Spend.	Civil War
Ethn. Pol.	0 (a)			0 (a)
Ethn. Frac.		- (a)	- (a)	+ (d)
Rel. Pol.				
Rel. Frac.		+ (a)	+ (d)	+ (d)
RREE	Growth	Invest.	Gov. Spend.	Civil War
Ethn. Pol.	0 (a)			0 (a)
Ethn. Frac.			- (a), - (d)	
Rel. Pol.				
Rel. Frac.		+ (a)		
REE	Growth	Invest.	Gov. Spend.	Civil War
Ethn. Pol.	0 (a)		+ (a), - (d)	
Ethn. Frac.			- (a)	+ (d)
Rel. Pol.				
Rel. Frac.		+ (a)		

0: x variables (first column) do not affect y variables (first row); +: x variables affect positively y variables; -: x variables affect negatively y variables; (a): hard fact; (b): all social heterogeneity indicators are considered together; (c): only ethnolinguistic or religious heterogeneity indicators are considered; (d): marginal analysis.

Table 9: RESTRICTED MODEL RESULTS

ected both by religious and ethnic phenomena; clearly the situation is more complex than the General Model where the ethnic heterogeneity has no effect on the probability of civil war.

Further, the results of this analysis seem to show that social conditions are better explained by ethnic diversity than by religious diversity. Categorically: in RRE the religious dimension affects only one possible scenario; in RE the religious dimension affects only private investment and the marginal change in civil conflict and public spending; in RREE and in REE the religious dimension positively impacts only private investment. The ethnic dimension instead affects the rate of private investment and the level of government spending in all four country sets.

Beyond the obvious confirmation of the results of the General Analysis, the outcome of the restricted analysis sheds light on the troubling possibility of an increase in the probability of civil conflict when considering the marginal changes in religious and ethnic heterogeneity that are likely to occur in future years.

14 Conclusion

There are too many cultural and natural factors involved to be able to specify which type of social heterogeneity is most detrimental to economic growth. This is linked with the other problem of this analysis and is related to a lack of data. For instance, the results of the analysis could have been improved if I were to consider other population features, such as population density, group size, income distribution, and local institutions in each country.

Despite of the lack of data and the existence of interrelated phenomena due to the coexistence of ethnic and religious groups, the empirical analysis of this paper is able to achieve a broad confirmation of Pressure Group Theory. Specifically, these results allow us to draw the hump-shaped relationship between religious groups

and the common well being indicator, and the downward sloping curve between the common good and the number of ethno-linguistic groups.

Additionally, by examining the composition of social heterogeneity and its effect on economic conditions, we can predict a path toward a more fragmented and a more unified world simultaneously. The importance of the fractionalization index, the similarity of the social heterogeneity conditions in any set of countries, and the Islamic countries' lack of any special effect on economics confirms this view.

We can certainly say that social heterogeneity does not have any distinctive effect on economic growth. Considering the other economic conditions, it is possible to affirm that religious fractionalization increases private investment. In addition, it can certainly be said that ethnic issues are more prone to affect government consumption than religious heterogeneity; the effect is positive when ethnic groups are relatively large, and negative when ethnic groups are relatively small. These results derive from a situation where ethnic fractionalization negatively affects economic growth and ethnic polarization negatively affects private investment; they signal the increased power of transnational institutions, represented by national states, to manage and control differences between social groups. Furthermore, the results of this research demonstrate an evolution from the scenario studied by MRQ, where the concentration of religious groups guarantees positive payoffs for the national state, as demonstrated by the positive relationship with the government consumption, to the current scenario demonstrated by the more recent empirical results in which religious groups are viewed with suspect.

Although is impossible to provide a clear answer on the influence of social heterogeneity on economic conditions and civil wars, I hope

to shed light on some dynamics of this relationship, understanding that there is much to continue studying. In fact, I believe that studying the social heterogeneity conditions that affect economics will allow us to overcome the presumption that the secular/Western model is the universal code for development, and that religion and ethnicity are simply part of the local context. The Western pedigree of capitalism I aim to identify in my analysis describes only an initial point for the spread of capitalism; from the restricted analysis it is clear that countries are altering their economic conditions to fit their own special needs. This supports the idea that nowadays, the point of departure of the growing importance of social heterogeneity is the rejection of the “modernizing mythology of the West” and turn towards a revitalization of religious and ethnic traditions. Consequently, I believe that by studying the relationship between social heterogeneity and economic conditions in different environments on a deeper level, we will be able to make progress in overcoming critical challenges beyond those discussed in economic analysis. Specifically, by adopting a “substantive approach” to economics, economic conditions would no longer be separated from the underlying ethnic and religious convictions that determine particular economic goals. Then perhaps each person could focus on the almost forgotten idea creating a happy life in his or her own environment; only then could we prevent a future marked by an increasing probability of civil conflict and decay.

Let’s hope.

Appendix

Overview of the Data

The data set contains variables for the panel estimation. Data are presented quinquennial for the years 1990-2010, i.e., 1990, 1995, 2000, 2005, 2010.

Data sources

For the data sources, references are abbreviated as follows:

BARRO and LEE 2013 : Barro, Robert and Jong-Wha Lee, April 2010, "A New Data Set of Educational Attainment in the World, 1950-2010." NBER Working Paper No. 15902; The revised paper is forthcoming in the Journal of Development Economics.[2013 09 April Update]

MRQ2005 : "Ethnic diversity and economic development", M. Reynal-Querol and J. G. Montalvo, Journal of Development Economics, April 2005.

UCDP/PRIO: Armed Conflict Dataset v.4-2013, 1946 – 2012. (Uppsala Universitet)

Polity IV (2010): Polity IV Project; Monty G Marshall (Societal-System Research Inc.); Ted Robert Gurr (Founder University of Maryland)

PWT 7.1 : Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 7.1, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, Nov 2012.

Variable : Definition and Source

Year : 1990-1995-2000-2005

lnpop : log of population at beginning of the period; from PWT 7.1

cgdp : PPP Converted GDP Per Capita, G-K method, at current prices (in I\$); from PWT 7.1

lnGDP0 : log of the real GDP per capita (*cgdp*) at the beginning of the period

growth1 : Growth rate of GDP per capita of the period, from PWT 7.1

GOV : Government Consumption Share of PPP Converted GDP Per Capita at current prices [*cgdp*], (%), average for the period; from PWT 7.1

INV : Investment Share of PPP Converted GDP Per Capita at current prices [cgdp], (%) PWT 7.1, average for the period (computed from ci); from PWT 7.1

ppdev : Magnitude of the absolute deviation of pi from price level investment per year; from PWT 7.1

relpol : Religious Polarization; from MRS2005

relfrac : Religious Fractionalization, from MRQ2005

ethpol : Ethnic Polarization, from MRQ2005

ethfrac : Ethnic Fractionalization, from MRQ2005

secs : Percentage of secondary school attainment in the total population +15, taken at the beginning of the period; from Barro and Lee 2013

prims : Percentage of primary school attainment in the total population +15, taken at the beginning of the period; from Barro and Lee 2013.

CW : civil war. A dummy that takes value 1 if there is a civil war during the period and zero otherwise. The data comes from UPSALA.

democ : Democracy score: general openness of the political institutions (0=low, 10=high) (Source: Polity IV) I transform the score in a dummy variable that takes value 1 if the score is higher or equal to 4.

laam = dummy for Latin-American countries: 3, 11, 13, 18, 20, 80, 81, 110, 111, 28.

ssafrica = dummy for Sub-Saharan African countries: 10, 12, 14, 15, 17, 21, 22, 24, 34, 35, 37, 56, 60, 59, 62, 66, 67, 70, 75, 85, 87, 88, 90, 94, 93, 99, 101,106, 113, 114.

asia = dummy for East-Asian countries: 19, 98, 54, 57, 43, 7, 100.

RRE = dummy for more than 1 Religion and 1 Ethnicity countries: 4, 12, 14, 36, 43, 44, 54, 57, 59, 72, 73, 85, 89, 90, 94, 102, 109, 110, 112.

RE = dummy for 1 Religion and 1 Ethnicity countries: 2, 3, 5, 7, 8, 18, 19, 23, 25, 26, 29, 30, 32, 33, 38, 41, 42, 45, 49, 50, 51, 52, 53, 61, 65, 69, 76, 78, 80, 83, 84, 86, 91, 92, 95, 97, 98, 100, 104, 105, 108.

RREE = dummy for more than 1 Religion and more than 1 Ethnicity countries: 10, 15, 17, 21, 22, 24, 31, 34, 37, 39, 40, 56, 58, 60, 62, 63, 67, 70, 74, 79, 88, 96, 99, 101, 103, 106, 113, 114, 16.

REE = dummy for 1 Religion and more than 1 Ethnicity countries: 1, 6, 27, 9, 11, 13, 20, 47, 48, 64, 66, 68, 71, 75, 28, 35, 46, 87, 55, 77, 81, 82, 93, 107, 111

Isl = dummy for Muslim majority countries: 1, 2, 29, 69, 66, 86, 97, 104, 105, 7, 64, 77, 107, 55, 35, 6, 48, 49, 47, 75, 87, 93.

Isl1 = dummy for Muslim majority countries, net of countries existing in regional dummies: 1, 2, 6, 29, 47, 48, 49, 55, 64, 77, 69, 86, 97, 104, 105, 107.

IslRE = dummy for Muslim majority countries, net of countries existing in RE dummy: 1, 6, 7, 47, 48, 55, 64, 66, 75, 77, 87, 93, 107.

IslREE1 = dummy for Muslim majority countries, net of countries existing in RE1 dummy: 1, 6, 47, 48, 55, 64, 77, 107.

IslREE = dummy for Muslim majority countries, net of countries existing in REE dummy: 2, 7, 29, 49, 69, 75, 86, 87, 93, 97, 104, 105.

IslREE1 = dummy for Muslim majority countries, net of countries existing in REE1 dummy: 2, 29, 49, 69, 86, 97, 104, 105.

RRE1 = dummy for more than 1 Religion and 1 Ethnicity countries, net of Regional Dummies : 4, 36, 44, 72, 73, 89, 102, 109, 112.

RE1 = dummy for 1 Religion and 1 Ethnicity countries, net of Regional Dummies: 2, 5, 7, 8, 25, 26, 29, 32, 33, 38, 41, 45, 49, 50, 51, 52, 61, 65, 69, 76, 83, 84, 86, 91, 92, 95, 97, 104, 105, 108.

RREE1 = dummy for more than 1 Religion and more than 1 Ethnicity countries, net of Regional Dummies: 16, 31, 58, 79, 96, 103.

REE1 = dummy for 1 Religion and more than 1 Ethnicity countries, , net of Regional Dummies: 1, 6, 9, 47, 48, 64, 71, 75, 46, 87, 55, 93, 77, 82, 107.

Country List

code	country	ETHPOL	ETHFRAC	RELPOL	RELFRAC
1	Afghanistan	0.7864032	0.603395	0.9581288	0.4918636
2	Algeria	0.5139474	0.298558	0.0317441	0.015872
3	Argentina	0.5788137	0.407925	0.182253	0.0959646
4	Australia	0.4918205	0.315372	0.0441586	0.0224286
5	Austria	0.2398399	0.128079	0.0510534	0.0257564
6	Bahrain	0.5693305	0.382919	0.9342601	0.536008
7	Bangladesh	0.1317742	0.0684201	0.5026155	0.2608891
8	Barbados	0.3663607	0.198882	0.3739339	0.206008
9	Belgium	0.8707317	0.543913	0.0668149	0.0337472
10	Benin	0.4364001	0.868322	0.820304	0.5524
11	Bolivia	0.7665777	0.7084	0.9569531	0.5340566
12	Botswana	0.6501532	0.484548	1	0.5
13	Brazil	0.7732216	0.64411	0.621956	0.3321278
14	Burundi	0.5123105	0.285911	0.94752	0.4878
15	Cameroon	0.5755745	0.816575	0.893256	0.6474
16	Canada	0.6723696	0.766822	0.1559429	0.0820422
17	Central African Republic	0.577752	0.786988	0.90088	0.5462
18	Chile	0.7226138	0.43164	0.2713168	0.1457601
19	China	0.6613016	0.598569	0.8191959	0.6707677
20	Colombia	0.7889462	0.67466	0.3145791	0.170092
21	Congo	0.6737266	0.721379	0.6558481	0.3546001
22	Congo, Dem. Rep.	0.5859115	0.799275	0.84276	0.4338
23	Costa Rica	0.4203556	0.240833	0.0783999	0.0392
24	Cote d'Ivoire	0.4319443	0.874283	0.8861019	0.647278
25	Cyprus	0.6522008	0.356536	0.6155089	0.3086745
26	Denmark	0.0966647	0.049223	0.0143186	0.0071815
27	Dominican Republic	0.3702123	0.202082	0.0079839	0.003992
28	Ecuador	0.837188	0.65663	0.6049488	0.3112926
29	Egypt	0.4269835	0.246788	0.3600001	0.1800001
30	El Salvador	0.2790943	0.145266	0.1383014	0.069544
31	Fiji	0.9297509	0.559042	0.9285336	0.5686938
32	Finland	0.294143	0.148121	0.0063851	0.0031962
33	France	0.2943999	0.1472	0.1927969	0.100052
34	Gabon	0.518816	0.8338	0.5302068	0.271232
35	Gambia, The	0.689322	0.727926	0.4848246	0.267626
36	Germany	0.2274357	0.123359	0.1178709	0.0592724
37	Ghana	0.6610081	0.730978	0.8800371	0.5819094
38	Greece	0.1860905	0.098798	0.0609919	0.0305316
39	Guatemala	0.9546801	0.52009	0.7588984	0.3819495
40	Guyana	0.8133403	0.633882	0.8714195	0.5944684

code	country	ETHPOL	ETHFRAC	RELPOL	RELFRAC
41	Haiti	0.2070293	0.104459	0.7474254	0.3796202
42	Honduras	0.4296185	0.254094	0.2718587	0.142998
43	Hong Kong	0.0659822	0.033642	0.7409157	0.7021824
44	Hungary	0.3080201	0.16676	0.043108	0.0215667
45	Iceland	0.055216	0.027608	0.0257221	0.012943
46	India	0.3482196	0.901163	0.5640861	0.345496
47	Indonesia	0.5287927	0.793439	0.8232126	0.6598619
48	Iran	0.5984298	0.75625	0.3523935	0.1849321
49	Iraq	0.6649471	0.390493	0.9468961	0.5518334
50	Ireland	0.1405512	0.072302	0.0051907	0.0025972
51	Israel	0.5477495	0.2855521	0.5430749	0.295866
52	Italy	0.1540314	0.079757	0.0095654	0.0047913
53	Jamaica	0.6002134	0.353784	0.2932613	0.1501785
54	Japan	0.0672234	0.033581	0.8080537	0.567608
55	Jordan	0.9824263	0.515196	0.3466274	0.1692887
56	Kenya	0.3812851	0.890242	0.831744	0.4824
57	Korea, Republic of	0.0278041	0.0139021	0.6688758	0.7822098
58	Kuwait	0.9798205	0.513024	0.7836815	0.445625
59	Lesotho	0.3428295	0.185026	0.64	0.32
60	Liberia	0.3903874	0.890471	0.8878479	0.643322
61	Luxembourg	0.5955039	0.297752	0.0292395	0.0147261
62	Malawi	0.7359079	0.684387	0.8176353	0.546725
63	Malaysia	0.761617	0.695012	0.7403216	0.6762493
64	Mali	0.4198661	0.861989	0.6200888	0.3270459
65	Malta	0.1671394	0.083485	0.0023978	0.0011994
66	Mauritania	0.5361458	0.333856	0.0198682	0.009958
67	Mauritius	0.8031082	0.482206	0.8876118	0.6275697
68	Mexico	0.6535605	0.576452	0.1556855	0.0790612
69	Morocco	0.8973976	0.474702	0.0783999	0.0392
70	Mozambique	0.4986064	0.837866	0.83328	0.5592
71	Nepal	0.6517658	0.682179	0.3421308	0.1854521
72	Netherlands	0.2136837	0.113302	0.094156	0.048198
73	New Zealand	0.3658242	0.195922	0.0396676	0.0200781
74	Nicaragua	0.6809213	0.496156	0.2697963	0.1425055
75	Niger	0.6977216	0.718459	0.4226727	0.2138064
76	Norway	0.0901551	0.045386	0.0059866	0.0029967
77	Pakistan	0.6975809	0.6084	0.7104035	0.3969907
78	Panama	0.5861965	0.047643	0.5161488	0.297926
79	Papua New Guinea	0.668669	0.353676	0.1263689	0.0644414
80	Paraguay	0.3096495	0.173938	0.121932	0.062468

code	country	ETHPOL	ETHFRAC	RELPOL	RELFRAC
81	Peru	0.817017	0.6581	0.8896964	0.4604271
82	Philippines	0.4965057	0.842858	0.2124433	0.108202
83	Poland	0.0991952	0.05119	0.002798	0.001399
84	Portugal	0.0198523	0.009962	0.0011994	0.0005998
85	Rwanda	0.4012621	0.221275	0.711288	0.4265999
86	Saudi Arabia	0.1138508	0.0588619	0.1125993	0.058411
87	Senegal	0.5595772	0.809295	0.3170509	0.1691751
88	Sierra Leone	0.6002349	0.792714	0.9203166	0.571438
89	Singapore	0.666299	0.421427	0.7383223	0.6234467
90	South Africa	0.7177831	0.469259	0.7904783	0.441794
91	Spain	0.6933327	0.435864	0.001599	0.0007998
92	Sri Lanka	0.7492799	0.451912	0.7267059	0.500158
93	Sudan	0.6993763	0.711419	0.7108643	0.426778
94	Swaziland	0.3184385	0.177684	0.6852467	0.363018
95	Sweden	0.3367502	0.18914	0.0178777	0.0089698
96	Switzerland	0.7241683	0.560405	0.0322465	0.0163121
97	Syria	0.3725578	0.206611	0.4096471	0.2197411
98	Taiwan	0.6852467	0.363018	0.9194476	0.590964
99	Tanzania	0.2710496	0.958587	0.8818274	0.647864
100	Thailand	0.5822896	0.36078	0.2658832	0.1433175
101	Togo	0.6732706	0.732451	0.8969109	0.6236125
102	Tonga	0.0660696	0.03362	0.0563491	0.0281994
103	Trinidad & Tobago	0.8417499	0.66248	0.8053156	0.5177164
104	Tunisia	0.1673397	0.087164	0.039387	0.019854
105	Turkey	0.3424468	0.185058	0.0218587	0.0109446
106	Uganda	0.2785829	0.931868	0.845672	0.52435
107	United Arab Emirates	0.64	0.32	0.8389386	0.5073568
108	United Kingdom	0.5706469	0.372961	0.1370616	0.0712815
109	United States	0.6912928	0.582796	0.4677373	0.2629873
110	Uruguay	0.4263952	0.259502	0.1658902	0.086155
111	Venezuela	0.7578776	0.539362	0.2274269	0.1185527
112	Yemen	0.0634789	0.0316149	0.9752443	0.5069999
113	Zambia	0.6062649	0.787442	0.8936369	0.450822
114	Zimbabwe	0.6977813	0.53379	0.9576129	0.4974459

Statistics:

Restricted Model

	Growth	INV	CW	GOV		growth	INV	CW	GOV	growth	INV	CW	GOV
InGDP0	-3.5 (0.000)	4.47 (0.000)	-5.89 (0.000)	-6.12 (0.000)	InGDP0	-3.5 (0.000)	4.41 (0.000)	-6.47 (0.000)	-6.62 (0.000)	-3.33 (0.001)	4.390 (0.000)	-6.85 (0.000)	-6.79 (0.000)
Inpop			6.63 (0.000)		Inpop			6.36 (0.000)				6.34 (0.000)	
democ			-2.65 (0.008)	-1.59 (0.113)	democ			-2.47 (0.014)	-1.47 (0.142)			-2.6 (0.009)	-1.64 (0.100)
GOV	0.93 (0.352)	2.61 (0.009)			GOV	0.73 (0.456)	2.39 (0.011)			0.72 (0.471)	2.49 (0.015)		
CW	-1.23 (0.219)	-2.13 (0.053)		0.88 (0.379)	CW	-1.38 (0.167)	-2.65 (0.008)		1.06 (0.288)	-1.4 (0.163)	-2.53 (0.011)		0.95 (0.344)
INV	1.9 (0.057)				INV	2.03 (0.042)				1.95 (0.051)			
pi		-5.61 (0.000)			pi		-6.03 (0.000)				-6.09 (0.000)		
ppdev	1.71 (0.087)	-1.95 (0.051)			prims	2.19 (0.029)	-1.24 (0.216)			2.29 (0.022)	-1.26 (0.207)		
prims	1.79 (0.074)	-1.77 (0.076)			secs	1.79 (0.074)	2.72 (0.007)			1.67 (0.095)	2.43 (0.015)		
secs	1.61 (0.108)	2.29 (0.022)			ppdev	1.6 (0.103)	-2.3 (0.022)			1.64 (0.101)	-2.23 (0.026)		
relpol	-1.89 (0.058)	-2.88 (0.004)	3.25 (0.001)	1.47 (0.142)	relpol	0.33 (0.738)	-1.48 (0.153)	0.66 (0.510)	0.08 (0.938)				
relfrac	2.11 (0.035)	2.52 (0.012)	-3.21 (0.001)	-1.47 (0.142)	relfrac					1.01 (0.311)	-1.11 (0.266)	-0.44 (0.664)	-0.28 (0.781)
regdum	yes		yes		regdum	yes		yes		yes		yes	
RRE		-3.9 (0.000)		1.54 (0.124)	RRE		-3.68 (0.000)		1.43 (0.152)		-3.3 (0.001)		1.66 (0.037)
RRErelj		2.78 (0.005)		0.11 (0.813)	RRErelj		5.95 (0.000)		-1.08 (0.279)				
RRErelf		-0.49 (0.621)		-0.53 (0.534)	RRErelf						5.7 (0.000)		-1.29 (0.196)
RRE1	0.23 (0.822)		-1.05 (0.292)		RRE1	0.29 (0.769)		-1.11 (0.265)		0.33 (0.742)		-1.26 (0.207)	
RRE1re	-0.11 (0.315)		-0.48 (0.630)		RRE1re	-0.02 (0.387)	2.29 (0.022)	0.29 (0.772)					
RRE1re	0.1 (0.820)		0.59 (0.554)		RRE1re					-0.06 (0.952)		0.5 (0.615)	
_cons	3.83 (0.000)	2.46 (0.014)	2.58 (0.010)	10.6 (0.000)	_cons	3.69 (0.000)		3.13 (0.002)	11.16 (0.000)	3.53 (0.000)	2.31 (0.021)	3.55 (0.000)	11.69 (0.000)
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456
R-sq	0.081	0.335	0.273	0.183	R-sq	0.071	0.322	0.257	0.176	0.073	0.321	0.256	0.178

Table 10: THE EFFECT OF RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	growth	INV	CW	GOV		growth	INV	CW	GOV	growth	INV	CW	GOV
InGDP0	-3.44 (0.001)	3.92 (0.000)	-6.25 (0.000)	-8.24 (0.000)	InGDP0	-3.82 (0.000)	5.5 (0.000)	-6.62 (0.000)	-7.02 (0.000)	-3.44 (0.001)	4.58 (0.000)	-6.34 (0.000)	-7.89 (0.000)
Inpop			5.25 (0.000)		Inpop			6.08 (0.000)				5.38 (0.000)	
democ			-2.73 (0.006)	-1.46 (0.144)	democ			-2.73 (0.006)	-1.47 (0.140)			-2.76 (0.006)	-1.42 (0.155)
GOV	0.92 (0.360)	1.41 (0.160)			GOV	0.6 (0.547)	1.82 (0.069)			0.93 (0.352)	1.98 (0.047)		
CW	-1.8 (0.072)	-2.21 (0.027)		1.23 (0.219)	CW	-1.56 (0.120)	-2.06 (0.033)		0.98 (0.326)	-1.82 (0.063)	-2.02 (0.043)		1.17 (0.243)
INV	2.23 (0.026)				INV	2.15 (0.031)				2.31 (0.021)			
pi		-5.91 (0.000)			pi		-5.84 (0.000)				-5.86 (0.000)		
prims	2.24 (0.025)	-0.19 (0.848)			prims	2.33 (0.020)	-0.55 (0.584)			2.42 (0.015)	-1.16 (0.246)		
secs	1.87 (0.061)	1.41 (0.157)			secs	1.81 (0.070)	1.69 (0.031)			1.86 (0.063)	1.99 (0.046)		
ppdev	1.63 (0.104)	-2.15 (0.031)			ppdev	1.6 (0.103)	-2.11 (0.035)			1.61 (0.106)	-2.14 (0.032)		
ethpol	-0.17 (0.862)	3.3 (0.001)	0.36 (0.716)	3.83 (0.000)	ethpol	0.72 (0.472)	2.43 (0.015)	1.07 (0.283)	1.66 (0.031)				
ethfrac	1.3 (0.194)	-2.18 (0.023)	0.84 (0.398)	-4.48 (0.000)	ethfrac					1.5 (0.153)	-0.33 (0.745)	1.27 (0.205)	-2.94 (0.003)
regdum	yes		yes		regdum	yes		yes		yes		yes	
RRE		3.04 (0.002)		0.01 (0.936)	RRE		2.68 (0.007)		0.8 (0.425)		1.25 (0.210)		-0.96 (0.339)
RREeth		2.07 (0.039)		-0.13 (0.836)	RREeth		-1.49 (0.136)		-0.1 (0.318)				
RREeth		-2.33 (0.020)		0.18 (0.858)	RREeth						-0.09 (0.932)		1.26 (0.209)
RRE1	-0.4 (0.683)		-0.12 (0.307)		RRE1	-0.45 (0.653)		-0.94 (0.345)		-0.17 (0.867)		-1.29 (0.196)	
RRE1et	-0.2 (0.838)		1.36 (0.172)		RRE1et	0.92 (0.358)		0.42 (0.675)					
RRE1et	0.39 (0.694)		-1.23 (0.220)		RRE1et					0.7 (0.486)		0.78 (0.436)	
_cons	3.3 (0.001)	2.18 (0.029)	3.18 (0.001)	12.43 (0.000)	_cons	3.86 (0.000)	1.09 (0.277)	3.14 (0.002)	12.01 (0.000)	3.25 (0.001)	1.98 (0.047)	3.39 (0.001)	12.7 (0.000)
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456
R-sq	0.079	0.29	0.263	0.216	R-sq	0.075	0.277	0.259	0.179	0.079	0.268	0.26	0.19

Table 11: THE EFFECT OF ETHNOLINGUISTIC HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	growth	INV	CW	GOV		growth	INV	CW	GOV	growth	INV	CW	GOV
InGDP0	-3.35 (0.000)	3.77 (0.000)	-5.4 (0.000)	-7.46 (0.000)	InGDP0	-3.26 (0.001)	4.48 (0.000)	-6.43 (0.000)	-7.57 (0.000)	-3.63 (0.000)	4.33 (0.000)	-6.39 (0.000)	-6.75 (0.000)
Inpop			4.99 (0.000)	1.43 (0.053)	Inpop			5.08 (0.000)				6.07 (0.000)	
democ			-2.88 (0.004)	-1.43 (0.053)	democ			-2.85 (0.004)	-1.35 (0.017)			-2.58 (0.010)	-1.7 (0.089)
GOV	1.12 (0.261)	1.98 (0.048)			GOV	0.99 (0.321)	2.55 (0.011)			0.62 (0.533)	2.16 (0.031)		
CW		-2 (0.046)			CW	-1.82 (0.066)	-2.43 (0.015)		1.49 (0.137)	-1.58 (0.115)	-2.7 (0.007)		0.88 (0.378)
INV	1.83 (0.067)				INV	2.05 (0.040)				1.84 (0.066)			
pi		-5.51 (0.000)			pi		-6.12 (0.000)				-6.07 (0.000)		
prims	1.95 (0.051)	-0.96 (0.335)			prims	2.43 (0.015)	-1.18 (0.237)			2.28 (0.022)	-0.62 (0.538)		
secs	1.53 (0.127)	1.72 (0.086)			secs	1.69 (0.032)	2.5 (0.013)			1.75 (0.081)	2.52 (0.012)		
ppdev	1.74 (0.081)	-1.91 (0.056)			ppdev	1.65 (0.039)	-2.24 (0.025)			1.64 (0.102)	-2.35 (0.019)		
relpol	-1.88 (0.060)	-3.89 (0.000)	3.25 (0.001)	0.43 (0.648)	relfrac	0.42 (0.675)	-1.3 (0.193)	-1.21 (0.228)	1.58 (0.114)				
ethpol	0.41 (0.660)	4.1 (0.000)	-0.65 (0.518)	3.41 (0.001)	ethpol	1.21 (0.225)	0.7 (0.486)	1.7 (0.083)	-3.41 (0.001)				
reffrac	1.91 (0.056)	3.25 (0.001)	-3.49 (0.000)	-0.1 (0.924)	refpol					0.03 (0.380)	-2.73 (0.006)	0.16 (0.816)	-0.72 (0.468)
ethfrac	0.69 (0.432)	-1.24 (0.217)	1.84 (0.066)	-4.54 (0.000)	ethpol					0.68 (0.433)	3.53 (0.000)	0.92 (0.358)	1.78 (0.075)
regdum	yes	yes	yes	yes	regdum	yes							
RRE		-0.61 (0.540)		0.95 (0.342)	RRE		-2.41 (0.016)		0.3 (0.767)		-0.84 (0.403)		1.27 (0.203)
RRElpol		-1.15 (0.250)		-0.27 (0.766)	RRElpol						6.72 (0.000)		-0.78 (0.438)
RREethpol		3.4 (0.001)		-0.53 (0.595)	RREeth						-2.74 (0.006)		-0.06 (0.953)
RRElfrac		1.12 (0.261)		0.14 (0.888)	RRElfrac		5.6 (0.000)		-2.32 (0.020)				
RREethfrac		-1.59 (0.111)		-0.01 (0.932)	RREeth		-0.25 (0.803)		1.5 (0.134)				
RRE1	-0.4 (0.687)		-0.19 (0.847)		RRE1	-0.11 (0.910)		-1.29 (0.196)		-0.39 (0.697)		-0.97 (0.331)	
RRE1relpol	0.51 (0.609)		-0.44 (0.661)		RRE1re					-0.05 (0.857)		0.33 (0.738)	
RRE1ethpol	-0.51 (0.690)		0.49 (0.627)		RRE1et					0.9 (0.370)		0.37 (0.313)	
RRE1refrac	-0.25 (0.801)		0.79 (0.428)		RRE1re	-0.14 (0.883)		0.43 (0.660)					
RRE1ethfrac	0.37 (0.703)		-0.62 (0.536)		RRE1et	0.68 (0.495)		0.63 (0.527)					
_cons	3.36 (0.001)	2.22 (0.026)	2.64 (0.008)	11.19 (0.000)	_cons	3.12 (0.002)	1.85 (0.064)	3.57 (0.000)	12.14 (0.000)	3.72 (0.000)	1.72 (0.085)	2.99 (0.003)	10.88 (0.000)
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456
R-sq	0.086	0.36	0.281	0.223	R-sq	0.079	0.321	0.262	0.199	0.075	0.342	0.259	0.183

Table 12: THE EFFECT OF ETHNOLINGUISTIC AND RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	Growth	INV	CW	GOV		Growth	INV	CW	GOV	Growth	INV	CW	GOV
InGDP0	-3.42 (0.001)	5.76 (0.000)	-5.62 (0.000)	-6.64 (0.000)	InGDP0	-3.38 (0.001)	5.21 (0.000)	-6.08 (0.000)	-7.14 (0.000)	-3.23 (0.001)	5.59 (0.000)	-6.13 (0.000)	-7.35 (0.000)
Inpop			6.88 (0.000)		Inpop			6.70 (0.000)				6.74 (0.000)	
democ			-2.57 (0.010)	-1.93 (0.054)	democ			-2.34 (0.019)	-1.84 (0.066)			-2.53 (0.011)	-1.97 (0.043)
GOV	1.34 (0.180)	2.09 (0.036)			GOV	0.85 (0.333)	2.34 (0.019)			1.01 (0.311)	2.21 (0.027)		
CW	-1.33 (0.182)	-2.2 (0.028)		-0.31 (0.753)	CW	-1.45 (0.148)	-2.74 (0.006)		-0.14 (0.885)	-1.46 (0.144)	-2.7 (0.007)		-0.33 (0.745)
INV	2.61 (0.009)				INV	2.37 (0.018)				2.32 (0.020)			
pi		-5.51 (0.000)			pi		-5.86 (0.000)				-5.63 (0.000)		
ppdev	1.77 (0.017)	-1.89 (0.059)			ppdev	1.65 (0.038)	-2.11 (0.035)			1.68 (0.030)	-1.9 (0.058)		
prims	1.77 (0.016)	-2.11 (0.035)			prims	2.17 (0.030)	-1.25 (0.210)			2.21 (0.027)	-1.27 (0.205)		
secs	1.46 (0.143)	0.75 (0.451)			secs	1.72 (0.085)	1.96 (0.050)			1.62 (0.105)	1.58 (0.113)		
relpol	-2.23 (0.026)	-1.11 (0.267)	2.33 (0.020)	1.38 (0.168)	relpol	0.03 (0.974)	1.42 (0.155)	-0.27 (0.730)	-2.10 (0.036)				
reffrac	2.4 (0.016)	1.78 (0.014)	-2.61 (0.009)	-2.37 (0.018)	reffrac					0.9 (0.366)	1.97 (0.049)	-1.19 (0.233)	-2.86 (0.004)
regdum	yes	yes	yes	yes	regdum	yes							
RE		1.31 (0.130)		-2.15 (0.031)	RE		0.66 (0.509)		-2.43 (0.015)		0.48 (0.634)		-2.8 (0.005)
RElfrac		3.58 (0.000)		1.99 (0.044)	RElfrac						-0.26 (0.737)		4.85 (0.000)
RElpol		-3.66 (0.000)		-0.96 (0.335)	RElpol		-0.85 (0.334)		4.28 (0.000)				
RE1	-0.18 (0.853)		-0.04 (0.465)		RE1	-0.27 (0.787)		-0.74 (0.460)		0.1 (0.924)		-1.16 (0.245)	
RE1refrac	1.13 (0.257)		0.42 (0.004)		RE1refrac					0.57 (0.567)		3.72 (0.000)	
RE1relpol	(omitted)				RE1relpol	0.86 (0.330)		3.29 (0.011)					
_cons	3.52 (0.000)	1.11 (0.266)	2.26 (0.024)	11.8 (0.000)	_cons	3.48 (0.001)	1.11 (0.269)	2.67 (0.008)	12.36 (0.000)	3.25 (0.001)	0.86 (0.388)	2.86 (0.004)	13.42 (0.000)
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456
R-sq	0.084	0.297	0.286	0.215	R-sq	0.073	0.264	0.275	0.203	0.075	0.268	0.277	0.211

Table 13: THE EFFECT OF RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	Growth	INV	CW	GOV		Growth	INV	CW	GOV	Growth	INV	CW	GOV	
InGDP0	-3.33 (0.001)	4.32 (0.000)	-6.71 (0.000)	-8.52 (0.000)	InGDP0	-3.69 (0.000)	5.62 (0.000)	-7.11 (0.000)	-7.15 (0.000)	-3.31 (0.001)	4.54 (0.000)	-6.72 (0.000)	-8.11 (0.000)	
Inpop			4.67 (0.000)		Inpop			6.21 (0.000)				5.22 (0.000)		
democ			-2.50 (0.012)	-1.34 (0.182)	democ			-2.4 (0.017)	-1.75 (0.080)			-2.45 (0.014)	-1.09 (0.214)	
GOV	1.15 (0.251)	1.16 (0.244)			GOV	0.72 (0.413)	1.97 (0.043)			1.12 (0.264)	1.26 (0.207)			
CW	-2.21 (0.027)			0.92 (0.355)	CW	-1.65 (0.039)	-2.8 (0.005)		0.29 (0.174)	-2.06 (0.039)	-2.57 (0.010)			0.86 (0.383)
INV	2.41 (0.016)				INV	2.25 (0.025)				2.35 (0.013)				
pi		-5.73 (0.000)			pi		-5.65 (0.000)				-5.68 (0.000)			
ppdev	1.74 (0.083)				ppdev	1.65 (0.038)	-1.93 (0.054)			1.73 (0.084)	-2.02 (0.043)			
prims	2.13 (0.023)	-0.75 (0.451)			prims	2.28 (0.023)	-1 (0.316)			2.23 (0.026)	-0.81 (0.420)			
secs	1.83 (0.067)	1.31 (0.191)			secs	1.75 (0.080)	1.71 (0.088)			1.76 (0.073)	1.4 (0.161)			
ethpol	-0.56 (0.513)	1.20 (0.223)	-0.48 (0.628)	2.91 (0.004)	ethpol	0.34 (0.735)	-0.43 (0.610)	0.37 (0.711)	0.9 (0.366)					
ethfrac	1.69 (0.031)	-3.19 (0.001)	1.63 (0.103)	-4.56 (0.000)	ethfrac					1.62 (0.104)	-3 (0.003)	1.51 (0.150)	-3.6 (0.000)	
regdum	yes		yes		regdum	yes		yes		yes		yes		
RE				-1.23 (0.218)	RE		-2.12 (0.034)		-0.17 (0.864)		-4.03 (0.000)		-2.59 (0.010)	
REethpol		-1.16 (0.247)			REethpol		0.19 (0.850)		1.03 (0.305)					
REethfrac		2.74 (0.006)		0.39 (0.633)	REethfrac						4.25 (0.000)		2.83 (0.005)	
RE1	-0.14 (0.887)		-0.33 (0.744)		RE1	-0.6 (0.350)		-0.91 (0.364)		-0.09 (0.300)		-0.57 (0.567)		
RE1ethpol	-0.58 (0.361)		-1.32 (0.181)		RE1ethpol	1.18 (0.238)		2.56 (0.010)						
RE1ethfrac	0.78 (0.435)		1.73 (0.083)		RE1ethfrac					1.15 (0.250)		2.88 (0.004)		
_cons	3.02 (0.003)	3.27 (0.001)	3.58 (0.000)	13.08 (0.000)	_cons	3.71 (0.000)	1.98 (0.048)	3.36 (0.001)	12.41 (0.000)	2.92 (0.004)	3.3 (0.001)	3.4 (0.001)	13.22 (0.000)	
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456	
R-sq	0.084	0.296	0.282	0.218	R-sq	0.077	0.273	0.274	0.181	0.083	0.293	0.279	0.201	

Table 14: THE EFFECT OF ETHNOLINGUISTIC HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	Growth	INV	CW	GOV		Growth	INV	CW	GOV	Growth	INV	CW	GOV	
InGDP0	-3.18 (0.001)	4.36 (0.000)	-5.02 (0.000)	-7.69 (0.000)	InGDP0	-3.44 (0.001)	5.34 (0.000)	-6.2 (0.000)	-7.16 (0.000)	-3.03 (0.002)	4.68 (0.000)	-5.79 (0.000)	-7.91 (0.000)	
Inpop			4.67 (0.000)		Inpop			6.49 (0.000)				5.28 (0.000)		
democ			-2.89 (0.004)	-1.56 (0.118)	democ			-2.36 (0.018)	-2.01 (0.045)			-2.79 (0.005)	-1.47 (0.142)	
GOV	1.5 (0.103)	1.23 (0.218)			GOV	0.78 (0.436)	2.37 (0.018)			1.23 (0.219)	1.67 (0.035)			
CW	-2.01 (0.044)	-1.65 (0.039)		0.48 (0.635)	CW	-1.65 (0.039)	-2.82 (0.005)		-0.26 (0.783)	-2.08 (0.038)	-2.33 (0.020)			0.13 (0.836)
INV	2.45 (0.014)				INV	2.2 (0.028)				2.25 (0.025)				
pi		-5.7 (0.000)			pi		-5.89 (0.000)				-5.8 (0.000)			
ppdev	1.86 (0.063)	-2.1 (0.036)			ppdev	1.69 (0.032)	-2.12 (0.034)			1.77 (0.076)	-2.06 (0.039)			
prims	1.84 (0.065)	-1.57 (0.117)			prims	2.31 (0.021)	-1.12 (0.261)			2.29 (0.022)	-0.94 (0.343)			
secs	1.51 (0.101)	0.44 (0.661)			secs	1.69 (0.031)	1.9 (0.057)			1.65 (0.039)	1.38 (0.169)			
relpol	-1.92 (0.055)	-1.34 (0.182)	2.97 (0.003)	0.73 (0.464)	relpol	-0.07 (0.948)	1.51 (0.130)	-0.43 (0.668)	-2.26 (0.024)					
ethpol	0.02 (0.383)	2.03 (0.043)	-1.44 (0.143)	2.18 (0.030)	ethpol	0.34 (0.732)	-0.63 (0.527)	0.42 (0.672)	1.22 (0.221)					
relfrac	1.9 (0.057)	2.24 (0.025)	-3.52 (0.000)	-1.42 (0.157)	relfrac					0.35 (0.730)	2.53 (0.011)	-2 (0.045)	-2.26 (0.024)	
ethfrac	1.29 (0.196)	-4.16 (0.000)	2.74 (0.006)	-3.74 (0.000)	ethfrac					1.48 (0.140)	-3.4 (0.001)	2.16 (0.031)	-2.82 (0.005)	
regdum	yes		yes		regdum	yes		yes		yes		yes		
RE		-0.97 (0.334)		-1.67 (0.035)	RE		-1.34 (0.180)		-1.12 (0.263)		-2.87 (0.004)		-3.3 (0.001)	
RErelfra		2.88 (0.004)		2.35 (0.019)	RErelfrac						-1.98 (0.047)		4 (0.000)	
RErelpo		-3.35 (0.001)		-1.58 (0.113)	RErelpol		-2.01 (0.044)		3.86 (0.000)					
REethpo		0.29 (0.712)		0.68 (0.439)	REethpol		2.89 (0.004)		-0.42 (0.672)					
REethfr		0.9 (0.368)		-0.81 (0.420)	REethfrac						4.44 (0.000)		0.77 (0.439)	
RE1	0.01 (0.393)		-1.11 (0.269)		RE1	-0.67 (0.504)		-1.27 (0.204)		-0.1 (0.923)		-1.32 (0.188)		
RE1relfr	0.92 (0.358)		1.87 (0.061)		RE1relfrac					0.33 (0.741)		2.85 (0.004)		
RE1relpo	(omitted)		(omitted)		RE1relpol	0.41 (0.680)		2.34 (0.019)						
RE1eth	-0.52 (0.600)		-1.47 (0.142)		RE1ethpol	0.96 (0.335)		1.55 (0.120)						
RE1ethfr	0.62 (0.536)		1.84 (0.066)		RE1ethfrac					0.92 (0.359)		1.66 (0.031)		
_cons	2.87 (0.004)	2.65 (0.008)	2.61 (0.009)	11.99 (0.000)	_cons	3.43 (0.001)	1.17 (0.242)	2.7 (0.007)	11.53 (0.000)	2.63 (0.008)	2.33 (0.020)	2.9 (0.004)	12.86 (0.000)	
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456	
R-sq	0.092	0.332	0.31	0.244	R-sq	0.077	0.28	0.282	0.205	0.084	0.304	0.293	0.226	

Table 15: THE EFFECT OF ETHNOLINGUISTIC AND RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	Growth	INV	CW	GOV		Growth	INV	CW	GOV	Growth	INV	CW	GOV
InGDP0	-3.85 (0.000)	4.05 (0.000)	-5.95 (0.000)	-6.4 (0.000)	InGDP0	-3.64 (0.000)	4.34 (0.000)	-6.73 (0.000)	-6.56 (0.000)	-3.5 (0.000)	4.7 (0.000)	-7.15 (0.000)	-7.02 (0.000)
Inpop			6.46 (0.000)		Inpop			6.12 (0.000)				6.14 (0.000)	
democ			-2.79 (0.005)	-1.57 (0.115)	democ			-2.37 (0.018)	-1.8 (0.072)			-2.54 (0.011)	-1.78 (0.076)
GOV	0.5 (0.619)	1.93 (0.054)			GOV	0.48 (0.633)	1.83 (0.067)			0.37 (0.711)	1.82 (0.068)		
CW	-1.12 (0.262)	-3.58 (0.000)		0.39 (0.697)	CW	-1.28 (0.201)	-3.75 (0.000)		0.67 (0.502)	-1.32 (0.187)	-3.66 (0.000)		0.47 (0.639)
INV	2.19 (0.028)				INV	2.31 (0.021)				2.24 (0.025)			
pi		-4.6 (0.000)			pi		-5.13 (0.000)				-5.29 (0.000)		
ppdev	1.66 (0.037)	-1.1 (0.273)			ppdev	1.55 (0.121)	-1.51 (0.130)			1.6 (0.111)	-1.53 (0.125)		
prims	2.07 (0.036)	-1.38 (0.168)			prims	2.19 (0.028)	-0.78 (0.434)			2.3 (0.022)	-0.85 (0.335)		
secs	1.78 (0.075)	1 (0.318)			secs	1.85 (0.064)	1.58 (0.114)			1.73 (0.083)	1.3 (0.193)		
relpol	-2.08 (0.038)	-2.41 (0.016)	3.37 (0.001)	0.14 (0.889)	relpol	0.13 (0.897)	3.15 (0.002)	0.9 (0.368)	0.44 (0.663)				
reffrac	2.28 (0.023)	3.65 (0.000)	-3.26 (0.001)	0.05 (0.960)	reffrac					0.92 (0.355)	4.2 (0.000)	-0.26 (0.732)	0.44 (0.655)
regdum	yes		yes		regdum	yes		yes		yes		yes	
RREE		1.2 (0.231)		3.17 (0.002)	RREE		1.11 (0.267)		3.55 (0.000)		0.6 (0.550)		4.52 (0.000)
RREEre		-0.51 (0.607)		-3 (0.003)	RREEre						-2.7 (0.007)		-4.21 (0.000)
RREEre		-0.73 (0.445)		1.64 (0.102)	RREEre		-2.76 (0.006)		-3.24 (0.001)				
RREE1	-0.41 (0.683)		0.65 (0.518)		RREE1	0.24 (0.810)		0.15 (0.880)		0.48 (0.630)		-0.06 (0.853)	
RREE1r	-1.74 (0.082)		1.36 (0.173)		RREE1r					-0.09 (0.931)			-0.01 (0.933)
RREE1r	1.76 (0.078)		-1.39 (0.164)		RREE1r	0.28 (0.783)		-0.41 (0.680)					
_cons	4.1 (0.000)	2.65 (0.008)	2.56 (0.010)	10.81 (0.000)	_cons	3.78 (0.000)	2.05 (0.040)	3.25 (0.001)	11.08 (0.000)	3.67 (0.000)	1.85 (0.064)	3.65 (0.000)	11.96 (0.000)
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456
R-sq	0.088	0.316	0.274	0.215	R-sq	0.072	0.293	0.255	0.195	0.073	0.301	0.254	0.209

Table 16: THE EFFECT OF RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	Growth	INV	CW	GOV		Growth	INV	CW	GOV	Growth	INV	CW	GOV
InGDP0	-3.28 (0.001)	3.74 (0.000)	-6.15 (0.000)	-7.37 (0.000)	InGDP0	-3.76 (0.000)	3.76 (0.000)	-6.92 (0.000)	-7.02 (0.000)	-3.31 (0.001)	3.79 (0.000)	-6.17 (0.000)	-7.98 (0.000)
Inpop			5.12 (0.000)		Inpop			5.92 (0.000)				5.22 (0.000)	
democ			-2.71 (0.007)	-2.6 (0.009)	democ			-2.64 (0.008)	-1.84 (0.066)			-2.62 (0.009)	-2.45 (0.014)
GOV	0.59 (0.558)	1.75 (0.080)			GOV	0.25 (0.805)	1.93 (0.054)			0.49 (0.625)	1.72 (0.085)		
CW	-1.66 (0.037)	-3.46 (0.001)		1.42 (0.153)	CW	-1.34 (0.180)	-3.38 (0.001)		1.26 (0.203)	-1.69 (0.032)	-3.62 (0.000)		1.47 (0.142)
INV	2.3 (0.022)				INV	2.15 (0.032)				2.29 (0.022)			
pi		-5.82 (0.000)			pi		-5.67 (0.000)				-5.96 (0.000)		
ppdev	1.59 (0.112)	-2.12 (0.034)			ppdev	1.57 (0.116)	-1.96 (0.050)			1.6 (0.103)	-2.18 (0.029)		
prims	2.22 (0.027)	-1.02 (0.308)			prims	2.34 (0.019)	-0.97 (0.332)			2.25 (0.024)	-1.12 (0.264)		
secs	1.89 (0.058)	1.84 (0.066)			secs	1.83 (0.068)	1.8 (0.072)			1.86 (0.063)	1.91 (0.056)		
ethpol	-0.31 (0.758)	0.42 (0.617)	0.68 (0.497)	0.98 (0.028)	ethpol	0.66 (0.511)	1.23 (0.219)	1.65 (0.039)	-0.74 (0.462)				
ethfrac	1.44 (0.180)	0.51 (0.612)	1.15 (0.252)	-1.87 (0.061)	ethfrac					1.54 (0.123)	1.28 (0.189)	1.85 (0.064)	-2.01 (0.044)
regdum	yes		yes		regdum	yes		yes		yes		yes	
RREE		0.25 (0.802)		5.69 (0.000)	RREE		-2.57 (0.010)		-3.53 (0.000)		1.91 (0.051)		7.6 (0.000)
RREEet		-1.19 (0.235)		-6.18 (0.000)	RREEet						-2.81 (0.005)		-6.87 (0.000)
RREEet		0.34 (0.734)		-3.23 (0.001)	RREEet		1.65 (0.038)		4.03 (0.000)				
RREE1	-0.25 (0.803)		0.93 (0.352)		RREE1	-0.64 (0.521)		0.58 (0.363)		0.61 (0.533)		0.67 (0.501)	
RREE1e	-0.57 (0.570)		-0.83 (0.405)		RREE1e	0.73 (0.467)		-0.7 (0.481)		-0.56 (0.575)		-0.87 (0.381)	
RREE1e	0.77 (0.443)		-0.72 (0.463)		RREE1e								
_cons	3.21 (0.001)	2.89 (0.004)	3.09 (0.002)	12.47 (0.000)	_cons	3.87 (0.000)	2.97 (0.003)	3.29 (0.001)	11.77 (0.000)	3.24 (0.001)	2.95 (0.003)	3.21 (0.001)	13.26 (0.000)
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456
R-sq	0.079	0.287	0.261	0.296	R-sq	0.074	0.284	0.258	0.206	0.077	0.286	0.26	0.28

Table 17: THE EFFECT OF ETHNOLINGUISTIC HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	Growth	INV	CW	GOV		Growth	INV	CW	GOV	Growth	INV	CW	GOV
InGDP0	-3.62 (0.000)	3.29 (0.001)	-4.56 (0.000)	-6.21 (0.000)	InGDP0	-3.73 (0.000)	3.76 (0.000)	-6.49 (0.000)	-7.51 (0.000)	-3.23 (0.001)	4.46 (0.000)	-6.23 (0.000)	-8.15 (0.000)
Inpop			5.19 (0.000)		Inpop			5.97 (0.000)				4.94 (0.000)	
democ			-3.21 (0.001)	-2.16 (0.031)	democ			-2.62 (0.003)	-2.12 (0.034)			-2.82 (0.005)	-2.27 (0.023)
GOV	0.54 (0.592)	1.43 (0.154)			GOV	0.17 (0.868)	1.47 (0.142)			0.38 (0.706)	1.29 (0.198)		
CW	-1.44 (0.143)	-3.27 (0.001)		1.32 (0.188)	CW	-1.38 (0.168)	-3.7 (0.000)		0.71 (0.480)	-1.67 (0.035)	-3.46 (0.001)		1.23 (0.220)
INV	2.06 (0.033)				INV	2.02 (0.044)				2.23 (0.026)			
pi		-4.38 (0.000)			pi		-5.18 (0.000)				-5.58 (0.000)		
ppdev	1.7 (0.030)	-1.08 (0.278)			ppdev	1.6 (0.103)	-1.61 (0.106)			1.62 (0.106)	-1.8 (0.072)		
prims	2.16 (0.031)	-0.93 (0.354)			prims	2.35 (0.013)	-0.35 (0.730)			2.27 (0.023)	-0.59 (0.556)		
secs	1.79 (0.073)	0.65 (0.515)			secs	1.8 (0.072)	1.5 (0.134)			1.8 (0.073)	1.17 (0.243)		
relpol	-1.96 (0.050)	-3.04 (0.002)	3.54 (0.000)	0.21 (0.831)	relpol	-0.06 (0.953)	2.88 (0.004)	0.32 (0.752)	0.22 (0.824)				
ethpol	0.31 (0.755)	1.33 (0.182)	-0.28 (0.781)	0.8 (0.422)	ethpol	0.66 (0.507)	0.45 (0.655)	1.43 (0.154)	-0.91 (0.363)				
reffrac	1.97 (0.048)	4.19 (0.000)	-3.75 (0.000)	0.03 (0.978)	reffrac					0.37 (0.710)	4.07 (0.000)	-1.14 (0.254)	0.54 (0.591)
ethfrac	0.71 (0.477)	-0.53 (0.538)	2.21 (0.027)	-1.77 (0.077)	ethfrac					1.28 (0.202)	0.51 (0.603)	2.19 (0.023)	-2.14 (0.032)
regdum	yes		yes		regdum	yes		yes		yes		yes	
RREE		-0.31 (0.758)		5.49 (0.000)	RREE		-0.94 (0.350)		-1.05 (0.292)		2.37 (0.018)		7.8 (0.000)
RREEr		-0.37 (0.708)		-1.98 (0.048)	RREEr						-1.66 (0.096)		-1.77 (0.077)
RREEt		-0.75 (0.435)		1.93 (0.053)	RREEt						-2.49 (0.015)		-5.57 (0.000)
RREEt		0.02 (0.988)		-5.36 (0.000)	RREEt		-2.63 (0.003)		-3.1 (0.002)				
RREEt		1 (0.315)		-3.26 (0.001)	RREEt		1.87 (0.061)		4.04 (0.000)				
RREE1	-0.21 (0.832)		0.94 (0.346)		RREE1	-1.12 (0.265)		0.91 (0.360)		0.6 (0.548)		0.62 (0.536)	
RREE1r	-1.22 (0.223)		1 (0.315)		RREE1r					0.11 (0.912)		0.22 (0.825)	
RREE1r	1.1 (0.273)		-0.83 (0.404)		RREE1e					-0.57 (0.566)		-0.88 (0.378)	
RREE1e	0.11 (0.911)		-1.65 (0.038)		RREE1r	-0.92 (0.358)		0.66 (0.508)					
RREE1e	0.13 (0.300)		-0.53 (0.535)		RREE1e	1.14 (0.254)		-0.94 (0.347)					
_cons	3.62 (0.000)	2.87 (0.004)	1.97 (0.043)	10.51 (0.000)	_cons	3.83 (0.000)	2.29 (0.022)	2.99 (0.003)	11.73 (0.000)	3.18 (0.001)	1.87 (0.062)	3.35 (0.001)	13.03 (0.000)
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456
R-sq	0.091	0.332	0.286	0.305	R-sq	0.075	0.301	0.259	0.223	0.078	0.311	0.262	0.285

Table 18: THE EFFECT OF ETHNOLINGUISTIC AND RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	Growth	INV	CW	GOV		growth	INV	CW	GOV	growth	INV	CW	GOV
InGDP0	-3.62 (0.000)	5.63 (0.000)	-5.58 (0.000)	-5.89 (0.000)	InGDP0	-3.6 (0.000)	5.65 (0.000)	-6.11 (0.000)	-6.49 (0.000)	-3.46 (0.001)	6.14 (0.000)	-6.43 (0.000)	-7.16 (0.000)
Inpop			5.45 (0.000)		Inpop			5.39 (0.000)				5.36 (0.000)	
democ			-2.34 (0.019)	-1.72 (0.086)	democ			-2.07 (0.038)	-1.51 (0.132)			-2.21 (0.027)	-1.65 (0.038)
GOV	0.86 (0.330)	2.58 (0.010)		1.59 (0.112)	GOV	0.62 (0.533)	2.29 (0.022)			0.58 (0.561)	2.37 (0.018)		
CW	-1.07 (0.282)	-1.65 (0.098)			CW	-1.16 (0.245)	-2.03 (0.043)		1.87 (0.061)	-1.15 (0.243)	-1.78 (0.074)		1.68 (0.033)
INV	2.23 (0.026)				INV	2.45 (0.014)				2.39 (0.017)			
pi		-5.44 (0.000)			pi		-5.83 (0.000)				-5.71 (0.000)		
ppdev	1.62 (0.104)	-1.65 (0.099)			prims	2.15 (0.031)	-0.95 (0.340)			2.25 (0.024)	-0.94 (0.347)		
prims	1.75 (0.081)				secs	1.78 (0.075)	2 (0.046)			1.67 (0.034)	1.77 (0.076)		
secs	1.61 (0.106)	1.49 (0.135)			ppdev	1.5 (0.133)	-2.01 (0.044)			1.53 (0.128)	-1.88 (0.060)		
relpol	-1.79 (0.073)	-2.33 (0.020)	2.96 (0.003)	2.51 (0.012)	relpol	0.42 (0.676)	1.69 (0.031)	0.33 (0.740)	0.06 (0.954)				
reffrac	2.04 (0.041)	3.05 (0.002)	-3.01 (0.003)	-2.65 (0.008)	reffrac					1.08 (0.282)	2.61 (0.009)	-0.7 (0.482)	-0.83 (0.409)
regdum	yes		yes		regdum	yes		yes		yes		yes	
REE		1.21 (0.227)		-0.7 (0.466)	REE		1.56 (0.113)		-1.02 (0.310)		1.8 (0.073)		-1.51 (0.131)
REEr		-0.67 (0.501)		1.02 (0.304)	REEr		-1.14 (0.253)		-0.74 (0.458)				
REEt		0.49 (0.624)		-1.28 (0.201)	REEt						-1.34 (0.181)		-0.33 (0.742)
REE1	-0.11 (0.912)		2.52 (0.012)		REE1	-0.18 (0.858)		2.46 (0.014)		-0.2 (0.845)		2.48 (0.013)	
REE1r	-0.19 (0.846)		0.65 (0.518)		REE1r	-0.19 (0.846)		-0.2 (0.842)					
REE1e	0.15 (0.883)		-0.7 (0.466)		REE1e					-0.24 (0.810)		0.11 (0.916)	
_cons	3.88 (0.000)	0.73 (0.464)	2.57 (0.010)	10.3 (0.000)	_cons	3.71 (0.000)	0.5 (0.618)	3.05 (0.002)	10.95 (0.000)	3.58 (0.000)	0.07 (0.947)	3.41 (0.001)	12.26 (0.000)
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456
R-sq	0.081	0.28	0.302	0.203	R-sq	0.072	0.267	0.289	0.191	0.074	0.272	0.289	0.192

Table 19: THE EFFECT OF RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	Growth	INV	CW	GOV		growth	INV	CW	GOV	growth	INV	CW	GOV
lnGDP0	-3.37 (0.001)	3.91 (0.000)	-5.18 (0.000)	-8.36 (0.000)	lnGDP0	-3.78 (0.000)	5.54 (0.000)	-6 (0.000)	-6.71 (0.000)	-3.37 (0.001)	4.44 (0.000)	-5.24 (0.000)	-7.35 (0.000)
lnpop			4.75 (0.000)		lnpop			5.07 (0.000)				4.39 (0.000)	
democ			-3.24 (0.001)	-2.32 (0.021)	democ			-2.51 (0.012)	-1.93 (0.054)			-3.05 (0.002)	-1.38 (0.168)
GOV	0.69 (0.488)	1.57 (0.117)			GOV	0.54 (0.530)	2.19 (0.028)			0.76 (0.447)	2.18 (0.028)		
CW	-1.65 (0.100)	-2.35 (0.019)		1 (0.317)	CW	-1.43 (0.153)	-2.27 (0.023)		1.47 (0.140)	-1.66 (0.097)	-2.14 (0.033)		2.08 (0.037)
INV	2.41 (0.016)				INV	2.33 (0.020)				2.5 (0.012)			
pi		-5.89 (0.000)			pi		-5.84 (0.000)				-5.87 (0.000)		
ppdev	1.5 (0.104)	-2.17 (0.030)			prims	2.39 (0.017)	-0.99 (0.321)			2.12 (0.034)	-1.37 (0.172)		
prims	2.2 (0.028)	-0.88 (0.377)			secs	1.94 (0.053)	2.09 (0.036)			1.98 (0.048)	2.16 (0.031)		
secs	1.97 (0.048)	1.95 (0.052)			ppdev	1.46 (0.144)	-2.05 (0.040)			1.52 (0.130)	-2.09 (0.037)		
ethpol	0.46 (0.646)	2.64 (0.008)	2.2 (0.028)	5.9 (0.000)	ethpol	1.46 (0.144)	1.09 (0.276)	1.06 (0.280)	3.31 (0.001)				
ethfrac	0.92 (0.356)	-2.81 (0.005)	-1.83 (0.067)	-5.2 (0.000)	ethfrac					1.72 (0.086)	-1.43 (0.153)	-0.43 (0.665)	-1.86 (0.063)
regdum	yes		yes		regdum	yes		yes		yes		yes	
REE		0.67 (0.500)		1.09 (0.276)	REE		0.83 (0.405)		1.46 (0.146)		1.08 (0.281)		-1.04 (0.289)
REEth		0.86 (0.387)		1.71 (0.087)	REEthpol		-0.67 (0.505)		-2.55 (0.011)				
REEthf		-1.32 (0.186)		-3.74 (0.000)	REEthfrac						-0.21 (0.832)		-0.58 (0.561)
REE1	-0.56 (0.574)		-0.66 (0.510)		REE1	1.33 (0.182)		3.46 (0.001)		-1.75 (0.080)		-2.16 (0.031)	
REE1et	-0.39 (0.637)		-0.89 (0.375)		REE1ethp	-1.64 (0.102)		-2.28 (0.022)					
REE1etf	1.1 (0.213)		3.15 (0.002)		REE1ethfra					1.43 (0.153)		3.56 (0.000)	
_cons	3.19 (0.001)	2.59 (0.003)	2.69 (0.001)	12.89 (0.000)	_cons	3.66 (0.000)	1.42 (0.156)	2.99 (0.003)	11.68 (0.000)	3.23 (0.001)	2.39 (0.011)	3.24 (0.001)	12.33 (0.000)
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456
R-sq	0.085	0.279	0.315	0.256	R-sq	0.08	0.265	0.297	0.212	0.084	0.266	0.308	0.197

Table 20: THE EFFECT OF ETHNOLINGUISTIC HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

	Growth	INV	CW	GOV		Growth	INV	CW	GOV	Growth	INV	CW	GOV
lnGDP0	-3.35 (0.001)	4.2 (0.000)	-3.86 (0.000)	-7.07 (0.000)	lnGDP0	-3.7 (0.000)	5.61 (0.000)	-5.86 (0.000)	-6.57 (0.000)	-3.21 (0.001)	5.47 (0.000)	-5.2 (0.000)	-7.27 (0.000)
lnpop			4.63 (0.000)		lnpop			4.99 (0.000)				4.29 (0.000)	
democ			-3.33 (0.001)	-2.39 (0.017)	democ			-2.6 (0.003)	-2.21 (0.027)			-2.96 (0.003)	-1.38 (0.167)
GOV	0.71 (0.476)	1.53 (0.127)			GOV	0.55 (0.584)	2.26 (0.024)			0.71 (0.477)	2.32 (0.020)		
CW	-1.53 (0.125)	-1.83 (0.068)		0.99 (0.323)	CW	-1.44 (0.150)	-2.01 (0.044)		1.34 (0.181)	-1.7 (0.088)	-1.9 (0.057)		1.27 (0.203)
INV	2.1 (0.036)				INV	2.35 (0.018)				2.46 (0.014)			
pi		-5.35 (0.000)			pi						-5.7 (0.000)		
ppdev	1.64 (0.100)	-1.66 (0.038)			ppdev	1.44 (0.151)	-2.03 (0.043)			1.56 (0.113)	-1.88 (0.060)		
prims	1.96 (0.050)	-1.01 (0.315)			prims	2.33 (0.020)	-0.82 (0.413)			2.17 (0.030)	-1.09 (0.276)		
secs	1.83 (0.067)	0.94 (0.349)			secs	1.92 (0.054)	2.02 (0.043)			1.94 (0.052)	1.58 (0.115)		
relpol	-1.72 (0.085)	-2.93 (0.003)	2.89 (0.004)	1.2 (0.232)	relpol	-0.18 (0.856)	1.43 (0.153)	-0.21 (0.835)	-1.31 (0.132)	1.56 (0.113)	3.62 (0.000)	-0.23 (0.816)	0.11 (0.310)
ethpol	0.92 (0.356)	3.44 (0.001)	1.19 (0.233)	5.31 (0.000)	ethpol	1.41 (0.153)	0.53 (0.535)	1.05 (0.233)	3.57 (0.000)	1.29 (0.136)	-2.86 (0.004)	-0.28 (0.781)	-1.88 (0.061)
relfrac	1.78 (0.076)	4.05 (0.000)	-2.83 (0.005)	-1.23 (0.220)	relfrac					-0.62 (0.531)		-0.28 (0.778)	
ethfrac	0.33 (0.742)	-4.23 (0.000)	-0.86 (0.388)	-4.68 (0.000)	ethfrac					-3.27 (0.001)		-2.52 (0.012)	
regdum	yes		yes		regdum	yes		yes		yes		yes	
REE		0.64 (0.520)		1.1 (0.272)	REE		1.08 (0.281)		1.38 (0.167)		0.51 (0.603)		-1.41 (0.158)
RERelp		0.65 (0.518)		-0.39 (0.636)	RERelp		-0.99 (0.322)		0.08 (0.340)				
RERelf		-0.87 (0.383)		0.19 (0.850)	RERelf		-0.48 (0.631)		-2.58 (0.010)				
REEth		-1.23 (0.213)		-3.34 (0.001)	REEth						-1.83 (0.067)		-0.77 (0.440)
REEthf		1.44 (0.150)		1.81 (0.070)	REEthf						1.03 (0.304)		1.66 (0.038)
REE1	-0.65 (0.516)		-1.48 (0.131)	10.89 (0.000)	REE1	1.24 (0.214)		3.17 (0.002)		-1.81 (0.070)		-2.15 (0.032)	
RERelp	0.45 (0.656)		0.57 (0.568)		RERelp	-0.15 (0.877)		-0.47 (0.636)					
RERelf	-0.28 (0.777)		-0.29 (0.772)		RERelf	-1.67 (0.036)		-2.36 (0.018)					
REE1et	-0.26 (0.735)		-0.03 (0.880)		REE1et					0.44 (0.663)		0.69 (0.432)	
REE1etf	1.12 (0.262)		3.47 (0.001)		REE1etf					1.62 (0.105)		3.51 (0.000)	
_cons	3.29 (0.001)	1.98 (0.048)	1.75 (0.080)		_cons	3.57 (0.000)	0.4 (0.687)	2.97 (0.003)	10.52 (0.000)	3.09 (0.002)	0.94 (0.346)	3.18 (0.001)	11.86 (0.000)
OBS	456	456	456	456	OBS	456	456	456	456	456	456	456	456
R-sq	0.092	0.311	0.33	0.259	R-sq	0.08	0.268	0.298	0.216	0.086	0.286	0.308	0.201

Table 21: THE EFFECT OF ETHNOLINGUISTIC AND RELIGIOUS HETEROGENEITY SUR ESTIMATOR FOR 5-YEAR PERIOD

References

- [1] Akbhari, Shabani (2011). "Effect of Division on Regional Economic Growth in Iran" *Economics and Finance Review* Vol. 1(8).
- [2] Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., Wacziarg, R., (2003). "Fractionalization" *Journal of Economic Growth* 8 (2).
- [3] Alesina A., Glaeser E., Sacerdote B., (2001). "Why Doesn't The US Have a European-Style Welfare State?," *Harvard Institute of Economic Research Working Papers 1933*, Harvard - Institute of Economic Research.
- [4] Alesina A., Baquir R., and William Easterly, (2000). "Redistributive Public Employment," *Journal of Urban Economics*.
- [5] Alesina A., Baquir R., Easterly W., (1999). "Public Goods and Ethnic Divisions," *Quarterly Journal of Economics*.
- [6] Alesina A. & Spolaore E., (1997). "On the Number and Size of Nations," *The Quarterly Journal of Economics*, MIT Press.
- [7] Barro R. J., (1991). "Economic Growth in a Cross Section of Countries," *The Quarterly Journal of Economics*, MIT Press.
- [8] Barro R. J. & Lee J.W. (2013) "A new data set of educational attainment in the world, 1950–2010," *Journal of Development Economics*, Elsevier.
- [9] Baum, C. F. (2006). "An Introduction to Modern Econometrics Using Stata". Statacorp LP, College Station, Texas.
- [10] Berman E. Laitin D. (2008). "Religion, Terrorism and Public Goods: Testing the Club Model", *Journal of Public Economics*.
- [11] Bernabou R., Ticchi D. and Vindigni A. (2013) "Forbidden Fruits: The Political Economy of Science Religion and Growth".
- [12] Berger, P (1979) *The Sacred Canopy*. Garden City, NY: Doubleday.
- [13] Berger, P (1979). "The Heretical Imperative: Contemporary Possibilities of Religious Affirmation" Garden City, NY: Anchor Books. Berger, Peter L. and Thomas Luckmann.
- [14] Berger, P (1995). "Modernity, Pluralism, and the Crisis of Meaning: The Orientation of Modern Man" Guttersloh: Bertelsmann Foundation Publishers.

- [15] Breusch, T.S. and A.R. Pagan (1980). "The Lagrange Multiplier test and its applications to model specification in econometrics" *Review of Economic Studies*.
- [16] Central Intelligence Agency. (2013). *The World Factbook*. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/>
- [17] Ceyhun & Goksel, Turkmen & Gurdal, Mehmet Y. & Orman, Cuneyt, (2013). "Religion, income inequality, and the size of the government," *Economic Modelling*, Elsevier.
- [18] Collier & P., Hoeffler, A., (2002). "Greed and Grievances" World Bank. DECRG Working paper
- [19] Desmet K., Ortuno-Ortin I., Weber S. (2009). "The Political Economy of Ethnolinguistic Cleavages," NBER, wp n. 15360.R.W * "The Political Economy of Ethnolinguistic Cleavages,"
- [20] Desmet K., Ortuno-Ortin I., Weber S. (2010). "Linguistic Diversity and Redistribution", *Journal of the European Economic Association*.
- [21] Dehejia R., DeLeire T. and F.P. Luttmer E., (2007), "Insuring Consumption and Happiness through Religious Organizations", *Journal of Public Economics*.
- [22] Ellingsen T. (2000). "Colorful community or ethnic witches'brew?" *Journal of Conflict Resolution*.
- [23] Esteban, J., and D. Ray. (1994). "On the measurement of polarization", *Econometrica*.
- [24] Esteban, J., and D. Ray. (1999). "Conflict and distribution", *Journal of Economic Theory*.
- [25] Esteban J. & Mayoral L. (2011). "Ethnic and Religious Polarization and Social Conflict," UFAE and IAE Working Papers 857.11, Unitat de Fonaments de l'Anàlisi Econòmica (UAB) and Institut d'Anàlisi Econòmica (CSIC).

- [26] Fearon, Laitin (2003). "Ethnicity, insurgency and civil war", *American Political Science Review*.
- [27] Fox J. (2004). "Religion, Civilization and Civil War: 1945 Through the New Millennium", Lanham, MD: Lexington Books.
- [28] Gill A and Lundsgaarde E. (2004). "State Welfare Spending and Religiosity: A Cross-National Analysis", *Rationality and Society*.
- [29] Heston A., Summers R. and Aten B. (2012). "Penn World Table Version 7.1", Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania.
- [30] Hungerman, D. M., (2005). "Are Church and State Substitutes? Evidence from the 1996 Welfare Reform," *Journal of Public Economics*
- [31] Inglehart, Ronald and Pippa Norris (2004). "Sacred and Secular: Religion and Politics Worldwide", Cambridge: Cambridge University Press.
- [32] Inglehart R. (1997). "Modernization and post-modernization: Cultural, economic, and political change in 43 societies", Princeton, NJ: Princeton University Press.
- [33] Kauffman E. (2010). "Shall the Religious Inherit the Earth?: Demography and Politics in the Twenty-First Century" Profile Books.
- [34] Kauffman E. (2012). "Primordialists and Constructionists: A typology of theories of religion", *Religion, Brain and Behavior*.
- [35] Kuran T. (1995). "Islamic economics and the Islamic subeconomy" *The Journal of Economic Perspectives*.
- [36] Kauran T. (2012). "The Economic Roots of Political Underdevelopment in the Middle East: A Historical Perspective." *Southern Economic Journal*.
- [37] Maududi, S.A.A. (1975), *The Economic Problem of Man and Its Islamic Solution*, Islamic Productions, Lahore. Originally in Urdu.
- [38] Martin D. (2014) "Nationalism and Religion; collective identity and choice: the 1989 revolutions, Evangelical Revolution in the Global South, Revolution in the Arab World" *Nations and Nationalism*.

- [39] McCleary, Rachel, and Robert J. Barro, (2006a). "Religion and political economy in an international panel", *Journal for the Scientific Study of Religion*.
- [40] McCleary, Rachel, and Robert J. Barro, (2006b). "Religion and Economy", *Journal of Economic Perspectives*.
- [41] Montalvo, J.G. & Reynal-Querol, M., (2003). "Religious polarization and economic development.", *Economic Letter*.
- [42] Montalvo, J.G., and M. Reynal-Querol (2005a). "Ethnic polarization, potential conflict and civil wars", *American Economic Review*.
- [43] Montalvo, J.G., Reynal-Querol, M., (2005b). "Ethnic diversity and economic development", *Journal of Development Economics*.
- [44] Negri A., Hardt M. (2000). "Empire" Cambridge, Massachusetts & London, England: Harvard University Press.
- [45] Noland M. (2003). "Religion, Culture, and Economic Performance", Working Paper Series WP03-8, Peterson Institute for International Economics.
- [46] Olson M. (1982). "The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities". New Haven: Yale University Press.
- [47] Olson, M. (1965). "The Logic of Collective Action: Public Goods and the Theory of Groups", (Revised edition ed.). Harvard University Press.
- [48] Penn World Table 7.1 supplied by University of Pennsylvania: pwt.sas.upenn.edu/php_site/pwt71/pwt71_form.php.
- [49] Pindyck, R. and D.L. Rubinfeld (1998). "Econometric Models and Economic Forecasts", Fourth Edition, McGraw-Hill International Editions.
- [50] Polity IV (2010). "Polity IV Project", Monty G Marshall (Societal-System Research Inc.); Gurr T. R. (Founder University of Maryland).
- [51] Poteete A. R., Ostrom E. (2004). "Heterogeneity, Group Size and Collective Action: the role of institutions in forest management." *Development and Change*.

- [52] Reda A, (2010) "Religious and Economic Preferences: An Empirical Analysis of State Tax Rates and Public Spending", *International Economic Journal*, Taylor & Francis Journals.
- [53] M. Reynal-Querol M. (2002). "Ethnicity, Political System, and Civil Wars", *Journal of Conflict Resolution*.
- [54] Roeder, P. (2003). "Clash of Civilizations and Escalation of Domestic Ethnopolitical Conflicts", *Comparative Political Studies*.
- [55] Sambanis (2001). "Do ethnic and Nonethnic civil wars have the same cause?", *Journal of Conflict Resolutions*.
- [56] Spolaore E. (2008). "Federalism, Regional Redistribution, and Country Stability," Discussion Papers Series, Department of Economics, Tufts University 0726, Department of Economics, Tufts University.
- [57] Stasavage & Scheve (2006). "Religion and Preferences for Social Insurance", *Quarterly Journal of Political Science*.
- [58] Thomas S. M. (2005) "The Global Resurgence of Religion and the Transformation of International Relations: The Struggle for the Soul of the Twenty-First Century", Palgrave Macmillan.
- [59] Thomas S. M. (2010). "A Globalized God: Religion's Growing Influence in International Politics" *Foreign Affairs*.
- [60] Armed Conflict Dataset (1946 – 2012) (UCDP/PRIO): http://www.pcr.uu.se/research/ucdp/datasets/ucdp_prio_armed_conflict_dataset/.
- [61] Zellner, A. (1962). "An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests of Aggregation Bias", *Journal of the American Statistical Association*.