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Fractionalization

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| Citation | Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarg. 2003. Fractionalization. <i>Journal of Economic Growth</i> 8(2): 155-194. |
| Published Version | doi:10.1023/A:1024471506938 |
| Accessed | December 16, 2017 12:31:27 AM EST |
| Citable Link | http://nrs.harvard.edu/urn-3:HUL.InstRepos:4553003 |
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HIER

Harvard Institute of Economic Research

Discussion Paper Number 1959

Fractionalization

by

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June 2002

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Fractionalization*

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Abstract

We provide new measures of ethnic, linguistic and religious fractionalization for about 190 countries. These measures are more comprehensive than those previously used in the economics literature and we compare our new variables with those previously used. We also revisit the question of the effects of ethnic, linguistic and religious fractionalization on quality of institutions and growth. We partly confirm and partly modify previous results. The patterns of cross-correlations between potential explanatory variables and their different degree of endogeneity makes it hard to make unqualified statements about competing explanations for economic growth and the quality of government.

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1 Introduction

Ethnic conflict is an important determinant of the political economy of many nations and localities. Many believe that it leads to political instability, poor quality of institutions, badly designed economic policy and disappointing economic performance.

In a cross-country setting, Easterly and Levine (1997) have shown that per capita GDP growth is inversely related to ethnolinguistic fractionalization in a large sample of countries. In particular, they argued that much of Africa's growth failure is due to ethnic conflict, partly as a result of absurd borders left by former colonizers.¹ As a result of that paper, a measure of ethnic fractionalization has become a "standard" control in regressions explaining cross-national differences in economic success.²

A related literature, early examples being Canning and Fay (1993) and Mauro (1995), has discussed the impact of ethnic fragmentation on government activities and quality of institutions. La Porta et al. (1999), in a broad empirical study of the determinants of the quality of government, suggest that ethnic fractionalization matters, even though variables related to legal origins may be more important. A large literature on US localities show that in more ethnically fragmented communities, public goods provision is less efficient, participation in social activities and trust is lower, and economic success, measured by growth of city sizes, is inferior.³ Evidence that trust does not travel well across racial lines is also supported by experimental evidence.⁴

While existing measure of racial (or ethnic) fragmentation for the US are reasonably well accepted, since they are based upon detailed and reliable census data, cross-country measures have been widely debated. Easterly and Levine (1997) use indices based on ethnolinguistic classification provided by

¹For a discussion of the political economy of borders, country size and heterogeneity of populations see Alesina and Spolaore (2002). Note however that ethnic conflict was a constant in African history even before colonization, as pointed out by Herbst (2000).

²See for example the general growth empirics exercises of Brock and Durlauf (2001), and Doppelhofer, Miller, and Sala-i-Martin (2000).

³A partial list of papers in this area include Alesina Baqir and Easterly (1999), Alesina and La Ferrara (2000), Alesina and La Ferrara (2002), Lutmer (1999), Rappaport (1999), Goldin and Katz (1999) and Costa and Khan (2002). Another line of research has explored the effects of ethnic diversity on civil wars, suggesting that fractionalization does not help predict the incidence of domestic violent conflict once poverty and income levels are controlled for (see Fearon and Lattin (2000)).

⁴See Galsier et al (2000).

sources from the former Soviet Union, the Atlas Narodov Mira of 1964. These data rely largely on linguistic distinctions, which may obscure other aspect of ethnicity like racial origin, skin color, etc. Interestingly, studies within the United States do not look at language in the racial classification. If they did, blacks and whites would be classified in the same language group. As we discuss below, this example shows that although useful, language is not the only way to look at ethnicity.⁵ In Latin America several countries are relatively homogeneous in terms of language spoken, often the one of former colonizers, but much less so if skin color or racial origin is taken into account. The World Bank estimates that the percentage of Afro-Latinos in Latin America is higher than the percentage of African-Americans in the United States. Peoples of indigenous or mestizo background also form a large percentage of the population in most Latin American countries.

The purpose of this paper is twofold. Firstly, and most importantly, we provide a new measure of ethnic fragmentation based on a boarder classification of group that does not take into account only language but also other cleavages. We provide this measure for many more countries (almost twice as many) than those normally used in the literature using different sources and we discuss in detail similarities and differences of our measure with pre-existing ones. We construct three new indices, one based on a broad measure of ethnicity, one based strictly on language and one based on religion.

Secondly, using our new measures we reexamine the evidence on the effects of ethnic fragmentation on two general areas: economic growth and the quality of institutions and policy. We reach interesting results:

a) On economic growth, we broadly confirm the results by Easterly and Levine (1997). In fact the negative effect of ethnic fragmentation on growth is reinforced with the new data, and we are able to highlight the differences between ethnic, linguistic and religious fractionalization.

b) On quality of government and policies we make some progress over La Porta et al. (1999). They argued that both legal origin, distance from the equator and ethnolinguistic fractionalization explain the quality of government. In their results, legal origin variables tend to be stronger than ethnolinguistic fractionalization. We argue that results on this point are sensitive to the specification, and one can easily produce reasonable specifications in which ethnic fragmentation “dominates” legal origin. We do not intend to

⁵Racial classification follows the census which divides American in five groups: White, Blacks, America Indians, Pacific islander, and Hispanics. As for ethnicity country of origin like Ireland, Italy, Japan etc. is also available.

argue that ethnic fractionalization “beats” legal origin, but more modestly that the pattern of correlation between independent variables makes it very hard to resolve this horse race. Most likely both set of variables are important, and we discuss carefully the patterns of cross-correlation between these variables and the potential channels linking fractionalization to government quality.

c) Ethnic fractionalization is also closely correlated with GDP per capita and geographic variables, like latitude. More ethnic fragmentation is more common in poorer countries which are closer to the equator. This complicate even more the task of apportioning precisely the weight of ethnic fragmentation to policy variables, the quality of government and growth. Thus the pattern of cross-correlations between explanatory variables cannot be ignored when drawing conclusions on these issues; as is well known, in many cases the results of cross-country regressions are sensitive to the econometric specification, and this case is no exception. Useful lessons can be learned from this sensitivity, however, as it may inform us as to the channels whereby fractionalization operated to depress growth or reduce the quality of government.

d) While ethnic and linguistic fractionalization are associated with negative outcomes in terms of quality of government, religious fractionalization is not; in fact, if anything, this measure displays a positive correlation with measures of good governance; this is because measured religious fractionalization tends to be higher in more tolerant and free societies, like the United States, which in fact displays on the of the highest level of religious fractionalization. This result has no bearing, however, on the question of whether certain religious denominations are correlated with better politico-economic outcomes, an issue recently explored by Barro and McLeary (2002).

The paper is organized as follows. In Section 2 we present our new index of ethnic fractionalization. In Section 3 we present evidence on the relationship between fractionalization and growth in a broad cross-section of countries. In Section 4 we examine how fractionalization relates to the quality of government and institutions. Section 5 discusses the impact of ethnic fractionalization on economic variables in individual countries. The last section concludes.

2 A New Measure of Ethnic Fractionalization⁶

2.1 Data sources and measurement issues

Our main goal in gathering data on fractionalization is to clearly distinguish between ethnic, religious and linguistic heterogeneity. Ethnic and linguistic differences were previously lumped together as part of an “ethnolinguistic” fractionalization variable. The data most frequently used in the literature was compiled in the Soviet Union in the early 1960s on the basis of primary country sources, and published in the Atlas Narodov Mira in 1964. The ethnolinguistic fractionalization variable (often referred to as ELF) was computed as one minus the Herfindahl index of ethnolinguistic group shares, and reflected the probability that two randomly selected individuals from a population belonged to different groups.⁷ We use the same formula, applied to different underlying data, to compute our measures of fractionalization:

$$FRACT_j = 1 - \sum_{i=1}^N s_{ij}^2$$

where s_{ij} is the share of group i ($i = 1 \dots N$) in country j .

A major obstacle to distinguishing between ethnic and linguistic variables is that language is part of the criterion used by ethnologists and anthropologists to define the concept of ethnicity. This is true, for example, in Africa, where racial or physical criteria are seldom used to define ethnic groups. This is not the case, however, in Latin America, where characteristics typically used to distinguish between ethnic groups are racial in nature. To our knowledge, no measures of racial fragmentation exist for a broad cross-section of countries, largely because the underlying data on group size is missing for most countries. Moreover, the gathering of such data would be fraught with conceptual problems, such as the definition of the physiological characteristics that distinguish races.

One feasible improvement over existing measures, however, is to compile a separate variable for *linguistic fractionalization* in isolation of any racial or physical characteristics. Our variable “language”, is based exclusively on data from Encyclopedia Britannica, 2001, which reports the shares of languages spoken as “mother tongues”, generally based on national census data.

⁶See <http://www.stanford.edu/~wacziarg/papersum.html> for our new dataset and documentation.

⁷For the purpose of cross-country regressions, ELF was used, among many others, in Mauro (1995), Canning and Fay (1993) and Easterly and Levine (1997).

Other possible sources for language data include the CIA World Factbook (which, however, only lists the shares of each language for a few countries) and the Ethnologue project, which lists approximately 6,800 languages.⁸ Fractionalization measures constructed from these sources are closely related, as they are based on very similar country source data.⁹ Our data includes 1055 major linguistic groups for 201 countries or dependencies.

We also compute a separate variable for *religious fractionalization* (“religion”), based on data from the Encyclopedia Britannica, 2001. The distinctions in this data are perhaps less controversial and subject to arbitrary definitions than the data on linguistic and ethnic fractionalization, since the boundaries of religions are more clear and definitions consistent across countries. Our data cover 294 different religions in 215 countries and dependencies.

Finally, the main variable we focus on is a measure of *ethnic fractionalization*, “ethnicity”. As suggested above, the definition of ethnicity involves a combination of racial and linguistic characteristics. For example, our data on Bolivia involves the following groups: Blancos (10.13%) , Aymara (30.38%), Quechua (30.38%), Mestizos (25.32%) and others groups (indigenous and Afro, 3.80%). This, like the data for most of the rest of Latin America and the Caribbean, is based on racial distinctions rather than linguistic distinctions. In fact, our language data for Bolivia looks very different: Aymara 3.24%, Guarani 0.12%, Quechua 8.15%, Spanish 87.65%, Other 0.84%.

In contrast, the ethnicity data for some European countries such as Belgium, Luxembourg and Switzerland largely reflects languages (for example, the “ethnicity” we have identified in Switzerland include: German 65%, French 18%, Italian 10%, other Swiss 6% and Romansch 1%). The same holds for much of Sub-Saharan Africa. These classifications reflect the judgment of ethnologists and anthropologists on the appropriate definition of ethnicity, which to our knowledge remains a rather vague and amorphous concept. It would be wrong to interpret our ethnicity variable as reflecting racial characteristics alone, but it does reflect these characteristics to a greater extent than our language variable, and it should thus be expected to bear a different relationship to economic variables.

An important goal of our collection of ethnicity data was to obtain data

⁸<http://www.ethnologue.com/>

⁹However, the Ethnologue data is much more disaggregated than the Encyclopedia Britannica data that we use, as relatively similar dialects are classified there as different languages

on various ethnic groups that was as disaggregated as we could find. This required the use of multiple sources of data, which we painstakingly checked against each other for consistency. The primary source was the Encyclopedia Britannica (2001), which was the source of our data in 124 of 190 countries. This was completed with data from the CIA (2000) for 25 countries, Levinson (1998) for 23 cases and Minority Rights Group International (1997) for 13 cases. For France, Israel, the United States and New Zealand, we directly consulted the national censuses of these countries to come up with ethnicity data as disaggregated as available. The rule we followed for data collection was as follows: if two or more sources for the index of ethnic fractionalization were identical to the third decimal point, we used these sources (this was generally recorded as data sourced from the Encyclopedia Britannica). If sources diverged in such a way that the index of fractionalization differed to the second decimal point, we used the source where reported ethnic groups covered the greatest share of the total population. If this was 100% in more than one sources, we used the source with the most disaggregated data (i.e. the greatest number of reported ethnic groups). In the end, our ethnicity variable covers approximately 650 distinct ethnic groups in 190 countries.

One last issue to contend with is that of changes in the ethnic fractionalization index through time, which also raises the issue of its endogeneity. This is important because our data is from recent sources (generally the early to mid-1990s). If there were major shifts in ethnic composition, using data from the end of our period to explain variables for the 1960-1995 period could lead to endogeneity bias.

Shifts in ethnic composition could stem from changes in the shares of each group or from changes in the definition of the various ethnic groups. Ethnic fractionalization indices are generally taken as exogenous in cross-country regressions, based on the fact that group shares are sufficiently stable that changes only have a minor impact on fractionalization measures. This seems a reasonable assumption at the 30 year horizon of the typical cross-country regression, even though this assumption may be less tenable for a much longer horizon. Think for instance of different fertility rates across ethnic groups. Another problem could occur if the definitions of ethnic groups changed through time, as a function of economic or political variables. The possibility of such changes in definitions has been pointed out by the “reflexive” school in ethnology and sociology. According to the reflexive theory of ethnicity and nationality, the boundaries of ethnic groups are changing because individual’s self-identification to groups can change as a result of social, economic or political forces, and ethnicity is there-

fore endogenous, especially at long horizons.¹⁰ One recent example of this phenomenon is Somalia: prior to the 1991 civil war, this country appeared relatively homogeneous (85% Somalis), but during and after the civil war “clans” became the dominant dimension of ethnic cleavage. In other words, a political event led to the creation of a new dimension of ethnic cleavage, and self-identification to groups now reflect preexisting clans rather than the Somali “ethnicity”.¹¹

In general, it does not matter for our purposes whether ethnic differences reflect physical attributes of groups (skin color, facial features) or long-lasting social conventions (language, marriage within the group, cultural norms) or simple social definition (self-identification, identification by outsiders). When people persistently identify with a particular group, they form potential interest groups that can be manipulated by political leaders, who often choose to mobilize some coalition of ethnic groups (“us”) to the exclusion of others (“them”). Politicians also sometimes can mobilize support by singling out some groups for persecution, where hatred of the minority group is complementary to some policy the politician wishes to pursue (Glaeser (2002)).

The bottom line is that while we recognize that ethnic fractionalization could to some extent be endogenous, and that the previous literature has probably underplayed this point, we do not believe this is a very serious problem at the horizon of 20 to 30 years which characterizes our cross-country work. While the example of Somalia is interesting, in our sample period such examples are rare and ethnic fractionalization displays tremendous time persistence. More serious is the problem of endogeneity of the religious fragmentation variable. Repressive regimes, especially those with a religious bend, may make it difficult for individuals to be “counted” as members of the non officially sanctioned religion. This phenomenon could introduce a spurious correlation between (lack of) political freedom and religious fragmentation.

¹⁰See Hammersley and Atkinson (1995) for a survey of these concepts. The reflexive school of thought, which seems to be associated with the postmodern tradition in sociology, is generally contrasted with the “primordialist” school, identified for example with Clifford Geertz (1973), which seems to be associated with evolutionist theories.

¹¹Mozzafar and Scarrit (1999) report data on ethnicity at three distinct levels of “self-reference” for Africa. We use their clan data for Somalia, since the rest of their dataset is sufficiently close to our other sources.

2.2 Comparison with existing measures

We now compare our measures of linguistic, ethnic and religious fractionalization with the index of ethnolinguistic fractionalization based on the Soviet data usually used in the literature. Firstly, Table 1 highlights that our indices are available for many more countries, between 180 and 198 compared to 112 of the Soviet index. Table 2 shows the pairwise correlations between these four indices, computed, obviously, on the intersection of our sample and the Soviet sample. The Soviet sample is, with very few exceptions, a subsample of our own. Not surprisingly, the correlation between our ethnic and linguistic index and the Soviet index are fairly high (0.76 and 0.88, respectively). Instead, the religious fractionalization index bears a much lower correlation with the other three indices.

Table 3 highlights differences across regions amongst the four indices. With the exception of East and South East Asia, our ethnic fractionalization index show more fractionalization than the Soviet index. Given the way it is constructed, this is not surprising. Particularly interesting is the case of Latin America, where our ethnic fractionalization index is on average much higher than ELF. This is because, in this region, many ethnically diverse group (as captured by skin color), often speak the same language as former European colonizers, Spanish, English or Portuguese. So a classification based purely on language shows a much lower degree of fractionalization. In fact our index that focuses only on language shows an average of .16 versus an average of .42 for the ethnicity index. The Soviet index is closer to our linguistic index. Note how Sub-Saharan Africa displays the highest index of fractionalization in every single column. Appendix 1 displays these figures country by country.

Restricting our attention to countries with more than one million inhabitants, according to our data the most ethnically diverse country in the world is Uganda, with a fractionalization index of 0.93. The 13 most ethnically diverse countries are all in Sub-Saharan Africa, followed by Yugoslavia and then 7 more Sub-Saharan African countries. The least ethnically fractionalized countries are South Korea, Japan and North Korea. Turning to linguistic fractionalization, the most diverse countries are again 18 Sub-Saharan African countries (note that the definition of ethnicity there largely overlaps with linguistic distinctions). They are followed by India, with a linguistic fractionalization index of 0.81. The least diverse countries are South Korea and North Korea, followed by Yemen. Finally, turning to religious fractionalization, the most diverse countries are South Africa, the United States

and Australia, and the least diverse Yemen, Somalia, Morocco, Turkey and Algeria.

3 Ethnic Fractionalization and Growth

In this section we revisit the question of the relationship between fractionalization and long-run growth. For the sake of comparison, we closely follow the specification of Easterly and Levine (1997). We begin in Table 4 by showing the correlation between several economic variables of interest and our three measures of fractionalization: ethnic, linguistic and religious. Our ethnic variable is highly negatively correlated with GDP per capita growth, schooling and telephones per capita. These correlations are slightly lower for the linguistic measure. The measure of religious fractionalization does not seem to bear any pattern of correlations with the above mentioned variables.

Table 5 is organized exactly in the same way as Easterly and Levine's (1997) Table 4. This table shows that our measure of ethnic fractionalization is inversely related to per capita growth, as shown in Column 1. The next three columns show that as one controls for more and more variables, the effect of fractionalization vanishes. The point is that variables such as schooling, telephones per worker, etc., can be understood as channels through which the ethnic fractionalization variable affects growth. Table 6 highlights this by reproducing Table 6 of Easterly and Levine (1997). It shows that ethnic fractionalization is strongly negatively correlated with schooling, financial depth, fiscal surplus, and the log of telephones per worker (these results are the same as in Easterly and Levine except for the fiscal surplus, where Easterly and Levine did not find a significant association). This negative effect of racial fractionalization on infrastructure and productive public goods will be discussed in more detail in the next section. Since ethnic fractionalization affects variables that in turn affect growth, there is a reduced form relationship between these variables and growth. The partial association between growth and fractionalization vanishes once we control for the intermediating variables.

In terms of economic magnitudes, the results in Table 5 suggest that going from complete ethnic homogeneity (an index of 0) to complete heterogeneity (an index of 1) depresses annual growth by 1.9 percentage points (column 1). In other words, up to 1.77 percentage points of the difference in annual growth between South Korea and Uganda can be explained by different degrees of ethnic fractionalization. This effect is reduced as we

control for variables that can be interpreted as channels through which ethnic fractionalization affects growth.

In Tables 7 and 9 we rerun the same regressions as in Table 5, but using religious fractionalization and linguistic fractionalization. While linguistic fractionalization is strongly inversely related to growth, religious fractionalization is not. In fact, as Table 4 already showed religious fractionalization does not seem to be correlated with any of the other right-hand side variable. Instead linguistic fractionalization is, especially with telephones per workers and schooling, a result which is confirmed in Tables 8 and 10 and in the next section. Overall our results are quite similar to those of Easterly and Levine (1997), perhaps even a little stronger when using our new measure of linguistic fractionalization.

The differences in the results between religious and linguistic and ethnic fractionalization are quite suggestive. Religious affiliation is the most endogenous of the three variables. Religions can be banned and individual can relatively easily “hide” their religious affiliation to avoid repression. Individuals and families can change from one religion to another far more easily than they can change race (!) or language. In a sense, a higher observed measure of religious fractionalization can be a sign of a more tolerant and democratic form of government. In a more repressive regime, you can hide your religion or conform to the state-imposed religion, but hiding your racial origin, especially if it relates to skin color, is much more difficult. Short of genocide, it is difficult to change the ethnic composition of a country. As early as 1830, Tocqueville had noted this problem with reference to slavery in America. He wrote that “there is a natural prejudice that prompts men to despise whoever has been their inferior long after he has become their equal... But amongst the ancients this secondary consequence of slavery had a natural limit; for the freedman bore so entire a resemblance to those born free that it soon became impossible to distinguish him from them”. In the United States, instead, skin color differences between blacks and whites makes assimilation more difficult. In other words, skin color becomes an important focal point to characterize lasting differences and perceptions, as also argued by Caselli and Coleman (2002).

4 The Quality of Government

One of the reasons why ethnic fractionalization may negatively influence economic success in terms of growth and level of income has to do with the potentially negative effects of ethnic conflict on the quality of policy and of institutions. In a sweeping empirical study La Porta et al. (1999) have investigated the determinants of the quality of government and of policy outcomes looking at a large number of indicators of policy. They concluded that a country's legal origins are an important determinant of these variables, while the ethnic fractionalization variable (the same as used by Easterly and Levine (1997)) bore a reduced form relationship with government quality. However, fractionalization was typically not significant after controlling for the level of GDP per capita (which however could be endogenous) and latitude.

Table 11 reports a matrix of correlation between all the variables used as potential explanation of the quality of government. Note that our measures of linguistic and ethnic fractionalization are highly correlated with latitude and GDP per capita. Therefore it is quite difficult to disentangle the independent effect of these three variables on the quality of government. While GDP per capita is very likely to be endogenous to the left-hand side variables, so that it is unclear whether one should control for it or not, the other two variables are less endogenous. Also, ethnic fractionalization and latitude are less obviously linked by causal relationships than the same two variables are with income. The correlation between latitude and ethnic fractionalization is quite high, about 0.4. This makes it hard to disentangle the effect of one variable from the other and the result in this type of cross-sectional regressions will depend on the specification. On a priori grounds, while one can think of several reasons why ethnic conflict may affect policy outcomes and institutions, the relationship between latitude and, say, the regulation of economic activity or the protection of property rights seems much less obvious.

The measure of religious fragmentation displays a much lower level of correlation with GDP per capita; in fact this correlation is basically zero. Our ethnic fractionalization variable displays a positive correlation (0.2) with the dummy variables for French legal origins, which according to La Porta et al. (1999) is associated with poor quality of government. This does not help in separating the effects of legal origins from those of fractionalization.

In Tables 12a-h we run a set of regressions along the lines of La Porta et al. (1999). These tables are organized as follows. Let us begin with Table

12a. For each left-hand side variable, we present three regressions. The first one reproduces exactly the full specification of La Porta et al. (1999), i.e. their specification which include the largest number of independent variables, that is legal origins, religious variables, latitude, etc. To these variables we have added our measure of ethnic fractionalization. Column 2 present a minimalist specification, which includes only country size and regional dummies. The third column adds to this specification income per capita and legal origins variables. For brevity we do not report another column including also the religious variables, but the results (available upon request) are similar to those of column 3. Note that the omitted legal origins variable is the British one. Tables 12b-h have the same structure, with different dependent variables. Tables 13a-h and 14a-h replicate these regressions with, respectively, the measures of linguistic and religious fractionalization. Several observations are in order.

1) Our index of ethnic fractionalization is significant in the “minimalist” regression, Column 2, for corruption, bureaucratic delays, infrastructure quality, infant mortality, illiteracy, and school attainment. It is significant or nearly significant in Column 3 that controls for GDP per capita for corruption, infant mortality, and illiteracy. The sign of the coefficient always implies that more fractionalization leads to a lower quality of government. This index is also negatively associated with the share of transfers over GDP, a result consistent with those obtained by Alesina, Glaeser and Sacerdote (2001) on a much smaller sample of countries, and by Alesina and Wacziarg (1998) on a large sample of countries but with different data on government spending.¹² It seems that governments have a much more difficult task achieving consensus for redistribution to the needy in a fractionalized society.

2) The democracy index is inversely related to ethnic fractionalization (when latitude is not controlled for). This result is consistent with theory and evidence presented in Aghion, Alesina and Trebbi (2002). The idea is that in more fragmented societies a group imposes restrictions on political liberty to impose control on the other groups. In more homogeneous societies, it is easier to rule more democratically since conflicts are less intense.¹³

¹²These papers questioned Rodrik’s view (1998) that the size of government is driven by openness in the economy, an issue that we do not explore here.

¹³These authors present additional evidence precisely on this point using the same data on ethnic fractionalization collected for the present paper. This is consistent with the fact that relatively homogeneous settler colonies like the US, Canada, New Zealand and Australia had an easier time establishing democracy after independence than the more ethnically diverse former colonies in Latin America and Africa.

3) Overall the index of linguistic fractionalization seems to work less well than the index based on ethnicity, in the sense of leading to coefficients that are less robust to changes of specification and more often statistically insignificant. The index of religious fractionalization bears a *positive* relationship to controlling corruption, preventing bureaucratic delays, tax compliance, transfers, infrastructure quality, lower infant mortality, lower illiteracy, school attainment, democracy, and political rights. Our interpretation is that observed religious fragmentation is larger in more tolerant and open countries. Note that this result holds regardless of whether the size of various religious denominations is held constant in the regressions or not.

4) The index of ethnic fractionalization loses statistical significance in many of the regressions with the full specification used by La Porta et al. (1999). This is because these regressions include latitude and, as we argued above, this variable is highly correlated with ethnic fractionalization. The ethnic fractionalization variable remains significant at standard levels even after controlling for latitude in the case of infant mortality, and the share of state-owned enterprises. In virtually all other cases the ethnic fractionalization variable retains the “expected” sign but it is not statistically different from zero at standard levels of confidence. This reflects the difficulty in disentangling the effects of latitude, per capita income (which again may not belong in the regression due to endogeneity), and fractionalization.

5) In many regressions neither latitude nor ethnic fractionalization are significant but they both tend to be when introduced alone. The table does not show the case in which latitude is entered without ethnic fractionalization, but these results are available upon request.

6) Not surprisingly, since we are using the same data, we confirm results in La Porta and al. (1999) on legal origins. French and Socialist legal origins seem to be negatively associated with measures of quality of government.

The bottom line is that the evaluation of the effect of ethnic fragmentation on quality of government depends on whether one believes that latitude belongs in the regression or not. If one believes that geography is the leading explanation of corruption, tax compliance, democracy, freedom etc. then one could find confirmation of these priors in these results. If, instead one believes that conflicts amongst groups brings about more difficult and inefficient policymaking and that ethnic fractionalization happens to be correlated with latitude (or constitutes a channel or explanation through which the latitude variable operates), then one can find support for this set of priors in our results as well.

5 Discussion of Individual Data Points

A cross-country statistical exercise is a crude way to summarize complex political and economic histories of countries and their constituent ethnic groups. A promising direction for future research would be for economists to do more case histories of development, economic policy, and government quality in ethnically diverse places, of the kind that the political science literature does.

In this sections we briefly examine some individual data points to illustrate salient ethnic divisions as well as the complex history that lies behind our cross-section associations. Nigeria has among the highest ethnic and linguistic diversity in the entire sample, and was also ranked as highly diverse by Easterly and Levine (1997). Maier (2000) makes clear it would be hard to find a better example of institutional and policy failure leading to underdevelopment. Nigeria has produced \$280 billion in oil revenues since the discovery of reserves in the late 1950s, but the average Nigerian is no further out of poverty today than 4 decades ago. Such egregious failures as the \$8 billion state-owned Ajaokuta steel complex, which has yet to produce a bar of steel, give a hint of the breakdown of state institutions. The standard account of Nigeria's ethnic conflict pits the Muslim North versus the Christian South, but this is a simplification. Firstly, the Christian South is divided between the Yoruba and Igbo. Secondly, there are substantial Southern minority groups living in Northern cities, a situation that has led to recurrent communal violence. Thirdly, fractious ethnic groups in the center of the country and in the oil-rich Niger delta keep small-scale conflict going even out of the limelight of the Hausa/Yoruba/Igbo three-way ethnic war. Table 15 shows that Nigeria has had disastrous economic policies (high black market premiums), poor infrastructure (virtually no telephone density) and high corruption.

Ethiopia also has very high ethnic and linguistic diversity (according to both new and old measures), and ethnic conflict has been at the center of Ethiopian history for centuries. Ethiopia has had one of the lowest growth rates in the world over the past half-century and as a result remains one of the least developed nations in the world. It has known various types of regimes, from monarchy to Marxist-Leninist to reformist, but growth has been mediocre to poor under all of them. Political/ethnic conflict and disastrous institutions have partly caused and certainly magnified the effects of major disasters such as famine, AIDS, civil war, and international war, and these disasters have absorbed a high share of the government's paltry

aid and tax revenues.

The current government is dominated by the Tigray Peoples's Liberation Front, representing an ethnic group making up only 6 percent of the population. The latter is alleged to own a large number of agricultural, industrial and financial businesses under the umbrella of the Endowment Fund for the Rehabilitation of Tigray.¹⁴ The current government is attempting to prevent ethnic conflicts by decentralizing power to ethnically defined regions, including the promotion of local languages. However, this strategy remains deeply controversial. At one extreme, some observers see it as a ploy by the Tigrayan ruling elite to divide the potential opposition along ethnic lines, as well as to undercut the national government bureaucracy. The rulers are alleged to have coopted participants from other ethnic groups rather than allowed representative organizations to emerge. There are also accusations of a second level of oppression, this time by the dominant majority group in each region oppressing the regional minorities (on some accounts, there are over 80 ethnic groups in Ethiopia, but only 9 regions). Some Ethiopians decry the threat to the unity and identity of the country and the "ethnization" of politics. Of course, ethnicization is far from new, given the long-standing Amhara dominance of the state, and its "colonialization" of other "nationalities". Some see the current government as simply substituting Tigray dominance for Amhara dominance (see Tronvoll (2000)).

More charitable observers see government policy as an honest attempt to address the ethnic divisions that have bedeviled Ethiopia for much of its history (today there continues to be an armed insurgency by the Oromo Liberation Front).¹⁵ These observers see the current government as responding to this history of domination by the Amhara by granting autonomy to the "nationalities."

Botswana is an interesting exception to the poor economic outcomes and low quality government in most of Africa. The table shows it had high growth, a low black market premium, a government surplus, and low corruption. While we do not mean to give a monocausal explanation for this success, it is notable that it has relatively low ethnic diversity for Africa. Acemoglu, Johnson, and Robinson (2001) describe how the Tswana tribes had a long history of cooperation amongst themselves before independence, as well as generally inclusive institutions since.

Ethiopia and Nigeria were already highly diverse relative to Botswana

¹⁴ Abegaz (2001), p. 207.

¹⁵ See Marcus 1994 on the complicated history of ethnic groups in Ethiopia.

in the old Easterly and Levine (1997) dataset. Even more interesting is the much higher degree of ethnic diversity in some Latin American and Caribbean countries according to our new ethnic fractionalization measure. Among the poorest, most institutionally underdeveloped, and most conflict-ridden societies in this region are Bolivia, Ecuador, and Guyana. All of these score lower on linguistic fractionalization (and hence did not show up as very ethnically diverse in Easterly and Levine (1997)) than on ethnic fractionalization, because of racial differences. A Latin American success story, Chile, continues to show up as relatively homogeneous.

To take Bolivia as an example, whites (about 10 percent of the population) dominated the governments of Bolivia with systematic exploitation of mestizos, Aymara, and Quechua peoples from colonial times to 1952 (Klein (1992)). Six percent of landowners owned 92 percent of the land in 1950. There were feudal anachronisms such as an obligation for Indian tenants to spend part of their time as unpaid servants in the landowner's household. A literacy requirement prevented the majority of the population from voting. The Indians successfully revolted in 1952, redistributed land towards the peasants, and abolished the more obvious exclusionary laws. However, whites continued to dominate politics and economics. Political instability remained endemic after 1952, with frequent military coups overthrowing democratic regimes. Democracy has been restored since 1982, but racial conflict continues. When one of the authors visited Bolivia in early 2002, Indian activists were blockading the main roads surrounding La Paz to articulate various grievances. A meeting of the leaders of the 1952 revolutionary party was conspicuous for its lack of Indian representation. Anecdotally, it appeared that racist sentiments towards the Indians still existed amongst the white elite. Bolivia still has poor growth, high corruption, poor social service delivery, and predatory police and judges.

Guyana shows up as ethnically diverse in our data because of its racial breakdown between Africans, East Indians, Europeans, and others. The Afro-Guyanese and Indo-Guyanese are the predominant groups and are almost numerically equal. Since they have mobilized politically along ethnic lines (supporting two different parties since before independence), any consensus for development has been torn apart by competition for rents between the two groups.¹⁶ As Table 15 shows, Guyana is rated as one of the most corrupt countries in the world, has followed distortionary economic policies, and has had very poor growth outcomes.

¹⁶See Library of Congress (1994).

Chile, in contrast, is a well known Latin American success story. It has pursued free market reforms since the 1970s under first military and later democratically elected governments. Although it did have political and economic gyrations under Allende in the early 1970s and then a debt crisis and severe political repression under Pinochet in the early 1980s, the last twenty years have shown a high degree of political and economic stability and sustained growth. By the 1980s, Chile had also achieved a high level of schooling and infrastructure (Table 15). There are certainly many causes explaining why reforms were made possible, in particular the authoritarian and repressive nature of the Pinochet regime, which made it easier to eliminate opposition to reform. After the period of repression a considerable amount of consensus emerged on policy. Many other developing countries experienced bloody coups, and did not evolve into peaceful and rapidly growing economies. The difference in Chile was probably due to its higher level of homogeneity. In fact, after Pinochet's departure from power the new democratic regime showed remarkable stability by Latin American standards. The relative ethnic homogeneity of the society may have made achieving support for reform and economic development easier than in Bolivia or Guyana.

6 Conclusion

The question of what makes different countries more or less successful economically and what explains their quality of policies is one of the most fascinating that economists can ask, but it is also one of the most difficult to answer. Different authors have their own "favorite" explanatory variables: from purely "economic" ones, to geographic ones, to legal ones, to political, cultural, religious and historical ones. In this paper we have considered closely one such set of variables: measures of ethnic, linguistic and religious fractionalization.

Dealing with this type of variables raises two problems. One is a measurement: how to measure ethnicity is a delicate and difficult matter. Secondly, the patterns of correlations between potential explanatory factors makes it difficult to unambiguously answer the question of why certain countries have better policies than others. In this paper we have made some progress on both fronts. Firstly, on the measurement issue we provided a new set of fractionalization variables for a much larger sample of countries than was available before, and we put much effort into solving classification issues using consistent criteria across countries. Secondly, using these new variables

we revisited empirical issues concerning the determinants of growth and of quality of policies and institutions. We concluded that ethnic and linguistic fractionalization variables, but not religious ones, are likely to be important determinants of economic success, both in terms of output (GDP growth), the quality of policies (such as the literacy rate, infant mortality etc.) and the quality of institutions (measured by the extent of corruption, political freedom, etc.). However, it is difficult to evaluate precisely the size of these effects because of the strong correlation of ethnolinguistic fractionalization variables with other potential explanatory variables, especially geographical ones. In the end one has to use theory and priors to evaluate our results.

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Appendix 1 – Fractionalization Data

| 1 | 2 | 3 | 4 | 5 | 6 |
|------------------------|-------------------------------|-----------------------------|--|----------------------------|----------------------------|
| Country | Source (Ethnicity Data) | Date (Ethnicity Data) | Ethnic | Language | Religion |
| | | | Source: see column 2. Date: see column 3. | Source: eb. Date: 2001. | Source: eb. Date: 2001. |
| Afghanistan | wdm | 1995 | 0.7693 | 0.6141 | 0.2717 |
| Albania | wdm | 1989 | 0.2204 | 0.0399 | 0.4719 |
| Algeria | eb | 1992 | 0.3394 | 0.4427 | 0.0091 |
| American Samoa | . | . | . | 0.1733 | 0.6395 |
| Andorra | eb | 1997 | 0.7139 | 0.6848 | 0.2326 |
| Angola | eb | 1983 | 0.7867 | 0.7870 | 0.6276 |
| Antigua and Barbuda | eb | 1994 | 0.1643 | 0.1063 | 0.6840 |
| Argentina | eb | 1986 | 0.2550 | 0.0618 | 0.2236 |
| Armenia | eb | 1989 | 0.1272 | 0.1291 | 0.4576 |
| Aruba | . | . | . | 0.3889 | 0.4107 |
| Australia | eb | 1986 | 0.0929 | 0.3349 | 0.8211 |
| Austria | lev | 1998 | 0.1068 | 0.1522 | 0.4146 |
| Azerbaijan | eb | 1995 | 0.2047 | 0.2054 | 0.4899 |
| Bahamas | lev | 1989 | 0.4228 | 0.1855 | 0.6815 |
| Bahrain | eb | 1991 | 0.5021 | 0.4344 | 0.5528 |
| Bangladesh | eb | 1997 | 0.0454 | 0.0925 | 0.2090 |
| Barbados | eb | 1990 | 0.1423 | 0.0926 | 0.6934 |
| Belarus | cia | 2001 | 0.3222 | 0.4666 | 0.6116 |
| Belgium | cia | 2001 | 0.5554 | 0.5409 | 0.2127 |
| Belize | eb | 1991 | 0.7015 | 0.6303 | 0.5813 |
| Benin | eb | 1992 | 0.7872 | 0.7905 | 0.5544 |
| Bermuda | . | . | . | . | 0.7112 |
| Bhutan | eb | 1993 | 0.6050 | 0.6056 | 0.3787 |
| Bolivia | lev | 1998 | 0.7396 | 0.2240 | 0.2085 |
| Bosnia and Herzegovina | eb | 1991 | 0.6300 | 0.6751 | 0.6851 |
| Botswana | eb | 1983 | 0.4102 | 0.4110 | 0.5986 |
| Brazil | eb | 1995 | 0.5408 | 0.0468 | 0.6054 |
| Brunei | wdm | 1995 | 0.5416 | 0.3438 | 0.4404 |
| Bulgaria | wdm | 1992 | 0.4021 | 0.3031 | 0.5965 |
| Burkina Faso | eb | 1983 | 0.7377 | 0.7228 | 0.5798 |
| Burundi | eb | 1983 | 0.2951 | 0.2977 | 0.5158 |
| Cambodia | eb | 1994 | 0.2105 | 0.2104 | 0.0965 |
| Cameroon | eb | 1983 | 0.8635 | 0.8898 | 0.7338 |

| 1 | 2 | 3 | 4 | 5 | 6 |
|--------------------------|-------------------------------|-----------------------------|--------|----------|----------|
| Country | Source (Ethnicity Data) | Date (Ethnicity Data) | Ethnic | Language | Religion |
| Canada | eb | 1991 | 0.7124 | 0.5772 | 0.6958 |
| Cape Verde | eb | 1986 | 0.4174 | . | 0.0766 |
| Central African Republic | eb | 1988 | 0.8295 | 0.8334 | 0.7916 |
| Chad | eb | 1993 | 0.8620 | 0.8635 | 0.6411 |
| Chile | eb | 1992 | 0.1861 | 0.1871 | 0.3841 |
| China | eb | 1990 | 0.1538 | 0.1327 | 0.6643 |
| Colombia | eb | 1985 | 0.6014 | 0.0193 | 0.1478 |
| Comoros | eb | 1995 | 0.0000 | 0.0103 | 0.0137 |
| Congo, Dem. Rep. (Zaire) | eb | 1983 | 0.8747 | 0.8705 | 0.7021 |
| Congo | eb | 1983 | 0.8747 | 0.6871 | 0.6642 |
| Costa Rica | eb | 1993 | 0.2368 | 0.0489 | 0.2410 |
| Cote d'Ivoire | lev | 1998 | 0.8204 | 0.7842 | 0.7551 |
| Croatia | eb | 1991 | 0.3690 | 0.0763 | 0.4447 |
| Cuba | eb | 1994 | 0.5908 | . | 0.5059 |
| Cyprus | eb | 1992 | 0.0939 | 0.3962 | 0.3962 |
| Czech Republic | eb | 1991 | 0.3222 | 0.3233 | 0.6591 |
| Denmark | eb | 1996 | 0.0819 | 0.1049 | 0.2333 |
| Djibouti | eb | 1983 | 0.7962 | 0.6558 | 0.0435 |
| Dominica | eb | 1991 | 0.2003 | . | 0.4628 |
| Dominican Republic | eb | 1993 | 0.4294 | 0.0395 | 0.3118 |
| East Timor | . | . | . | 0.5261 | 0.4254 |
| Ecuador | eb | 1989 | 0.6550 | 0.1308 | 0.1417 |
| Egypt | lev | 1998 | 0.1836 | 0.0237 | 0.1979 |
| El Salvador | eb | 1993 | 0.1978 | . | 0.3559 |
| Equatorial Guinea | lev | 1998 | 0.3467 | 0.3220 | 0.1195 |
| Eritrea | lev | 1998 | 0.6524 | 0.6530 | 0.4253 |
| Estonia | eb | 1994 | 0.5062 | 0.4944 | 0.4985 |
| Ethiopia | eb | 1983 | 0.7235 | 0.8073 | 0.6249 |
| Faroe Islands | . | . | . | . | 0.3147 |
| Fiji | eb | 1996 | 0.5479 | 0.5479 | 0.5682 |
| Finland | cia | 2001 | 0.1315 | 0.1412 | 0.2531 |
| France | census | 1999 | 0.1032 | 0.1221 | 0.4029 |
| French Guiana | . | . | . | 0.1154 | 0.4959 |
| French Polynesia | . | . | . | 0.6078 | 0.5813 |
| Gabon | eb | 1983 | 0.7690 | 0.7821 | 0.6674 |
| Gambia, The | eb | 1993 | 0.7864 | 0.8076 | 0.0970 |
| Gaza Strip | . | . | . | 0.0104 | 0.0342 |
| Georgia | eb | 1989 | 0.4923 | 0.4749 | 0.6543 |

| 1 | 2 | 3 | 4 | 5 | 6 |
|----------------------|--|--------------------------------------|---------------|-----------------|-----------------|
| Country | Source (Ethnicity Data) | Date (Ethnicity Data) | Ethnic | Language | Religion |
| Germany | eb | 1997 | 0.1682 | 0.1642 | 0.6571 |
| Ghana | eb | 1983 | 0.6733 | 0.6731 | 0.7987 |
| Greece | lev | 1998 | 0.1576 | 0.0300 | 0.1530 |
| Greenland | . | . | . | 0.2188 | 0.4592 |
| Grenada | eb | 1991 | 0.2661 | . | 0.5898 |
| Guadeloupe | . | . | . | 0.0933 | 0.3069 |
| Guam | . | . | . | 0.7320 | 0.4082 |
| Guatemala | cia | 2001 | 0.5122 | 0.4586 | 0.3753 |
| Guinea | eb | 1990 | 0.7389 | 0.7725 | 0.2649 |
| Guinea-Bissau | eb | 1979 | 0.8082 | 0.8141 | 0.6128 |
| Guyana | eb | 1993 | 0.6195 | 0.0688 | 0.7876 |
| Haiti | eb | 1993 | 0.0950 | . | 0.4704 |
| Honduras | eb | 1987 | 0.1867 | 0.0553 | 0.2357 |
| Hong Kong | wdm | 1994 | 0.0620 | 0.2128 | 0.4191 |
| Hungary | eb | 1993 | 0.1522 | 0.0297 | 0.5244 |
| Iceland | eb | 1995 | 0.0798 | 0.0820 | 0.1913 |
| India | eb | 2000 | 0.4182 | 0.8069 | 0.3260 |
| Indonesia | eb | 1990 | 0.7351 | 0.7680 | 0.2340 |
| Iran | eb | 1995 | 0.6684 | 0.7462 | 0.1152 |
| Iraq | eb | 1983 | 0.3689 | 0.3694 | 0.4844 |
| Ireland | eb | 1995 | 0.1206 | 0.0312 | 0.1550 |
| Isle of Man | . | . | . | . | 0.4729 |
| Israel | census | 1995 | 0.3436 | 0.5525 | 0.3469 |
| Italy | eb | 1983 | 0.1145 | 0.1147 | 0.3027 |
| Jamaica | eb | 1982 | 0.4129 | 0.1098 | 0.6160 |
| Japan | cia | 1999 | 0.0119 | 0.0178 | 0.5406 |
| Jersey | . | . | . | . | 0.5479 |
| Jordan | wdm | 1993 | 0.5926 | 0.0396 | 0.0659 |
| Kazakhstan | cia | 1999 | 0.6171 | 0.6621 | 0.5898 |
| Kenya | cia | 2001 | 0.8588 | 0.8860 | 0.7765 |
| Kiribati | eb | 1990 | 0.0511 | 0.0237 | 0.5541 |
| Korea, North | eb | 1995 | 0.0392 | 0.0028 | 0.4891 |
| Korea, South | eb | 1990 | 0.0020 | 0.0021 | 0.6604 |
| Kyrgyzstan | cia | 2001 | 0.6752 | 0.5949 | 0.4470 |
| Kuwait | cia | 2001 | 0.6604 | 0.3444 | 0.6745 |
| Lao People's Dem Rep | eb | 1983 | 0.5139 | 0.6382 | 0.5453 |
| Latvia | eb | 1996 | 0.5867 | 0.5795 | 0.5556 |
| Lebanon | eb | 1996 | 0.1314 | 0.1312 | 0.7886 |

| 1 | 2 | 3 | 4 | 5 | 6 |
|--------------------------------|-------------------------------|-----------------------------|--------|----------|----------|
| Country | Source (Ethnicity Data) | Date (Ethnicity Data) | Ethnic | Language | Religion |
| Lesotho | eb | 1986 | 0.2550 | 0.2543 | 0.7211 |
| Liberia | wdm | 1992 | 0.9084 | 0.9038 | 0.4883 |
| Libya | eb | 1995 | 0.7920 | 0.0758 | 0.0570 |
| Liechtenstein | eb | 1997 | 0.5726 | 0.2246 | 0.3343 |
| Lithuania | eb | 1996 | 0.3223 | 0.3219 | 0.4141 |
| Luxembourg | eb | 1996 | 0.5302 | 0.6440 | 0.0911 |
| Macau | . | . | . | 0.2519 | 0.5511 |
| Macedonia (Former Yug. Rep) | eb | 1994 | 0.5023 | 0.5021 | 0.5899 |
| Madagascar | lev | 1985 | 0.8791 | 0.0204 | 0.5191 |
| Malawi | lev | 1998 | 0.6744 | 0.6023 | 0.8192 |
| Malaysia | eb | 1996 | 0.5880 | 0.5970 | 0.6657 |
| Mali | cia | 1996 | 0.6906 | 0.8388 | 0.1820 |
| Malta | lev | 1996 | 0.0414 | 0.0907 | 0.1223 |
| Marshall Islands | eb | 1988 | 0.0603 | 0.0734 | 0.5207 |
| Martinique | . | . | . | . | 0.2336 |
| Mauritania | wdm | 1992 | 0.6150 | 0.3260 | 0.0149 |
| Mauritius | eb | 1992 | 0.4634 | 0.4547 | 0.6385 |
| Mayotte | . | . | . | 0.7212 | 0.0620 |
| Mexico | eb | 1990 | 0.5418 | 0.1511 | 0.1796 |
| Micronesia | eb | 1994 | 0.7005 | 0.7483 | 0.6469 |
| Moldova | eb | 1989 | 0.5535 | 0.5533 | 0.5603 |
| Monaco | cia | 2001 | 0.6838 | 0.7305 | 0.3047 |
| Mongolia | eb | 1989 | 0.3682 | 0.3734 | 0.0799 |
| Morocco | wdm | 1994 | 0.4841 | 0.4683 | 0.0035 |
| Mozambique | eb | 1983 | 0.6932 | 0.8125 | 0.6759 |
| Myanmar (Burma) | eb | 1983 | 0.5062 | 0.5072 | 0.1974 |
| Namibia | wdm | 1995 | 0.6329 | 0.7005 | 0.6626 |
| Nauru | cia | 1995 | 0.5832 | 0.6161 | 0.6194 |
| Nepal | eb | 1991 | 0.6632 | 0.7167 | 0.1417 |
| Netherlands Antilles | . | . | . | 0.2508 | 0.3866 |
| Netherlands | lev | 1995 | 0.1054 | 0.5143 | 0.7222 |
| New Caledonia | . | . | . | 0.6633 | 0.5462 |
| New Zealand | census | 1996 | 0.3969 | 0.1657 | 0.8110 |
| Nicaragua | eb | 1991 | 0.4844 | 0.0473 | 0.4290 |
| Niger | eb | 1988 | 0.6518 | 0.6519 | 0.2013 |
| Nigeria | eb | 1983 | 0.8505 | 0.8316 | 0.7421 |
| Northern Mariana Islands | . | . | . | 0.7754 | 0.4811 |

| 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------------------------|-------------------------------|-----------------------------|--------|----------|----------|
| Country | Source (Ethnicity Data) | Date (Ethnicity Data) | Ethnic | Language | Religion |
| Norway | lev | 1998 | 0.0586 | 0.0673 | 0.2048 |
| Oman | eb | 1993 | 0.4373 | 0.3567 | 0.4322 |
| Pakistan | wdm | 1995 | 0.7098 | 0.7190 | 0.3848 |
| Palau | cia | 2000 | 0.4312 | 0.3157 | 0.7147 |
| Panama | eb | 1992 | 0.5528 | 0.3873 | 0.3338 |
| Papua New Guinea | eb | 1993 | 0.2718 | 0.3526 | 0.5523 |
| Paraguay | lev | 1998 | 0.1689 | 0.5975 | 0.2123 |
| Peru | eb | 1981 | 0.6566 | 0.3358 | 0.1988 |
| Philippines | lev | 1998 | 0.2385 | 0.8360 | 0.3056 |
| Poland | lev | 1998 | 0.1183 | 0.0468 | 0.1712 |
| Portugal | lev | 1998 | 0.0468 | 0.0198 | 0.1438 |
| Puerto Rico | . | . | . | 0.0352 | 0.4952 |
| Qatar | cia | 2001 | 0.7456 | 0.4800 | 0.0950 |
| Reunion | . | . | . | 0.1578 | 0.1952 |
| Romania | lev | 1998 | 0.3069 | 0.1723 | 0.2373 |
| Russian Federation | eb | 1997 | 0.2452 | 0.2485 | 0.4398 |
| Rwanda | eb | 1996 | 0.3238 | . | 0.5066 |
| Saint Lucia | eb | 1990 | 0.1769 | 0.3169 | 0.3320 |
| Saint Vincent and Grenadines | eb | 1995 | 0.3066 | 0.0175 | 0.7028 |
| Western Samoa | eb | 1995 | 0.1376 | 0.0111 | 0.7871 |
| San Marino | eb | 1997 | 0.2927 | . | 0.1975 |
| Sao Tome and Principe | . | . | . | 0.2322 | 0.1866 |
| Saudi Arabia | eb | 1995 | 0.1800 | 0.0949 | 0.1270 |
| Senegal | eb | 1988 | 0.6939 | 0.7081 | 0.1497 |
| Serbia/Montenegro (Yugoslavia) | eb | 1991 | 0.5736 | . | . |
| Seychelles | eb | 1983 | 0.2025 | 0.1606 | 0.2323 |
| Sierra Leone | wdm | 1993 | 0.8191 | 0.7634 | 0.5395 |
| Singapore | cia | 2001 | 0.3857 | 0.3835 | 0.6561 |
| Slovak Republic | eb | 1996 | 0.2539 | 0.2551 | 0.5655 |
| Slovenia | cia | 1991 | 0.2216 | 0.2201 | 0.2868 |
| Solomon Islands | eb | 1986 | 0.1110 | 0.5254 | 0.6708 |
| Somalia | sm | 1999 | 0.8117 | 0.0326 | 0.0028 |
| South Africa | lev | 1998 | 0.7517 | 0.8652 | 0.8603 |
| Spain | eb | 1991 | 0.4165 | 0.4132 | 0.4514 |
| Sri Lanka | cia | 2001 | 0.4150 | 0.4645 | 0.4853 |
| St Kitts & Nevis | lev | 1998 | 0.1842 | . | 0.6614 |
| Sudan | eb | 1983 | 0.7147 | 0.7190 | 0.4307 |

| 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------------|-------------------------------|-----------------------------|--------|----------|----------|
| Country | Source (Ethnicity Data) | Date (Ethnicity Data) | Ethnic | Language | Religion |
| Suriname | cia | 2001 | 0.7332 | 0.3310 | 0.7910 |
| Swaziland | cia | 2001 | 0.0582 | 0.1722 | 0.4444 |
| Sweden | lev | 1998 | 0.0600 | 0.1968 | 0.2342 |
| Switzerland | cia | 2001 | 0.5314 | 0.5441 | 0.6083 |
| Syria | wdm | 1993 | 0.5399 | 0.1817 | 0.4310 |
| Taiwan | cia | 2001 | 0.2744 | 0.5028 | 0.6845 |
| Tajikistan | cia | 2001 | 0.5107 | 0.5473 | 0.3386 |
| Tanzania | eb | 1995 | 0.7353 | 0.8983 | 0.6334 |
| Thailand | eb | 1983 | 0.6338 | 0.6344 | 0.0994 |
| Togo | eb | 1995 | 0.7099 | 0.8980 | 0.6596 |
| Tonga | eb | 1995 | 0.0869 | 0.3782 | 0.6214 |
| Trinidad and Tobago | cia | 2001 | 0.6475 | 0.1251 | 0.7936 |
| Tunisia | cia | 2001 | 0.0394 | 0.0124 | 0.0104 |
| Turkey | cia | 2001 | 0.3200 | 0.2216 | 0.0049 |
| Turkmenistan | eb | 1997 | 0.3918 | 0.3984 | 0.2327 |
| Tuvalu | eb | 1979 | 0.1629 | 0.1372 | 0.2524 |
| Uganda | eb | 1983 | 0.9302 | 0.9227 | 0.6332 |
| Ukraine | eb | 1998 | 0.4737 | 0.4741 | 0.6157 |
| United Arab Emirates | eb | 1993 | 0.6252 | 0.4874 | 0.3310 |
| United Kingdom | eb | 1994 | 0.1211 | 0.0532 | 0.6944 |
| United States | census | 2000 | 0.4901 | 0.5647 | 0.8241 |
| Uruguay | eb | 1990 | 0.2504 | 0.0817 | 0.3548 |
| Uzbekistan | eb | 1995 | 0.4125 | 0.4120 | 0.2133 |
| Vanuatu | eb | 1989 | 0.0413 | 0.5794 | 0.7044 |
| Venezuela | eb | 1993 | 0.4966 | 0.0686 | 0.1350 |
| Vietnam | eb | 1995 | 0.2383 | 0.2377 | 0.5080 |
| Virgin Islands (U.S.) | . | . | . | 0.3140 | 0.6359 |
| West Bank | . | . | . | 0.1438 | 0.3095 |
| Yemen | . | . | . | 0.0080 | 0.0023 |
| Yugoslavia (pre 1991) | eb | 1995 | 0.8092 | 0.6064 | 0.5530 |
| Zambia | lev | 1998 | 0.7808 | 0.8734 | 0.7359 |
| Zimbabwe | lev | 1998 | 0.3874 | 0.4472 | 0.7363 |

Source Key: eb=Encyclopedia Brit, cia=CIA, sm=Scarrit and Mozaffar
lev=Levinson, wdm=World Directory of Minorities, census=national census data

Appendix 2 – Description of Data from Easterly and Levine, 1997

| | |
|--|--|
| Growth of Per Capita Real GDP | Growth rate of real per capita GDP, World Bank { various years } |
| Dummy for the 1960s, 1970s, 1980s | Dummy variable for 1960s, 1970s, 1980s |
| Dummy variable for Sub-Saharan Africa | Dummy variable for Sub-Saharan African countries. World Bank. |
| Dummy variable for Latin America and the Caribbean | Dummy variable for Latin America and the Caribbean |
| Log of initial income | Log of initial income: log of real per capita GDP measured at the start of each decade (1960, 1970, 1980). Summers and Heston {1988} |
| Log of initial income squared | Log of initial income squared: log of initial real per capita GDP squared. Summers and Heston {1988} |
| Log of schooling | Log of schooling: log of 1+average years of school attainment, beginning of each decade (1960, 1970, and 1980). Barro and Lee {1993} |
| Assassinations | Assassinations: number of assassinations per thousand population, decade average. Banks {1994} |
| Financial depth | Financial depth: ratio of liquid liabilities of the financial system to GDP, decade average. Liquid liabilities consist of currency held outside the banking system 1 demand and interest-bearing liabilities of banks and nonbank financial intermediaries. King and Levine {1993b} |
| Black market premium | Black market premium: log of 1+black market premium, decade average. World Bank {1991} and Pick's Currency Yearbook {various years} |
| Fiscal surplus/GDP | Fiscal surplus/GDP: decade average of ratio of central government surplus to GDP, both in local currency, current prices. IMF {various years} <i>International Financial Statistics</i> (line 80), and IMF {various years} <i>Government Finance Statistics</i> (line L80) |
| Log of telephones per worker | Log of telephones per worker: log of telephones per 1000 workers. Canning and Fay {1993} |
| ELF | index of ethnolinguistic fractionalization, 1960. Measures probability that two randomly selected people from a given country will not belong to the same ethnolinguistic group. <i>Atlas Narodov Mira</i> {1964} |

Source: This table was extracted from Easterly and Levine (1997)

Appendix 2 (continued) – Description for the Data from La Porta et al., 1999

Table 1. Description of the Variables

| Variable Name | Description and Source | Number of Observations |
|--|---|------------------------|
| <i>Interference with the private sector:</i> | | |
| Property rights index | A rating of property rights in each country (on a scale of 1 to 5). The more protection private property receives, the higher the score. The score is based, broadly, on the degree of legal protection of private property, the extent to which the government protects and enforces laws that protect private property, the probability that the government will expropriate private property, and the country's legal protection to private property. Source: <i>Holmes, Johnson, and Kirkpatrick, 1997.</i> | 149 |
| Business Regulation index | A rating of regulation policies related to opening a business and keeping open a business (on a scale of 1 to 5). Higher score means that regulations are straight-forward and applied uniformly to all businesses and that regulations are less of a burden to business. Source: <i>Holmes, Johnson and Kirkpatrick, 1997.</i> | 149 |
| Top tax rate | Top marginal tax rate for each country in 1994. Source: <i>Gwartney, Lawson, and Block, 1996.</i> | 82 |
| <i>Efficiency:</i> | | |
| Corruption | Corruption in government index. Low ratings indicate "high government officials are likely to demand special payments" and "illegal payments are generally expected thought lower levels of government" in the form of "bribes connected with import and export licenses, exchange controls, tax assessment, policy protection, or loans." Scale from 0 to 10. Average of the months of April and October in the monthly index between 1982 and 1995. Source: <i>Political Risk Services, various years.</i> | 126 |
| Bureaucratic delays | An indicator of bureaucratic delays (red tape). Low ratings indicate lower levels of red tape in the bureaucracy of the country. Scale from 0 to 10. The index is published three times per year. The data is the average of the years between 1972 and 1995. Source: <i>Business Environmental Risk Intelligence's (BERI) Operation Risk Index.</i> | 60 |
| Tax Compliance | Assessment of the level of tax compliance. Scale from 0 to 6, where higher scores indicate higher compliance. Data is for 1995. Source: <i>World Economic Forum, 1996.</i> | 49 |

Continued

Table 1. Continued

| | | |
|--------------------------------------|--|-----|
| Avg. government wages/GDP per capita | The ratio of average wages of central government to per capita GSP in each country. Certain non-wage benefits are not included in the estimate of the average central government wage. Source: <i>Schiavo-Campo, de Tommaso and Mukherjee, 1997.</i> | 63 |
| <i>Output of public goods:</i> | | |
| Log of infant mortality | Logarithm of the number of deaths of infants under one year of age per one thousand live births for the years 1970-1995. Source: <i>World Bank, World Development Indicators 1997 (WDI).</i> | 196 |
| Log of school attainment | Log of schooling taken over five year periods (1960-65, 1970-75, and 1980-85). Each value is obtained as the logarithm of (1 + average years of school attainment during the respective period). Source: <i>Barro and Lee, 1994.</i> | 106 |
| Illiteracy rate | Average of adult illiteracy rate for the years 1990-1995. Adult illiteracy rate is the proportion of adults aged 15 and above who cannot, with understanding, read and write a short, simple statement of their everyday life. 1990-1995. Scale 0 to 100. Source: <i>WDI.</i> | 128 |
| Infrastructure quality | Assessment of the “facilities for and ease of communications between headquarters and the operation, and within the country,” as well as the quality of the transportation. Average data for the years 1972 to 1995. Scale from 0 to 10 with higher scores for superior quality. Source: <i>BERI’s Operation Risk Index.</i> | 60 |
| <i>Size of public sector:</i> | | |
| Transfers and subsidies/GDP | Total government transfers and subsidies as a percentage of GDP (scale from 0 to 100). Average for the years 1975-1995. Source: <i>Gwartney, Lawson, and Block, 1996 (with data from the World Bank and International Monetary Fund).</i> | 90 |

Continued

Table 1. Continued

| | | |
|--|--|-----|
| Government consumption/GDP | Government consumption expenditures as a percentage of GDP (scale from 0 to 100). Average for the years 1975-1995. Government consumption expenditures “include all spending on goods and services purchased by the government—things like national defense, road maintenance, wages and salaries, office space, and government-owned vehicles. Since it is obtained from the national income accounts, it includes all levels of government spending. It does not include direct transfers and subsidies, since these do not enter into the national income accounts.” Source: <i>Gwartney, Lawson, and Block, 1996 (with data from the World Bank and International Monetary Fund)</i> . | 104 |
| SOEs in the economy | Index of State-Owned Enterprises as a share of the economy (scale from 0 to 10). Higher scores include countries with less government-owned enterprises which are estimated to produce less of the country’s output. As the estimated size and breadth of the SOE sector increases, countries are assigned lower ratings. Average of the score for the years 1975-1995. Source: <i>Gwartney, Lawson and Block, 1996</i> . | 104 |
| Public sector employment/total population | Average of the ratio of public sector employment in general government to total population for the years 1976-1996. General government employment includes employment in “all government department offices, organizations and other bodies which are agencies or instruments of the central or local authorities whether accounted for or financed in, ordinary or extraordinary budgets or extra-budgetary funds. They are not solely engaged in administration but also in defense and public order, in the promotion of economic growth and in the provision of education, health and cultural and social services.” Source: <i>Schiavo-Campo, de Tommaso, and Mukherjee, 1997</i> . | 124 |
| <i>Political Freedom:</i> Democracy index | Average of democracy score for the period 1970-1994. Scale from 0 to 10, with lower values indicating a less democratic environment. Source: <i>Jagers and Gurr, 1996</i> . | 161 |
| Political rights index | Index of political rights. Higher ratings indicate countries that come closer “to the ideals suggested by the checklist questions of: (1) free and fair elections; (2) those elected rule; (3) there are competitive parties or other competitive political groupings; (4) the opposition has an important role and power; and (5) the entities have self-determination or an extremely high degree of autonomy.” Source: <i>Freedom House, 1996</i> . | 209 |

Table 1. Continued

| <i>Determinants:</i> | | |
|-----------------------------------|---|-----|
| Ethnolinguistic fractionalization | Average value of five different indices of ethnolinguistic fractionalization. Its value ranges from 0 to 1. The five component indices are: (1) index of ethnolinguistic fractionalization in 1960, which measures the probability that two randomly selected people from a given country will not belong to the same ethnolinguistic group (the index is based on the number and size of population groups as distinguished by their ethnic and linguistic status); (2) probability of two randomly selected individuals speaking different languages; (3) probability of two randomly selected individuals do not speak the same language; (4) percent of the population not speaking the official language; and (5) percent of the population not speaking the most widely used language. Sources: <i>Easterly and Levine, 1997</i> . The sources of the components of the average index are (1) <i>Atlas Narodov Mira, 1964</i> ; (2) <i>Muller, 1964</i> ; (3) <i>Roberts, 1962</i> ; (4) and (5) <i>Gunnemark, 1991</i> . | 161 |
| Legal origin | Identifies the legal origin of the Company law or Commercial Code of each country. There are five possible origins: (1) English Common Law; (2) French Commercial Code; (3) German Commercial Code; (4) Scandinavian Commercial Code; and (5) Socialist/Communist laws. Source: <i>La Porta et al., 1998, extended using "Foreign Laws: Current Sources of Basic Legislation in Jurisdictions of the World," 1989; and CIA World Factbook 1996</i> . | 212 |
| Religion | Identifies the percentage of the population of each country that belonged to the three most widely spread religions in the world in 1980. For countries of recent formation, the data is available for 1990-1995. The numbers are in percent (scale from 0 to 100). The three religions identified here are: (1) Roman Catholic; (2) Protestant; and (3) Muslim. The residual is called "other religions". Sources: <i>Barrett, 1982, Worldmark Encyclopedia of Nations 1995, Statistical Abstract of the World 1995, United Nations, 1995, CIA 1996</i> . | 209 |
| <i>Economic Development:</i> | | |
| Latitude | The absolute value of the latitude of the country, scaled to take values between 0 and 1. Source: <i>CIA 1996</i> . | 209 |
| Log GNP per capita | Logarithm of GNP per capita expressed in current U.S. dollars for the period 1970-1995. Source: <i>WDI</i> . | 186 |

Source: This table was extracted from La Porta et al, 1999.

Table 1 – Sample Means of the Fractionalization Measures

| Variable | # of Observations | Sample Mean |
|-----------------|--------------------------|--------------------|
| Religion | 198 | 0.439 |
| Ethnic | 180 | 0.435 |
| Language | 185 | 0.385 |
| ELF | 112 | 0.418 |

Table 2 - Pairwise Correlations of the Fractionalization Measures

| | Religion | Ethnic | Language | ELF |
|----------|-----------------|----------------|-----------------|------------|
| Religion | 1 (198) | | | |
| Ethnic | 0.142 (180) | 1 (180) | | |
| Language | 0.269 (185) | 0.697 (171) | 1 (185) | |
| ELF | 0.372 (111) | 0.759 (110) | 0.878 (108) | 1 (112) |

Number of observations in parentheses

Table 3 – Sample Means by Region

| | Sample restricted to countries available in Soviet Data | | | | Unrestricted Sample | | |
|-----------------------------|--|---------------|-----------------|-----------------|----------------------------|-----------------|-----------------|
| | ELF | ethnic | language | religion | ethnic | language | religion |
| Latin America and Carribean | 0.265 (23) | 0.418 (23) | 0.159 (21) | 0.367 (23) | 0.405 (33) | 0.179 (32) | 0.442 (40) |
| Subsaharan Africa | 0.651 (38) | 0.711 (38) | 0.689 (37) | 0.560 (38) | 0.658 (47) | 0.625 (47) | 0.496 (49) |
| Eastern and Central Europe | 0.315 (2) | 0.319 (2) | 0.348 (2) | 0.512 (2) | 0.366 (20) | 0.320 (20) | 0.491 (20) |
| Western and Southern Europe | 0.147 (17) | 0.170 (16) | 0.198 (16) | 0.285 (16) | 0.177 (18) | 0.196 (17) | 0.311 (20) |
| Middle East | 0.244 (9) | 0.431 (8) | 0.304 (9) | 0.294 (9) | 0.453 (13) | 0.330 (14) | 0.346 (14) |
| East and South East Asia | 0.462 (10) | 0.365 (10) | 0.460 (10) | 0.460 (10) | 0.306 (16) | 0.353 (17) | 0.457 (17) |

Number of observations in parentheses

Table 4 – Correlations between Fractionalization, Growth and its Determinants

| | ethnic | language | religion | growth | rgdpch60 | bmp | assas | human |
|--------------------------------|-----------------|-----------------|-----------------|----------------|-----------------|----------------|----------------|---------------|
| Language | 0.697 (171) | 1 (185) | | | | | | |
| Religion | 0.142 (180) | 0.269 (185) | 1 (198) | | | | | |
| Growth | -0.471 (119) | -0.305 (115) | -0.103 (119) | 1 (120) | | | | |
| Log Initial Income 1960 | -0.330 (118) | -0.293 (114) | 0.049 (118) | 0.137 (119) | 1 (119) | | | |
| Black Market Premium | 0.102 (96) | 0.096 (93) | -0.041 (96) | -0.260 (91) | -0.277 (91) | 1 (97) | | |
| Assassinations | -0.110 (90) | -0.027 (89) | -0.080 (91) | -0.079 (87) | -0.003 (87) | -0.012 (79) | 1 (92) | |
| Schooling | -0.459 (97) | -0.387 (94) | 0.122 (97) | 0.328 (91) | 0.816 (90) | -0.225 (81) | -0.117 (71) | 1 (98) |
| Phones per capita | -0.356 (133) | -0.248 (128) | 0.084 (134) | 0.337 (119) | 0.895 (118) | -0.271 (96) | -0.080 (91) | 0.828 (97) |

Number of observations in parentheses

Table 5 - Ethnic Diversity and Long-Run Growth
(Dependent variable is growth of per capita real GDP)

| Variable | (1) | (2) | (3) | (4) |
|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Dummy for the 1960s | -0.086 (-0.99) | -0.109 (-1.24) | -0.222 (-2.22) | -0.259 (-2.47) |
| Dummy for the 1970s | -0.089 (-1.02) | -0.111 (-1.27) | -0.218 (-2.19) | -0.253 (-2.42) |
| Dummy for the 1980s | -0.109 (-1.25) | -0.131 (-1.50) | -0.236 (-2.36) | -0.269 (-2.57) |
| Dummy variable for Sub-Saharan Africa | -0.008 (-1.70) | -0.009 (-1.99) | -0.011 (-2.05) | -0.015 (-2.76) |
| Dummy variable for Latin America and the Caribbean | -0.018 (-4.87) | -0.017 (-4.54) | -0.013 (-3.55) | -0.015 (-4.01) |
| Log of initial income | 0.035 (1.55) | 0.041 (1.84) | 0.073 (2.85) | 0.088 (3.34) |
| Log of initial income squared | -0.003 (-1.77) | -0.003 (-2.09) | -0.005 (-3.24) | -0.007 (-4.06) |
| Log of schooling | 0.013 (3.06) | 0.013 (3.16) | 0.013 (3.03) | 0.009 (1.84) |
| Assassinations | | -24.728 (-2.42) | -17.654 (-1.86) | -22.55 (-2.46) |
| Financial depth | | | 0.017 (2.89) | 0.013 (2.12) |
| Black market premium | | | -0.020 (-4.14) | -0.020 (-4.14) |
| Fiscal surplus/GDP | | | 0.101 (3.06) | 0.163 (4.26) |
| Log of telephones per worker | | | | 0.007 (2.52) |
| Ethnic | -0.019 (-2.97) | -0.018 (-2.84) | -0.009 (-1.41) | -0.005 (-0.68) |
| No. of observations | 82; 88; 94 | 77; 87; 93 | 44; 71; 74 | 40; 69; 66 |
| R ² | .25; .22; .36 | .24; .22; .38 | .39; .45; .52 | .39; .51; .58 |

(t-statistics are in parentheses)

Estimated using Seemingly Unrelated Regressions: a separate regression for each 10 year period. See the Data Appendix for definitions and sources.

Table 6 – Ethnicity as a Determinant of Economic Indicators

| Dependent Variable | C | ETHNIC | R² | Number of observations |
|------------------------------|--------------------|--------------------|----------------------|-------------------------------|
| Log of schooling | 1.963 (26.85) | -1.394 (-9.83) | 0.19; 0.23; 0.17 | 94 ; 95 ; 102 |
| Assassinations | 9.79E-06 (1.07) | 6.47E-06 (0.38) | -0.01; -0.06; -0.02 | 99; 109; 109 |
| Financial depth | 0.465 (12.42) | -0.353 (-5.03) | 0.22; 0.12; 0.03 | 95; 103; 106 |
| Black market premium | 0.178 (3.61) | 0.104 (1.12) | -0.01; 0.02; -0.03 | 105; 119; 120 |
| Fiscal surplus/GDP | -0.022 (-4.42) | -0.020 (-2.13) | -0.08; -0.01; -0.06 | 56; 94; 100 |
| Log of telephones per worker | 4.982 (20.72) | -3.909 (-9.29) | 0.26; 0.31; 0.13 | 98; 105; 95 |

(t-statistics are in parentheses)

Equations estimated using Seemingly Unrelated Regression procedures.

Table 7 - Language Diversity and Long-Run Growth
(dependent variable is growth of per capita real GDP)

| Variable | (1) | (2) | (3) | (4) |
|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Dummy for the 1960s | -0.056 (-0.63) | -0.070 (-0.77) | -0.166 (-1.60) | -0.226 (-2.13) |
| Dummy for the 1970s | -0.058 (-0.66) | -0.072 (-0.80) | -0.162 (-1.57) | -0.219 (-2.07) |
| Dummy for the 1980s | -0.077 (-0.87) | -0.091 (-1.00) | -0.177 (-1.72) | -0.235 (-2.22) |
| Dummy variable for Sub-Saharan Africa | -0.009 (-1.81) | -0.010 (-2.09) | -0.011 (-2.20) | -0.014 (-2.53) |
| Dummy variable for Latin America and the Caribbean | -0.023 (-6.02) | -0.022 (-5.78) | -0.018 (-4.69) | -0.019 (-4.67) |
| Log of initial income | 0.030 (1.29) | 0.034 (1.45) | 0.062 (2.36) | 0.080 (3.03) |
| Log of initial income squared | -0.002 (-1.58) | -0.003 (-1.75) | -0.005 (-2.81) | -0.006 (-3.75) |
| Log of schooling | 0.012 (2.93) | 0.012 (2.92) | 0.011 (2.65) | 0.010 (2.19) |
| Assassinations | | -18.254 (-1.30) | -10.126 (-0.76) | -16.068 (-1.23) |
| Financial depth | | | 0.015 (2.57) | 0.012 (1.98) |
| Black market premium | | | -0.023 (-4.64) | -0.020 (-4.16) |
| Fiscal surplus/GDP | | | 0.088 (2.68) | 0.162 (4.26) |
| Log of telephones per worker | | | | 0.005 (1.99) |
| LANGUAGE | -0.025 (-3.73) | -0.024 (-3.59) | -0.020 (-3.03) | -0.013 (-1.85) |
| No. of observations | 80; 86; 92 | 75; 85; 91 | 43; 69; 73 | 39; 68; 65 |
| R ² | 0.24; 0.26; 0.30 | 0.23; 0.26; 0.31 | 0.42; 0.48; 0.49 | 0.42; 0.53; 0.57 |

(t-statistics are in parentheses.)

Estimated using Seemingly Unrelated Regressions: a separate regression for each period.

See the Data Appendix for definitions and sources.

Table 8 - Determinants of Economic Indicators

| Dependent Variable | C | LANGUAGE | R² | Number of observations |
|------------------------------|--------------------|--------------------|----------------------|-------------------------------|
| Log of schooling | 1.796 (27.75) | -1.166 (-9.08) | 0.19; 0.19; 0.09 | 91; 92; 99 |
| Assassinations | 8.26E-06 (1.10) | 7.44E-06 (0.50) | -0.02; -0.06; -0.02 | 96; 107; 107 |
| Financial depth | 0.388 (11.46) | -0.205 (-3.01) | 0.09; 0.04; -0.06 | 92; 101; 104 |
| Black market premium | 0.194 (4.58) | 0.074 (0.88) | -0.01; 0.01; -0.04 | 102; 117; 118 |
| Fiscal surplus/GDP | -0.027 (-6.40) | -0.010 (-1.07) | -0.09; -0.02; -0.10 | 55; 91; 98 |
| Log of telephones per worker | 4.453 (21.31) | -3.118 (-8.05) | 0.23; 0.24; 0.03 | 95; 103; 93 |

(t-statistics are in parentheses.)

Equations estimated using Seemingly Unrelated Regression procedures.

Table 9 - Religious Diversity and Long-Run Growth
(Dependent variable is growth of per capita real GDP)

| Variable | (1) | (2) | (3) | (4) |
|--|---------------------------------|---------------------------------|-------------------------------|-------------------------------|
| Dummy for the 1960s | -0.108 (-1.19) | -0.138 (-1.51) | -0.273 (-2.67) | -0.307 (-3.00) |
| Dummy for the 1970s | -0.111 (-1.22) | -0.140 (-1.53) | -0.269 (-2.64) | -0.300 (-2.94) |
| Dummy for the 1980s | -0.131 (-1.45) | -0.160 (-1.75) | -0.285 (-2.80) | -0.316 (-3.10) |
| Dummy variable for Sub-Saharan Africa | -0.014 (-2.68) | -0.015 (-2.98) | -0.017 (-3.14) | -0.019 (-3.30) |
| Dummy variable for Latin America and the Caribbean | -0.021 (-5.53) | -0.020 (-5.20) | -0.015 (-4.11) | -0.016 (-4.37) |
| Log of initial income | 0.039 (1.65) | 0.047 (1.99) | 0.086 (3.26) | 0.100 (3.87) |
| Log of initial income squared | -0.003 (-1.82) | -0.003 (-2.19) | -0.006 (-3.61) | -0.008 (-4.66) |
| Log of schooling | 0.013 (2.92) | 0.013 (2.96) | 0.010 (2.37) | 0.008 (1.68) |
| Assassinations | | -23.630 (-2.22) | -18.235 (-1.84) | -22.956 (-2.49) |
| Financial depth | | | 0.018 (3.05) | 0.012 (2.11) |
| Black market premium | | | -0.022 (-4.48) | -0.021 (-4.20) |
| Fiscal surplus/GDP | | | 0.089 (2.76) | 0.172 (4.58) |
| Log of telephones per worker | | | | 0.007 (2.88) |
| RELIGION | -0.004 (-0.52) | -0.002 (-0.24) | 0.006 (0.92) | 0.008 (1.16) |
| No. of observations | 82; 88; 95 | 77; 87; 94 | 44; 71; 75 | 40; 69; 66 |
| R ² | 0.20; 0.18; 0.32 | 0.20; 0.18; 0.34 | 0.43; 0.44; 0.49 | 0.43; 0.51; 0.58 |

t-statistics are in parentheses.

Estimated using Seemingly Unrelated Regressions: a separate regression for each period.

See the Data Appendix for definitions and sources.

Table 10 – Religion as a Determinant of Economic Indicators

| Dependent Variable | C | RELIGION | R² | Number of observations |
|------------------------------|--------------------|----------------------|----------------------|-------------------------------|
| Log of schooling | 1.160 (11.99) | 0.358 (1.91) | 0.01; -0.01; -0.14 | 94; 95; 103 |
| Assassinations | 1.77E-05 (1.93) | -1.13E-05 (-0.61) | -0.01; -0.06; -0.02 | 99; 110; 110 |
| Financial depth | 0.292 (7.06) | 0.012 (0.15) | -0.01; -0.04; -0.17 | 95; 104; 107 |
| Black market premium | 0.222 (4.29) | 0.004 (0.04) | -0.01; 0.00; -0.05 | 105; 120; 121 |
| Fiscal surplus/GDP | -0.027 (-5.25) | -0.008 (-0.78) | -0.14; -0.02; -0.08 | 56; 95; 101 |
| Log of telephones per worker | 2.759 (9.77) | 0.321 (0.59) | 0.00; -0.12; -0.45 | 98; 105; 95 |

t-statistics are in parentheses.

Equations estimated using Seemingly Unrelated Regression procedures.

Table 11 – Correlations of Fractionalization Measures and the Determinants of the Quality of Government

| | log gnp pc | latitude | leg_or uk | leg_or soc | leg_or fr | leg_or ger | leg_or scan | ethnic | language |
|-------------|-------------------|------------------|------------------|-------------------|------------------|-------------------|--------------------|-----------------|-----------------|
| Latitude | 0.5314 (185) | | | | | | | | |
| leg_or uk | -0.0960 (184) | -0.2758 (205) | | | | | | | |
| leg_or soc | -0.0193 (184) | 0.4426 (205) | -0.3223 (212) | | | | | | |
| leg_or fr | -0.1651 (184) | -0.2429 (205) | -0.6345 (212) | -0.3894 (212) | | | | | |
| leg_or ger | 0.2687 (184) | 0.1745 (205) | -0.1339 (212) | -0.0822 (212) | -0.1618 (212) | | | | |
| leg_or scan | 0.2817 (184) | 0.3382 (205) | -0.1126 (212) | -0.0691 (212) | -0.1361 (212) | -0.0287 (212) | | | |
| ethnic | -0.3929 (173) | -0.3816 (183) | 0.0144 (185) | -0.1104 (185) | 0.2085 (185) | -0.1561 (185) | -0.2324 (185) | | |
| language | -0.3639 (174) | -0.2679 (193) | 0.1483 (191) | -0.0741 (191) | 0.0140 (191) | -0.1157 (191) | -0.1629 (191) | 0.6981 (176) | |
| religion | 0.0269 (183) | -0.1138 (205) | 0.3632 (204) | 0.0433 (204) | -0.3656 (204) | 0.1012 (204) | -0.1481 (204) | 0.1520 (185) | 0.2718 (195) |

Table 12a – Ethnic Fractionalization and the Quality of Government – Business Climate

| | Property rights index | | | Business regulation index | | |
|---------------------------|-----------------------|----------------------|----------------------|---------------------------|----------------------|----------------------|
| log(GNP 70-95) | 0.403*** (5.542) | | 0.497*** (8.326) | 0.483*** (7.073) | | 0.447*** (6.512) |
| log(pop60) | | -0.102* (1.969) | -0.003 (0.089) | | -0.122*** (2.670) | -0.035 (1.025) |
| Subs. Africa | | -0.867*** (3.097) | -0.003 (0.012) | | -0.908*** (4.272) | -0.099 (0.377) |
| East Asia | | -0.268 (0.594) | 0.144 (0.575) | | -0.225 (0.587) | 0.173 (0.699) |
| Latin Am. | | -0.522** (2.052) | -0.067 (0.286) | | -0.452** (2.125) | -0.138 (0.646) |
| Socialist legal origin | -1.396*** (6.279) | | -1.044*** (5.156) | -0.676*** (3.111) | | -0.609*** (2.799) |
| French legal origin | -0.656*** (3.542) | | -0.600*** (3.754) | -0.253 (1.594) | | -0.301** (2.248) |
| German legal origin | -0.037 (0.172) | | 0.064 (0.329) | -0.966*** (5.021) | | -0.917*** (3.671) |
| Scandinavian legal origin | -0.447 (1.086) | | -0.220 (0.900) | -0.919** (1.995) | | -1.067*** (4.312) |
| Catholic 80 | 0.002 (0.478) | | | 0.000 (0.091) | | |
| Muslim 80 | 0.000 (0.065) | | | 0.002 (0.511) | | |
| Other religion 80 | 0.002 (0.460) | | | 0.005 (0.880) | | |
| Latitude | 1.383*** (3.029) | | | 0.004 (0.008) | | |
| Ethnic frag. | -0.028 (0.089) | -0.573 (1.189) | -0.262 (0.676) | -0.429 (1.465) | -0.343 (0.954) | -0.382 (1.239) |
| Constant | 0.421 (0.607) | 5.505*** (6.875) | 0.331 (0.393) | -0.510 (0.753) | 5.104*** (7.331) | 0.531 (0.584) |
| Observations | 141 | 141 | 141 | 141 | 141 | 141 |
| Adj R2 | 0.582 | 0.140 | 0.564 | 0.494 | 0.196 | 0.489 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 12b – Ethnic Fractionalization and the Quality of Government – Corruption and Bureaucratic Quality

| | Corruption | | | Bureaucratic delays | | |
|---------------------------|---------------------|----------------------|---------------------|----------------------|---------------------|---------------------|
| log(GNP 70-95) | 0.549*** (3.110) | | 1.083*** (6.111) | 0.597*** (3.650) | | 0.794*** (6.882) |
| log(pop60) | | -0.009 (0.083) | 0.246*** (2.703) | | -0.179 (1.236) | 0.026 (0.233) |
| Subs. Africa | | -1.125* (1.855) | 1.377** (2.294) | | -0.353 (0.434) | 1.039* (1.808) |
| East Asia | | -1.165 (1.649) | -0.108 (0.201) | | -0.120 (0.207) | 0.610* (1.821) |
| Latin Am. | | -2.201*** (4.282) | -0.530 (1.151) | | -0.847** (2.046) | 0.234 (0.670) |
| Socialist legal origin | -0.595 (1.206) | | 0.982* (1.913) | -0.842* (1.797) | | -0.628 (1.370) |
| French legal origin | -0.296 (0.762) | | -0.170 (0.442) | -0.608** (2.218) | | -0.779** (2.507) |
| German legal origin | 0.053 (0.092) | | -0.015 (0.023) | -0.108 (0.303) | | -0.033 (0.066) |
| Scandinavian legal origin | 1.086 (0.925) | | 1.979*** (4.075) | -2.010*** (3.092) | | -0.191 (0.544) |
| Catholic 80 | 0.002 (0.138) | | | -0.026*** (2.975) | | |
| Muslim 80 | -0.010 (0.768) | | | -0.032*** (3.662) | | |
| Other religion 80 | 0.010 (0.790) | | | -0.022** (2.457) | | |
| Latitude | 5.680*** (3.925) | | | -0.340 (0.312) | | |
| Ethnic frag. | 1.011 (1.332) | -2.487** (2.374) | -1.317* (1.704) | -0.896 (1.635) | -1.969** (2.235) | -1.023 (1.460) |
| Constant | -0.418 (0.243) | 7.771*** (4.283) | -5.858** (2.583) | 3.191* (1.928) | 8.583*** (3.661) | -1.385 (0.633) |
| Observations | 121 | 121 | 121 | 59 | 59 | 59 |
| Adj R2 | 0.540 | 0.252 | 0.517 | 0.734 | 0.179 | 0.671 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 12c – Ethnic Fractionalization and the Quality of Government – Taxation

| | Tax compliance | | | Top marginal tax rate | | |
|---------------------------|----------------------|---------------------|----------------------|-----------------------|-----------------------|-----------------------|
| log(GNP 70-95) | 0.515*** (4.009) | | 0.218 (1.342) | 1.953 (1.140) | | 1.755 (1.624) |
| log(pop60) | | -0.151* (1.717) | -0.099 (1.153) | | 0.696 (0.830) | 0.717 (0.799) |
| Subs. Africa | | -1.447** (2.682) | -1.055** (2.297) | | -2.814 (0.632) | 0.436 (0.085) |
| East Asia | | 0.258 (0.684) | 0.117 (0.352) | | -12.463*** (4.447) | -9.295*** (2.898) |
| Latin Am. | | -0.716* (1.743) | 0.013 (0.029) | | -16.816*** (4.990) | -16.052*** (4.496) |
| Socialist legal origin | -0.877** (2.304) | | -1.448*** (3.154) | 9.629* (1.925) | | 6.092* (1.668) |
| French legal origin | -1.020*** (4.339) | | -1.273*** (3.916) | 7.443* (1.743) | | 6.461** (2.493) |
| German legal origin | -0.563** (2.083) | | -0.521 (1.665) | 6.222 (1.026) | | 5.798 (0.968) |
| Scandinavian legal origin | -1.083* (1.800) | | -1.091*** (2.930) | 7.015 (0.841) | | 12.153** (2.367) |
| Catholic 80 | -0.006 (0.824) | | | -0.115 (1.045) | | |
| Muslim 80 | 0.006 (0.661) | | | 0.007 (0.074) | | |
| Other religion 80 | -0.003 (0.370) | | | -0.012 (0.103) | | |
| Latitude | -1.216* (1.753) | | | 18.991 (1.454) | | |
| Ethnic frag. | -0.585 (1.049) | -0.024 (0.038) | -0.342 (0.606) | 10.369 (1.495) | -3.155 (0.509) | 3.260 (0.445) |
| Constant | 0.506 (0.330) | 5.756*** (4.001) | 3.931 (1.618) | 16.895 (1.143) | 38.014*** (2.836) | 15.877 (0.925) |
| Observations | 49 | 49 | 49 | 82 | 82 | 82 |
| Adj R2 | 0.530 | 0.127 | 0.507 | 0.202 | 0.360 | 0.414 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 12d – Ethnic Fractionalization and the Quality of Government – Size of the Public Sector

| | SOEs in the economy | | | Public sector empl. / total pop. | | |
|---------------------------|----------------------|---------------------|----------------------|----------------------------------|----------------------|---------------------|
| log(GNP 70-95) | 0.369 (1.493) | | 0.374* (1.809) | 1.392*** (5.345) | | 1.186*** (6.269) |
| log(pop60) | | -0.336** (2.155) | -0.351** (2.394) | | -0.383** (2.250) | -0.180* (1.901) |
| Subs. Africa | | 0.268 (0.421) | 0.505 (0.797) | | -4.360*** (6.666) | -1.077* (1.783) |
| East Asia | | 1.917*** (2.759) | 1.435** (2.052) | | -3.381*** (5.793) | -1.365* (1.842) |
| Latin Am. | | 1.460*** (2.768) | 1.351** (2.254) | | -2.974*** (4.213) | -0.532 (0.908) |
| Socialist legal origin | -3.127*** (3.168) | | -2.940*** (3.477) | 2.486*** (3.600) | | 2.370*** (4.059) |
| French legal origin | -0.032 (0.054) | | -0.185 (0.380) | -0.544 (1.360) | | -0.557 (1.653) |
| German legal origin | 0.073 (0.068) | | 0.314 (0.248) | -2.471** (2.558) | | -1.909** (2.017) |
| Scandinavian legal origin | -2.189 (1.599) | | -1.872** (2.036) | 6.770*** (4.565) | | 6.875*** (5.695) |
| Catholic 80 | -0.009 (0.528) | | | 0.000 (0.040) | | |
| Muslim 80 | -0.015 (0.957) | | | 0.008 (0.859) | | |
| Other religion 80 | -0.013 (0.750) | | | 0.003 (0.243) | | |
| Latitude | -2.194 (1.114) | | | 0.512 (0.252) | | |
| Ethnic frag. | -1.815* (1.778) | -1.539 (1.562) | -1.480 (1.517) | 0.017 (0.021) | -1.367 (1.019) | 0.422 (0.477) |
| Constant | 4.440* (1.926) | 9.780*** (4.075) | 7.587** (2.438) | -6.594*** (3.210) | 12.829*** (4.379) | -1.628 (0.711) |
| Observations | 103 | 103 | 103 | 116 | 116 | 116 |
| Adj R2 | 0.144 | 0.155 | 0.264 | 0.709 | 0.385 | 0.721 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 12e – Ethnic Fractionalization and the Quality of Government – Size of Government

| | Government consumption / GDP | | | Transfers and subsidies / GDP | | |
|---------------------------|------------------------------|----------------------|----------------------|-------------------------------|-----------------------|----------------------|
| log(GNP 70-95) | 1.162** (2.192) | | 1.139*** (2.897) | 1.540*** (3.048) | | 2.797*** (4.858) |
| log(pop60) | | -1.329*** (4.627) | -1.073*** (3.522) | | 0.272 (0.712) | 0.593* (1.827) |
| Subs. Africa | | -4.309*** (2.860) | -2.098 (1.214) | | -9.100*** (4.524) | -2.368 (1.242) |
| East Asia | | -5.465*** (4.074) | -4.847*** (3.005) | | -12.682*** (8.679) | -9.004*** (5.536) |
| Latin Am. | | -5.823*** (4.841) | -4.268*** (3.477) | | -8.823*** (5.572) | -4.229*** (2.819) |
| Socialist legal origin | -1.061 (0.356) | | -1.677 (0.616) | 6.141** (2.022) | | 8.515*** (3.230) |
| French legal origin | -0.642 (0.587) | | -0.736 (0.802) | 0.360 (0.291) | | 0.199 (0.185) |
| German legal origin | -3.105 (1.519) | | -1.324 (0.594) | -3.609 (1.530) | | -2.760 (1.172) |
| Scandinavian legal origin | -0.033 (0.011) | | 2.287 (0.859) | -0.639 (0.142) | | 2.168 (0.770) |
| Catholic 80 | -0.047 (1.489) | | | 0.021 (0.466) | | |
| Muslim 80 | -0.017 (0.530) | | | -0.014 (0.357) | | |
| Other religion 80 | -0.043 (1.141) | | | 0.015 (0.347) | | |
| Latitude | 5.152 (1.428) | | | 24.083*** (5.337) | | |
| Ethnic frag. | 2.935 (1.521) | 1.323 (0.663) | 2.790 (1.471) | -0.498 (0.179) | -7.360** (2.502) | -4.984* (1.981) |
| Constant | 7.661 (1.469) | 38.025*** (7.954) | 24.490*** (3.962) | -10.744* (1.852) | 13.291** (2.192) | -17.250** (2.311) |
| Observations | 103 | 103 | 103 | 89 | 89 | 89 |
| Adj R2 | 0.194 | 0.250 | 0.310 | 0.694 | 0.598 | 0.724 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 12f – Ethnic Fractionalization and the Quality of Government – Public Goods

| | Infrastructure quality | | | Log infant mortality | | |
|---------------------------|------------------------|---------------------|----------------------|-----------------------|---------------------|-----------------------|
| log(GNP 70-95) | 0.744*** (4.760) | | 1.038*** (8.534) | -0.431*** (12.561) | | -0.479*** (12.714) |
| log(pop60) | | -0.126 (0.628) | 0.175* (1.694) | | 0.036 (1.268) | -0.034* (1.837) |
| Subs. Africa | | -0.906 (0.913) | 0.797 (1.306) | | 1.108*** (7.698) | -0.008 (0.058) |
| East Asia | | -0.922 (1.228) | -0.001 (0.003) | | 0.622*** (2.831) | -0.026 (0.191) |
| Latin Am. | | -1.324** (2.579) | -0.150 (0.375) | | 0.484*** (3.833) | -0.179* (1.698) |
| Socialist legal origin | -1.949*** (3.985) | | -1.555*** (3.079) | -0.146 (1.265) | | -0.403*** (3.461) |
| French legal origin | -0.543** (2.079) | | -0.762** (2.267) | 0.211** (2.594) | | 0.197** (2.458) |
| German legal origin | 0.040 (0.081) | | 0.256 (0.539) | 0.036 (0.249) | | -0.056 (0.339) |
| Scandinavian legal origin | -2.684*** (3.506) | | -0.059 (0.178) | -0.452** (2.245) | | -0.405*** (3.062) |
| Catholic 80 | -0.032*** (3.740) | | | -0.005** (2.270) | | |
| Muslim 80 | -0.038*** (4.396) | | | 0.001 (0.404) | | |
| Other religion 80 | -0.026*** (2.954) | | | -0.005** (2.283) | | |
| Latitude | 1.184 (1.286) | | | -0.734** (2.489) | | |
| Ethnic frag. | -0.623 (1.131) | -2.019* (1.704) | -0.726 (0.924) | 0.442*** (3.436) | 1.075*** (4.065) | 0.665*** (3.966) |
| Constant | 2.808* (1.766) | 8.810*** (2.749) | -4.810** (2.267) | 7.160*** (23.588) | 2.315*** (5.252) | 7.498*** (17.237) |
| Observations | 59 | 59 | 59 | 166 | 166 | 166 |
| Adj R2 | 0.828 | 0.169 | 0.775 | 0.842 | 0.481 | 0.806 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 12g – Ethnic Fractionalization and the Quality of Government – Schooling and Literacy

| | Illiteracy rate | | | Log school attainment | | |
|---------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|
| log(GNP 70-95) | -11.560*** (13.166) | | -10.841*** (7.771) | 0.307*** (8.339) | | 0.337*** (10.351) |
| log(pop60) | | 1.300* (1.838) | -1.338* (1.923) | | -0.016 (0.604) | 0.021 (1.211) |
| Subs. Africa | | 13.549*** (2.808) | -3.853 (0.854) | | -0.639*** (3.485) | -0.028 (0.239) |
| East Asia | | -11.932** (2.014) | -14.834*** (2.716) | | -0.115 (0.752) | 0.068 (0.455) |
| Latin Am. | | -16.674*** (3.970) | -22.079*** (6.366) | | -0.138 (0.975) | 0.285*** (3.077) |
| Socialist legal origin | -10.639 (1.123) | | -4.271 (0.507) | 0.423*** (4.413) | | 0.562*** (7.852) |
| French legal origin | 4.172 (1.326) | | 4.638 (1.575) | -0.184*** (2.839) | | -0.217*** (3.391) |
| German legal origin | -3.961 (0.875) | | 2.937 (0.506) | -0.221** (2.327) | | -0.206** (2.268) |
| Scandinavian legal origin | 0.000 (.) | | 0.000 (.) | -0.063 (0.329) | | -0.069 (0.790) |
| Catholic 80 | -0.004 (0.037) | | | 0.002 (0.801) | | |
| Muslim 80 | 0.286*** (3.231) | | | -0.003 (1.239) | | |
| Other religion 80 | 0.089 (0.734) | | | 0.001 (0.332) | | |
| Latitude | -6.920 (0.527) | | | 0.085 (0.299) | | |
| Ethnic frag. | 8.991 (1.654) | 15.820** (2.233) | 14.090*** (2.634) | -0.056 (0.445) | -0.568** (2.246) | -0.045 (0.361) |
| Constant | 95.017*** (9.793) | 5.254 (0.518) | 124.604*** (6.550) | -0.791** (2.370) | 2.115*** (5.182) | -1.311*** (3.095) |
| Observations | 117 | 117 | 117 | 101 | 101 | 101 |
| Adj R2 | 0.666 | 0.436 | 0.636 | 0.781 | 0.386 | 0.779 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 12h – Ethnic Fractionalization and the Quality of Government – Political Rights

| | Democracy index | | | Political rights index | | |
|---------------------------|----------------------|----------------------|-----------------------|------------------------|----------------------|----------------------|
| log(GNP 70-95) | 0.978*** (3.415) | | 1.602*** (6.276) | 0.143 (1.149) | | 0.565*** (3.624) |
| log(pop60) | | -0.015 (0.065) | 0.287 (1.431) | | -0.008 (0.089) | 0.086 (0.964) |
| Subs. Africa | | -2.039** (2.307) | 0.728 (0.798) | | -0.289 (0.575) | 0.771 (1.363) |
| East Asia | | -1.701 (1.508) | -0.287 (0.271) | | -0.790 (1.443) | -0.202 (0.362) |
| Latin Am. | | -0.195 (0.235) | 1.861** (2.321) | | 1.007*** (2.697) | 1.618*** (3.833) |
| Socialist legal origin | -2.855*** (3.574) | | -1.610* (1.897) | -1.768*** (3.895) | | -0.441 (0.914) |
| French legal origin | -1.694** (2.525) | | -2.127*** (3.482) | -0.396 (1.152) | | -0.570 (1.593) |
| German legal origin | -1.924 (1.588) | | -1.624 (1.115) | -0.357 (0.872) | | 0.576 (1.074) |
| Scandinavian legal origin | -2.092 (1.338) | | 0.837 (0.842) | -1.771*** (2.672) | | 0.638 (1.311) |
| Catholic 80 | -0.008 (0.434) | | | -0.003 (0.407) | | |
| Muslim 80 | -0.048*** (2.616) | | | -0.038*** (5.166) | | |
| Other religion 80 | -0.020 (1.089) | | | -0.013 (1.608) | | |
| Latitude | 5.581** (2.467) | | | 4.842*** (4.963) | | |
| Ethnic frag. | -1.053 (0.951) | -4.238*** (2.906) | -2.278* (1.797) | -0.687 (1.150) | -3.108*** (4.148) | -2.378*** (3.135) |
| Constant | -0.815 (0.289) | 6.778* (1.896) | -10.200*** (2.833) | 4.265*** (3.419) | 5.869*** (4.501) | -0.117 (0.058) |
| Observations | 147 | 147 | 147 | 167 | 167 | 167 |
| Adj R2 | 0.545 | 0.175 | 0.448 | 0.518 | 0.189 | 0.291 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 13a – Linguistic Fractionalization and the Quality of Government – Business Climate

| | Property rights index | | | Business regulation index | | |
|---------------------------|-----------------------|----------------------|----------------------|---------------------------|----------------------|----------------------|
| log(GNP 70-95) | 0.397*** (5.689) | | 0.486*** (9.259) | 0.473*** (6.894) | | 0.438*** (6.818) |
| log(pop60) | | -0.094* (1.819) | 0.004 (0.134) | | -0.124*** (2.720) | -0.038 (1.096) |
| Subs. Africa | | -1.071*** (4.287) | -0.161 (0.664) | | -1.007*** (5.362) | -0.192 (0.832) |
| East Asia | | -0.297 (0.639) | 0.101 (0.418) | | -0.242 (0.617) | 0.164 (0.646) |
| Latin Am. | | -0.435* (1.953) | -0.005 (0.022) | | -0.409** (2.056) | -0.171 (0.821) |
| Socialist legal origin | -1.377*** (6.226) | | -1.020*** (5.176) | -0.699*** (3.167) | | -0.586*** (2.724) |
| French legal origin | -0.628*** (3.462) | | -0.597*** (3.838) | -0.248 (1.565) | | -0.279** (2.091) |
| German legal origin | 0.008 (0.035) | | 0.168 (0.791) | -0.908*** (4.498) | | -0.817*** (3.053) |
| Scandinavian legal origin | -0.418 (1.038) | | -0.073 (0.286) | -0.824* (1.785) | | -0.945*** (3.740) |
| Catholic 80 | 0.002 (0.466) | | | 0.001 (0.245) | | |
| Muslim 80 | -0.001 (0.190) | | | 0.003 (0.522) | | |
| Other religion 80 | 0.002 (0.397) | | | 0.005 (1.023) | | |
| Latitude | 1.455*** (3.100) | | | 0.248 (0.507) | | |
| Linguistic frag. | 0.170 (0.649) | 0.139 (0.331) | 0.187 (0.582) | -0.099 (0.442) | 0.098 (0.317) | -0.049 (0.194) |
| Constant | 0.380 (0.640) | 5.128*** (6.333) | 0.134 (0.173) | -0.711 (1.158) | 4.995*** (7.012) | 0.513 (0.583) |
| Observations | 138 | 138 | 138 | 138 | 138 | 138 |
| Adj R2 | 0.591 | 0.115 | 0.569 | 0.472 | 0.176 | 0.470 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 13b – Linguistic Fractionalization and the Quality of Government – Corruption and Bureaucratic Quality

| | Corruption | | | Bureaucratic delays | | |
|---------------------------|---------------------|----------------------|---------------------|----------------------|----------------------|---------------------|
| log(GNP 70-95) | 0.468** (2.538) | | 1.012*** (5.481) | 0.664*** (3.725) | | 0.879*** (7.399) |
| log(pop60) | | 0.037 (0.325) | 0.261*** (2.754) | | -0.174 (1.106) | 0.062 (0.516) |
| Subs. Africa | | -1.248** (2.169) | 1.350** (2.292) | | -0.849 (0.904) | 0.431 (0.701) |
| East Asia | | -0.893 (1.263) | 0.033 (0.060) | | -0.180 (0.286) | 0.571 (1.631) |
| Latin Am. | | -2.539*** (5.727) | -0.983** (2.079) | | -1.420*** (4.296) | 0.187 (0.520) |
| Socialist legal origin | -0.596 (1.151) | | 0.710 (1.309) | -0.778 (1.574) | | -0.425 (0.840) |
| French legal origin | -0.185 (0.464) | | -0.147 (0.377) | -0.581** (2.039) | | -0.737** (2.336) |
| German legal origin | 0.073 (0.117) | | 0.010 (0.014) | 0.022 (0.073) | | 0.115 (0.292) |
| Scandinavian legal origin | 0.778 (0.648) | | 2.039*** (4.349) | -1.426** (2.122) | | 0.099 (0.279) |
| Catholic 80 | -0.003 (0.201) | | | -0.019** (2.057) | | |
| Muslim 80 | -0.013 (0.946) | | | -0.027*** (2.903) | | |
| Other religion 80 | 0.004 (0.319) | | | -0.014 (1.587) | | |
| Latitude | 5.073*** (3.699) | | | 0.234 (0.225) | | |
| Linguistic frag. | 0.016 (0.024) | -2.082** (2.387) | -1.760** (2.595) | 0.085 (0.177) | -0.707 (0.777) | 0.261 (0.398) |
| Constant | 1.229 (0.673) | 6.842*** (3.876) | -5.351** (2.322) | 1.404 (0.803) | 8.147*** (3.109) | -3.162 (1.310) |
| Observations | 120 | 120 | 120 | 58 | 58 | 58 |
| Adj R2 | 0.511 | 0.233 | 0.501 | 0.727 | 0.092 | 0.666 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 13c – Linguistic Fractionalization and the Quality of Government – Taxation

| | Tax compliance | | | Top marginal tax rate | | |
|---------------------------|----------------------|---------------------|----------------------|-----------------------|-----------------------|-----------------------|
| log(GNP 70-95) | 0.489*** (3.181) | | 0.245 (1.484) | 2.511 (1.487) | | 1.966* (1.763) |
| log(pop60) | | -0.162* (1.816) | -0.081 (0.908) | | 0.620 (0.769) | 0.712 (0.848) |
| Subs. Africa | | -0.852** (2.138) | -1.287*** (3.224) | | -4.185 (1.039) | -0.133 (0.030) |
| East Asia | | 0.245 (0.694) | 0.171 (0.526) | | -12.796*** (4.191) | -9.841*** (2.877) |
| Latin Am. | | -0.712* (1.939) | -0.054 (0.113) | | -17.554*** (5.988) | -14.468*** (4.170) |
| Socialist legal origin | -0.929** (2.387) | | -1.446*** (3.251) | 11.849** (2.239) | | 7.153* (1.870) |
| French legal origin | -1.004*** (3.849) | | -1.295*** (4.107) | 8.140** (2.067) | | 6.638** (2.614) |
| German legal origin | -0.522* (2.002) | | -0.552* (1.764) | 6.624 (1.037) | | 6.175 (1.008) |
| Scandinavian legal origin | -1.066 (1.563) | | -1.069*** (3.142) | 10.121 (1.498) | | 12.575** (2.524) |
| Catholic 80 | -0.007 (0.766) | | | -0.072 (0.826) | | |
| Muslim 80 | 0.004 (0.399) | | | 0.021 (0.252) | | |
| Other religion 80 | -0.002 (0.259) | | | 0.000 (0.001) | | |
| Latitude | -0.991 (1.309) | | | 16.697 (1.566) | | |
| Linguistic frag. | -0.368 (0.750) | 0.042 (0.070) | -0.248 (0.454) | 15.744*** (2.974) | -0.448 (0.086) | 6.030 (0.959) |
| Constant | 0.581 (0.305) | 5.909*** (4.087) | 3.383 (1.376) | 8.711 (0.654) | 38.555*** (2.965) | 13.021 (0.783) |
| Observations | 48 | 48 | 48 | 81 | 81 | 81 |
| Adj R2 | 0.491 | 0.085 | 0.475 | 0.265 | 0.350 | 0.414 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 13d – Linguistic Fractionalization and the Quality of Government – Size of the Public Sector

| | SOEs in the economy | | | Public sector employment / total pop. | | |
|---------------------------|---------------------|----------|-----------|---------------------------------------|-----------|----------|
| log(GNP 70-95) | 0.459* | | 0.458** | 1.372*** | | 1.135*** |
| | (1.775) | | (2.164) | (5.279) | | (6.345) |
| log(pop60) | | -0.361** | -0.357** | | -0.380** | -0.181* |
| | | (2.327) | (2.531) | | (2.262) | (1.819) |
| Subs. Africa | | -0.532 | 0.002 | | -4.765*** | -1.312** |
| | | (0.917) | (0.003) | | (7.897) | (2.243) |
| East Asia | | 1.733** | 1.344* | | -3.432*** | -1.527** |
| | | (2.304) | (1.809) | | (5.802) | (2.112) |
| Latin Am. | | 1.068** | 1.079* | | -3.027*** | -0.449 |
| | | (2.009) | (1.708) | | (3.924) | (0.740) |
| Socialist legal origin | -3.237*** | | -2.828*** | 2.488*** | | 2.303*** |
| | (3.292) | | (3.338) | (3.636) | | (3.942) |
| French legal origin | -0.096 | | -0.189 | -0.532 | | -0.526 |
| | (0.162) | | (0.387) | (1.336) | | (1.460) |
| German legal origin | 0.120 | | 0.445 | -2.483** | | -1.852* |
| | (0.115) | | (0.363) | (2.504) | | (1.905) |
| Scandinavian legal origin | -1.869 | | -1.661* | 6.603*** | | 6.896*** |
| | (1.374) | | (1.830) | (4.366) | | (5.665) |
| Catholic 80 | -0.005 | | | -0.004 | | |
| | (0.274) | | | (0.344) | | |
| Muslim 80 | -0.010 | | | 0.008 | | |
| | (0.598) | | | (0.796) | | |
| Other religion 80 | -0.006 | | | 0.001 | | |
| | (0.337) | | | (0.069) | | |
| Latitude | -1.243 | | | 0.308 | | |
| | (0.649) | | | (0.154) | | |
| Linguistic frag. | -0.702 | 0.044 | -0.020 | -0.452 | -0.206 | 0.485 |
| | (0.858) | (0.049) | (0.023) | (0.780) | (0.205) | (0.665) |
| Constant | 2.473 | 9.744*** | 6.532** | -6.015*** | 12.355*** | -1.161 |
| | (1.050) | (4.062) | (2.181) | (3.099) | (4.291) | (0.523) |
| Observations | 100 | 100 | 100 | 115 | 115 | 115 |
| Adj R2 | 0.129 | 0.123 | 0.248 | 0.709 | 0.369 | 0.720 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 13e – Linguistic Fractionalization and the Quality of Government – Size of the Government

| | Government consumption / GDP | | | Transfers and subsidies / GDP | | |
|---------------------------|------------------------------|-----------|-----------|-------------------------------|------------|-----------|
| log(GNP 70-95) | 1.143* | | 1.093** | 1.665*** | | 2.964*** |
| | (1.950) | | (2.528) | (3.044) | | (4.827) |
| log(pop60) | | -1.305*** | -1.042*** | | 0.232 | 0.571* |
| | | (4.328) | (3.259) | | (0.670) | (1.739) |
| Subs. Africa | | -3.794** | -1.397 | | -9.695*** | -2.943 |
| | | (2.370) | (0.834) | | (4.950) | (1.654) |
| East Asia | | -5.338*** | -4.767*** | | -12.196*** | -8.804*** |
| | | (3.626) | (2.697) | | (8.059) | (5.478) |
| Latin Am. | | -5.420*** | -3.791*** | | -10.530*** | -5.317*** |
| | | (4.600) | (3.026) | | (7.281) | (3.586) |
| Socialist legal origin | -0.969 | | -1.875 | 6.217** | | 8.403*** |
| | (0.325) | | (0.679) | (2.053) | | (3.184) |
| French legal origin | -0.766 | | -0.911 | 0.257 | | 0.194 |
| | (0.681) | | (1.009) | (0.203) | | (0.176) |
| German legal origin | -3.450* | | -1.739 | -3.636 | | -2.628 |
| | (1.723) | | (0.814) | (1.552) | | (1.131) |
| Scandinavian legal origin | -0.929 | | 1.774 | -0.132 | | 2.438 |
| | (0.292) | | (0.679) | (0.030) | | (0.860) |
| Catholic 80 | -0.055 | | | 0.029 | | |
| | (1.645) | | | (0.667) | | |
| Muslim 80 | -0.022 | | | -0.006 | | |
| | (0.663) | | | (0.163) | | |
| Other religion 80 | -0.054 | | | 0.021 | | |
| | (1.380) | | | (0.524) | | |
| Latitude | 3.830 | | | 24.207*** | | |
| | (1.154) | | | (6.069) | | |
| Linguistic frag. | 1.053 | 0.101 | 0.672 | 0.249 | -6.048** | -2.949 |
| | (0.596) | (0.049) | (0.335) | (0.117) | (2.203) | (1.334) |
| Constant | 9.865* | 37.969*** | 25.142*** | -12.660** | 13.632** | -18.857** |
| | (1.703) | (7.706) | (3.752) | (2.248) | (2.366) | (2.336) |
| Observations | 100 | 100 | 100 | 86 | 86 | 86 |
| Adj R2 | 0.181 | 0.240 | 0.291 | 0.691 | 0.586 | 0.718 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 13f – Linguistic Fractionalization and the Quality of Government – Public Goods

| | Infrastructure quality | | | Log infant mortality | | |
|---------------------------|------------------------|----------------------|---------------------|-----------------------|---------------------|-----------------------|
| log(GNP 70-95) | 0.806*** (4.865) | | 1.116*** (8.942) | -0.431*** (11.386) | | -0.486*** (12.557) |
| log(pop60) | | -0.136 (0.632) | 0.195* (1.795) | | 0.039 (1.327) | -0.029 (1.346) |
| Subs. Africa | | -1.374 (1.278) | 0.184 (0.295) | | 1.268*** (8.151) | 0.132 (0.959) |
| East Asia | | -1.015 (1.247) | -0.091 (0.256) | | 0.495** (2.200) | -0.079 (0.562) |
| Latin Am. | | -1.891*** (4.508) | -0.091 (0.250) | | 0.606*** (4.472) | -0.072 (0.627) |
| Socialist legal origin | -1.852*** (3.701) | | -1.321** (2.518) | -0.152 (1.293) | | -0.388*** (3.314) |
| French legal origin | -0.492* (1.845) | | -0.691** (2.046) | 0.184** (2.252) | | 0.219** (2.500) |
| German legal origin | 0.180 (0.410) | | 0.441 (1.143) | 0.022 (0.160) | | -0.117 (0.731) |
| Scandinavian legal origin | -2.093** (2.666) | | 0.237 (0.699) | -0.294 (1.274) | | -0.505*** (3.545) |
| Catholic 80 | -0.025** (2.631) | | | -0.002 (0.861) | | |
| Muslim 80 | -0.032*** (3.585) | | | 0.003 (1.375) | | |
| Other religion 80 | -0.019** (2.119) | | | -0.003 (1.130) | | |
| Latitude | 1.589* (1.752) | | | -0.879*** (2.891) | | |
| Linguistic frag. | 0.290 (0.595) | -0.566 (0.456) | 0.628 (0.905) | 0.285** (2.334) | 0.529* (1.937) | 0.244 (1.605) |
| Constant | 1.176 (0.736) | 8.571** (2.464) | -6.307** (2.606) | 7.079*** (20.405) | 2.492*** (5.405) | 7.622*** (16.382) |
| Observations | 58 | 58 | 58 | 161 | 161 | 161 |
| Adj R2 | 0.824 | 0.103 | 0.775 | 0.832 | 0.419 | 0.786 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 13g – Linguistic Fractionalization and the Quality of Government – Schooling and Literacy

| | Illiteracy rate | | | Log school attainment | | |
|---------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|
| log(GNP 70-95) | -10.392*** (11.597) | | -10.601*** (7.362) | 0.289*** (7.279) | | 0.341*** (10.628) |
| log(pop60) | | 1.099 (1.567) | -1.567** (2.104) | | -0.017 (0.616) | 0.016 (0.907) |
| Subs. Africa | | 10.672* (1.894) | -4.373 (0.904) | | -0.641*** (3.431) | -0.079 (0.601) |
| East Asia | | -16.647*** (2.792) | -18.171*** (3.227) | | -0.068 (0.395) | 0.051 (0.347) |
| Latin Am. | | -17.323*** (4.229) | -21.442*** (5.860) | | -0.220* (1.867) | 0.305*** (3.120) |
| Socialist legal origin | -7.109 (0.766) | | -2.418 (0.284) | 0.388*** (3.772) | | 0.600*** (7.131) |
| French legal origin | 3.647 (1.150) | | 5.513* (1.752) | -0.175** (2.631) | | -0.212*** (3.147) |
| German legal origin | -1.076 (0.226) | | 5.337 (0.828) | -0.210** (2.364) | | -0.185* (1.960) |
| Scandinavian legal origin | 0.000 (.) | | 0.000 (.) | -0.086 (0.441) | | -0.051 (0.556) |
| Catholic 80 | 0.025 (0.261) | | | 0.002 (0.605) | | |
| Muslim 80 | 0.305*** (3.700) | | | -0.003 (1.418) | | |
| Other religion 80 | 0.078 (0.661) | | | 0.001 (0.280) | | |
| Latitude | -5.493 (0.476) | | | 0.114 (0.423) | | |
| Linguistic frag. | 17.143*** (3.590) | 17.727** (2.221) | 13.859** (2.060) | -0.157 (1.419) | -0.503* (1.986) | 0.083 (0.585) |
| Constant | 82.964*** (8.953) | 10.320 (0.990) | 127.504*** (6.293) | -0.599* (1.740) | 2.102*** (4.928) | -1.311*** (2.951) |
| Observations | 111 | 111 | 111 | 97 | 97 | 97 |
| Adj R2 | 0.693 | 0.443 | 0.639 | 0.779 | 0.378 | 0.774 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 13h – Linguistic Fractionalization and the Quality of Government – Political Rights

| | Democracy index | | | Political rights index | | |
|---------------------------|----------------------|----------------------|-----------------------|------------------------|---------------------|---------------------|
| log(GNP 70-95) | 0.937*** (3.240) | | 1.645*** (6.488) | 0.080 (0.670) | | 0.567*** (3.542) |
| log(pop60) | | 0.028 (0.119) | 0.313 (1.514) | | -0.011 (0.111) | 0.082 (0.848) |
| Subs. Africa | | -2.932*** (3.427) | 0.188 (0.209) | | -0.904* (1.801) | 0.210 (0.376) |
| East Asia | | -1.619 (1.448) | -0.308 (0.281) | | -0.506 (0.819) | -0.037 (0.063) |
| Latin Am. | | -0.503 (0.604) | 1.764** (2.153) | | 0.623 (1.636) | 1.338*** (3.018) |
| Socialist legal origin | -2.924*** (3.593) | | -1.503* (1.789) | -1.770*** (3.848) | | -0.490 (1.000) |
| French legal origin | -1.682** (2.473) | | -2.145*** (3.397) | -0.239 (0.695) | | -0.636* (1.667) |
| German legal origin | -1.787 (1.509) | | -1.252 (0.873) | -0.247 (0.607) | | 0.856 (1.633) |
| Scandinavian legal origin | -2.019 (1.330) | | 1.455 (1.458) | -1.969*** (3.075) | | 1.095** (2.088) |
| Catholic 80 | -0.008 (0.436) | | | -0.008 (1.098) | | |
| Muslim 80 | -0.049** (2.575) | | | -0.042*** (5.912) | | |
| Other religion 80 | -0.020 (1.068) | | | -0.016** (2.068) | | |
| Latitude | 6.094*** (2.737) | | | 5.102*** (5.405) | | |
| Linguistic frag. | -0.681 (0.791) | -1.256 (0.962) | -0.162 (0.159) | -0.873* (1.857) | -1.247* (1.673) | -0.715 (1.003) |
| Constant | -0.858 (0.317) | 4.981 (1.344) | -11.783*** (3.317) | 4.953*** (4.447) | 5.237*** (3.538) | -0.649 (0.308) |
| Observations | 145 | 145 | 145 | 162 | 162 | 162 |
| Adj R2 | 0.543 | 0.119 | 0.432 | 0.529 | 0.101 | 0.235 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14a – Religious Fractionalization and the Quality of Government – Business Climate

| | Property rights index | | | Business regulation index | | |
|---------------------------|-----------------------|----------------------|----------------------|---------------------------|----------------------|----------------------|
| log(GNP 70-95) | 0.414*** (5.588) | | 0.529*** (8.936) | 0.490*** (7.157) | | 0.444*** (6.492) |
| log(pop60) | | -0.108** (2.156) | 0.005 (0.143) | | -0.128*** (2.959) | -0.037 (1.061) |
| Subs. Africa | | -1.148*** (5.683) | 0.058 (0.242) | | -1.123*** (7.351) | -0.242 (0.991) |
| East Asia | | -0.312 (0.690) | 0.179 (0.755) | | -0.269 (0.713) | 0.157 (0.627) |
| Latin Am. | | -0.590** (2.595) | -0.003 (0.014) | | -0.504** (2.502) | -0.179 (0.874) |
| Socialist legal origin | -1.385*** (6.301) | | -1.001*** (5.086) | -0.687*** (3.140) | | -0.590*** (2.813) |
| French legal origin | -0.678*** (3.629) | | -0.669*** (3.910) | -0.264* (1.722) | | -0.277** (2.118) |
| German legal origin | -0.032 (0.145) | | 0.105 (0.496) | -0.911*** (4.507) | | -0.838*** (3.172) |
| Scandinavian legal origin | -0.677 (1.485) | | -0.253 (0.896) | -0.750 (1.351) | | -0.929*** (3.602) |
| Catholic 80 | 0.000 (0.048) | | | 0.002 (0.363) | | |
| Muslim 80 | -0.003 (0.672) | | | 0.004 (0.606) | | |
| Other religion 80 | 0.000 (0.054) | | | 0.006 (1.028) | | |
| Latitude | 1.276*** (2.626) | | | 0.249 (0.501) | | |
| Religious frag. | -0.333 (0.965) | 0.673* (1.751) | -0.327 (0.926) | 0.029 (0.095) | 0.724** (2.535) | 0.098 (0.380) |
| Constant | 0.716 (1.146) | 5.132*** (6.311) | -0.005 (0.006) | -0.974 (1.402) | 4.800*** (7.163) | 0.405 (0.453) |
| Observations | 142 | 142 | 142 | 142 | 142 | 142 |
| Adj R2 | 0.589 | 0.140 | 0.569 | 0.487 | 0.217 | 0.485 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14b – Religious Fractionalization and the Quality of Government – Corruption and Bureaucratic Quality

| | Corruption | | | Bureaucratic delays | | |
|------------------------------|---------------------|----------------------|---------------------|---------------------|----------------------|---------------------|
| log(GNP 70-95) | 0.504*** (2.806) | | 0.994*** (5.305) | 0.610*** (3.783) | | 0.664*** (6.201) |
| log(pop60) | | 0.018 (0.153) | 0.245** (2.583) | | -0.299** (2.374) | -0.034 (0.353) |
| Subs. Africa | | -2.551*** (5.536) | 0.544 (0.843) | | -2.365*** (3.778) | -0.376 (0.630) |
| East Asia | | -1.469** (2.108) | -0.304 (0.522) | | -0.569 (1.309) | 0.295 (1.004) |
| Latin Am. | | -2.571*** (5.405) | -0.836* (1.746) | | -0.862*** (2.738) | -0.025 (0.091) |
| Socialist legal Origin | -0.542 (1.132) | | 1.013** (2.039) | -0.905** (2.064) | | -0.759* (1.913) |
| French legal Origin | -0.192 (0.475) | | -0.097 (0.221) | -0.467* (1.706) | | -0.392 (1.431) |
| German legal origin | 0.026 (0.042) | | 0.292 (0.494) | 0.065 (0.215) | | 0.124 (0.360) |
| Scandinavian legal origin | 1.067 (0.777) | | 2.458*** (4.646) | -0.399 (0.547) | | 0.648* (1.724) |
| Catholic 80 | 0.000 (0.020) | | | -0.009 (0.905) | | |
| Muslim 80 | -0.008 (0.528) | | | -0.016 (1.616) | | |
| Other religion 80 | 0.007 (0.497) | | | -0.007 (0.682) | | |
| Latitude | 5.064*** (3.654) | | | 0.433 (0.437) | | |
| Religious frag. | 0.382 (0.460) | 1.544** (2.053) | 0.216 (0.279) | 1.134** (2.389) | 3.190*** (4.550) | 2.016*** (4.242) |
| Constant | 0.482 (0.255) | 6.037*** (3.244) | -5.621** (2.487) | 0.416 (0.257) | 8.755*** (4.148) | -0.611 (0.328) |
| Observations | 122 | 122 | 122 | 59 | 59 | 59 |
| Adj R2 | 0.513 | 0.232 | 0.490 | 0.736 | 0.333 | 0.718 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14c – Religious Fractionalization and the Quality of Government – Taxation

| | Tax compliance | | | Top marginal tax rate | | |
|---------------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|
| log(GNP 70-95) | 0.494*** (3.457) | | 0.086 (0.510) | 1.232 (0.728) | | 1.213 (1.065) |
| log(pop60) | | -0.249*** (3.426) | -0.163* (1.875) | | 0.609 (0.781) | 0.723 (0.845) |
| Subs. Africa | | -2.159*** (6.730) | -1.840*** (3.550) | | -3.885 (1.075) | -0.605 (0.131) |
| East Asia | | 0.108 (0.347) | -0.058 (0.181) | | -12.744*** (4.982) | -9.543*** (3.104) |
| Latin Am. | | -0.384 (1.225) | -0.142 (0.373) | | -17.624*** (6.146) | -16.372*** (5.074) |
| Socialist legal origin | -0.899** (2.236) | | -1.474*** (3.648) | 9.234 (1.573) | | 5.740 (1.490) |
| French legal origin | -0.921*** (3.914) | | -0.936*** (3.142) | 8.917* (1.907) | | 7.428** (2.572) |
| German legal origin | -0.469* (1.759) | | -0.402 (1.370) | 5.023 (0.958) | | 5.425 (1.037) |
| Scandinavian legal origin | -0.231 (0.268) | | -0.576 (1.465) | 17.275* (1.857) | | 13.240** (2.500) |
| Catholic 80 | 0.002 (0.203) | | | -0.011 (0.098) | | |
| Muslim 80 | 0.014 (1.273) | | | 0.141 (1.232) | | |
| Other religion 80 | 0.005 (0.520) | | | 0.062 (0.499) | | |
| Latitude | -0.724 (0.884) | | | 18.309 (1.402) | | |
| Religious frag. | 0.634 (0.919) | 2.288*** (5.119) | 1.387*** (2.862) | 16.736** (2.248) | -1.754 (0.392) | 4.674 (0.884) |
| Constant | -0.752 (0.510) | 6.437*** (5.451) | 5.284** (2.243) | 10.124 (0.638) | 39.302*** (3.019) | 19.067 (1.035) |
| Observations | 49 | 49 | 49 | 82 | 82 | 82 |
| Adj R2 | 0.526 | 0.410 | 0.562 | 0.223 | 0.358 | 0.415 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14d – Religious Fractionalization and the Quality of Government – Size of Public Sector

| | SOEs in the economy | | | Public sector employment / total pop. | | |
|---------------------------|---------------------|----------|-----------|---------------------------------------|-----------|----------|
| log(GNP 70-95) | 0.434* | | 0.378* | 1.367*** | | 1.095*** |
| | (1.663) | | (1.750) | (5.438) | | (5.799) |
| log(pop60) | | -0.375** | -0.376*** | | -0.388** | -0.191* |
| | | (2.547) | (2.679) | | (2.306) | (1.898) |
| Subs. Africa | | -0.716 | -0.198 | | -5.152*** | -1.301* |
| | | (1.328) | (0.287) | | (9.675) | (1.915) |
| East Asia | | 1.611** | 1.284* | | -3.546*** | -1.467** |
| | | (2.200) | (1.705) | | (5.948) | (1.989) |
| Latin Am. | | 1.192** | 1.113* | | -3.126*** | -0.669 |
| | | (2.323) | (1.921) | | (4.439) | (1.106) |
| Socialist legal origin | -3.149*** | | -2.796*** | 2.474*** | | 2.288*** |
| | (3.282) | | (3.461) | (3.619) | | (3.942) |
| French legal origin | -0.053 | | -0.020 | -0.445 | | -0.412 |
| | (0.089) | | (0.040) | (1.136) | | (1.114) |
| German legal origin | 0.301 | | 0.581 | -2.418** | | -1.921** |
| | (0.288) | | (0.477) | (2.520) | | (2.086) |
| Scandinavian legal origin | -1.978 | | -1.419 | 7.334*** | | 7.027*** |
| | (1.152) | | (1.481) | (4.501) | | (5.806) |
| Catholic 80 | -0.005 | | | 0.005 | | |
| | (0.253) | | | (0.357) | | |
| Muslim 80 | -0.015 | | | 0.015 | | |
| | (0.706) | | | (1.141) | | |
| Other religion 80 | -0.009 | | | 0.006 | | |
| | (0.464) | | | (0.493) | | |
| Latitude | -1.167 | | | 0.765 | | |
| | (0.634) | | | (0.387) | | |
| Religious frag. | -0.642 | 1.091 | 0.378 | 0.813 | 1.731 | 0.643 |
| | (0.559) | (1.134) | (0.392) | (0.776) | (1.609) | (0.723) |
| Constant | 2.850 | 9.586*** | 7.261** | -7.312*** | 11.702*** | -0.843 |
| | (1.099) | (4.114) | (2.486) | (3.349) | (4.182) | (0.362) |
| Observations | 103 | 103 | 103 | 117 | 117 | 117 |
| Adj R2 | 0.118 | 0.146 | 0.246 | 0.709 | 0.385 | 0.720 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14e – Religious Fractionalization and the Quality of Government – Size of Government

| | Government consumption / GDP | | | Transfers and subsidies / GDP | | |
|---------------------------|------------------------------|-----------|-----------|-------------------------------|------------|-----------|
| log(GNP 70-95) | 0.956* | | 0.847* | 1.437*** | | 2.556*** |
| | (1.695) | | (1.733) | (2.930) | | (4.356) |
| log(pop60) | | -1.328*** | -1.062*** | | 0.052 | 0.425 |
| | | (4.855) | (3.501) | | (0.135) | (1.293) |
| Subs. Africa | | -4.569*** | -2.254 | | -14.202*** | -6.165*** |
| | | (3.801) | (1.270) | | (10.884) | (3.132) |
| East Asia | | -5.738*** | -4.907*** | | -14.413*** | -9.871*** |
| | | (4.375) | (3.006) | | (12.385) | (7.160) |
| Latin Am. | | -5.560*** | -4.345*** | | -10.293*** | -5.731*** |
| | | (4.981) | (3.674) | | (7.442) | (4.158) |
| Socialist legal origin | -1.416 | | -2.036 | 6.295** | | 9.379*** |
| | (0.525) | | (0.770) | (2.152) | | (3.782) |
| French legal Origin | -0.319 | | -0.348 | 1.007 | | 1.655 |
| | (0.268) | | (0.291) | (0.797) | | (1.345) |
| German legal Origin | -3.596* | | -1.785 | -3.707 | | -1.771 |
| | (1.826) | | (0.882) | (1.491) | | (0.756) |
| Scandinavian legal origin | 3.627 | | 2.590 | 6.071 | | 4.728 |
| | (0.971) | | (0.891) | (1.411) | | (1.567) |
| Catholic 80 | -0.008 | | | 0.095** | | |
| | (0.222) | | | (2.156) | | |
| Muslim 80 | 0.032 | | | 0.066 | | |
| | (0.865) | | | (1.547) | | |
| Other religion 80 | -0.013 | | | 0.077* | | |
| | (0.353) | | | (1.883) | | |
| Latitude | 5.506 | | | 27.330*** | | |
| | (1.615) | | | (6.671) | | |
| Religious frag. | 5.535** | 3.505** | 2.567 | 7.255*** | 6.020** | 4.425 |
| | (2.109) | (2.202) | (1.067) | (2.962) | (2.417) | (1.616) |
| Constant | 4.440 | 37.124*** | 26.477*** | -20.971*** | 12.839** | -16.436** |
| | (0.949) | (7.727) | (4.096) | (4.164) | (2.066) | (2.142) |
| Observations | 103 | 103 | 103 | 89 | 89 | 89 |
| Adj R2 | 0.210 | 0.272 | 0.306 | 0.713 | 0.591 | 0.717 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14f – Religious Fractionalization and the Quality of Government – Public Goods

| | Infrastructure quality | | | Log infant mortality | | |
|------------------------------|------------------------|----------------------|----------------------|-----------------------|----------------------|-----------------------|
| | | | | | | |
| Log(GNP 70-95) | 0.755*** (4.783) | | 0.925*** (7.461) | -0.446*** (12.039) | | -0.460*** (11.035) |
| Log(pop60) | | -0.246 (1.301) | 0.124 (1.267) | | 0.052* (1.716) | -0.012 (0.570) |
| Subs. Africa | | -2.938*** (4.057) | -0.337 (0.517) | | 1.614*** (14.433) | 0.344** (2.430) |
| East Asia | | -1.376** (2.163) | -0.257 (0.741) | | 0.692*** (3.320) | 0.017 (0.129) |
| Latin Am. | | -1.352*** (3.579) | -0.344 (1.093) | | 0.608*** (4.764) | -0.061 (0.562) |
| Socialist legal Origin | -1.976*** (3.958) | | -1.684*** (3.515) | -0.154 (1.319) | | -0.391*** (3.535) |
| French legal Origin | -0.460* (1.765) | | -0.452 (1.473) | 0.235*** (2.703) | | 0.125 (1.339) |
| German legal Origin | 0.155 (0.330) | | 0.364 (0.852) | 0.024 (0.170) | | -0.186 (1.228) |
| Scandinavian legal origin | -1.759** (2.147) | | 0.601 (1.669) | -0.504* (1.849) | | -0.699*** (4.517) |
| Catholic 80 | | -0.022** (2.298) | | -0.005 (1.628) | | |
| Muslim 80 | | -0.029*** (3.273) | | 0.001 (0.428) | | |
| Other religion 80 | | -0.017* (1.754) | | -0.004 (1.457) | | |
| Latitude | | 1.679* (1.862) | | -0.906*** (2.935) | | |
| Religious frag. | 0.595 (1.243) | 3.178*** (3.163) | 1.669** (2.421) | -0.161 (0.863) | -1.024*** (4.598) | -0.463** (2.502) |
| Constant | 1.145 (0.838) | 8.971*** (2.888) | -4.059* (1.918) | 7.540*** (19.822) | 2.849*** (5.799) | 7.447*** (16.330) |
| Observations | 59 | 59 | 59 | 168 | 168 | 168 |
| Adj R2 | 0.827 | 0.255 | 0.797 | 0.824 | 0.471 | 0.789 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14g – Religious Fractionalization and the Quality of Government – Schooling and Literacy

| | Illiteracy rate | | | Log school attainment | | |
|------------------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| log(GNP 70-95) | -11.860*** (13.422) | | -10.503*** (7.629) | 0.310*** (8.366) | | 0.320*** (10.083) |
| log(pop60) | | 1.170 (1.571) | -1.102 (1.503) | | -0.044* (1.789) | 0.013 (0.755) |
| Subs. Africa | | 22.560*** (4.958) | 4.432 (0.872) | | -1.085*** (10.468) | -0.159 (1.313) |
| East Asia | | -9.595 (1.570) | -13.504** (2.457) | | -0.289* (1.902) | 0.035 (0.238) |
| Latin Am. | | -14.304*** (3.333) | -19.487*** (5.345) | | -0.269** (2.321) | 0.231** (2.483) |
| Socialist legal Origin | -12.792 (1.271) | | -6.017 (0.740) | 0.430*** (4.471) | | 0.611*** (8.131) |
| French legal Origin | 5.094 (1.605) | | 1.639 (0.539) | -0.182*** (2.717) | | -0.142** (2.113) |
| German legal Origin | -6.957 (1.585) | | -0.354 (0.067) | -0.226** (2.331) | | -0.201** (2.325) |
| Scandinavian Legal origin | 0.000 (.) | | 0.000 (.) | 0.015 (0.057) | | 0.040 (0.412) |
| Catholic 80 | 0.020 (0.196) | | | 0.003 (0.959) | | |
| Muslim 80 | 0.337*** (3.520) | | | -0.002 (0.596) | | |
| Other religion 80 | 0.126 (1.057) | | | 0.002 (0.551) | | |
| Latitude | -13.640 (1.124) | | | 0.132 (0.510) | | |
| Religious frag. | 4.020 (0.567) | -23.794*** (4.084) | -17.174*** (2.989) | 0.083 (0.426) | 0.854*** (4.696) | 0.336** (2.397) |
| Constant | 97.357*** (8.864) | 21.364* (1.829) | 131.201*** (7.185) | -0.962** (2.226) | 2.097*** (5.041) | -1.220*** (3.000) |
| Observations | 118 | 118 | 118 | 101 | 101 | 101 |
| Adj R2 | 0.664 | 0.463 | 0.647 | 0.781 | 0.449 | 0.791 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14h – Religious Fractionalization and the Quality of Government – Political Rights

| | Democracy index | | | Political rights index | | |
|---------------------------|----------------------|----------------------|-----------------------|------------------------|----------------------|---------------------|
| log(GNP 70-95) | 1.052*** (3.804) | | 1.631*** (5.994) | 0.169 (1.370) | | 0.524*** (3.107) |
| log(pop60) | | -0.013 (0.054) | 0.306 (1.482) | | -0.055 (0.614) | 0.028 (0.297) |
| Subs. Africa | | -4.024*** (5.628) | 0.063 (0.066) | | -1.631*** (3.871) | -0.314 (0.524) |
| East Asia | | -2.071** (1.990) | -0.353 (0.340) | | -0.917 (1.573) | -0.266 (0.463) |
| Latin Am. | | -0.391 (0.488) | 1.799** (2.210) | | 0.666* (1.830) | 1.308*** (2.967) |
| Socialist legal origin | -2.748*** (3.456) | | -1.498* (1.811) | -1.731*** (3.791) | | -0.441 (0.898) |
| French legal origin | -1.796*** (2.704) | | -2.089*** (2.886) | -0.451 (1.281) | | -0.368 (0.883) |
| German legal origin | -1.651 (1.458) | | -1.218 (0.878) | -0.263 (0.592) | | 1.047** (2.194) |
| Scandinavian legal origin | -3.622** (2.195) | | 1.567 (1.382) | -2.225*** (2.836) | | 1.599*** (2.727) |
| Catholic 80 | | -0.025 (1.305) | | -0.009 (0.954) | | |
| Muslim 80 | | -0.067*** (3.448) | | -0.045*** (5.013) | | |
| Other religion 80 | | -0.032* (1.737) | | -0.018** (2.100) | | |
| Latitude | | 5.254** (2.410) | | 4.895*** (4.936) | | |
| Religious frag. | -2.688** (2.101) | 3.172** (2.331) | 0.233 (0.163) | -0.690 (1.004) | 1.907*** (2.754) | 1.226 (1.480) |
| Constant | 0.864 (0.311) | 4.007 (1.047) | -11.730*** (3.270) | 4.570*** (3.675) | 4.814*** (3.140) | -0.291 (0.144) |
| Observations | 148 | 148 | 148 | 169 | 169 | 169 |
| Adj R2 | 0.559 | 0.150 | 0.438 | 0.516 | 0.133 | 0.251 |

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 15 – Country Examples of Ethnic Fractionalization, Growth and Government Quality

| Country | Average growth in 1980s | Average black market premium in 1980s | Average Years of Schooling of Labor Force, 1980s | Telephone lines per 1000 workers, 1980s | Government Balance to GDP, 1980s | Corruption (0 to 10) Higher means less corruption | Ethnic fractionalization |
|----------------------|-------------------------|---------------------------------------|--|---|----------------------------------|---|--------------------------|
| Africa | | | | | | | |
| Botswana | 7.0% | 16% | 3.3 | 27 | 11.2% | 6.5 | 0.410 |
| Ethiopia | 0.0% | 76% | | 4 | -7.1% | 4.3 | 0.724 |
| Nigeria | -3.3% | 76% | | 2 | 0.3% | 3.0 | 0.851 |
| Latin America | | | | | | | |
| Bolivia | -3.3% | 39% | 5.0 | 46 | -14.4% | 2.8 | 0.74 |
| Chile | 1.9% | 16% | 7.0 | 84 | -0.2% | 5.3 | 0.19 |
| Guyana | -2.4% | 131% | 5.6 | | -39.7% | 2.0 | 0.62 |