ETHNICITY, POLITICAL SYSTEMS AND CIVIL WARS

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Abstract

This paper analyzes the effect of ethnic division on civil war and the role of political systems in preventing these conflicts. First we show the importance of religious polarization and animist diversity in explaining the incidence of ethnic civil war. We find that religious differences are a social cleavage more important than linguistic differences when we analyze the development of a civil war. Second we find that being a consociational democracies significantly reduces the incidence of ethnic civil war.

1 Introduction

Social and Ethnic conflicts are recurrent phenomena affecting many countries. Ethnicity is at the center of politics in divided societies. The most important tensions in the world can be found, among others, in Lebanon, Israel, Algeria, Nigeria, Sudan, Ethiopia, India, Yugoslavia during the 90s.

In the study of the social and political causes of civil war a crucial issue is the distinction between ethnic and revolutionary civil wars. In this paper we concentrate on ethnic civil wars and we argue that the main factors causing them are social and political characteristics. First, we claim that religious divided societies are more prone to intense conflict than countries were people have conflicting claims on resources based on interest groups or in language divisions. This is because religious identity is fixed and non-negotiable. Disputes among identity groups based on their religious nature are particularly difficult to negotiate, raising the odds of violence.

Secondly, we use indices of polarization based on rent-seeking models of conflict, instead of traditional fragmentation indices, in order to capture the level of religious conflict. We argue that polarization indices are more suitable to proxy latent religious conflicts. We show empirically that religious polarization and animist diversity are the most important factors that explain the incidence of ethnic civil war. Therefore the results suggest that religious divisions are more important than language divisions and natural resources in explaining social ethnic conflicts.

However not all ethnic divided societies derive into civil war. There are also experiences of good relationships among individuals of different cultures within a country. For instance

after the violent riots of 1969 there has been a reasonable relationship between Chinese and Muslims in Malaysia. Although there is a latent tension between these two communities the proportional system introduced in 1970 has helped to avoid more violent riots. This suggests that violent conflicts can be attenuated by alternative institutional incentives.

The question of the best political environment in order to reduce the likelihood of armed conflicts in potentially conflictive societies is not a new issue. However, the solution proposed in many occasions is to enhance political rights and civil liberties even though the empirical evidence that support this is weak. We show that the combination of political system and democracy level have a high explanatory power on the probability of ethnic civil war. Moreover, we find empirically that the establishment of consociational democracies can prevent ethnic civil wars generated because of religious differences.

This paper is divided in six sections. The first one is this introduction. Section two presents a brief review of the literature on the causes of civil wars. The third section concentrates on the social and political causes of ethnic conflicts. The forth section presents an empirical investigation on the causes of ethnic civil war. Finally section fifth concludes.

2 The causes of civil wars

Studying social conflict has been considered for decades a issue of political science. Yet, we are recently observing an increasing number of contributions from economics. Part of this literature has studied the effect of economic and social factors on the probability of civil war. Collier and Hoeffler (1998) investigate the generic causes of civil wars with special emphasis on economic factors. Using the index of ethnolinguistic fragmentation, ELF, they find that

more fragmented societies are not more prone to civil war than the rest, but the danger of civil war increases when society achieve mid levels values of the index ELF. However, after those initial findings Collier and Hoeffler (2000) argue that conflicts are far more likely to be caused by economic opportunities than by grievance. However, the study of the causes of civil war deserves additional studies, specially on the ethnic and political issues that may influence the incidence of civil war. Our analysis, based on these previous studies, is focused on the ethnic and political causes of civil war, using a theoretically based index of latent conflict and giving special importance to the religious dimensions of ethnicity, using a new dataset that tries to overcome the common criticism to the World Christian Encyclopedia data. Moreover, most of the literature has consider democracy as the only political variable that may affect the probability of civil war. Here we argue that what matters is the level of inclusiveness of the system together with the level of democracy. This results clarifies the role of democracy itself. Elbadawi (1998), from the analysis of the results of some comparative static experiments, find that ethnically polarized societies have a higher risk of suffering a civil war. Ellingsen (2000) finds that the different aspects of multiethnicity (the size of the largest group, the number of groups, the size of the minority group, and ethnic affinities) are important in explaining domestic conflicts. Her results gave an important role to political regimes and socioeconomic variables to reduce the level of conflict.

However, not all civil wars are of the same nature. For this reason it makes sense to separate the study of their determinants in function of the type of war. Recently, Sambamis(2001) analyzed the causes of ethnic civil war, separating the ethnic war from the revolutionary/ideologic war. He finds that ethnic civil wars are predominantly due to political grievances rather than economic grievance. Our analysis also corroborates the importance

of the socio-political variables in explaining the incidence of ethnic-civil war. Reynal (2001c) analyzes the political causes of revolutionary civil war and finds that a presidential system with low level of democracy is the most important political cause of ideological civil war. Finally, the low level of inclusiveness of the political system, represented by a presidential system explains why in Latin America countries we find a higher incidence of revolutionary civil wars. In this paper we concentrate on the determinants of ethnic conflicts[1].

3 Socio-political factors and Ethnic Conflicts

3.1 The role of religion, ethnicity and ideology.

Many conflicts related with religious differences arise every day in our world. Even though economist have not pay special attention to the issue religion in the explanation of civil wars many researchers in political science have emphasized the importance of religious differences as cause of ethnic conflicts.

The theory of Samuel Huntington (1996) about the cultural fragmentation of the world initiated a large debate. Samuel Huntington proposes a model to interpret the new reality of the world, based on the fact that the explanatory factors are not ideological but cultural. Following Huntington, we have to grant to the religions, as Toynbee did, a fundamental role in world politics. In the modern world religion is a central force, in many situations the primary, that motivates and moves humans. In such situations what counts is not political ideology or economic interests. The faith and the family, the blood and the beliefs are the aspects with which people identify themselves. The characteristic for which they fight and die. People belonging to different religions have different visions of many relations among

individuals and authorities. Following Huntigton, one of the most important causes of future conflict among civilizations is that their characteristic and differences are less mutable, and therefore, more difficult to reach an agreement and to solve than political and economic differences. More than ethnicity, religion discriminates and differentiates humans in a sharp and exclusive way, even more than belonging to a country would do. A person can be half French and half Saudi Arab and at the same time be a citizen of both countries. However it is difficult to be half Catholic and half Muslim.

Following Horowitz (1985) in plural societies in Asia, Africa and the Caribbean, parties tend to be organized along ethnic lines, being most of them in Africa with animist religion. In Western Europe and North America, religion, social class and language are the basic dimensions of the situation of a political party. Lijphart (1984) found, in a sample of twenty-two democratic regimes, that the two dimension that most frequently differentiate systems are the socioeconomic and the religious.

These authors, among others, claim that religious differences are more important than language differences as a social cleavage that can develop into a conflict. There are two basic reasons why religious differences can generate more violence than other social cleavages. First, there is not doubt of the exclusivity of religion. One can speak two or more languages, but you can only have one religion. Religion can be used as a sign of identity, stronger than language in the sense that you exclude absolutely the ones from other religion, while speaking two languages diffuse the division line among groups. Second, religious differences, which are the base of the differences among civilizations, imply different ways of understanding the world, social relationships...etc. Even if different groups speak different languages, they could share the same way of understanding the world and the relationships if they belong to

the same civilization. Moreover, this is more difficult for people of different religions.

3.2 How to capture social conflict

In trying to show the importance of ethnic diversity in ethnic civil wars there are at least two important aspects that have to be addressed. First of all it is necessary to clarify the concept of ethnicity in order to select the variables that capture ethnic diversity, and analyze which of these dimensions of ethnicity are more important in explaining social conflict. Following Horowitz (1985) the inclusive conception of ethnicity covers differences identified by skin color, language, religion or some other attribute of common origin. Because of data restriction we deal in this paper with religion and language differences. Moreover, from the previous section, it seems that religion is the most important ethnic dimension in explaining social conflict.

Second, we need to summarize the information of each of these dimension in one synthetic index. The most important issue is the appropriate procedure to summarize in an index the concept of social conflict. Is it social fragmentation or social polarization that makes ethnic tensions stronger? There is no easy answer to this question. Firstly, we need to study the mechanism through which these groups interact and analyze in which situations tensions arise more easily. Secondly, the three variables that define ethnicity (language, religion and color) can work in different ways. For instance, the tensions caused by language differences and the loss of communication that it generates can emerge in a situation very different from the ones generated by religion.

The measures used regularly in the empirical literature to quantify ethnic characteristics are fragmentation indices even though there is no theoretical support for this kind of indices.

However rent-seeking models suggest that polarization measures are more appropriate than fragmentation indices to capture social conflict. Any index of polarization points out that the situation that leads to the point of maximum tension is when there are two social groups with the same size. These kinds of measures differ from the index of fragmentation because the index of polarization captures how far it is the distribution of the groups from a bimodal distribution. However the fragmentation index increases monotonically with diversity.

The commonly used measure of linguistic differences is the so called index of linguistic fragmentation of Taylor and Hudson (1972). In fact this index is considered to be the only measure of ethnic diversity by many authors. This indicator captures the probability that two randomly selected individuals in a country will belong to different ethnolinguistic groups. However, we follow the literature on rent-seeking[2] that shows how social conflict is higher if the underlying distribution of the individual characteristics is bimodal. We apply two simple indices of polarization: the one proposed by Reynal-Querol (2001a), and an application of the Esteban and Ray(1994) well-known index of polarization.

a) the index of polarization of Reynal-Querol[3] (2001a) This index takes the following form

$$IRC1 = 1 - \sum_{i=1}^{N} (0.5 - \pi_i)^2 \pi_i / 0.25 \tag{1}$$

where π_i is the proportion of each religion and N is the number of religions.

This index provides a ranking order of the different distributions of the population. It is an index of polarization with the usual properties of these indices properties (see Appendix 1). As a matter of fact, the properties of the index proposed above are similar to the ones

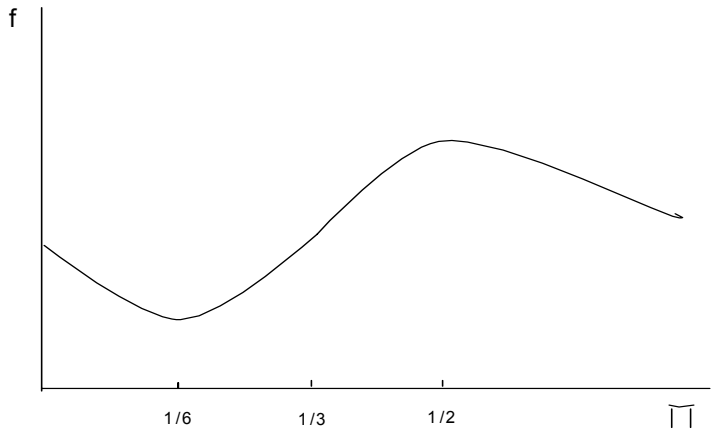

Figure 1:

of the measure of conflict in Esteban and Ray (1999).

Observe that $IRC1$ can be written as $IRC1 = \sum_{i=1}^{N}[1/N - 4(1/2 - \pi_i)^2\pi_i] = \sum_{i=1}^{N} f(\pi_i)$.

The behaviour of the index critically depends on the properties of the f function. By differentiation one can compute $f^{'}$ and $f^{''}$.

$$f^{'} = [-3\pi_i^2 + 2\pi_i - 1/4]4 \qquad f^{''} = 6[1/3 - \pi]$$

The f function reaches a minimum for $\pi = 1/6$ and a maximum for $\pi = 1/2$. It is convex for $\pi < 1/3$ and concave for $\pi > 1/3$. (see figure 1).

Understanding the shape of the function it is crucial to understand the properties of the proposed polarization index. The intuition behind is clear and simple. If we transfer population from one group to another the effect on the conflict level is different depending on the size of the groups. Imagine a population composed by three groups distributed in the following way (0.5, 0.25, 0.25). If we transfer population from one small group to the other,

the conflict increase. We are in the concave part of the function. However if the distribution is (0.45, 0.45, 0.1), and we transfer population from one big group to the other, the conflict decrease. This is because we are in the convex region. What is the intuition behind this result? In the first case, even that transfer implies that the distribution is more unequal in the new situation: one of the small groups is larger, respect to the big group, which means that we are closer to polarization. In the second case, the transfer implies that one of the big oppositors became smaller, and therefore the new situation is less polarized. Notice that the results implies that this index does not satisfies the properties of the Lorenz curve about concavity. In a Lorenz curve this effect of moving people between small or big groups is the same. It is important to notice another difference with the Lorenz curve dominance, which is that our measure is global and the Lorenz curve is not. While in the Lorenz criteria stablishes the impact on inequality of a local transfer independently of the shape of the rest of the distribution, in our case the effect on polarization of the transfer population from a group to another can not be stablished without knowing the entire distribution . This is a property that also has the measure of polarization proposed by Esteban and Ray (1994).

b) Esteban and Ray (1994) index of polarization: In order to show that the results obtained in the regression analysis are robust to other polarization measures, we compare the index $IRC1$ to an application[4] to religions of an existing measure proposed by Esteban and Ray (1994)[5].

$$P^*(\pi) = K \sum_{i=1}^{n} \sum_{j=1}^{n} \pi_i^{1+\alpha} \pi_j d = IRC2 \quad \text{where } d = 1 \text{ if } i \neq j \text{ and } d = 0 \text{ if } i = j$$

Using this application the index can be written in the following way, $IRC2 = \sum_{i=1}^{n} \pi_i^{1+\alpha}$, which is a strict convex function for $\alpha > 1$. For each possible α there is a different polarization function. In practice we will choose[6] the α=1.5. The fact that α is not determined from the theoretical model makes the use of this second polarization index just a matter of comparison with respect to the Reynal-Querol (2001a) index[7]. The major difference between these two indeces is on the form of the fuction, while $IRC1$ has a convex and concave part explained above, $IRC2$ is strictly convex for $\alpha > 1$.

3.3 The role of Political institutions

Another important question that this paper analyzes is the political characteristics that can prevent or promote civil wars. The literature has just considered repression as a political characteristic that can affect not only economic development but also civil wars. Collier and Hoeffler(2000), Sambanis (2001), Hegre et al. (2001) and Ellingstein (2000) find that middle-level democracies are more prone to civil war than high level democracies and high level autocracies. Reynal-Querol (2001b) shows theoretically and empirically how countries with alternative political systems have different probabilities of experiencing a civil war. She develops a simple theoretical model that captures the basic relationship between the political system and rebellion. According to the model the proportional system turns out to have a lower probability of rebellion than the majoritarian system. The intuition behind this result is that under the proportional system the opportunity cost of rebellion is higher than under majoritarian systems. The main idea is that the more inclusive is the political system, the higher is the opportunity cost of rebellion, and therefore the lower is the probability of

rebellion. From the empirical analysis she shows how the structure of a political system is an important mechanism that can affect the probability of civil war in a democratic system. The result clarifies the role of democracy itself. She observes that some countries with high levels of democracy suffer periods of violence and, therefore, the fact of having high levels of civil liberties and freedom does not seem to protect them against violence. She argues that the representation system of the voters in government is more important than the level of democracy "per se". Empirically she finds that the more inclusive is the system, the smaller is the probability of civil war.

Moreover, the level of repression also influences the opportunity cost of rebellion. The more political rights and civil liberties the country has, the higher is the opportunity cost of rebellion, and therefore the lower the probability of groups to rebel. However a little freedom is needed in order to let groups organized. This is the intuition that justifies the findings that middle level democracies are more prone to suffer civil wars.

3.4 Ethnic diversity and political systems: plurality versus consociationalism

The ethnic conflict in plural societies and how to control it has been studied a lot in the political science literature. However there is no agreement in which system promotes or reduce this conflict in a potentially conflictive society. Not all the ethnic fragmented societies derive into violence. Therefore the question is if the democratic system can affect the social behavior in heterogeneous societies .

There are two main theories in literature. The first one, defended by Horowitz (1985),

argues basically that in plural societies the majoritarian system is better than the proportional system because it motivates the creations of coalitions among the minorities or the non-biggest group. On the other hand Lijphart (1984) argues that in such plural societies the proportional system is better than the majoritarian system basically because it allows the formation of segmented parties, and that it does not artificially force the establishment of larger but less representative parties[8].

The empirical work on the importance of political systems in explaining civil wars is scarce and, as we pointed out before, there is a puzzle in the political science literature on which system is better to implement in ethnic divide societies in order to reduce social conflict. For this reasons in this paper we also consider the representation of voters, captured by the political system, as a factor that can reduce the effect of social cleavages in promoting civil wars. We should mention the endogeneity problem of the Political Systems that can exist when analyzing this problem. It may be that countries where Proportional System is able to persist for any length of time, will tend to be countries with a low level of polarization. However, there are some experiences of countries with a high level of polarization that after having periods of violence, they implement Proportional Systems achieving peaceful periods that do not break down, as the case of Malaysia or South Africa. However we will control for this problem in the empirical analysis, introducing an interaction term. Therefore, if it is the case that countries with low polarization tend to implement proportional systems, then the interaction terms would be zero.

4 Empirical Analysis

4.1 The data

For the purpose of the empirical investigation, and given the determinants discussed above, we need to obtain data on civil wars and their type, level of democracy, political systems, natural resources, level of development, linguistic fragmentation and religious polarization. For the definition of civil war we use data from Doyle and Sambanis (2000), (DS). This definition is nearly identical to the definition of Singer and Small (1982,1994) and Licklider (1993,1995). Data on the type of civil war comes from the State Failure dataset[9]. An ethnic war is defined as an episode of violent conflict between governments and national, ethnic, religious, or other communal minorities (ethnic challengers) in which the challengers seek major changes in their status.

There are different sources of data on the level of democracy. The FreedomHouse data source, usually referred to as Gastil's index of democracy, has been the most commonly used among economists. The disadvantage of this source is that it does not provide data before the 70s. A more recent work on levels of democracy data is provided by the Polity III project[10]. Even though the criteria for the construction of these datasets are different, they look very similar and the correlation among them is about 0.9.

In order to capture the characteristics of the political system, we use as the basic source of information data in Colomer(2000). He takes data for 123 attempts at democratization and major democratic institutional changes in 84 countries with more than one million inhabitants during the 125 year-period, 1894-1999. He distinguishes the following categories of democratic institutional formulas: parliamentary-majoritarian, presidential and semipresi-

dential, and parliamentary-proportional representation. The countries included are the ones considered to be free by the FreedomHouse data base. Using this study we generate a time series of cross-sections for 138 countries from 1960 to 1995, organized in five-years periods[11]. We capture the democratic rule of the countries at the beginning of each period using this data. Moreover, for the non-free countries we used data from the FreedomHouse and PolityIII data source. Therefore we obtain five possible categories that define five dummy variables: non-free, partly-free, parliamentary-majoritarian, presidential and semipresidential, and parliamentary-proportional.

In order to proxy the loot of rebellion we use, as Collier and Hoeffler (2000), the share of natural resources exports in GDP. The data on primary exports comes from the World Development Indicators (WDI). In order to proxy the opportunity cost we take data on income per capita from the Penn World Table (pwt56). The education data comes from Barro (1996), and represents the average years of schooling in the total population. The data on linguistic fragmentation comes from the well-know index of Taylor and Hudson and the data on religious fragmentation comes from Barro (1997), which uses the same index as the linguistic fragmentation but with religious data[12].

In order to capture religious polarization we use data on Reynal-Querol (2001a). The data is constructed using essentially the information contained in "L'Etat des Religions dans le monde" (ER), which takes part of the data from the "World Christian Encyclopedia" (WCE) but using also national sources, and "The Statesman Year's Book of 1987"(SY)[13]. In some countries there may be conflict inside a religious group. We consider as Reynal-Querol, three cases: the animists, the Christians and the Muslim groups[14]. The index of animist diversity, AD, captures the number of followers of animist cults in each country[15].

In order to avoid the level effect generated by this variable, the regressions that include this index consider also as an explanatory variable the total population of the country.

There are some differences between the data on religious used by Barro(1997) and Reynal-Querol (2000a). Barro's data set, which comes from the World Christian Encyclopedia, has the advantage of being a time series, providing information for 1970, 1975 and 1980. However, this source has several shortcomings. First, and probably the most important, the data does not consider the possibility of double practice, very common in Sub-Saharan Africa and Latin America countries. Comparing this to the other sources of information we realize the data is biased towards the Christian religion. A clear example is the case of Zaire in which the distribution of religions is considered to be similar to Spain or Italy. The distribution of religious groups between 1970 and 1980 does not change in many countries. There are only about seventeen countries that record changes in proportions. But those changes occur in countries where there is double practice and they usually imply an increase in the percentage of Christians and a reduction in the size of animist followers. Moreover Barro's data do not represent with sufficient detail all the religions, and we have observed in the World Christian Encyclopedia that there is too much inertia in the growth rate of some religions, mainly Catholic.

These shortcomings makes the use of Barro's data somehow problematic. However the literature used Barro's dataset to compute measures of religious fragmentation. Therefore we also consider Barro's data when comparing the results. Because of all these shortcomings we use data constructed in Reynal-Querol(2001a) in order to construct the index of religious polarization.

We wanted to use alternative ethnic variables, as Vanhaven (1999), mainly because it

captures the three dimension of ethnicity. However, there are two important shortcomings in the use of this data. The first one is that it does not separate among Christians and animist cults, very typical in African countries. The second one is that, even he reports the percentage of the biggest ethnic group, it does not provide data on the size of the other small groups, which makes impossible the construction of a polarization measure.

Another source of data we would like to use is Ellingsen (2000). However, as Vanhaven, she reports the percentage of the biggest ethnic group but it does not provide data on the size of the other smaller groups, which makes impossible the construction of a polarization measure.

4.2 The Econometric specification

Given the nature of the data, the econometric specification should accommodate a discrete variable with the panel data structure. For this purpose a reasonable choice is the logistic model with individual effects. To analyze the effect of ethnicity and political systems on ethnic civil war we adopt a general specification derived from the looting and justice seeking model, including alternative explanatory variables in order to show the generality of our findings.

The dependent variable is the incidence of ethnic civil war, rather than onset ethnic civil wars, following other studies as Elbadawi, and Sambanis (2002). Some authors argued that it would be better to analyze the onset ethnic civil war in order to avoid that the analysis is influenced by time-dependence. Therefore we also do the same analysis changing the dependent variable by onset ethnic civil war in order to corroborate the results we find using the incidence of ethnic civil war. We do not report the results because there are

not important changes in our findings and conclusions. Moreover, in order to check that our results are also robust to other estimation procedures, we do the same analysis but exploiting the panel characteristics of the data. We use a random effects estimation and we find that the results are qualitatively the same. Finally, we also compare the results assuming a logit and probit estimation for the probability function. The results presented in this paper are robust to the use of all the different estimation procedures explained here[16].

For all the empirical exercises we consider a sample of 138 countries and data from 1960 to 1995, organized in periods of five years. All the independent variables are taken at the beginning of the period. The dependent variable is a dummy which takes value one if the country experiences an ethnic civil war during the period and zero otherwise.

The results presented here are the ones when using a logit pool estimation specification. Notice that, even though Collier and Hoeffler(2000) never include together the level of gdp per capita and the level of education, we decide to include both variables at the same time because this formulation corresponds to the usual specification of the new growth literature. When both variables are included together they have a poor explanatory power. If we include them separately as Collier and Hoeffler, they turn out to be significant. A surprising result is the poor explanatory power of the proxy for natural resources, opposite to the findings in Collier and Hoeffler (1998, 2000). They find that natural resources are an important variable in explaining the incidence of civil war. This difference on the results could be caused by the different sample we used and also the different dataset on civil wars. Notice that we restrict the analysis to ethnic civil wars. Moreover it is interesting to mention that, even though we do not present the results here because we only deal in this paper with ethnic civil wars, Reynal-Querol (2001c) finds natural resources to be a very important variable in explaining

the incidence of ideological/revolutionary civil war and other kind of political violence such as coups or revolutions. Some of the reasons behind this results could be that while in ethnic civil wars, the justice motivation prevails over the looting motivation, in ideological civil wars, the looting for resources can be strong enought to start a revolution. When the society is not clearly divided, then the motivation for fighting could come from looting for resources, and the existence of natural resources can be an important cause. However in ethnically divided societies, the exclusion of social groups is enough to derive into a civil war without the need of the existence of natural resources in the country. This results suggest that if we want to study the causes of civil wars we should probably analyze these two types of civil war separately to distinguish the different causes. In order to show the robustness of our results we control for other variables. The economic variables added are the investment share of GDP and the consumption share of GDP, which are not directly related to the looting and justice seeking model. The idea behind the inclusion of these variables is that, probably if the country is using the resources for investment and consumption, the opportunity cost of the resources dedicated to support violence is higher. In other words, if the country can invest and people can consume and therefore increase their utility, the opportunity cost of fighting is higher.

The polarization measures are constant across time. We include in all the regression a dummy variable for each of the religions that participate in the construction of the polarization index in order to avoid that the significance of the index comes from the types of religions rather than from their polarization. In this way we try to ensure that the index captures only religious polarization independently of which religions exist in the country.

In order to control for the region we introduce dummy variables for sub-Saharan, Asia and

Latin America countries. Many of the ethnic civil wars take place in Africa and, therefore, including these variables we want to see if there is still some effect that is not captured by the fact of being an African country.

Moreover, we noticed that the inclusion of primary exports reduce the number of observations because of missing data. Therefore, in order to see if our finding are robust to more observations, we also did the analyses without including this variable and the results we found are even stronger than the ones presented here.

4.3 Regression results

4.3.1 Religious polarization and ethnic civil war

In Table 1 we analyze the effect of religious polarization and animist diversity on the incidence of ethnic civil war. We show the results of the logit pooled estimation using the specification described in the previous section. The most important result is the importance of religious polarization and animist diversity in explaining the incidence of ethnic civil war.

In column 2 we find a positive and significant effect of the animist diversity on the incidence of ethnic civil war. This result shows the importance of the existence of animist cults which are very typical in sub-Saharan countries. Moreover this also suggests that the most common sources of data used in the literature, which do not consider the animist cults, usually included together with the Christians, miss an important dimension of religious diversity. The results in columns 3 and 4 show a positive and significant effect of religious polarization in explaining the incidence of ethnic civil war. This result is robust to the use of different polarization measures. It contrasts with recent results in the literature on

the causes of civil war that claimed that economic factors are more important than ethnic characteristics. In regression 5 and 6 we include religious polarization and animist diversity together. We find that even if we include them together, they still have a positive and significant effect on the probability of an ethnic civil war. This results is opposite to the findings of Collier and Hoeffler (2000), that report no effect of polarization. The difference in the results is due to the fact that they analyze the causes of all civil wars, and moreover, the data they use on religious comes from Barro 1997, which, as we mentioned before, has important shortcomings. Moreover, Sambanis (2001), using Vanhaven data, finds that ethnic heterogeneity is linearly and positively correlated with onset of ethnic civil war. However, since the variable he uses captures the inclusive definition of ethnicity, it is difficult to compare the results he finds with the effect of religious polarization found here.

The results in Table 1 show the importance of the religious composition of the society as an important social cleavage that affects the incidence of ethnic civil war[17]. These results are important for three reasons. First because we consider polarization measures instead of fragmentation measures in order to capture latent conflicts, following the results of the rent-seeking literature. Secondly because we use the religious dimension of ethnicity instead of the linguistic one, as an important cause of conflict, following some political scientists theories. Finally, we consider the animist diversity, very typical in sub-Saharan countries, as a special case of religious conflict.

4.3.2 Religious polarization versus linguistic fragmentation

The literature that studies the ethnic causes of social conflict has just limit ethnicity to linguistic fragmentation and in some cases to religious fragmentation. Collier and Hoeffler

(2000) found no effect of polarization while greater social fractionalization actually reduces the risk of conflict. Collier, Hoeffler and Soderbom (1999) and Elbadawi and Sambanis (2002) find empirical evidence that ethnic diversity, measured by linguistic fragmentation , increases the probability of civil war at low levels but then reduces it at higher levels. In this section we analyze the effect of linguistic fragmentation on ethnic civil war, and we compare this effect when we include together religious and linguistic fragmentation. Table 2 shows the result of this analysis. In Columns 1 and 2 we find a positive and significant effect of linguistic fragmentation on ethnic civil war. The results found here corroborates the implicit theories behind the use of linguistic fragmentation indices, based on the idea that communication problems increase with diversity, and this can cause conflict. However, these findings are very sensitive to the inclusion of other ethnic variables. Columns 3 and 4 show how the effect of language fragmentation disappears when religious characteristics of a society are included, while the effect of religious polarization and animist diversity remains positive and significant no matter which polarization index we use[18].

These results suggest that religious differences in a country are more important than linguistic differences as a social cleavage that can develop into civil war. Moreover, they support the claims of Huntington about the importance of religious differences in the explanation of domestic conflicts.

4.3.3 Religious polarization versus religious fragmentation

In order to show not only the importance of the religious characteristic of a society but also the importance of the mechanism through which social cleavage works we compare religious polarization to religious fragmentation[19]. Table 3 shows the results. In column 1 and 2 we

observe that religious fragmentation measure has no significant effect on ethnic civil war. We test the robustness of this effect with the inclusion of religious polarization (column 3 and 4) and we find three important results: Religious polarization and animist diversity have a positive and significant effect on civil war no matter which polarization measure we use. Also religious fragmentation does not have a significant effect on ethnic civil war. However the effect of religious fragmentation is significant at 10% level. This is important because it gives us some intuitions about the effect of religious diversity on ethnic civil war. It seems that the fragmentation of the society on religious groups is preventing countries from violence rather than inducing them to conflict. Collier and Hoeffler (2000), when analyzing the causes of civil wars also finds evidence that religious fragmentation makes countries safer. Moreover, Elbadawi and Sambanis (2002), find a quadratic interaction term of religious and ethnic diversity negatively associated with the incidence of civil war.

4.3.4 Political causes of ethnic civil war

In this section we analyze the effect of political rights and civil liberties on the incidence of ethnic civil war after controlling for the social effects analyzed in the previous sections. The result are reported on table 4. We use data from Polity III dataset (column 1 to 4) and data from FreedomHouse dataset (column 5 to 6). We find what other authors have predicted. Countries with a middle-level democracy have a higher probability of suffering a civil war[20]. This findings are consistent with Collier and Hoeffler (2000), Sambanis (2001) and Hegre et al. (2001), Ellingstein (2000). The intuition behind these results is that for starting a civil war some level of freedom is needed to let people organized.

We have shown that democracy seems not to be a sufficient condition to prevent countries

from getting involved in a civil war. We now introduce the institutional variables created in Reynal-Querol(2001b). We define Autocracy (AUTO), partially free (PF), majoritarian system (MAJO), presidential system (PS) and proportional representation (PR). In the first step we analyze the effect of the different institutional systems using dummy variables. However, because there is no country that has a proportional system and experience an ethnic civil war during the next five years, the prediction power of this dummy is perfect. This fact makes the logit panel a badly defined specification. Therefore, in order to avoid this problem we construct, as Reynal-Querol(2001b) variables which order the different systems according to the level of inclusiveness of their voting rules. For the political institutional, we try to summarize in one variable the information contained in the five dummies referred to before. We order the five dummies in respect of the inclusiveness of the system. The most inclusive rule is unanimity. We know that non-free systems are less inclusive than non-autoritarian countries, and that plurality systems are less inclusive than proportional representation systems. A number of countries have presidential systems. The theory does not incorporate this directly. However there is a sense in which societies with Presidential systems and proportional system in the assembly are more inclusive than pure majoritarian systems. By definition the election of the president is by majority rule and, therefore, what makes the difference with respect to the presidential systems is the voting rule followed in the assembly. It would be ideal to have data that distinguish between the kind of presidential systems in terms of their different level of inclusiveness depending on the voting rule followed in the assembly. However we are not aware of the existence of such a dataset. Therefore, if we order the systems by the level of inclusiveness, presidential systems are less inclusive than proportional representation and equal or more inclusive than majoritarian rule systems,

depending in the voting rule that is followed in the assembly elections. Therefore we create a variable called INCV, such that has value 0 if the system is non free, 1 if it has a majoritarian system, 2 if it has a presidential system and 3 if it has a proportional system. Alternatively, mainly because following this order is difficult to ensure that presidential systems are more inclusive that majoritarian, we create another variable, called INCV1 such that has value 0 if the country is not free, 1 for majoritarian and presidential systems and 2 for proportional systems.

We report the results in Table 5. In column 1 and 2 we analyze the effect of political system controlling for the democracy level and using the two variables that capture the level of inclusiveness, INCV and INCV1. We find that the level of inclusiveness of the political system has a negative and significant effect on the incidence of ethnic civil war. Controlling for the level of autocracy instead of democracy (columns 3 and 4) we find the same results on the effect of INCV and INCV1[21]. These findings show the importance of the level of inclusiveness of the political system in preventing ethnic civil war.

We include in the regression the interaction between the level of inclusiveness and the democracy level, column 5 and 6 of Table 5, and the level of inclusiveness with the autocracy level, columns 7 and 8. Columns 5 and 6, show that the level of inclusiveness of the political system in democratic countries has a negative and significant effect on the incidence of ethnic civil war. Moreover this result indicate that the higher is the democratic level of a country, the larger is the effect of the level of inclusiveness on ethnic civil war. These results are corroborated when using the level of autocracy instead of democracy, columns 7 and 8.

These findings suggest that we need to control not only for the level of democracy but also for the type of political system. Not all political institutions work in the same way,

and the level of representation of the population is a key element if we want to prevent countries from ethnic civil war. This inclusiveness can be achieved applying consociational democracies rather than majoritarian systems.

4.3.5 Policy implications

In this section we analyze whether in religious polarized and animist diverse societies, the existence of political systems with high level of representation of the population reduces the effect of this latent conflict on the incidence of ethnic civil war. Table 6 shows the results of this analysis.

In columns 1 and 2 we include the IRC1 measure together with the level of democracy, the level of inclusiveness, INCV, and the interaction of them. What we find is that in religious polarized countries, the effect of polarization on the incidence of ethnic civil war is reduced by the effect of having political systems with high level of inclusiveness. These results are robust to the use of different variables that capture the level of inclusiveness, column 2, and to the inclusion of the square of the democracy variable, columns 3 and 4. Moreover they are also robust to the use of different polarization measures, columns 5 and 6. In regression 7 of Table 6, we analyze whether the political system can help to reduce the effect of animist diversity on ethnic civil war. The results show that the level of inclusiveness does not help in reducing the risk of a war caused because of animist diversity. We analyze, in column 8 of Table 6 all these effects together. We find the same results that when we analyze this effects separately.

Because of this result we test one of the arguments of Horowitz (1985). He argues that in ethnically divided societies, the plurality rule system is a mechanism that promotes the

creation of multiethnic parties, which helps to reduce ethnic tensions. We analyze whether systems with plurality rule help to reduce the effect of animist diversity on the incidence of ethnic civil war. In column 9 of Table 6 we find that the effect of animist diversity on ethnic civil war is reduced by the establishment of majoritarian systems. We analyze in column 10 of Table 6 all the effects together. From these results we conclude that the inclusion of consociational democracies is an important measure that significantly reduces the incidence of ethnic civil war generated by religious polarization and that the effect of animist diversity on ethnic civil war is reduced by the establishment of majoritarian systems..

On the one hand the empirical evidence seems to corroborate the arguments of Lijphart on which political system is better to reduce ethnic conflict, because consociational democracies reduce the effect of religious polarization on the incidence of ethnic civil war. On the other hand it also supports part of the argument of Horowitz, because the conflict generated by animist diversity cannot be reduced applying consociational democracies but applying majoritarian systems.

Therefore in societies with a high degree of religious polarization and animist diversity it will be necessary to design new political systems that consider on the one hand, majoritarian system to institutionalize the relationship among the different animist groups, and on the other hand, a proportional system to manage the relationship between all the animist groups and the other groups in the society.

We test this implication in the case of a country with a significant amount of animist groups and another religious group. Therefore, the majoritarian system works in line with Horowitz's theories helping to promote the creation of multyethnic parties. In this context the animist groups are very different from the other religious groups, and their common

elements can help to incentive the creation of this multyethnic parties. The results therefore apply when a significant number of ethnic groups compete for power with other religions. The differences between the ethnic groups and other large religions implies the necessity of cohesion of the animist or ethnic groups to defend their own identities against larger religions as Christian or Muslim. However, this results can not be generalized in the case of societies that are divided by animist/ethnic groups, because in this case the differences among them appear to be stronger.

5 Conclusions

This paper has analyzed the social and political causes of ethnic civil war. There are three important findings which are robust to the use of different estimation procedures and specifications.

The first one is the importance of religious polarization and animist diversity in explaining the incidence of ethnic civil war no matter which other measures we include. These results corroborate the results of the literature on rent-seeking models that studies social conflict and the importance of the distribution of the groups in a country as a key element to understand the causes of social conflicts. Secondly we find that religious polarization are more important, as a social cleavage that can develop into civil war, than linguistic differences. This result corroborates what Samuel Huntington claims about the importance of religious differences to explain domestic conflicts. Third, we find that a consociational democracy is a political system that significantly reduces the incidence of ethnic civil war, mainly it reduces the probability of ethnic civil war generated by religious polarization.

The study of the causes of civil war deserves additional studies, specially on the ethnic and political issues that may influence the incidence of civil war. Our analysis, based on the study of Collier and Hoeffler (2000) which argue that conflicts are far more likely to be caused by economic opportunities than by grievance, is focused on the ethnic and political causes of civil war. We use a theoretically based index of latent conflict and giving special importance to the religious dimensions of ethnicity, using a new dataset that tries to overcome the common criticism to the World Christian Encyclopedia data. Moreover here we argue that what matters is the level of inclusiveness of the system together with the level of democracy instead of the level of democracy per se.

These results are important for fourth reasons. First because we consider polarization measures instead of fragmentation measures in order to capture latent conflict. Secondly because we use the religious dimension of ethnicity instead of the linguistic one, as an important cause of conflict. Third, because we consider the animist diversity, very typical in sub-Saharan countries, as a special case of religious conflict. Finally, because most of the literature has considered democracy as the only political variable that may affect the probability of civil war, even the empirical evidence about this is very week. We are argue that we need to control not only for democracy but also for the political systems. And the result we find clarifies the role of democracy itself

APPENDIX 1**:**

(See Reynal-Querol(2001a) for the proofs)

*Property 1***:** It attains its maximum at the bipolar symmetric distribution.

*Property 2***:** Suppose we start with population equally distributed over two groups. Let us transfer x from each originary group to two newly created groups. Then the index is non-monotonic with respect to x, and, it reaches its minimum at four equally sized groups.

*Property 3***:** Consider the population divided into N groups of size $1/N$. Polarization goes down with N.

Indeed, the index $IRC1 = 1 - \sum_{i=1}^{N}(0.5 - \pi_i)^2\pi_i/0.25 = 1 - 4N(1/2 - 1/N)^2(1/N) = 1 - 4(1/2 - 1/N)^2$

Clearly, the index is strictly decreasing in N.

*Property 4***:** If we start with a uniform distribution over N groups, any merging of k adjacent groups will increase polarization.

This is a direct corollary of property 3.

*Property 5***:**There are two groups with size π_1 and π_2. Take any one group and split it into $m \geq 2$ groups in such a way that $\pi_1 = \widetilde{\pi}_1 \geq \widetilde{\pi}_i \ \forall_{i=2,..n+1}.$, where $\widetilde{\pi}$ is the new vector of population sizes, and clearly $\sum_{i=2}^{n+1} \widetilde{\pi}_i = \pi_2$. Then polarization under $\widetilde{\pi}$ is smaller than under π.

NOTES:

1-The full version of this article includes an examination of the causes of revolutionary civil wars.

2-A basic reading is Esteban, J. and Ray (1999).

3-To check the polarization properties of the index see Reynal-Querol (2000a).

4-The original polarization measure proposed by Esteban and Ray (1994) is:

$P^*(\pi, Y) = K \sum_{i=1}^{n} \sum_{j=1}^{n} \pi_i^{1+\alpha} \pi_j |y_i - y_j|$ for some constant $k > 0$ and $\alpha \in (0, \alpha^*]$ where $\alpha^* \simeq 1.6$, y_i is income per capita and π_i is the relative size of the group.

5-The religious distribution of a society satisfies the features they says any distribution should satisfied in order to apply the index.

6-This value turns to be in the range of feasible values for α.

7-However it would be interesting to analyses empirically if the arguments about polarization can be applied to language groups. Because of data restriction this will be done in future research.

8-Moreover he argues that *"...in a political system with clearly separate and potentially hostile population segments, virtually all decisions are perceived as entailing high stakes, and strict majority rule places a strain on the unity and peace of the system" (pag.28).*

9-Data and definitions of ethnic and revolutionary civil war are available at

http://www.bsos.umd.edu/cidcm/dtfail/.

10-See: http://www.colorado.edu/IBS/GAD/spacetime/data/Polity.htm.

11-This data is summarized in Reynal-Querol (2001a).

12-The inclusion of other variables as growth rate or indices of income inequality do not

alter the main results we find.

13-For a full an detail description of the data see Reynal-Querol (2001a).

14-We do not consider other religions because they do not have the features that make these three groups internally problematic. For the Muslims and the Christians we apply the same measure of polarization, IRC1. We use the proportions of different kind of Christians for the polarization measure of Christians, and data on the votes for Muslim political parties to calculate a polarization measure for the Muslim group.

15-The animist groups are different. They include a variable number of traditional religions typical of primitive societies. Religion in these societies pervades all social domains. Here therefore, the argument of the interaction between religions explained by the rent-seeking models does not work. The existence of so many different kind of organizations based on different beliefs makes the communication across these groups more difficult. The degree of communication loss depends on the number of animist cults. See Reynal-Querol (2000a) for a full description on the treatment of animist cults.

16-All these results are available under request.

17-We also analyze the effect of Christian polarization and Muslim polarization. We find a significant and positive effect on the incidence of ethnic civil war.

18-We also analyze the interaction of both variables. However we do not report the results because we find that religious tensions, captured through religious polarization and animist diversity affect more ethnic/religious civil war, than what linguistic fragmentation does, and that the presence of both social characteristics in a country do not imply a higher probability of conflict.

19-When using religious fragmentation data we report the results using the Barro data

because is the data that the literature has used when computing an index of religious fragmentation. We find similar results when using Reynal-Querol (2001a) data and the fragmentation index.

20-However, when including the square the autocracy, column 4, the effect of this variable remains not significant.

21-If we do the same analysis but without including the square of the democracy and autocracy variables, we find that democracy has no significant effect on the incidence of ethnic/religious civil war but, however, the autocracy level has a negative and significant effect. The level of inclusiveness continues having a negative and significant effect (Results not reported but available on request).

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TABLE 1:logit pool estimation for the Incidence of ethnic civil war from 1960-1995

Model	1	2	3	4	5	6
Const	-13.32	-22.00	-23.7	-25.44	-26.77	-29.78
	(-2.3)	(-2.84)	(-3.11)	(-3.26)	(-3.38)	(-3.61)
Lpop	0.77	0.43	0.64	0.72	0.37	0.39
	(3.76)	(1.68)	(2.78)	(3-16)	(1.53)	(1.65)
Lgdp	0.87	1.48	1.19	1.32	1.52	1.67
	(1.67)	(2.11)	(1.87)	(2.07)	(2.26)	(2.51)
Educ	-0.21	-0.29	-0.34	-0.36	-0.27	-0.28
	(-1.26)	(-1.32)	(-1.56)	(-1.73)	(-1.24)	(-1.31)
Ex	0.10	0.13	0.11	0.13	0.11	0.10
	(1.04)	(1.07)	(0.98)	(1.16)	(0.91)	(0.83)
ex2	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(-1.1)	(-1.03)	(-0.96)	(-1.02)	(-0.93)	(-0.87)
I	-0.14	-0.14	-0.08	-0.10	-0.11	-0.11
	(-3.23)	(-2.84)	(-1.69)	(-2.14)	(-2.1)	(-2.29)
C	-0.01	0.01	-0.00	-0.00	0.02	0.02
	(-0.34)	(0.52)	(-0.00)	(-0.02)	(0.55)	(0.80)
IRC1			**5.7**		**5.15**	
			(3.27)		**(3.08)**	
IRC2				**8.02**		**8.52**
				(2.93)		**(2.95)**
trib		**7.38**			**6.26**	**6.75**
		(3.11)			**(2.78)**	**(3.07)**
Democ	0.78	0.68	0.59	0.58	0.69	0.71
	(3.51)	(2.54)	(2.36)	(2.37)	(2.52)	(2.59)
Democ^2	-0.09	-0.09	-0.07	-0.07	-0.08	-0.08
	(-3.54)	(-2.72)	(-2.45)	(-2.53)	(-2.55)	(-2.65)
Safrica	-0.38	-1.4	-1.34	-1.22	-2.48	-2.49
	(-0.54)	(-1.26)	(-1.23)	(-1.11)	(-1.93)	(-1.91)
Asiae	1.46	3.85	4.5	4.46	4.76	4.82
	(2.04)	(2.71)	(3.17)	(3.14)	(3.16)	(3.16)
Laam	-0.58	-0.38	-1.02	-0.62	-0.77	-0.57
	(-0.95)	(-0.39)	(-0.97)	(-0.64)	(-0.68)	(-0.51)
R2	**0.3279**	**0.4075**	**0.4066**	**0.3888**	**0.4518**	**0.4442**
N	403	369	374	374	369	369

Numbers in parentheses are t-statistics.
I all the regression I include religious dummy variables
Educ: average years of schooling in the total population.
Lpop: : log of the population al the begining of the period.
Lgdp: Log of the real GDP per capita of the initial period (1985 international prices).
ex: share of primary exports in GDP.
ex2: square of ex.
I: Investment share of GDP.
C: Consumption share of GDP.
DemocP3: Democracy level from Polity III data source.
IRC1: religious polarization(Montalvo&Reynal-Querol 1999)
IRC2:religious polarization (Esteban and Ray 94)
trib:animist diversity
Safrica: Dummy variable for Sub-Saharian countries.
Asiae: Dummy variable for Asian countries.
Laam: Dummy variable for Latin American countries

TABLE 2:Logit pool estimation for the Incidence of ethnic civil war from 1960-1995

TABLE 3:Logit pool estimation for the Incidence of ethnic civil war from 1960-1995

Model	1	2	3	4	1	2	3	4
Const	-10.1	-19.24	-36.24	-40.50	-14.41	-35.85	-27.58	-34.43
	(-2.40)	(-2.83)	(-3.68)	(-3.75)	(-2.18)	(-3.32)	(-2.58)	(-3.15)
Lpop	0.61	0.67	0.35	0.36	0.93	0.28	0.31	0.32
	(3.68)	(2.97)	(1.30)	(1.37)	(3.58)	(0.92)	(0.77)	(0.84)
Lgdp	0.08	0.79	2.22	2.50	0.92	2.68	1.97	2.28
	(0.17)	(1.14)	(2.16)	(2.37)	(1.46)	(2.90)	(2.19)	(2.51)
educ	-0.01	-0.1	-0.35	-0.37	-0.39	-0.61	-0.11	-0.13
	(-0.05)	(-0.44)	(-1.20)	(-1.32)	(-1.79)	(-2.19)	(-0.36)	(-0.44)
Ex	0.07	0.19	0.22	0.19	0.09	0.20	0.19	0.13
	(0.72)	(1.58)	(1.53)	(1.37)	(0.80)	(1.32)	(1.26)	(0.89)
ex2	-0.00	-0.01	-0.01	-0.01	-0.00	-0.01	-0.01	-0.00
	(-0.88)	(-1.41)	(-1.40)	(-1.25)	(-0.70)	(-1.19)	(-1.24)	(-0.96)
I		-0.61	-0.08	-0.09	-0.14	-0.13	-0.11	-0.12
		(-1.14)	(-1.15)	(-1.34)	(-2.75)	(-2.26)	(-1.78)	(-2.02)
C		0.04	0.04	0.05	-0.02	0.05	-0.00	0.01
		(1.22)	(0.88)	(1.12)	(-0.82)	(1.45)	(-0.13)	(0.25)
Elf60	**2.75**	**4.25**	**2.31**	**2.41**				
	(2.84)	**(3.14)**	**(1.53)**	**(1.61)**				
Rff					**-1.45**	**3.08**	**-9.85**	**-9.82**
					(-0.76)	**(0.99)**	**(-1.89)**	**(-1.98)**
IRC1			**5.73**				**10.75**	
			(2.75)				**(3.13)**	
IRC2				**9.75**				**19.13**
				(2.66)				**(3.30)**
trib			**6.10**	**6.41**		**8.78**	**7.06**	**7.95**
			(2.46)	**(2.57)**		**(2.92)**	**(2.34)**	**(3.05)**
Democ	0.77	0.63	0.48	0.49	0.64	0.69	0.59	0.62
	(3.41)	(2.67)	(1.61)	(1.65)	(2.48)	(2.47)	(1.98)	(2.09)
Democ^2	-0.1	-0.08	-0.06	-0.06	-0.08	-0.08	-0.07	-0.07
	(-3.65)	(-2.67)	(-1.68)	(-1.73)	(-2.52)	(-2.59)	(-1.94)	(-2.07)
Safrica		-0.91	-2.24	-2.12	0.08	-1.59	-1.71	-1.64
		(-0.95)	(-1.65)	(-1.60)	(0.07)	(-1.23)	(-1.13)	(-1.11)
Asiae		1.13	5.82	6.07	2.51	6.6	5.33	5.80
		(1.34)	(3.12)	(3.16)	(2.48)	(3.33)	(3.01)	(3.22)
Laam		0.64	0.12	0.42	-1.07	0.87	-3.43	-2.74
		(0.77)	(0.09)	(0.32)	(-1.24)	(0.65)	(-1.63)	(-1.51)
R2	**0.3369**	**0.3880**	**0.4832**	**0.4777**	**0.3556**	**0.4343**	**0.5029**	**0.4986**
N	374	374	345	345	323	310	310	310

Numbers in parentheses are t-statistics.
In all the regression I include religious dummy variables.
Educ: average years of schooling in the total population.
Lpop: : log of the population al the begining of the period.
Lgdp: Log of the real GDP per capita of the initial period (1985 international prices).
ex: share of primary exports in GDP.
ex2: square of ex.
I: Investment share of GDP.
C: Consumption share of GDP.
Elf60: lingustic fragmentation.
DemocP3: Democracy level from Polity III data source.
IRC1: religious polarization(Montalvo&Reynal-Querol 1999)
IRC2:religious polarization (Esteban and Ray 94)
trib: animist diversity.
Safrica: Dummy variable for Sub-Saharian countries.
Asiae: Dummy variable for Asian countries.
Laam: Dummy variable for Latin American countries

TABLE 4:Logit Pool estimation for the Incidence of ethnic civil war from 1960-1995

Model	1	2	3	4	5	6
Const	-25.79	-24.85	-26.77	-26.68	-25.87	
	(-3.33)	(-3.27)	(-3.28)	(-3.49)	(-3.13)	
Lpop	0.38	0.32	0.37	0.31	0.51	
	(1.57)	(1.30)	(1.53)	(1.29)	(1.94)	
Lgdp	1.26	1.23	1.52	1.37	1.26	
	(1.95)	(1.98)	(2.26)	(2.18)	(1.85)	
Educ	-0.33	-0.33	-0.27	-0.31	-0.29	
	(-1.55)	(-1.58)	(-1.24)	(-1.47)	(-1.26)	
Ex	0.09	0.09	0.11	0.15	0.11	
	(0.85)	(0.86)	(0.91)	(1.25)	(0.89)	
ex2	-0.00	-0.00	-0.00	-0.00	-0.00	
	(-0.87)	(-0.88)	(-0.93)	(-1.19)	(-0.92)	
I	-0.09	-0.08	-0.11	-0.08	-0.09	
	(-1.76)	(-1.67)	(-2.10)	(-1.64)	(-1.70)	
C	0.01	0.01	0.01	0.01	0.01	
	(0.42)	(0.36)	(0.55)	(0.29)	(0.22)	
IRC1	**5.28**	**5.53**	**5.15**	**5.42**	**4.34**	
	(3.18)	**(3.33)**	**(3.08)**	**(3.31)**	**(2.71)**	
Trib	**6.38**	**6.50**	**6.26**	**6.55**	**5.80**	
	(2.73)	**(2.77)**	**(2.78)**	**(2.84)**	**(2.50)**	
Democ	**0.02**		**0.69**			
	(0.19)		**(2.52)**			
Democ2			**-0.08**			
			(-2.55)			
Autoc		**-0.07**		**0.36**		
		(-0.87)		**(1.21)**		
Autoc2				**-0.05**		
				(-1.51)		
Freedom					**-1.02**	
					(-1.34)	
PF					**0.24**	
					(0.33)	
Safrica	-1.96	-2.03	-2.48	-2.16	-1.89	
	(-1.54)	(-1.62)	(-1.93)	(-1.81)	(-1.44)	
Asiae	5.48	5.61	4.76	5.94	5.45	
	(3.78)	(3.84)	(3.16)	(3.91)	(3.60)	
Laam	-0.03	-0.10	-0.77	-0.14	-0.00	
	(-0.03)	(-0.09)	(-0.68)	(-0.13)	(-0.00)	
R2	**0.4248**	**0.4276**	**0.4518**	**0.4365**	**0.4297**	
N	369	369	369	369	346	

Numbers in parentheses are t-statistics. In all the regression I include religious dummy variables. Results do not change if we control for other social variables.
Educ: average years of schooling in the total population.
Lpop: : log of the population al the begining of the period.
Lgdp: Log of the real GDP per capita of the initial period (1985 international prices).
ex: share of primary exports in GDP.
ex2: square of ex.
I: Investment share of GDP.
C: Consumption share of GDP.
DemocP3: Democracy level from Polity III data source.
IRC1: religious polarization(Montalvo&Reynal – Querol 1999)
trib: animist diversity.
AutocP3: Autocracy level from Polity III data source.
PFc: Dummy variable for Partially Free countries. FreedomHouse data source.
Freedom: Dummy variable for free countries. FreedomHouse data source.
Safrica: Dummy variable for Sub-Saharian countries.
Asiae: Dummy variable for Asian countries.
Laam: Dummy variable for Latin American countries

TABLE 5:Logit pool estimation for the Incidence of ethnic civil war from 1960-1995

Model	1	2	3	4	5	6	7	8
Const	-30.07	-29.39	-27.54	-26.33	-29.10	-28.37	-25.89	-25.24
	(-3.58)	(-3.50)	(-3.41)	(-3.26)	(-3.50)	(-3.42)	(-3.30)	(-3.18)
Lpop	0.57	0.55	0.46	0.42	0.55	0.52	0.44	0.41
	(2.20)	(2.11)	(1.75)	(1.59)	(2.11)	(2.00)	(1.68)	(1.54)
Lgdp	1.81	1.79	1.61	1.57	1.74	1.72	1.61	1.65
	(2.48)	(2.46)	(2.41)	(2.37)	(2.39)	(2.37)	(2.40)	(2.42)
Educ	-0.29	-0.30	-0.31	-0.32	-0.22	-0.26	-0.29	-0.32
	(-1.25)	(-1.33)	(-1.44)	(-1.50)	(0.92)	(-1.07)	(-1.31)	(-1.41)
Ex	0.23	0.21	0.20	0.19	0.23	0.21	0.18	0.19
	(1.56)	(1.51)	(1.52)	(1.45)	(1.51)	(1.47)	(1.39)	(1.36)
ex2	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	(-1.39)	(-1.35)	(-1.36)	(-1.32)	(-1.35)	(-1.32)	(-1.26)	(-1.25)
I	-0.18	-0.17	-0.13	-0.12	-0.21	-0.19	-0.15	-0.14
	(-3.03)	(-2.91)	(-2.37)	(-2.23)	(-3.30)	(-3.10)	(-2.59)	(-2.48)
C	0.00	0.01	-0.00	0.00	-0.00	-0.00	-0.00	-0.00
	(0.15)	(0.21)	(-0.02)	(0.02)	(-0.11)	(-0.03)	(-0.17)	(-0.l8)
IRC1	**5.33**	**5.23**	**5.39**	**5.29**	**5.58**	**5.42**	**5.57**	**5.67**
	(3.25)	**(3.18)**	**(3.35)**	**(3.30)**	**(3.27)**	**(3.21)**	**(3.38)**	**(3.37)**
trib	**6.17**	**6.04**	**6.35**	**6.23**	**6.33**	**6.22**	**6.70**	**6.78**
	(2.82)	**(2.84)**	**(2.84)**	**(2.87)**	**(2.75)**	**(2.77)**	**(2.89)**	**(2.98)**
Democ	**1.01**	**0.99**			**0.87**	**0.86**		
	(3.34)	**(3.29)**			**(2.76)**	**(2.76)**		
Democ^2	**-0.09**	**-0.09**			**-0.05**	**-0.05**		
	(-2.89)	**(-2.85)**			**(-1.39)**	**(-1.41)**		
Autoc			**-0.07**	**-0.10**			**-0.48**	**-0.64**
			(-0.21)	**(-0.29)**			**(-1.17)**	**(-1.51)**
Autoc^2			**-0.02**	**-0.02**			**0.01**	**0.02**
			(-0.58)	**(-0.52)**			**(0.31)**	**(0.57)**
Incv	**-1.46**	**-2.51**	**-1.28**		**0.02**		**-2.07**	
	(-2.88)	**(-2.83)**	**(-2.55)**		**(0.03)**		**(-3.16)**	
Incv1				**-2.30**		**-0.42**		**-4.28**
				(-2.60)		**(-0.37)**		**(-3.44)**
Demincv					**-0.35**			
					(-2.49)			
Demincv1						**-0.54**		
						(-2.35)		
Autincv							**0.29**	
							(2.53)	
Autincv1								**0.61**
								(3.16)
Safrica	-3.78	-3.63	-2.77	-2.72	-4.52	-4.37	-3.10	-3.16
	(-2.62)	(-2.57)	(-2.16)	(-2.16)	(-2.75)	(-2.71)	(-2.28)	(-2.33)
Asiae	5.93	5.73	6.76	6.55	5.62	5.40	6.53	6.55
	(3.58)	(3.52)	(4.20)	(4.10)	(3.35)	(3.27)	(4.14)	(4.06)
Laam	-0.65	-0.73	-0.08	-0.19	-0.67	-0.78	-0.17	-0.26
	(-0.54)	(-0.62)	(-0.07)	(-0.17)	(-0.50)	(-0.60)	(-0.14)	(-0.22)
R2	**0.4877**	**0.4875**	**0.4644**	**0.4666**	**0.5140**	**0.5094**	**0.4811**	**0.4933**
N	369	369	369	369	369	369	369	369

Numbers in parentheses are t-statistics. In all the regression I include religious dummy variables
Educ: average years of schooling in the total population. Lpop: log of the population al the begining of the period.
Lgdp: Log of the real GDP per capita of the initial period (1985 international prices).
ex: share of primary exports in GDP. ex2: square of ex.
I: Investment share of GDP. C: Consumption share of GDP.
DemocP3: Democracy level from Polity III data source. Autoc: Autocracy level from PolityIII data source.
IRC1: religious polarization(Montalvo&Reynal-querol 1999). trib: animist diversity.
Incv and incv1: level of inclusiveness of the political system. Demincv: democ*incv; Demincv1: democ*incv1; autincv: autoc*incv; autincv1:autoc*incv1
Safrica: Dummy variable for Sub-Saharian countries. Asiae: Dummy variable for Asian countries. laam: Dummy variable for Latin American coun

TABLE 6:Logit pool estimamtion for the Incidence of ethnic civil war from 1960-1995

Model	1	2	3	4	5	6	7	8	9	10
Const	-13.29	-12.65	-11.52	-11.51	-12.32	-11.77	-7.24	-13.53	-13.57	-17.07
	(-3.12)	(-2.98)	(-2.68)	(-2.69)	(-2.86)	(-2.74)	(-1.89)	(-3.07)	(-2.74)	(-3.20)
Lpop	1.04	1.06	1.00	1.02	1.01	1.02	0.67	0.84	0.76	0.93
	(6.37)	(6.56)	(6.06)	(6.24)	(6.38)	(6.54)	(4.40)	(4.87)	(4.09)	(4.57)
Lgdp	-0.03	-0.09	-0.11	-0.14	-0.13	-0.18	-0.38	-0.06	0.25	0.30
	(-0.08)	(-0.23)	(-0.28)	(-0.34)	(-0.33)	(-0.45)	(-0.96)	(-0.15)	(0.53)	(0.63)
Educ	-0.39	-0.39	-0.39	-0.39	-0.36	-0.37	-0.25	-0.37	-0.39	-0.43
	(-2.76)	(-2.74)	(-2.63)	(-2.60)	(-2.58)	(-2.59)	(-1.81)	(-2.49)	(-2.38)	(-2.51)
I	-0.07	-0.07	-0.07	-0.07	-0.06	-0.07	-0.06	-0.06	-0.07	-0.08
	(-2.18)	(-2.28)	(-2.40)	(-2.43)	(-2.18)	(-2.22)	(-2.15)	(-1.94)	(-2.11)	(-2.31)
C	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.03	-0.03	-0.03	-0.04
	(-1.97)	(-2.04)	(-2.21)	(-2.16)	(-2.10)	(-2.12)	(-1.72)	(-1.58)	(-1.37)	(-1.69)
IRC1	**3.80**	**3.68**	**3.48**	**3.52**				**3.31**		**3.45**
	(3.89)	**(3.69)**	**(3.54)**	**(3.50)**				**(3.34)**		**(2.76)**
IRC2					**4.99**	**4.80**				
					(3.08)	**(2.88)**				
trib							**6.12**	**5.18**	**6.08**	**4.37**
							(3.19)	**(2.61)**	**(3.15)**	**(2.38)**
Democ	**0.17**	**0.22**	**0.70**	**0.69**	**0.17**	**0.22**	**0.15**	**0.17**	**0.64**	**0.79**
	(2.76)	**(3.33)**	**(3.59)**	**(3.55)**	**(2.81)**	**(3.36)**	**(2.42)**	**(2.66)**	**(2.99)**	**(3.36)**
Democ^2			**-0.6**	**-0.05**					**-0.07**	**-0.06**
			(-2.84)	**(-2.55)**					**(-2.81)**	**(-2.39)**
Incv	**-0.38**		**-0.44**		**-0.54**		**-1.01**	**-0.36**		
	(-1.06)		**(-1.09)**		**(-1.52)**		**(-2.98)**	**(-0.98)**		
Incv1		**-1.06**		**-1.03**		**-1.35**				**-0.78**
		(-1.75)		**(-1.57)**		**(-2.21)**				**(-0.98)**
CfIndem	**-0.29**		**-0.29**					**-0.32**		
	(-2.23)		**(-2.00)**					**(-2.11)**		
CfIn1dem		**-0.47**		**-0.45**						**-0.59**
		(-2.33)		**(-2.12)**						**(-2.41)**
Cf2Indem					**-0.48**					
					(-1.99)					
Cf2In1dem						**-0.70**				
						(-2.01)				
LtIndem							**0.23**	**0.64**		
							(0.50)	**(1.18)**		
LtIn1dem										
MAJOc									**-0.13**	**0.59**
									(-0.17)	**(0.63)**
Ltmaj									**-142.21**	**-144.36**
									(-2.28)	**(-2.21)**
R2	**0.3771**	**0.3877**	**0.3964**	**0.4031**	**0.3616**	**0.3728**	**0.3704**	**0.4008**	**0.4290**	**0.4788**
N	606	606	606	606	606	606	596	596	555	555

Numbers in parentheses are t-statistics.
In all the regression I include religious dummy variables, and regional dummy variables.
Educ: average years of schooling in the total population.
Lpop: : log of the population al the begining of the period.
Lgdp: Log of the real GDP per capita of the initial period (1985 international prices).
I: Investment share of GDP.
C: Consumption share of GDP.
DemocP3: Democracy level from Polity III data source.
IRC1: religious polarization(Montalvo&Reynal-Querol 1999)
IRC2: religious polarization (Esteban and Ray 1994)
trib: animist diversity.
Incv and Incv1: level of inclusiveness of the political system
CfIndem=conf1*demIncv; cfIn1dem=conf1*demIncv1; cf2Indem=conf2*demIncv; cf2In1dem=conf2*demIncv1;ltIndem=ltrib*demIncv; ltIn1dem=ltrib*demIncv1.