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January 2011

Barcelona Economics Working Paper Series

Working Paper nº 528

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January 13, 2011

First version November 2, 2009

Abstract

In this paper we examine the link between ethnic and religious polarization and conflict using interpersonal distances for ethnic and religious attitudes obtained from the *World Values Survey*. We use the Duclos et al (2004) polarization index. We measure conflict by means on an index of social unrest, as well as by the standard conflict onset or incidence based on a threshold number of deaths. Our results show that taking distances into account significantly improves the quality of the fit. Our measure of polarization outperforms the measure used by Montalvo and Reynal-Querol (2005) and the fractionalization index. We also obtain that both ethnic and religious polarization are significant

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in explaining conflict. The results improve when we use an indicator of social unrest as the dependent variable.

JEL-Classification:

Key-words: conflict, polarization, fractionalization, ethnicity, religion. Acknowledgements:

Ignacio Ortuño-Ortín has gracefully computed for us the linguistic distances between groups based on the *ethnologue* dataset. We are grateful to Borek Vasicek for a highly competent assistance.

1. INTRODUCTION

In this paper we examine the link between ethnic and religious polarization and conflict. Income inequality has traditionally been seen as a major potential cause of conflict. Early empirical studies focussed on the personal distribution of income or of landownership.[1] However, as the survey article by Lichbach (1989) concluded, the empirical results obtained were lacking of significance and ambiguous. This apparent lack of connection between economic inequality and social conflict has been possibly due to the fact that most of the domestic conflicts since 1945 have had a strong ethnic/religious component. Indeed, Horowitz (1985) already noted that the Marxian prophecy of an inevitable class struggle has ended up having an ethnic fulfillment.[2]

Following the contribution by Easterly and Levine (1997) the attention of empirical research has shifted towards the ethnic and religious social divides as a cause of conflict and low collective action. The index of *fractionalization*, F, has been the most widely used measure of the ethnic/religious composition of a country. But other indicators such as the Gini-Greenberg[3] index G or the polarization indices by Esteban and Ray (1994) P and by Reynal-Querol (2002) RQ[4] have been used as well. The empirical works by Alesina et al. (1999), Alesina et al. (2003), Alesina and La Ferrara (2005), Collier (2001), Collier and Hoffler (2004), Desmet et al (2009,2010), Fearon (2003), Fearon and Laitin (2003), Miguel et al. (2004), Montalvo and Reynal-Querol (2005)

[1] See the works of Brockett (1992), Midlarski (1988), Muller and Seligson (1987), Muller et al. (1989), and Nagel (1974), among others.

[2] See Esteban and Ray (2008) on the salience of ethnicity over class in social conflict.

[3] See Desmet et al. (2009,2010) on Greenberg's index.

[4] See Esteban and Ray (1994) —also Wolfson (1994)— for the earliest polarization measure, ER, and Reynal-Querol (2002) for a special case of the Esteban-Ray measure, RQ. Duclos et al. (2004) extend Esteban and Ray's measure for continuous distributions. See also the special issue of the *Journal of Peace Research* edited by Esteban and Schneider (2008) devoted to the links between polarization and conflict.

and Reynal-Querol (2002) are representative of this literature.

Most of the empirical work has been based on the indices of fractionalization F and polarization RQ. Both share the feature that are based on group sizes only and do not make use of variations in inter-group distances. Fearon (2003) already made the point that ethno-linguistic distances do play a key role in explaining ethnic conflict and computed a measure based on dissimilarity between pairs of languages. Montalvo and Reynal-Querol (2005) (MRQ hereinafter) dismissed the use of such distances arguing that, using Fearon's data, the correlation between G (that uses distances) and F (that doesn't) is 0.82. However, this claim has been recently challenged by Desmet et al (2009,2010). They re-examine the point made in various papers by Alesina concerning the lower level of social transfers in ethnically heterogeneous societies and find that the measures that include distances outperform the ones that don't. Specifically, they obtain that G is highly significant while F isn't and that the same is true for P relative to RQ.[5]

Our paper contributes to the literature on two counts. First, our paper studies the link between conflict and ethnic and religious polarization using interpersonal distances driven by the intensity of the ethnic and religious attitudes obtained from the World Values Survey. We derive the intensity of feelings by aggregating the answers to a set of questions related to religious or ethnic attitudes. This permits us to compute a polarization measure that depend on inter-personal distances, such as P, and test whether it performs better than the ones that do not use this information, such as F and RQ.

Second, together with the standard practice of dichotomizing the occurrence of con-

[5] A second relevant feature of this literature is that it has been geared towards finding empirical regularities rather than testing the implications of a specific model of conflict. In Esteban, Mayoral and Ray (2010) we test the empirical implications of the conflict model set up in Esteban and Ray (2010), as a first step towards an explicit link between theory and facts.

flict —war/peace— depending on the number of deaths exceeding a given threshold, we also use a second, continuous indicator of social unrest based on political assassinations, demonstrations, strikes, political prisoners, etc. This permits us to overcome two major empirical problems in the literature that we will discuss in Section 4: (i) the results may depend on the choice of the threshold level; and (ii) the dilemma between onset versus incidence as definitions of conflict.

Our empirical exercise directly compares the performance of ethnic and religious polarization as measured by RQ and P, using the same controls as in MRQ. In all our estimations we use the continuous index of intensity of conflict as well as the classic binary measure based on a threshold level of casualties. We also check for potential endogeneity in case the intensity of attitudes is the consequence rather than the cause of conflict. We finally perform a series of robustness tests. Our results strongly support the hypothesis that intensity of feelings is highly significant, most especially for ethnic attitudes. More importantly, the distance sensitive indices of religious and ethnic polarization, P, are both independently significant. When we simultaneously consider the two of them, both are significant when we use the discrete measure of conflict, but religious polarization ceases to be significant with the continuous indicator of conflict. In all cases, the use of intensity of attitudes significantly increases the explanatory power of the model, as we obtain levels of R^2 that are much higher than usual in this literature.

The paper is organized as follows. In the next section we summarize the main features of the various distributional indices that have been used in the literature. Section discusses our approach to the measurement of inter-personal distances, key to our exercise. Section describes in detail the data used in both the main exercise and the different robustness tests performed. Section presents our empirical results and Section concludes.

2. DISTRIBUTIONAL INDICES

There are a variety of indicators capturing different features of a distribution. We have already mentioned four different indices that have been used in empirical work: F, G, RQ and P.[6] What are the appropriate indicators to be used if we want to predict conflict?

This apparent heterogeneity of measures can be presented as different ways of specifying the measurement of interpersonal distances and the weight of group size. On the first dimension, the specification of distances defines two classes of measures. One class retains the measured inter-personal distances while a second class considers all other groups equally distant —this common distance is normalized to unity. G and P belong to the former class and F and RQ to the latter. The second dimension refers to the treatment of group sizes. We have here too two classes of measures. One class does not take into account the effect of group size on the sense of identity. F and G belong to this class. The second type assigns "returns" to group size and transforms the own group size to a power. This is the feature that makes polarization measures P and RQ distinctly different from inequality measures.

The identity/alienation approach to social antagonisms introduced by Esteban and Ray (1994) may help to establish a taxonomy over the variety of distributional indices that have been used so far. Accordingly with this approach, interpersonal antagonism is the conjoint result of the sense of identification with one's own group and the alienation felt towards members of other groups. The sense of identity depends on the size of one's group, n_i, and the feeling of alienation on the perceived distance between groups i and j, d_{ij}.

More formally, Esteban and Ray (1994) and Duclos, Esteban and Ray (2004) start

[6] Collier and Hoeffler (2004) have also used the ratio of the largest over the second group and Desmet et al (2009,2010) introduce the index of *peripheral heterogeneity*.

by defining the general class of measures of societal antagonism, A. The antagonism felt by a member of group i vis-a-vis a member of group j, $a(i,j)$ can be expressed as

$$a(i,j) = \phi(n_i, d_{ij}), \tag{1}$$

with $\phi(n_i, d_{ii}) = 0$. Total societal antagonism is defined as the sum of all interpersonal antagonisms:

$$A = \sum_i \sum_j n_i n_j \phi(n_i, d_{ij}). \tag{2}$$

Esteban and Ray (1994) embody the concept of *polarization* of a distribution in a set of five axioms. From these axioms, they uniquely derive the measure of polarization

$$P = \sum_i \sum_j n_i^{1+\alpha} n_j d_{ij}, \tag{3}$$

with $1 \leq \alpha \lesssim 1.6$.[7]

Note that P is a specific measure of societal antagonism. The aforementioned axioms imply that interpersonal antagonism is of the form:

$$\phi(n_i, d_{ij}) = n_i^{\alpha} d_{ij}.$$

Hence, polarization captures both components of interpersonal antagonism: identity and alienation.

Suppose now that we simply posit that interpersonal antagonism does not depend on the sense of identity. Then $\phi(n_i, d_{ij}) = d_{ij}$. We obtain the Gini-Greenberg index

$$G = \sum_i \sum_j n_i n_j d_{ij}. \tag{4}$$

[7]Esteban and Ray (2010) introduce an axiom that combined with the axioms for continuous distributions in Duclos et al (2004) pins down $\alpha = 1$.

If in addition we posit that a shift in alienation, $\tilde{d}_{ij} = d_{ij} + \delta$ for all $i \neq j$, does not modify interpersonal antagonism, then $\phi(n_i, d_{ij}) = k$ for all $i \neq j$. Normalizing $k = 1$ we obtain the Hirschman-Herfindahl fractionalization index

$$G = \sum_i \sum_{j \neq i} n_i n_j = \sum_i n_i(1 - n_i). \tag{5}$$

Finally, if we make the previous assumption concerning alienation, but continue to retain the role of identification, we obtain that $\phi(n_i, d_{ij}) = n_i^{\alpha}$. This gives us the measure proposed by Reynal-Querol (2002):

$$RQ = \sum_i \sum_{j \neq i} n_i^{1+\alpha} n_j = \sum_i n_i^{1+\alpha}(1 - n_i).^{8} \tag{6}$$

Therefore, the result by MRQ that RQ is significant in explaining conflict while F is not, can be interpreted as indicating that group concern —hence the group-size effect— is important. Our paper can be seen as a test that not only group size but also alienation both matter for social conflict. To this effect, we shall show that P has a significantly higher explanatory power for conflict than any of the other distributional measures. Because interpersonal distances d_{ij} do play a significant complementary role we shall show that P outperforms RQ as an independent explanatory variable for conflict.

[8]Note that this measure is conceptually closely related to F. Indeed, while F tells us the probability that two persons drawn randomly belong to different group, RQ with $\alpha = 1$ —the empirically relevant variant— tells us the probability that out of three people two belong to the same group and the third to any other group.

3. IDENTITY AND ALIENATION IN ETHNIC AND RELIGIOUS POLARIZATION

One of the distinct features of our exercise is the use of polarization indices that depend on both, group size and inter-personal distance. As mentioned before, the previous work by MRQ, while emphasizing the role of group sizes, disregarded inter-personal distances. Indeed, the measure RQ only depends on the population size of the different ethnic/religious groups.

The classification of the population into ethnic and/or religious groups is not as straightforward as it first appears. It poses the problem of the definition of the groups. Even when the ascription of individuals to groups is unequivocal, there remains the issue of what are the relevant groups. To illustrate the point, let us take the line identifying ethnic group with language. *Ethnologue* records 6,912 different languages worldwide. This gives an average of thirty five ethnolinguistic groups per country [for the 195 countries existing today]. In India *Ethnologue* identifies 415 languages.[9] It is plain that one needs to "aggregate" over these micro-groups and focus on broader definitions, merging various "similar" ethnic groups. The same argument can be made of religions.[10]

And this takes us to a main problem we wish to underscore. This is the issue of the inter-personal or inter-group distances. The way the grouping is performed in the literature implicitly assumes that inter-group distances are either zero —when the groups are merged into one— or unity —when they are considered alien to each other. This problem can be bypassed by using inter-group distances. The distances among ethnolinguistic groups have been computed by Fearon (2003) and by Desmet et al. (2009,2010) on the basis of different measures of linguistic similarity. The use of these inter-group measures permits to go beyond the dychotomic $[0, 1]$ distance and

[9] Although the 1991 census recognizes 1,576 "mother tongues".

[10] For instance,MRQ treat "christians" as a single group.

hence mitigate the crude bunching of ethnolinguistic groups into large "significant" groups.

The use of linguistic distances is not only conceptually more satisfactory, it also is empirically relevant. Accordingly with the results by Desmet et al (2009,2010), the use of linguistic distance is significant for explaining the role of the ethnic composition of a society. They examine the claim, first made by Alesina et al (2002), that ethnically heterogeneous societies provide less redistribution and find that the indices using linguistic distances do perform better that the equivalent indices without distances. Indeed, G performs better than F and P does better than RQ.

It seems clear that inter-group distances have to be taken into account. Yet, there still is the question of the allocation of individuals to groups. It is implicit in the previous approach that the overall effect of group composition and distances is independent of the attitudes of individual members. However, some fraction (maybe large) of the population of whatever group might not feel a significant level of antagonism with the others, thus contributing little to social polarization. For instance, this would be the case of individuals with secular values in the case of potential religious cleavages. We may also have the opposite phenomenon of small "objective" distances that get eventually magnified and become a dramatic source of social antagonism. This is illustrated by the case of Somalia mentioned by Fearon (2003). In 1960 the soviet ethnographers that collected data for the *Atlas Narodov Mira* considered this country as highly homogeneous with one religion and one language. It was the civil war in 1990 that revealed that Somalia was split along clan lines, possibly exacerbating differences that prior to this event did look futile to the external analyst.

In this paper we estimate inter-personal alienation on the basis of the individual attitudes recorded by the World Values Survey (WVS). Both for ethnic and religious values we construct an index of intensity of feelings obtained by aggregating the

answers to a set of relevant questions.[11] Letting $x_i \geq 0$ be the estimated intensity of feelings of a member of group i, the distance towards a member of j with feelings x'_j is $d(x_i, x'_j) = x_i + x'_j$ if $i \neq j$. If $i = j$, then $d(x_i, x'_i) = |x_i - x'_i|$. We are thus assuming that the distance between two secular individuals belonging to different religions —with $x_i = 0$ and $x_j = 0$— will be zero. They will not contribute to religious antagonism. Our measure of distance also implies that there might be substantial alienation between a religious fundamentalist and a secular individual in spite of belonging to the same religion. Similarly with ethnic feelings. We use this measure of interpersonal alienation to compute P.

Distance measures based on linguistic differences appear to be reasonably free from endogeneity as the possible tensions that lead to the split took place hundreds if not thousands of years ago. This helps to substantiate a causality relationship between the independent and dependent variables. Yet, this potential causality is by the nature of the measure quite remote and cannot be directly taken as an immediate cause of the onset of a conflict. Linguistic distances have always been there, but only in some historical instances and in some countries these differences have become activated and developed into a relevant social cleavage. In contrast, attitude-based measures of distance do capture how active a potential cleavage is and hence we expect to obtain a closer correlation between polarization and conflict. We are aware of the potential endogeneity problem that may recommend not to infer a causality relationship from an eventual high correlation between the two variables. However, in Section we try to mitigate this potential argument of reverse causality by means of an instrumental variable analysis.

[11] In Appendix A we provide a detailed description of this data source and the way the indices have been constructed.

4. DATA

The dependent variable is conflict. As for the independent variables, together with the three distributional indices, we shall use the variables that are standard in the literature: per capita income, population size, percentage of mountainous terrain in a country, primary commodity export as proportion of GDP, dummy for oil dependent countries, noncontiguous states, and democracy.[12] In Appendix B we furnish a detailed presentation of the definitions and the sources of the data used to construct these variables.

4.1. Conflict

Most of the empirical literature on conflict focuses on civil wars. This poses a major, though obvious, problem: the definition of civil war. The problem with this concept is that it is binary in nature. It does not allow for intermediate states: a country either is either at peace or engaged in a civil war. A country is at war when one of the parties is the government and the number of human casualties goes beyond a threshold level within a given time period. This definition admits different specifications depending on the threshold level of the dead and the length of the time period (one year, five years or the duration of the armed conflict).[13] How many events qualify as civil war, critically depends on the threshold level and the length of the period chosen. If the threshold or the length of the period is too large, we find very few instances of civil war, thus making the possibility of meaningful inferences rather problematic. But, if it is too low (some authors have used the threshold of twenty five deaths), the increase in sample size is at the cost of lumping together situations

[12] We keep as close as possible to Montalvo and Reynal-Querol (2005) in order to facilitate the comparability of results.

[13] See Montalvo and Reynal-Querol (2005) for a comparison of the different definitions of civil war.

that are fundamentally different. A second problem that this approach creates for a definition of conflict is whether we consider that being in conflict means the transition from peace to conflict or it is the state of satisfying the threshold restriction. In the first case, our observations will consist of the conflict *onsets*, while in the second we shall be recording every time period in which a country is in conflict, that is, the *incidence* of conflict.

Both problems derive from adopting a binary definition of conflict. In order to circumvent these difficulties we shall use a continuous measure that captures the intensity of social conflict, even at low levels. As explained in Appendix B, this index is composed of a list of indicators of social conflict ranging from political assassinations to demonstrations or strikes. To be sure this index is sensitive to low levels of social unrest associated with legal or illegal public processions, for instance. But, it also includes political prisoners resulting from the repression of public or underground opposition. And, of course, this index also records political assassinations and higher levels of violence in open civil war. Therefore, with this index we have a measure of the level of social unrest with no need to define a questionable threshold dividing peace from war.

For the main empirical question we address —polarization with or without intensity of attitudes— we shall work with the two measures of civil conflict: discrete and continuous. By keeping the two, we shall be able to link our results with the empirical literature based on the discrete notion of conflict. In this respect, we shall be able to verify whether the inclusion of interpersonal distances is empirically significant even if keeping the traditional discrete notion of civil war.

The discrete notion of civil war consists of a binary variable that takes value 1 if the number of conflict related deaths in a period exceeds a given threshold and 0 otherwise. We divide time in five year periods. A country is in civil war in a five-year

period if it takes value 1 in any of corresponding five years. Thus we shall be analyzing the *incidence* of civil war, as in Collier and Hoeffler (2004) and Collier et al. (2009), and MRQ. In the robustness checks reported in Appendix B we shall also use conflict *onset*. In this case, the binary variable takes the value 1 only for the period in which the civil war was started. For the main body of the paper we shall take the PRIO definition of *intermediate* conflict, $PRIOCW$. For the robustness tests we shall also use the PRIO notions of *minor* conflict, $PRIO25$ and of *war*, $PRIO1000$. The data on conflict related deaths has been obtained from Uppsala Conflict Data Program and Peace Research Institute of Oslo, PRIO.[14] This dataset covers from 1960 till 2008, but to keep consistency with MRQ data in the first part of our analysis we also restrict to 1960-1999. In the robustness check section we will consider all the available data.

Together with this binary definition of civil conflict, we shall also work with the *continuous index of social conflict*, *ISC*, computed by the Cross-National Time-Series Data Archive (CNTS). This index of conflict is the weighted average of eight different manifestations of domestic conflict: Assassinations, General Strikes, Guerrilla Warfare, Major Government Crises, Purges, Riots, Revolutions, and Anti-government Demonstrations. We shall take the value of this continuous index of conflict as our dependent variable.

4.2. Measurement of Polarization

We measure ethnic and religious intensity of feelings on the basis of the questionnaire answers to the different waves of the World Values Survey. There are five waves:

[14]Correlates of War (COW) is an alternative dataset. It has been used by Collier and Hoeffler (2002), Fearon and Laitin (2003) and Doyle and Sambanis (2000). Yet, as discussed in Sarkeens et al. (2003) the data have three limitations: (i) are less transparent and reliable than UCDP/PRIO, (ii) end by late 1990, and (iii) do not include most post-communist countries. The correlation with UCDP/PRIO at country-year level is 0.66-0.75.

1981, 1990, 1995, 1999-2001, and 2005-2008. The number of countries covered has been increasing, with the last wave including 97 countries. However, the overlap with the countries included in the MRQ dataset leaves us with 51 and 61 countries for the ethnic and religious data, respectively.

For each country included, the WVS has a sample size ranging between 1,000 and over 3,000 households. The questionnaire consists of over two hundred questions mostly asking about political, social, religious and moral attitudes. For each interviewed household we have constructed an index of intensity of religious values and an index of ethnic intolerance by aggregating the answers to a number of relevant questions.[15] The weights used to aggregate the different question have been obtained by *Principal Components Analysis*. The corresponding distribution of the intensity of feelings is used to compute the index P.

The advantage of measuring interpersonal distances does not come free of charge. We have already mentioned the plausible inverse causality argument could be raised that it is in fact conflict that exacerbates the radicalism of individual attitudes. The ideal test would consist of verifying whether an increase in social antagonism *precedes* the intensification of conflict. Unfortunately, we cannot perform such a test because in the early waves of the WVS the sample consisted mostly of European countries. Furthermore, as we have already pointed out, for every country we have had to average the P indices computed for the different available waves to obtain a single index for the entire period 1981-2005.

In order to control for the potential endogeneity, we have instead carried out an IV estimation that uses indices based on language distances as instruments for our polarization measures. See Section below for details.

[15] In Appendix **??** we provide a detailed description of the protocol followed in the construction of the indices and a complete list of the questions that have been aggregated to obtain the intensity levels for ethnic and religious feelings.

4.3. Additional Independent Variables

While the dependent variable is the incidence of conflict in each period, the control variables refer to the first year of each period or are by their nature invariant in time. The number of countries varies slightly with the exercise and is indicated together with each empirical result.

The control variables are as follows. Sociopolitical variables: size of the population, level of democracy. Economic variables: real GDP per capita, $LGDPC$, share of primary exports on GDP, $PRIMEXP$, dependence on oil exports, OIL. Geographic variables: percentage of mountainous terrain, $MOUNT$, noncontinguency of country territory, $NONCONT$ and regional dummies for Latin America, $D-AMER$, Asia, $D-ASIA$, and Sub-Saharan Africa, $D-AFRICA$. While the justification for each control variable can be found elsewhere (Fearon and Laitin, 2003, Collier and Hoeffler, 2004, 2008, Miguel et al., 2004, MRQ) the details are provided in Table B1 included in Appendix B. The data on religious and ethnic composition of countries used for calculation of F and RQ measures in the main text have been taken from MRQ.

4.4. Sample Size

The availability of data from different sources severely conditions the size of our sample. Let us start by the WVS. It has been conducted only for limited number of countries. The sample of countries has expanded from 20 countries participating in the first wave in 1981 to a total of 97 countries being surveyed in the latest fifth wave. Moreover, our analysis is restricted to those countries where a suitable set of questions related to religious or ethnic tolerance were asked and where religious or ethnic identification of each respondent was available .

A main point of our paper is that the distance-based P polarization index outperforms the RQ index with no variation in inter-personal distances. The WVS sample

does not coincide with the sample used by MRQ. The direct comparability of our results with those obtained by MRQ limits even further the number of countries in our sample. While their sample includes 117 countries for the period 1960-1999, the overlap with the WVS yields 51 and 61 countries for ethnic and religious data, respectively. When combined with the number of five-year periods the sample contains 385 and 464 observations. respectively. This subset of countries presents features of conflict similar to the larger set. Using the PRIOCW variable, Montalvo and Reynal-Querol's (2005) dataset features 159 periods with ongoing civil war, while we have 83 periods for the religious subset of countries and 75 for the ethnic one. If we compute the mean incidence of war per period (the number of war periods divided by the total sample) we obtain very similar results. For the ethnic sample we have a mean incidence of 0.145 and 0.157 for the religious sample, while Montalvo and Reynal-Querol record a mean incidence of 0.168.

When we use ISC as the dependent variable we restrict to the same set of countries. Unfortunately, the information on the ISC index is missing for some periods. This reduces the total number of observations to 344 and to 406 for the ethnic and religious data.

When performing the robustness checks we shall be using different and larger samples, including more countries and more periods. The specifics are described in detail when needed.

5.EMPIRICAL RESULTS: ETHNIC AND RELIGIOUS POLARIZATION AND CONFLICT

5.1. Polarization and Conflict

We use the obtained individual intensity of feelings to compute the P index of polarization. We wish to test whether P outperforms RQ in explaining conflict. We

consider the same set of independent variables as in MRQ and two dependent ones: the binary variable of incidence of civil war, PRIOCW, and the continuous measure that captures the intensity of social conflict, ISC. Results are reported in Tables 1 and 2, respectively. Columns 1-3 refer to ethnic polarization, columns 4-6 refer to religious polarization. For each case, the first column reproduces the results when only the RQ index is included in the reduced sample (columns (1) and (4)), the second column uses P instead and the third column uses both, RQ and P, permitting a direct contrast between the measures without and with intensity of attitudes. Columns (7) and (8) introduce both religious and ethnic P and the four indices considered in these exercise, respectively.

TABLE 1. POLARIZATION AND CONFLICT: P VERSUS RQ

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LGDPC	−0.457	−0.564	−0.563	−0.290	−0.162	−0.143	−0.450	−0.576
	(0.084)	(0.050)	(0.048)	(0.374)	(0.523)	(0.616)	(0.162)	(0.083)
LPOP	0.124	0.095	0.095	0.164	0.160	0.153	0.045	0.073
	(0.576)	(0.650)	(0.658)	(0.448)	(0.457)	(0.506)	(0.846)	(0.738)
PRIMEXP	−0.632	−1.129	−1.116	−0.600	−1.705	−1.766	−2.848	−2.443
	(0.776)	(0.595)	(0.601)	(0.796)	(0.564)	(0.569)	(0.301)	(0.373)
MOUNT	0.006	0.015	0.015	0.013	0.020	0.020	0.032	0.033
	(0.700)	(0.290)	(0.363)	(0.225)	(0.110)	(0.099)	(0.021)	(0.061)
NONCONT	0.282	0.613	0.609	0.176	0.449	0.457	0.159	1.178
	(0.696)	(0.434)	(0.452)	(0.784)	(0.489)	(0.475)	(0.154)	(0.134)
DEM	−0.148	−0.157	−0.157	0.027	0.160	0.157	−0.319	−0.283
	(0.768)	(0.723)	(0.723)	(0.954)	(0.724)	(0.725)	(0.463)	(0.548)
RQ_{Eth}	0.737	-	−0.040	-	-	-	-	−0.028
	(0.499)		(0.975)					(0.983)
RQ_{Rel}	-	-	-	1.071	-	0.164	-	−1.108
				(0.246)		(0.860)		(0.311)
P_{Eth}	-	2.849	2.853	-	-	-	3.920	4.292
		(0.013)	(0.014)				(0.002)	(0.002)
P_{Rel}	-	-	-	-	2.343	2.2858	2.059	2.550
					(0.009)	(0.015)	(0.038)	(0.023)
Pseudo-R^2	0.066	0.177	0.177	0.084	0.139	0.139	0.253	0.257
Countries	51	51	51	61	61	61	50	50
Observations	385	385	385	464	464	464	377	377

Notes: The dependent variable is PRIOCW and the estimation method is logit. P-values are reported in brackets. Robust standard errors adjusted for clustering have been employed to compute z-statistics.

Table 1 shows that while RQ is not significant in our reduced sample of countries (columns (1) and (4)), both ethnic and religious P are so (columns (2) and (5)). When both P and RQ are included in the regression (columns (3) and (6)), the significance of P remains and the estimated coefficients are very similar as when only P is considered. These conclusions do not change if both ethnic and religious P are included in the regression (column 7) or when the four indices considered in this

exercise are simultaneously introduced (column 8). Furthermore, the introduction of P increases the pseudo-R^2 substantially. When both religious and ethnic P are considered, the pseudo-R^2 reaches 0.25.

We now replicate the same exercise reported in Table 1 on the performance of P relative to RQ using as dependent variable the continuous indicator of conflict, ISC. The results are displayed in Table 2. This table is organized exactly as Table 1.

TABLE 2. POLARIZATION AND CONFLICT: P VERSUS RQ WITH ISC

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LGDPC	−0.483 (0.000)	−0.502 (0.000)	−0.498 (0.000)	−0.501 (0.000)	−0.431 (0.000)	−0.446 (0.000)	−0.481 (0.000)	−0.567 (0.000)
LPOP	0.139 (0.078)	0.118 (0.120)	0.129 (0.092)	0.191 (0.016)	0.174 (0.019)	0.178 (0.016)	0.109 (0.154)	0.122 (0.104)
PRIMEXP	−1.144 (0.112)	−1.154 (0.097)	−1.169 (0.096)	−0.986 (0.202)	−1.286 (0.091)	−1.257 (0.104)	−1.341 (0.053)	−1.274 (0.062)
MOUNT	0.001 (0.874)	0.006 (0.285)	0.004 (0.553)	0.003 (0.521)	0.005 (0.305)	0.005 (0.310)	0.008 (0.182)	0.006 (0.342)
NONCONT	0.679 (0.034)	0.698 (0.023)	0.751 (0.021)	0.553 (0.028)	0.637 (0.011)	0.634 (0.011)	0.747 (0.015)	0.829 (0.010)
DEM	0.079 (0.694)	0.118 (0.524)	0.106 (0.558)	0.054 (0.793)	0.086 (0.646)	0.092 (0.623)	0.150 (0.441)	0.179 (0.372)
RQ_{Eth}	0.680 (0.079)	-	0.475 (0.198)	-	-	-	-	0.534 (0.153)
RQ_{Rel}	-	-	-	0.186 (0.631)	-	−0.121 (0.735)	-	−0.559 (0.118)
P_{Eth}	-	0.921 (0.000)	0.867 (0.000)	-	-	-	0.878 (0.002)	0.903 (0.002)
P_{Rel}	-	-	-	-	0.793 (0.026)	0.843 (0.032)	0.337 (0.189)	0.512 (0.075)
Pseudo-R^2	0.237	0.286	0.291	0.268	0.281	0.282	0.289	0.304
Countries	51	51	51	61	61	61	50	50
Observations	344	344	344	406	406	406	336	336

Notes: The dependent variable is ISC and the estimation method is pooled OLS. P-values are reported in brackets. Robust standard errors adjusted for clustering have been employed to compute z-statistics.

The qualitative conclusions of this table are in line with the ones obtained with

the discrete variable for conflict. Results in columns (1) and (4) are very similar as those in the original paper by MRQ: the ethnic dimension RQ is significant (at the 10 percent level) while the religious one is not. Ethnic P turns out to be significant in all the specifications considered and, when both ethnic P and RQ are introduced, ethnic RQ ceases to be so (column (3)). On the religious dimension we obtain that while RQ is never significant, religious P is so when introduced alone or together with religious RQ (columns (5) and (6), respectively). However, considering both the ethnic and the religious P indices in the regression limits the significance of the latter (columns (7) and (8)). Finally, the explanatory power of the model increases substantially when the P indices are considered, as shown by the pseudo R^2 that reaches 0.29.

5.2. Endogeneity of Attitudes: IV regressions

We have already mentioned that our previous exercise could be objected on the basis of endogeneity. Diversity measures that do not incorporate interpersonal distances, such as RQ and F, have usually been considered as exogeneous in cross-country regressions, the reason being that group shares are thought to be very stable over time and small changes only have a minor impact on these measures. Ethnic RQ or F could to some extent be endogeneous (conflict can alter group shares or the definitions of ethnic groups can change through time as a function of economic-political variables) but, as pointed out by Alesina et al. (2003), ethnic compositions display tremendous time persistence and thus, the exogeneity assumption could be reasonable at the 20-30 year horizon that characterizes cross country regressions in this area. Religious indices, however, may be more problematic. In some repressive regimes, non-official religions might be prosecuted, making it difficult for members of these religions to be counted as such. This may create a spurious correlation between lack of political freedom and religious diversity that could bias the estimates.

Nevertheless, there is little doubt that introducing people's attitudes in our po-

larization measures makes the endogeneity problem more acute. Civil conflict will probably have an immediate impact on people's attitudes towards the rival groups, making them more intolerant and polarized and, thus, reverse causality cannot be discarded.

In the following, we try to overcome this problem by instrumenting the potentially endogenous regressors. Since, for the reasons provided above, religious F or RQ indices could also be endogenous, we focus on the ethnic dimension and instrument ethnic P considering ethnic RQ measures as exogeneous.

We instrument ethnic P using averages of the distance between the languages spoken in a country. Language distances are a proxy of the cultural differences among the groups living in a territory. The identification assumption that we adopt is that language distances do not affect conflict directly but only through its correlation with people's tolerance or intolerance of other groups. We believe that what matters for conflict is not the "objective" cultural differences but the way these differences are perceived and liked or disliked by the different groups, dimension that we are able to capture through our polarization indices. If this assumption holds, variations in P induced by averages of language distances can be considered as exogenous and employed to evaluate the effect of an exogenous change in P on the level of conflict. In addition, language-based indices are very stable over time and do not present the reverse causality problem that potentially affects ethnic P.

There are different ways of measuring distances between languages. Fearon and Laitin (1999, 2000) and Laitin (2000) proposed to use the information provided by language trees. Language trees are genealogical diagrams of languages related by descent of a common ancestor. The distance between two languages i and j is computed as a function of the number of common classifications in the language tree. For instance, Spanish and Basque diverge at the first branch, since they come from structurally unrelated language families. By contrast, Spanish and Catalan share their first

7 classifications as Indo-European, Italic, Romance, Italo-Western, Western, Gallo-Iberian and Ibero-Romance languages. We follow Fearon (2003) and Desmet et al. (2009) and define the distance between languages i and j to be

$$d'_{ij} = 1 - \left(\frac{l}{m}\right)^{\delta},$$

where l is the number of common branches between i and j, m is the maximum number of shared branches between any two languages, and δ is a parameter that determines how fast the distance declines as the number of shared languages increases. The weighted average of the distances between any two pair of languages spoken in a country is given by

$$WAD = \sum_{i=1}^{K} \sum_{j=1}^{K} s_i s_j d'_{ij},$$

where s_h, h={i,j} denotes the share of people that speaks language h as a first language and K is the total number of languages spoken in a particular territory. We will use WAD as instrument for ethnic P.[16]

Data on WAD has been taken from Desmet et al. (2009), who have elaborated this variable using the information on language trees provided by the Ethnologue project.[17] The distinctive characteristic of Ethnologue versus other sources is its detail. It provides very disaggregate information of all the languages and dialects spoken in a territory. For instance, as noted by Desmet et al. (2009), the Britannica Book of the year 1990 edition reports 21 living languages for Mexico while Ethnologue lists 291. This means that the shares used to compute WAD are in general very different from the shares employed to compute P, since the WVS classification only considers a small number of categories. Still, the correlation between ethnic P and

[16] We have also considered other indices of linguistic distance, including the index of polarization for discrete distributions P, as in (3). We ended up using the Gini-Greenberg index type WAD because it gave the highest correlation with the potentially endogenous variable.

[17] Desmet et al. (2009) choose a value of $\delta = 0.05$ to compute d_{ij}.

WAD is 0.39.

Table 3 presents the results of instrumenting ethnic P by WAD. As pointed out by Angrist and Krueger (2001), estimating a linear probability model by two stage least squares (2SLS) is a robust estimation approach even if the underlying second-stage relationship is nonlinear, as in our case.

The linear projection of ethnic P on the rest of the controls and WAD shows that the latter has a positive and highly significant effect on ethnic P, with a p-value of 0.019 and of 0.016, corresponding to the cases where ethnic RQ was included or not in the first-stage regression. Columns (1) to (4) present the results of instrumenting ethnic P in the discrete dependent variable regression while columns (5) and (6) focus on the continuous indicator of conflict. Figures in columns (1), (2), (5) and (6) have been obtained using 2SLS while those in columns (3) and (4) with MLE in a probit specification.

The qualitative results do not change with respect to those reported in Tables 1 and 2: P_{Eth} is highly significant while RQ_{Eth} is not. Including or not RQ_{Eth} as an additional regressor does not have any impact on either the estimated coefficient of P_{Eth} or on its significance. Using the rule of thumb suggested by Wooldrigde (2002), it is possible to compare the magnitudes of the linear probability and the probit specifications. To do that, we should divide the probit estimates by 2.5, which turn out to be 1.46 and 1.44 for columns (3) and (4), respectively, and thus, the partial effects implied by the probit specification are similar to those of the linear probability model reported in columns (1) and (2). Using the latter figures to evaluate the partial effect of ethnic polarization on the probability of incidence of civil conflict, we obtain that an increase in 1 standard deviation of P_{Eth} raises the probability of civil war by 0.34.[18]

[18]Of course, this implication cannot literally be true because continually increasing P would eventually drive the probability of conflict to be greater than one. However, these figures can be

TABLE 3. IV ESTIMATION

Variable	(1)	(2)	(3)	(4)	(5)	(6)
LGDPC	−0.098 (0.029)	−0.095 (0.035)	−0.266 (0.107)	−0.261 (0.119)	−0.514 (0.000)	−0.516 (0.000)
LPOP	0.001 (0.982)	0.007 (0.814)	−0.003 (0.976)	0.011 (0.910)	0.119 (0.126)	0.113 (0.148)
PRIMEXP	−0.291 (0.204)	−0.299 (0.223)	−1.342 (0.175)	−1.363 (0.173)	−1.195 (0.103)	−1.187 (0.105)
MOUNT	0.005 (0.119)	0.004 (0.144)	0.014 (0.088)	0.0121 (0.102)	0.006 (0.373)	0.008 (0.214)
NONCONT	0.120 (0.363)	0.136 (0.294)	0.522 (0.177)	0.565 (0.130)	0.823 (0.009)	0.797 (0.009)
DEM	0.013 (0.864)	0.010 (0.891)	−0.067 (0.784)	−0.075 (0.757)	0.134 (0.485)	0.141 (0.468)
RQ_{Eth}	−0.217 (0.326)	-	−0.431 (0.512)	-	0.267 (0.541)	-
P_{Eth}	1.241 (0.008)	1.190 (0.007)	3.660 (0.000)	3.614 (0.000)	1.749 (0.025)	1.808 (0.015)
Pseudo-R^2	-	-	-	-	0.254	0.247
Countries	51	51	51	51	51	51
Observations	385	385	385	385	344	344

Notes :The dependent variable PRIOCW (1)-(4) or ISC (5),(6).

The estimation method is 2SLS (1),(2),(5),(6) or IV Probit (3),(4). IV is WAD.

5.3. Robustness of Results

The previous section has shown that including interpersonal distances in polarization indices is relevant in explaining conflict and that while RQ is not significant, P is so in both the standard and the IV regressions. In this section we explore the robustness of the previous results by considering alternative: a) sample, b) instruments, c) definitions of civil conflict, and d) inclusion of regional dummies. For the sake of briefness we shall concentrate on the estimates for ethnic polarization.

good estimates of the partial effects of P near the center of the distribution of the covariates.

A. Alternative sample.

A first robustness test consists in replicating the previous analysis for the largest sample the WVS allows for, and hence not overlapping any longer with MRQ. This mainly permits the inclusion of a large number of former socialist countries, absent from MRQ database: 15 and 19 more for the ethnic and religious dimension, respectively. In addition, two new periods have been added to the panel: 2000-04 and 2005-09. We shall denote this enlarged sample by "sample B". We shall work with sample B for the rest of this section.

This enlargement also requires the use of alternative data sources for some the variables. For the computation of the ethnic and religious *RQ* indices we have used Alesina et al. (2003). Some of the sources for the remaining control variables are also different from those used in MRQ. Primary exports has been replaced by OIL, a dummy for countries whose revenues derive primarily from oil exports, since the former was not available for all the countries in the new dataset. GDP per capita and population have been taken from Maddison (2008) for the same reasons.

Tables C1-C3 in Appendix C replicate Tables 1 to 3 above. The main conclusions do not differ significantly from the ones explained above. For the discrete dependent variable (Table C1), RQ_{Eth} is never significant. However, P_{Eth} is always so and the magnitude of its coefficient does not change when RQ_{Eth} is also included in the regression. With respect to the religious dimension, P_{Rel} has the expected positive sign in all the different specifications and is significant when introduced alone or with RQ indices. However, if P_{Eth} is also in the regression, P_{Rel} loses its significance (column (7)). Finally, the sign of $\mathrm{RQ}_{\mathrm{Re}l}$ is negative and significant while introduced together with $\mathrm{P}_{\mathrm{Re}l}$. The pseudo- R^2 is substantially higher than in the previous exercise, reaching 40%. Similar conclusions are also valid for Table C2, where the continuous indicator of conflict is employed. In this case, RQ_{Eth} is significant but it ceases to be so when ethnic P is also considered.

Focusing on the ethnic dimension, we have also instrumented ethnic P by WAD to tackle the potential endogeneity of P. WAD is very significant in the linear projection of P_{Eth} on WAD and the other controls, with p-values of 0.007 and 0.008 according to whether RQ_{Eth} is also included or not in the regression, respectively. Instrumenting P_{Eth} does not modify the previous findings: P_{Eth} is always significant while RQ_{Eth} is not. The estimated partial effect is slightly smaller than the one obtained in Table 3: an increase by one standard deviation in ethnic P increases the probability of a civil conflict by 0.26.

B. Alternative definitions of the instrumental variable

As mentioned before, it could be argued that ethnic shares used to compute diversity/polarization indices are potentially endogeneous, since they could change as a result of civil conflict. Given that WAD also incorporates these quantities, it would be advisable to devise another instrument that is not susceptible to this criticism. An obvious candidate would the simple average of language distances, SAD, defined as[19]

$$SAD = N^{-2} \sum_{i=1}^{K} \sum_{j=1}^{K} d'_{ik}.$$

The simple correlation between SAD and P_{Eth} is 032. This value is smaller than that the correlation between WAD and P_{Eth} (0.41) but still very significant. The p-value of the coefficient associated with SAD in the regression of P_{Eth} on SAD and the other controls equals 0.01.

As for the results obtained by instrumenting P_{Eth} by SAD, they are very similar to those reported in table C3. In the second-stage regressions with the discrete dependent variable, P_{Eth} is very significant, with a p-value equal to 0.009. The coefficient of P_{Eth} is slightly smaller but in line with that obtained with WAD as IV:

[19] As data from the Ethnologue project is extremely disaggregated, languages with less than 1% share of speakers have been excluded from the average above. We thank Ignacio Ortuño for computing this index for us.

0.873 (versus 0.945). Thus, very similar partial effects of P_{Eth} are obtained irrespective of the instrument. Identical conclusions are obtained when the probit specification is estimated.

For the continuous variable of conflict, the IV estimate of P_{Eth} turns out to be insignificant. However, the generalized Haussman test could not reject the hypothesis that P_{Eth} is exogeneous. This implies that estimates in column (2) in Table C2 are consistent and more efficient that those obtained by 2SLS. According to these estimates, P_{Eth} is significant in explaining ISC.

C. Other definitions of civil conflict.

We now check the robustness of the previous exercise to the use of other definitions of our discrete variable of conflict. As in MRQ, we have worked so far with intermediate armed conflicts as defined by PRIO. PRIO also provides data on low and high-intensity conflicts: PRIO25 and PRIO1000, which report armed conflicts that generate more than 25 and 1000 deaths per year, respectively.

Another interesting dimension to explore is the effect of polarization on the probability of the onset, rather that the incidence, of a civil conflict. Schneider and Wiesehomeier (2006) have critisized MRQ on the grounds that the factors that contribute to the outbreak of a war might not coincide with the ones that keep feeding it. Moreover, once the war has started, the probability that it continues is much higher than the one of a war onset. Thus, it seems unreasonable to fit a unique model that tries to explain both onset and incidence, since these phenomena will probably have different causes. Using MRQ's dataset, they show that if onset is used as dependent variable instead of incidence, RQ indices cease to be significant.

To address this issue, we have considered three new dependent variables: ONSET2, ONSET5 and ONSET8. These variables take a value equal to 1 if there is an onset of an intrastate conflict with more than 25 annual battle deaths and 2, 5 or 8,

respectively, since the last observation of conflict. The source is PRIO.

Table C4 in Appendix C reports the IV estimates computed with the new dependent variables and using WAD to instrument for ethnic P. With the new thresholds, we continue to obtain the same set of results as before. Ethnic P is significant in all cases while RQ_{Eth} is not.

When the dependent variable is onset instead of incidence of civil conflict, the fit is considerably worse, as reflected by the pseudo-R^2 statitic that takes values around 5%. P_{Eth} is still significant in all the regressions although its associated coefficients are smaller than those in the incidence regressions, showing that its partial effect is smaller than before. Now, an increase in one standard deviation of P_{Eth} increases the probability of a war outbreak by 0.14, 0.07 and 0.058 for ONSET2, ONSET5 and ONSET8, respectively. We also observe that RQ is significant for ONSET5 and ONSET8.

D. Robustness to regional effects

Finally, we have checked whether the results are driven by a particular set of countries. To do this, we have introduced in the baseline specification regional dummies for Asian, Latin American and Sub-Saharan countries. As shown in Table C5 in Appendix C, only the dummy of Latin American countries turned out to be significant. On the other hand, the significance of ethnic P remains at the same levels.

6. CONCLUSIONS

This paper adds to the literature that explores the link between ethnic divisions and social conflict. As shown by MRQ, ethnic polarization, as measured by the RQ index, and not the widely used measure of ethnic fractionalization, is an important correlate of conflict. We depart from that paper by showing that polarization indices that incorporate interpersonal distances outperform the RQ index that does not do

so. We also use a new measure for conflict that permits a continuous indicator of intensity.

To proxy interpersonal distances, we use the intensity of the ethnic and religious attitudes obtained from the World Values Survey. Intensity of feelings is computed by aggregating the answers to a set of questions related to religious or ethnic attitudes. This permits us to compute polarization indices, P, that depend explicitly on inter-personal distances. Our empirical exercise directly compares the performance of ethnic and religious polarization as measured by RQ and P, using the same controls as in MRQ. In all our estimations we use the continuous index of intensity of conflict as well as the classic binary measure based on a threshold level of casualties. Our results strongly support the hypothesis that polarization indices that incorporate intensity of religious and ethnic feelings are highly significant. Moreover, once these measures of polarization are taken into account, the RQ indices are not longer significant. In addition, in all cases, the use of intensity of attitudes permits significantly higher explanatory power of the model, as captured by levels of R^2 much higher than usual in this literature. We wish to underscore that, in contrast with our results, religious polarization or fractionalization —not using distances— has been repeatedly found non-significant (also by MRQ).

Our results are robust to checking for potential endogeneity in case intensity of attitudes is the consequence rather than the cause of conflict and the inclusion of other variables, such as regional dummies, other definitions of conflict, other databases of ethnic and religious compositions, etc.

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Appendix A : The Construction of the Aggregate Indices of Attitudes from the World Value Surveys

The World Value Surveys (WVS) provide since 1980´s an unique international data on the changing values of the population of different countries, including the opinions on the issues related to religious and ethnic tolerance. We have used the rich WVS data to try to track the inter-group distances that are needed to compute the multi-group DER.

The WVS are conduced by means of face-to-face interviews and includes hundrets of questions asked in each participating country. So far, there have been conducted 5 waves of the WVS with participation of 97 countries (at least in one wave). The country sample varies but usually amounts to 1000 respondent and is usually representative with respect to the age and sex structure of each country and often also stratified geographically. We wish mention here the problem of the sampling rules followed by the WVS. Specifically, that neither religion nor ethnicity have been used to obtain a balanced sample. Indeed, the weight of the different religious groups and of ethnicities varies significantly from wave to wave, producing an artificial time variability of all the distributional indices. We have opted for taking the average over all the waves available for each country.

The list of questions varies over the waves, and hence we have selected questions that have been asked in all the waves or questions that were very similar over different waves. In case of religious tolerance we use 7 and in case of ethnic 6 questions listed below. The questions have either binary or multiple response with at most 10 possible answers (typically when respondent is asked to mark her opinion between two opposite statements or her degree of aggrement with certain statement). We take the raw survey data and recode all the answers so that 1 is the most tolerant one and 10 stands for the most intolerant one. If less than 10 answers are provided, we use the mean values of the intervals, which number corresponds to the number of possible responses. For instance, for a question "Do you believe in God" we assign value of 3.25 to no and 7.75 to "yes" given that yes can mean somethnig between

"totally believe" rather belive than do not" and vise versa for "no".

Consequently, we use a Principal Component Analysis (PCA) to collapse the response to numerous questions into a single index number of each respondent (i.e. we retain the first principal component). Comparing density functions of different countries can provide some very basic evidence on the differences between religious and ethnic feelings between different countries. However, the PCA provides by contruction a distributions with the same zero mean that is not bounded. For the purpose of our analysis it is clearly preferable to work with densities that are bounded on the same interval for all the countries while the mean of discribution differ. Therefore, we retain the weights of the first principal component and apply them to the original (not demeaned) values of each variable and bound the index on the same interval of the original responsed (1,10). To see this, note that regular PCA is used to find a vector of weights that maximize the variance of a index z where x_{ij} is the answer of person i to question j.

$$z_i = \sum_j \alpha_j \left(x_{ij} - x_j\right)$$

If we apply the vector of weights on the original variables x, the distribution of the resulting index y does not have zero mean anymore but its scale varies across countries given the sum of the weighs varies (the sum of the squares of the weights is one):

$$y_i = \sum_j \alpha_j x_{ij}$$

However, we can the minimum and the maximum value of the distribution of each country so as to bound the index distribution on (1,10) interval:

$$y_i^* = \frac{10\left(y_i - y_{\min}\right)}{\left(y_{\max} - y_{\min}\right)}$$

The above distribution bounded on (1, 10) can be simply compared for different countries. However, also for different groups within the same country. In the latter case, we use a variable that idenfies the religious group or ethnicity of respondent. Please note, that identification of the group of the respondent is necesary so as to calculate the DER multi-group polarization index. This identification is available for 81 countries in the case of religion and 67 countries in case of ethnicity.

The questions used to obtain the aggregate indices are the following:

1. Religious dimension

- V22 Religious faith: do you consider it to be especially important?
- V183. Here are two statements which people sometimes make when discussing good and evil. Which one comes closest to your own point of view? A) There are absolutely clear guidelines about what is good and evil. These always apply to everyone, whatever the circumstances. B) There can never be absolutely clear guidelines about what is good and evil. What is good and evil depends entirely upon the circumstances at the time.
- V185. Apart from weddings, funerals and christenings, about how often do you attend religious services these days?
- V186. Independently of whether you go to church or not, would you say you are: 1) a religious person; 2) Not a religious person; or 3) a convinced atheist
- Which, if any, of the following do you believe in?
  - V191 Do you believe in God?
  - V192 Do you believe in life after death?

  - V194 Do you believe in hell?
  - V195 Do you believe in heaven?

- V196. How important is God in your life? Please use this scale to indicate- 10 means very important and 1 means not at all important.
- V197. Do you find that you get comfort and strength from religion?

Given the fact that questions V191, V192, V194, V195 are quite similar, we have computed its average value as a single indicator.

2. Ethnic dimension

- On this list are various groups of people. Could you please sort out any that you would not like to have as neighbors?
  - V69 People of a different race
  - V73 Immigrants/foreign workers
- V25 Generally speaking, would you say that most people can be trusted or that need to be very careful in dealing with people?
- V214 To which of these geographical groups would you say you belong first of all?
- V215 And the next?
  - Locality or town where you live
  - State of region of country where you live

Country as a whole

Continent

– The world as a whole

- V216 How proud are you to be [nationality]?

Appendix B: Description of Data

Conflict incidence and onset

For both conflict onset and incidence we use the armed conflict dataset from the Upsala Conflict Data Program and the Peace Research Institute Oslo, UCDP/PRIO. This data set covers from 1960 till 2008, subject to data availability. However, to keep consistency with MRQ data tables 1 to 3 restrict to the period 1960-1999 only. The sample is divided into five-year periods. To record whether a country is in conflict shall take the definition of *intermediate* conflict. Accordingly with PRIO2004 standards the definition for **Intermediate conflict** is *"PRIOCW: more than 25 battle-related deaths per year and a total conflict history of more than 1000 battle-related deaths, but fewer than 1000 per year."* In our robustness checks we shall also work with the notions of "minor conflict" and "war". The corresponding definitions are as follows. *"PRIO25: between 25 and 999 battle-related deaths in a given year."*, *"PRIO1000: at least 1,000 battle-related deaths in a given year."*

Conflict Index

This variable is the conflict index computed by The Cross-National Time-Series Data Archive (CNTS). This index of conflict is the weighted average of eight different manifestations of domestic conflict, adopted from Rudolph J. Rummel, "Dimensions of Conflict Behavior Within and Between Nations", General Systems Yearbook, VIII [1963], 1-50).[20] The eight variables included are:

[20]The correlation with UCDP/PRIO is 0.45.Which particular PRIO index?

- Assassinations (domestic1): Any politically motivated murder or attempted murder of a high government official or politician.
- General Strikes (domestic2): Any strike of 1,000 or more industrial or service workers that involves more than one employer and that is aimed at national government policies or authority.
- Guerrilla Warfare (domestic3): Any armed activity, sabotage, or bombings carried on by independent bands of citizens or irregular forces and aimed at the overthrow of the present regime.
- Major Government Crises (domestic4): Any rapidly developing situation that threatens to bring the downfall of the present regime - excluding situations of revolt aimed at such overthrow.
- Purges (domestic5): Any systematic elimination by jailing or execution of political opposition within the ranks of the regime or the opposition.
- Riots (domestic6): Any violent demonstration or clash of more than 100 citizens involving the use of physical force.
- Revolutions (domestic7): Any illegal or forced change in the top government elite, any attempt at such a change, or any successful or unsuccessful armed rebellion whose aim is independence from the central government.
- Anti-government Demonstrations (domestic8): Any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature.

The weights used are: Assassinations (25), Strikes (20), Guerrilla Warfare (100), Government Crises (20), Purges (20), Riots (25), Revolutions (150), and Anti-Government

Demonstrations (10). The calculation is performed as follows: weighted sum of occurrences of each event divided by 8 (the number of types of events) and multiplied by 100.

Independent variables

We summarize all the variables used in our empirical exercises in the following Table.

Table B1. Independent Variables

Variable	*Source*	*Definition*
- F_{Eth}	MRQ, ADEKW	Ethnic fractionalization
- F_{Rel}	MRQ, ADEKW	Religious fractionalization
- RQ_{Eth}	MRQ, ADEKW	RQ index of ethnic polarization
- RQ_{Rel}	MRQ, ADEKW	RQ index of religious polarization
- P_{Eth}	WVS	DER index of thnic polarization
- P_{Rel}	WVS	DER religious polarization
- WAD	DOW	index of linguistic diversity - Greenberg (1956)
- ER	DOW	index of linguistic diversity - ER (1994)
- SAD	DOW	simple average of language distances - DOW (2009)
- LPOP	MRQ, MAD, CNTS	log of population
- DEM	Polity IV	dummy if democracy score from Policy IV (1-10) is ≥ 4
- LGDPC	MRQ, MAD	log of GDP per capita (in international 1985*/1990 dollars)
- PRIMEXP	CH	share of primary commodity exports on GDP
		(for 10th period use data of 9th period)
- OIL	FL	dummy variable if export revenues from oil$\geq$33%
		(if country not present in FL, used various internet sources)
- MOUNT	FL	% of the mountainious terrein
- NONCONT	FL	dummy variable for noncontiguous states
- D_AMER/ASIA/AFRICA	FL	dummy variables for Latin Am., sub-Saharan Afr. or Asia

Notes: ADEKW - Alesina et al. (2003), CH - Collier and Hoeffler (2008), DOW - Desmet et al. (2009), FL - Fearon and Laitin (2003), MAD - Maddison (2008), MRQ - Montalvo and Raynal-Querol (2005); DER- Duclos, Esteban and Ray (2004);

Appendix C : Robustness of the Results

Replication of Tables 1 to 3 with Alesina et al. (2003) data on ethnic and religious distributions of the population.

TABLE C1. POLARIZATION AND CONFLICT: P VERSUS RQ WITH PRIOCW

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LGDPC	−0.580 (0.029)	−0.612 (0.022)	−0.614 (0.025)	−0.698 (0.004)	−0.261 (0.244)	−0.235 (0.355)	−0.540 (0.021)	−0.644 (0.018)
LPOP	0.177 (0.254)	0.202 (0.227)	0.201 (0.224)	0.221 (0.151)	0.221 (0.133)	0.237 (0.135)	0.211 (0.283)	0.116 (0.535)
OIL	1.558 (0.012)	1.545 (0.012)	1.553 (0.007)	1.791 (0.006)	1.125 (0.091)	0.873 (0.186)	1.231 (0.142)	0.813 (0.337)
MOUNT	0.019 (0.158)	0.031 (0.040)	0.031 (0.029)	0.026 (0.035)	0.034 (0.009)	0.033 (0.025)	0.046 (0.001)	0.072 (0.001)
NONCONT	0.835 (0.170)	1.129 (0.089)	1.128 (0.090)	0.793 (0.154)	1.031 (0.077)	1.188 (0.045)	1.558 (0.042)	2.801 (0.000)
DEM	0.085 (0.815)	0.143 (0.683)	0.146 (0.657)	0.493 (0.170)	0.391 (0.329)	0.412 (0.305)	−0.058 (0.876)	−0.080 (0.846)
RQ_{Eth}	0.988 (0.277)	-	−0.054 (0.960)					−2.739 (0.032)
RQ_{Rel}		-	-	−0.459 (0.612)		−1.698 (0.047)		−5.178 (0.010)
P_{Eth}	-	3.761 (0.024)	3.776 (0.028)	-	-	-	4.957 (0.001)	6.876 (0.000)
P_{Rel}	-	-	-	-	2.244 (0.010)	2.855 (0.001)	1.704 (0.209)	3.685 (0.032)
Pseudo-R^2	0.160	0.280	0.280	0.180	0.2219	0.2509	0.337	0.406
Countries	66	66	66	80	80	80	66	65
Observations	578	578	578	698	702	698	578	574

Notes: We use Sample B. The dependent variable is PRIOCW and the estimation method is logit. P-values are reported in brackets. Robust standard errors adjusted for clustering have been employed to compute z-statistics.

TABLE C2. POLARIZATION AND CONFLICT: P VERSUS RQ WITH ISC

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LGDPC	−0.511 (0.000)	−0.516 (0.000)	−0.500 (0.000)	−0.564 (0.000)	−0.441 (0.000)	−0.393 (0.000)	−0.508 (0.000)	−0.451 (0.000)
LPOP	0.188 (0.002)	0.184 (0.005)	0.188 (0.002)	0.230 (0.000)	0.214 (0.001)	0.220 (0.000)	0.186 (0.007)	0.178 (0.003)
OIL	0.111 (0.694)	−0.007 (0.975)	−0.057 (0.805)	0.134 (0.672)	−0.042 (0.880)	−0.206 (0.454)	−0.104 (0.680)	−0.350 (0.155)
MOUNT	0.008 (0.167)	0.011 (0.035)	0.010 (0.064)	0.008 (0.069)	0.011 (0.022)	0.010 (0.020)	0.013 (0.022)	0.013 (0.006)
NONCONT	0.684 (0.013)	0.671 (0.018)	0.733 (0.011)	0.681 (0.003)	0.733 (0.001)	0.787 (0.000)	0.709 (0.014)	0.896 (0.003)
DEM	0.218 (0.225)	0.267 (0.129)	0.242 (0.155)	0.199 (0.003)	0.170 (0.334)	0.175 (0.311)	0.270 (0.136)	0.289 (0.108)
RQ_{Eth}	0.649 (0.054)	-	0.435 (0.203)	-	-	-	-	0.272 (0.466)
RQ_{Rel}	-	-	-	−0.663 (0.092)	-	−0.985 (0.003)	-	−0.987 (0.015)
P_{Eth}	-	1.121 (0.000)	1.067 (0.000)	-	-	-	1.173 (0.001)	1.106 (0.002)
P_{Rel}	-	-	-	-	0.743 (0.078)	1.054 (0.011)	0.195 (0.527)	0.590 (0.047)
R^2	0.243	0.286	0.291	0.268	0.270	0.296	0.287	0.276
Countries	66	66	66	78	79	78	65	64
Observations	494	494	494	574	578	574	484	480

Notes: We use Sample B. The dependent variable is ISC and the estimation method is pooled OLS. P-values are reported in brackets. Robust standard errors adjusted for clustering have been employed to compute z-statistics.

TABLE C3. IV ESTIMATION

Variable	(1)	(2)	(3)	(4)	(5)	(6)
LGDPC	−0.085	−0.083	−0.378	−0.376	−0.518	−0.534
	(0.022)	(0.006)	(0.007)	(0.009)	(0.000)	(0.000)
LPOP	0.029	0.029	0.150	0.156	0.197	0.193
	(0.224)	(0.215)	(0.197)	(0.174)	(0.001)	(0.004)
OIL	0.109	0.107	0.513	0.492	−0.132	−0.115
	(0.420)	(0.425)	(0.378)	(0.390)	(0.691)	(0.738)
MOUNT	0.005	0.005	0.026	0.024	0.012	0.014
	(0.020)	(0.013)	(0.000)	(0.001)	(0.059)	(0.030)
NONCONT	0.154	0.159	0.831	0.853	0.771	0.721
	(0.146)	(0.119)	(0.047)	(0.041)	(0.011)	(0.017)
DEM	0.047	0.045	0.067	0.055	0.251	0.280
	(0.270)	(0.297)	(0.738)	(0.824)	(0.147)	(0.118)
RQ_{Eth}	−0.049	-	−0.397	-	0.438	-
	(0.740)		(0.558)		(0.184)	
P_{Eth}	0.874	0.849	4.031	3.859	1.341	1.566
	(0.022)	(0.016)	(0.000)	(0.000)	(0.183)	(0.101)
Pseudo-R^2	0.220	0.228	-	-	0.291	0.283
Countries	66	66	66	66	65	65
Observations	578	578	578	578	484	484

Notes: We use Sample B. The dependent variable is PRIOCW (1)-(4) or ISC (5),(6).

The estimation method is 2SLS (1),(2),(5),(6) or IV Probit (3),(4).

IV is WAD. P-values are reported in brackets. Robust standard

errors adjusted for clustering have been employed to compute z-statistics.

TABLE C4. IV ESTIMATION: ALTERNATIVE DEFINITIONS OF CIVIL CONFLICT

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
LGDPC	−0.148	−0.552	−0.065	−0.398	−0.059	−0.259	−0.053	−0.276	−0.057	−0.325
	(0.000)	(0.000)	(0.002)	(0.000)	(0.001)	(0.004)	(0.000)	(0.000)	(0.049)	(0.000)
LPOP	0.026	0.103	0.015	0.104	0.006	0.021	−0.005	−0.035	−0.005	−0.039
	(0.342)	(0.285)	(0.359)	(0.285)	(0.702)	(0.736)	(0.558)	(0.481)	(0.547)	(0.454)
OIL	0.093	0.481	0.050	0.052	0.145	0.464	0.102	0.449	0.107	0.511
	(0.571)	(0.325)	(0.376)	(0.909)	(0.109)	(0.211)	(0.076)	(0.093)	(0.022)	(0.034)
MOUNT	0.006	0.022	0.003	0.024	0.003	0.014	0.002	0.012	0.002	0.011
	(0.005)	(0.000)	(0.002)	(0.000)	(0.032)	(0.004)	(0.011)	(0.005)	(0.012)	(0.008)
NONCONT	0.257	0.988	0.083	0.661	0.146	0.634	0.126	0.632	0.101	0.535
	(0.006)	(0.001)	(0.161)	(0.074)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
DEM	0.127	0.305	0.024	0.030	0.037	0.100	0.044	0.174	0.049	0.226
	(0.023)	(0.106)	(0.487)	(0.904)	(0.410)	(0.619)	(0.238)	(0.397)	(0.165)	(0.264)
RQ Eth	0.042	0.271	−0.034	−0.135	0.075	0.522	0.097	0.684	0.090	0.710
	(0.796)	(0.629)	(0.718)	(0.836)	(0.310)	(0.156)	0.019	(0.012)	(0.020)	(0.008)
P Eth	1.132	3.678	0.4637	3.205	0.508	2.006	0.251	1.118	0.200	0.960
	(0.007)	(0.000)	(0.057)	(0.000)	(0.040)	(0.004)	(0.036)	(0.026)	(0.049)	(0.044)
Pseudo-R^2	0.175	-	0.1413	-	0.041	-	0.049	-	0.0600	-
Countries	66	66	66	66	66	66	66	66	66	66
Obs.	578	578	578	578	578	578	578	578	578	578

Notes: We use Sample B. The dependent variable is PRIO25 (1),(2), PRIO1000 (3),(4), ONSET2 (5),(6), ONSET5 (7),(8) or ONSET8 (9), (10). The estimation method is 2SLS (impair colums) or IV probit (pair columns). IV is WAD.

TABLE C5. ROBUSTNESS TO REGIONAL DUMMIES

Variable	(1)	(2)	(3)
LGDPC	−0.085	−0.369	−0.593
	(0.001)	(0.008)	(0.000)
LPOP	0.032	0.156	0.229
	(0.167)	(0.135)	(0.001)
OIL	0.156	0.582	−0.260
	(0.250)	(0.348)	(0.439)
MOUNT	0.006	0.029	0.010
	(0.007)	(0.000)	(0.070)
NONCONT	0.155	0.885	1.090
	(0.147)	(0.038)	(0.001)
DEM	0.044	0.045	0.137
	(0.241)	(0.787)	(0.414)
RQ_{Eth}	−0.030	−0.412	0.078
	(0.840)	(0.527)	(0.849)
P_{Eth}	0.884	4.178	2.165
	(0.022)	(0.000)	(0.028)
D_AMER	−0.136	−0.452	0.839
	(0.058)	(0.472)	(0.001)
D_ASIA	−0.089	−0.473	−0.303
	(0.294)	(0.240)	(0.316)
D_AFRICA	0.016	0.041	−0.110
	(0.850)	(0.907)	(0.677)
Pseudo-R^2	0.2364	-	0.282
Countries	66	66	65
Observations	578	578	494

Notes: We use Sample B. The dependent variable is PRIOCW (1),(2) or ISC (3).

The estimation method is 2SLS (1),(3) or IV probit (2). IV is WAD.P-values in brackets.

Robust standard errors adjusted for clustering have been employed to compute z-statistics.