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1 December 2013

Online at <https://mpra.ub.uni-muenchen.de/38511/>

MPRA Paper No. 38511, posted 10 Feb 2014 01:30 UTC

Comparative Analysis of Ethnic Diversity Measures on Provisioning of Basic Public Goods: Cross
Country Assessment

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Abstract

Ethnic diversity and provision of public goods have long been understood to share a negative relationship. While there has been a concerted effort to define and measure ethnic diversity around the world, we are interested in analyzing the possible differences in these measures when it comes to using them to explain their impact on provision of public goods. Defining public goods using a single aggregate measure or using only one variable as proxy is a vague concept. It is also unclear specifically which aspects of a country's atmosphere tend to drive the negative relation between public goods provision and ethnic diversity. Our empirical analysis shows that given the strong impact, there is a lot of room for flexibility when choosing the ethnic diversity measure. We also introduce three new possible measures of public goods provision and by including the major basic public sectors, we conclude that the most significant negative impact of ethnic diversity is on the health and sanitation sectors.

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Introduction

Is the level of poverty in a country measured solely by the purchasing power of an individual for private goods? If so, is it exacerbated by a lack of access to basic public goods like health care, education, sanitation and infrastructure? The United Nations Industrial Development Organization, in their 2008 report has emphasized the importance of public goods provision at national, regional and international levels. With a strong presence in the Millennium Development Goals, the provision of public goods can increase the productive capacity of a country by improving the quality of life as well as law and order by strengthening civil institutions.

While there are multiple factors that can affect the provisioning of public goods, ethnic composition of a country has been evidenced to play an important role. Many researchers including Banerjee et al. (2005), Habyarimana et al. (2007), Easterly and Levine (1997), Alesina et al. (1997) and Miguel and Gugerty (2005) agree that there is a definite and negative impact of ethnic diversity on public goods provision. However, there are different views on the specific underlying factors that drive this negative relationship; whether it is the lack of social sanctions and collective actions (Miguel and Gugerty 2005) or varying preferences amongst ethnic groups (Habyarimana, et al. 2007). It is always interesting to see how ethnic compositions in a region change over time and how the interactions of various political, historical, geographical and demographic characteristics across countries either influence ethnic composition negatively (thereby driving down public goods provision) or due to other compensating features, has no effect on public goods provision at all. Specifically, we ask,

1. Is there a fundamental impact of the choice of ethnic diversity measure/index on the level of public goods provision?
2. Is it empirically more desirable to use one aggregate measure of public goods provision or to analyze various public goods separately to gauge their relative 'rival' natures?
3. What are the political, historical, geographic and demographic characteristics of a country that may be driving the negative relationship between ethnic diversity and public goods provision?

After briefly describing some of the important previous work in this field, we have contextualized our empirical contribution. We have also proposed a specific methodology incorporating all the relevant aspects and discuss the data used for the technical analysis. Finally

we have displayed our results in a tabular format and have discussed the implications and limitations of our work.

Literature Review

Differences in the ethnic make-up of various nations have long been perceived to be a determining component of the economic growth and prosperity in those nations. Most scholars hold the view that political disagreements and preferences over public policies reflect deeply rooted ethnic divisions. This was highlighted by Alesina et al. (1999) that even in a developed yet ethnically heterogeneous country like United States, urban provision of public goods like education and roads is negatively correlated with the extent of ethnic fragmentation in those areas. By controlling for income distribution, they use the ethnic fractionalization index to separate the effects of ethnic diversity on levels of spending on public goods and find that even though ethnically fragmented jurisdictions have higher budgetary spending, their allocation to public goods like education, roads and sewerage is lower. Therefore, we would imagine this impact of higher ethnic fragmentation leading to lower public goods provision to be more severe in developing countries around the world given their additional constraints.

On a more micro level, Khwaja (2008) conducted a comparative analysis of community-level issues of public works project maintenance in northern Pakistan. In accordance with previous work, Khwaja finds that community level factors like social heterogeneity is inversely related to project maintenance while land inequality has a U-shaped relation with project maintenance and existence of leadership is positively related to project maintenance with the results being robust to community and project specific controls. On a more important level, the author finds that even in cases of lower social capital, efficiently designed projects with lower appropriation risk, fairer returns distribution and higher involvement of local community and NGOs that leads to more publicly available information can drastically increase public project maintenance.

Empirical work in Sub-Saharan Africa, known to be one of the most ethnically diverse regions in the world, is extremely insightful for our purposes. One study found an inverse relation between public goods provision in the form of local funding of community water wells and primary schools and ethnic diversity in western Kenya (Miguel and Gugerty 2005). In particular, the authors find that mean local school funding per student reduces by 20 percent while the level of operational water wells reduces by 6 percentage points when ethnic diversity changed from complete homogeneity to average ethnic diversity (with demographic, geographic and socioeconomic controls) suggesting a community-wide impact of ethnic diversity. Miguel and Gugerty (2005) also conclude that it is harder for ethnically diverse communities to impose

social sanctions on free-riders that lead to a failure of collective action. Like Alesina et al. (1999), these authors use the same definition of Ethno-Linguistic Fractionalization (ELF) for computing the ethnic diversity measure (discussed in Methodology).

To give the issue of ethnic diversity and public goods provision a different perspective, Miguel (2004) conducted a comparative analysis between two rural districts; one in Western Kenya and the other in Western Tanzania. He shows that in the Kenyan district, there is 25 percent less funding on primary schools per student in areas of mean ethnic diversity compared to homogenous areas while in Tanzania, there is almost no difference between the comparable figures. This stark contrast comes because of Tanzania's ability to institute major nation-building reforms including a unifying national language, stronger local governmental institutions and public investment that is spread out more equally. This author also uses the well-known measure of ELF to gauge the level of ethnic diversity in the two districts.

Other studies have attempted to pinpoint the exact factors such as 'preferences', 'technology' and 'strategy mechanism' that cause the failure of public goods provision (Habyarimana, et al. 2007). By having 300 subjects from Kampala, Uganda play series of a game with randomized matching between co-ethnics and non co-ethnics, they find similar results to those of Miguel and Gugerty (2005). Ethnically homogenous societies have better networks and more uniform norms because of which they can effectively impose social sanctions on members of their community who do not contribute towards collective action or public goods provision.

A more recently conducted work in Jordan used Demographic and Health Survey of 1990 and in which POLAT (2012) analyzes not just the impact of ethnic fragmentation but also of ethnically aligned civil organizations on public goods provision. The author constructs measures of national and religious fragmentation using survey data from 6461 every-married female respondents on their religion and nationality. He finds that public goods provision is related negatively (albeit weakly) to the religious fragmentation between the majority Muslims and the wealthy minority Christians while it is positively related to national fragmentation related to the immigration of Palestinians. Due to these contrasting results, POLAT (2012) advises against using a measure of fragmentation that bundles together all the racial, national and religious characteristics of an individual. He also finds insignificant evidence that ethnically oriented civil institutions impact public goods provision in Jordan.

In that regards, measuring ethnic diversity across countries is a largely contentious issue due to lack of detailed and reliable data. Most researchers have relied on the famous 'Atlas

Narodov Mira' Ethno-linguistic classification constructed in 1964 by the Soviets which focuses majorly on linguistic differences. More recent work on the selection of ethnic diversity argues that differentiating between groups based on language largely ignores deeply rooted racial and ethnic associations (Alesina, Devleeschauwer, et al. 2002). This is why they set upon the task of constructing new measures of fractionalization; one based on ethnicity, second based on language and third based on religion. The index of ethnicity combines racial features to a larger extent and linguistic features to a smaller extent and covers 650 districts in 190 countries. This is why the authors have considered 'ethnicity' to be their most important variable for measuring ethnic diversity because this index is a more recent one incorporating the relevant features of ethnic diversity. They also find a significantly inverse relationship of ethnic fractionalization on GDP per capita, telephones per capita and schooling. However, this relation dims down when using the linguistic measure and completely fades away when using the religious fractionalization measure. This is in contrast to the finding in Jordan where religious fragmentation does negatively impact (albeit weakly) public goods provision (POLAT 2012).

Another highly notable method of constructing a measure for ethnic diversity was conceptualized by Fearon (2003). He admits to the fact that there can be multiple ways of measuring ethnicity in any country and even in the US, the widely accepted ethnic races include White, African American, Asian and Hispanic however, there can be various border-line issues with such broad categorization. According to him, the "'right list" of ethnic groups for a country depend on what people in the country identify as the most socially relevant ethnic grouping'. Therefore, he collects datasets from 822 groups in 160 countries using multiple global sources and constructs a measure of ethnic fractionalization that allows for 'other cultural criteria distinguishing groups, provided that the groups are locally understood as (primarily) descent groups and are locally viewed as socially or politically most consequential.'. He highlights the importance of cultural distance between ethnic groups in his measure of 'cultural fractionalization' and compares this measure to his measure of ethnicity.

Some researchers consider other 'economic' differences among groups of people to be important when analyzing the provision of public goods in a country. The measure used for this purpose is the Between Group Inequality (BGI); 'a weighted average of the differences in mean incomes (of an ethnic group) across groups in a country' (Baldwin and Huber 2010). This measure can be considered as building upon the ELF measure that takes on the value of 1 when income inequality is extreme and 0 when average incomes for all the people are the same. Using

principle factor analysis using ten dependent variables (discussed in methodology) Baldwin and Huber (2010) find that there is a significant and large inverse relation between public goods provision and BGI.

Finally, the economic literature measuring public goods provision and ethnic diversity consider the issue of endogeneity of ethnic diversity with public goods provision. Even though empirical researchers often treat ethnic diversity as exogenous, Ahlerup (2009) argues that since high ethnic fractionalization negatively affects economic growth and public goods provision, it cannot be treated as exogenous. To treat the problem of endogeneity, Ahlerup uses multiple instrumental variables for ethnic diversity including *Origtime* (duration of uninterrupted human settlements allowing people to form ethnic groups), *VegDiversity* (new ethnic groups are formed because uneven geographical patterns make public goods provision harder across larger distances), *Indtime* (years since independence; more years would homogenize a society) and *MigDist* (proxy for distance people had to cover to colonize a specific region on Earth). When instrumenting for ethnic diversity in this way, ethnic fractionalization is found to have a negative and significant causal impact on public goods provision, measured as infant mortality. Related to the issue of endogeneity is the issue of time horizon that can change the ethnic diversity measure. Alesina et al. (2002) argue that there may be changes in the way ethnic groups are defined or in fundamental shifts in the composition of such groups. However, most researchers take ethnic diversity to be exogenous over a period of 30 years as it normally takes decades for ethnic groups to form or change and that is the stance we adopt in our empirical analysis as well.

Given a strong foundational work on ethnic diversity's impact on public goods and facilities provision, our research would help to gain better insights into the issues of measuring public goods that is, whether to use an aggregate measure or not and what other indicators can serve as a decent proxy. It would also highlight how certain characteristics of a country, more than others, tend to worsen the impact of ethnic diversity. Those characteristics (or lack of) can then serve as the primary target for policymakers when designing public sector projects that have maximum possible social efficiency and increases common access.

Definition of Ethnicity and Comparison of Measures

The most commonly used measure of ethnic diversity is the ubiquitous ELF or Ethno-Linguistic Fractionalization which 'measures the probability that two randomly drawn

individuals from the overall population belong to different ethnic groups' and is calculated as 1 minus the Herfindahl index:

$$1 - \sum_{k=1}^K \rho^2 k$$

where ρ indicates the share of the ethnic group k in the total population. One of the advantages of this index that makes it popular is the ease of computability on a micro and macro level and its intuitive interpretation (Bossert, D'Ambrosio and Ferrara 2005). In our empirical analysis, we will use three different indices of ethnic diversity that use similar foundations for computation but include slightly varying data and inclusions of ethnic associations.

One of the earliest attempts to gather data for calculating the ELF index on a cross-country level was by a team of Soviet ethnographers in the 1960s and was published in the Atlas Narodov Mira in 1964. The primary distinguishing factor used to denote one's ethnicity was language and the computed dataset for the index we use for ELF here was compiled by Roeder (2001). According to this dataset, Uganda, Tanzania, Solomon Islands and Papua New Guinea are the most ethnically heterogeneous while North Korea, South Korea, North Yemen, Portugal and Japan are the most ethnically homogenous countries. From here on, this index will be referred to as '*ELF85*' since it is for the year 1985.

In order to incorporate deeper characteristics of ethnicities, Alesina et al. (2002) constructed a measure of fragmentation for ethnicity that include racial and linguistic features for almost 190 countries. The data sources used include Encyclopedia Britannica, CIA Factbook and Minority Rights Group International. In addition to this, they also construct a measure based solely on linguistic classifications for 201 countries using data from Encyclopedia Britannica 2001 and a measure based solely on religion using the same data source but for 215 countries. According to this calculation, the American Samoa, Uganda, Liberia, Madagascar and Congo Republic are the most ethnically heterogeneous countries while North Korea, Japan, South Korea, Tunisia and Malta are the most ethnically homogenous countries. From here on, this index will be referred to as '*Ethnic*'.

The third relevant calculation of cross country ethnic diversity was undertaken by Fearon (2003) who consulted multiple sources including CIA's World Factbook, Encyclopedia Britannica, Library of Congress Country Study and other country-specific sources for 160 countries. Fearon admits that constructing a single measure of ethnicity is a 'slippery' concept

especially if you want to include features other than language and race. According to his list of ethnic fractionalization, Tanzania, Democratic Republic of Congo, Uganda and Liberia are the most ethnically heterogeneous countries while North Korea, South Korea, Japan, Germany and Tunisia are the most ethnically homogenous countries. From here on, this ethnic diversity index will be referred to as '*Ethnic frac*'.

Correlation between these different measures:

It is interesting to note that the foundations of all of these measures of ethnic diversity are the same and so there is high correlation between them. Since Roeder's index is based on the Atlas Narodov Mira's data, its correlation with the Soviet ELF is 0.88 while it is 0.81 with Fearon's index whose correlation in turn with the Soviet ELF is 0.75 (Fearon 2003). Additionally, the ethnicity index constructed by Alesina et al. bears a correlation of 0.76 with the Soviet ELF primarily because the latter is a subset of the former (Alesina, Devleeschauwer, et al. 2002).

Methodology

To answer our first question, we have used the three measures of ethnic diversity discussed above in our empirical analysis. In order to address our second question of whether or not to aggregate measures of public goods provision as dependent variable⁴, we used nine public goods variables which have been broadly classified into four groups:

1. Education which includes 'total public spending on primary education', 'literacy rate' and 'primary school completion rate'
2. Health which includes 'infant mortality', 'rate of immunization for measles', 'rate of immunization for DPT'
3. Water and Sanitation which includes 'percentage of population with access to improved sanitation facilities', 'percentage of rural population with access to improved water source'
4. Communication and infrastructure which includes 'telephone lines per hundred people'⁵.

⁴ Motivation for using these dependent variables as proxies for public goods provision came from Baldwin and Huber (2010) although we have not used the exact ten variables used by them due to missing data.

⁵ We did not include percentage of urban population with access to water source as this would include private consumption of water while rural populations are mostly dependent on public provision. We also did not include data on paved roads because of limited data availability.

While Baldwin and Huber (2010) have used the technique of Principle Component Analysis to aggregate all the public goods variable into one measures, our intuition suggests that some public goods may be more rival than others and would therefore be impacted more severely by ethnic diversity than other types of public goods. For this reason, we have run regressions using all these nine dependent variables separately in the first set of regressions (shown in Table-1) and then we also constructed their relevant Principle Component. The first point to note is that for PCA (Principle Component Analysis), all the variables should have consistent amount of data; for our dataset, two variables had inconsistent data (improved sanitation facilities and literacy rate) so we dropped them for the purpose of this index construction. For the remaining seven variables, we have consistent data from 114 countries for which we created seven components using Stata. These components serve to take out the problem of multi-collinearity between the seven variables for public goods provision. Out of these seven components, we selected the first one which has the highest Eigenvalue (rule of thumb) and which explains 66.1% of the variation between these seven variables. This principle component which is defined as ‘a linear combination of optimally-weighted observed variables’ (SAS Institute n.d.) is then used to obtain the score for each country using Stata⁶. Looking at these scores, we can decide which countries are providing aggregate public goods well and which are not; Germany, Greece, Iceland, Japan and Sweden have the highest score while Chad, Democratic Republic of Congo, Central African Republic, Angola and Nigeria have the lowest score. This PCA score is then used as dependent variable to conduct the second set of regressions (also shown in Table-1 column (12)). In order to further our argument of using a single measure of public goods provision proxy, in the second set of regressions, we also used the rank of Human Development Index as dependent variable (Table-1). We believe that the rank of HDI can be a good proxy for measuring the provision of public goods provision because it is a measurement of the development of a country taking into account education, life expectancy and incomes. The third aggregate proxy we use for public goods provision is total public sector expenditure (as percentage of GDP) on public goods which we believe is a direct and strong indicator.

To address our third research question, we have included a number of insightful control variables (shown in Table-2 onwards) which have also been broadly classified⁷. The groups of

⁶ Command ‘pca varlist; predict f1 f2’

⁷ Definitions for all variables included in Appendix A

variables on democracy and history which are of special interest to us include Democracy Index, Corruption Index, Freedom Status (Dummy), Procedure to enforce contract and Political Regime (Dummy) in the former and Colonization (Dummy), Civil Wars (Dummy) and Years of Independence in the latter. We would imagine that countries with lower quality of these variables would undermine the provision of public goods. Other control variable groups include demography (Log of the area of a country, population density and natural resources) and economy (log of GNI per capita in PPP Dollar). Controlling for all these measures would help us examine a largely unbiased impact of ethnic diversity on public goods provision. Our model using a cross country OLS regression is given by the following equation:

$$Y_{ji} = \beta_0 + \beta_{1j} \sum_j X_{ji} + \beta_{2j} \sum P_{ji} + \beta_{3j} \sum Z_{ji} + \beta_{4j} \sum V_{ji} + \beta_{5j} \sum E_{ji} + u_i$$

Y_{ji} = Different measures of provision of public goods in country i

X_{ji} = Different ethnic diversity measures for country i

P_{ji} = Democratic and Political measures for country i

Z_{ji} = Demographic measures for country i

V_{ji} = Historical measures for country i

E_{ji} = Economics measures for country i

u_i = Error term of the model for country i

The order in which we conducted the series of regressions is as follows: first we regressed the three different measures of ethnic diversity (main explanatory variable) on the dependent variables for public goods provision separately. Then we regressed the three different measures of ethnic diversity (main explanatory variable) on the three aggregate measures of public goods provision (PCA, HDI and public sector expenditure). Thirdly, to introduce the impact of the control variables, rather than regressing the main explanatory variable and control variables with each dependent variable proxying for public goods provision, we picked one dependent variable from each of the first three broad classifications and regressed the independent variables on them separately. Specifically, for the control included regressions, for education we picked ‘primary school completion rate’, for health we picked ‘infant mortality’ and for water and sanitation, we picked ‘improved water facilities in rural areas’. This selection was based on two criteria: higher variation and higher availability of data. Communication and infrastructure was not included because the variation among the data points for telephone lines was very weak. Also instead of introducing all of the thirteen control variables together in the regression, we progressively added each broad classification in order to tease out the effect of

each category on the respective dependent variable for public goods provision. Finally, we ran a set of regressions with all the complete control variables and the chosen ethnic diversity measure (for that specific regression) on the three aggregate measures of public goods i.e. PCA, HDI and public sector expenditure as percentage of GDP. We also regressed Fearon's index of ethnic diversity '*Ethnic frac*' on all the nine individual dependent variables, including all controls. As discussed in the Conclusion section, we only chose Fearon's index because of a higher magnitude and significance of coefficients compared to the other two indices (even though their coefficients are also significant and relevant). This was done to see which specific public sectors or facilities are more 'rival' than others and therefore, are the most undermined.

Data Sources and Summary Statistics

Since we have assumed ethnic diversity to be a time-invariant and exogenous factor, we have used cross-country data with the following features and characteristics for each variable:

Variable Name	Unit of Measurement	Year	Observations	Mean	Std. Dev	Min	Max	Source
Dependent Variables								
Public Spending on Primary Education	%age of GDP	2010	105	4.82	1.90	1.2	12.9	World Bank
Primary school completion	%age of relevant age group	2010	129	89.13	18.42	35	133	World Bank
Infant Mortality	Per 1000 live births	2010	192	28.43	26.31	2	123	World Bank
Immunization (Measles)	%age of children (12-23 months)	2010	190	87.27	14.21	33	99	World Bank
Immunization (DPT)	%age of children (12-23 months)	2010	190	88.44	13.46	33	99	World Bank
Improved Sanitation	%age of population with access	2010	187	73.28	29.73	10	100	World Bank
Improved Water Source (Rural)	%age of population with access	2010	187	82.10	20.61	7	100	World Bank
Improved Water Source (Urban)	%age of population with access	2010	195	94.78	7.84	52	100	World Bank
Telephone Lines	Per 100 people	2010	204	20.86	20.04	0.05	121.19	World Bank
Nine Dependent Variables (PCA)	Index	2010	114	0	2.15	-7.46	2.77	World Bank/authors
HDI (Dependent)	Index	2010	169	85	48.93	1	169	World Bank
Public Sector Expenditure	%age of GDP	2010	109	27.84	11.2	10.6	62.8	World Bank

Main Explanatory Variables								
ELF85	Index	1985	179	0.27	0.45	0	0.86	Phillip G. Roeder (2001)
Ethnic	Index	1979 - 2001	215	0.44	0.25	0	0.93	Alesina (2002)
Ethnic Frac	Index	**	160	0.47	0.26	0	0.95	Fearon (2003)
Control Variables								
Demographic								
Log of Area	Square km		213	10.9	3.03	0.70	16.7	Encyclopedia Britannica, CIA, US Stats Division, other governmental sources
Population Density	People per sq. km	2010	208	397.43	1946.61	2	19094	World Bank
Natural Resources	% of GDP	2010	184	8.84	14.03	0	74.6	World Bank
Politics								
Democracy Index	Scale 0 to 10 ⁸	2012	149	5.49	2.27	1.08	9.8	The Economist: Intelligence Unit
Corruption Index	Scale 0 to 100 ⁹	2012	176	35.46	24.34	0	90	Transparency Intl.
Freedom Status (Dummy)	Free, Partly (87) free (60), Not free (48)	2012	195					Freedom House
Contract Enforcement	Number of contracts	2010	182	38.07	6.54	21	55	World Bank
Political Regime (Dummy)	Authoritarian Regime (49); Hybrid regime (36); Flawed Democracy (53); Full Democracy (24).	2012	152					The Economist: Intelligence Unit
History								
Colonization (Dummy)	Belgium (3); France (26); Italy (1); Netherlands (2);	2013	122					Wikipedia

⁸ Higher score implies greater extent of democracy

⁹ Higher score implies *less* corruption

	Portugal (5); Spain (20); UK (50); USSR (15)							
Civil War (Dummy)	1 if civil war, 0 if none Civil war (45), None (168)	1970 - 2013	213					Wikipedia
Years of Independence	No. of years	--	191					Wikipedia
Economic								
Log of GNI/Capita	PPP (Dollar)	2010	175	8.9	1.27	5.86	11.27	World Bank

Results

Results of the first set of regressions (ethnic diversity indices on the separate measures of provision of public goods) are shown from column (1) to (9) in the Table-1 in APPENDIX-B. The differences in the number of observations are due to differences in the availability of data for that particular dependent variable. Coefficients for '*Ethnic*', '*ELF85*' and '*Ethnic frac*' have the same explanatory signs and their magnitude is not significantly different from each other in each regressions. The interpretation of the coefficient is as follows: for the regression with primary completion rate; if there is a 1% or .01 unit increase in '*Ethnic*', then there would be a .3254% decline in the primary completion rate and for infant mortality we can see that there would be .5301% increase. On average, the coefficients for the regressions where the '*Ethnic frac*' is the explanatory variable, the value is slightly higher than the coefficients obtained from the regressions where the '*Ethnic*' and '*ELF85*' are the explanatory variables. This is because Fearon's calculation of '*Ethnic frac*' reflects a generally higher level of ethnic diversity among the sample of countries.

Results shows in column (10) through (12) show the regression of the ethnic diversity indices on the aggregate measures of public goods provision. All three of these dependent variables are significant and their magnitudes are very similar. For the specific regression using Human Development Index, on average, a one percent increase in any of the three ethnic diversity indices will increase *HDI* rank by 0.985 which means that the country is going down the ranks in the HDI list (Going down the ranks in HDI list means the country is performing poorly than before). If we believe that provision of public goods is one of the indicators of HDI (higher access to public goods would increase the quality of life) then we can see that increase in ethnic diversity is reducing the provision of public goods. For the specific regression using

public sector expenditure (as percentage of GDP) as dependent variable, on average, a one percent increase in any of the three ethnic diversity indices will decrease public sector expenditure (as percentage of GDP) by 0.18 percent. In the specific regression using our originally created *PCA* index, on average, a one percent increase in any of the three ethnic diversity indices will decrease the *PCA* score by 0.04 units. In summary, all the results in Table-1 confirm our hypothesis that ethnic diversity negatively affects public goods provision and these results are significant at the 1 percent level. Now that this is established, we should be interested in controlling for some demographic, political, historical and economic factors in the regression series.

In Table-2, as we proposed earlier, we added the broader classification of control variables related to democracy and politics. We believe that these variables indicating the strength of civil and legal institutions in a country would be strongly associated with the level of public goods provision in a country. On average, a one unit increase in the *Democracy Index* would decrease Infant Mortality by 0.55 percent. Corruption is often perceived to be vital in the public sector; on average, a one unit increase in the '*Corruption Score*' decreases the HDI rank by 1.1 which means that the country is going up the ranks in the HDI list¹⁰. Another important indicator we have included is the dummy for 'Freedom Status' of a country where our results show that there is no clear indication, direction or significance of impact of '*Freedom Status*' on provision of public goods.

We have also included a dummy for '*Political Regime*' (Full Democracy, Flawed Democracy, Hybrid Regime and Authoritarian Regime) with the '*Authoritarian Regime*' being our benchmark. In column (7) we see that compared to our benchmark, if a country is democratic (Full, Flawed or Hybrid) then the *PCA* score is better (with significant coefficients) meaning that the political status of a country plays a vital role in public goods provision. Adding this broader classification of democratic and political variables shows that not only do these variables matter in public goods provisioning but our three ethnic diversity measures remain significant with the same explanatory signs as before with the only difference being a relatively smaller magnitude than before.

In Table-3, we have included three additional control variables specifically historical measures; 'Colonization', 'Civil Wars' and 'Years since Independence'. For 'Colonization' which is a dummy variable (indicated by '*Colon (country name)*'), we see that countries that were

¹⁰ Higher the corruption score, lower the corruption situation in the country

formerly part of the USSR are performing relatively better at providing public goods than countries that were colonized by other powers. Another interesting finding is that using Belgium as benchmark and on average, countries that were colonized by the British are performing relatively worse than the countries that were colonized by other powers including Netherlands, Spain and Portugal. The variable '*Colon (Others)*' means that the respective country was either never colonized or was colonized by a country not listed in the data. This 'Colonization' dummy variable is also highly significant at 1 percent level and this variable is significant not just for the three aggregate dependent variables but also for the nine individual public goods provision variables. For explaining public sector expenditure as dependent variable or proxy for public goods provision, 'Years Since Independence' is another important variable; on average, if '*Independence period in years*' increase by one more year, public sector expenditure will increase by 0.01 percent. For '*Civil Wars*' which is also a dummy variable, if a country has had a civil war since 1970, on average, their HDI would fall by 21 ranks which is an insightful result.

In Table-4 we have added the third group of control variables which are the Demographic measures including '*log of area of the country*', '*log of Population Density*' and '*Natural Resources*'. For the first two variables we see that the coefficients are not significant from zero but for '*Natural Resources*', we have found that for all three ethnic diversity indices, increasing natural resources across countries shows a lower associated PCA score (these results are highly significant for '*ELF85*' and '*Ethnic frac*'). This is perfectly aligned with the 'tragedy' of African countries; most of them are highly endowed with natural resources but perform poorly in provisioning of public goods. We wanted to include two measures of economic performance that is, per capita income and income inequality measured by GINI coefficient. Since the data on GINI coefficient was very poor, we did not include the second variable. In Table-5 we have shown the inclusion of the last group of control measures i.e. GNI/capita, we see that this coefficient is significant in all cases. Additionally, all three ethnic diversity measures are losing their significance and are reducing in magnitude. This change can be explained by a possible problem of reverse causality i.e. a generally improved economic situation would imply better public goods provision and vice versa; a classic example of 'bad control'.

Including all controls in the regression (Table-6) gives a reasonably well R-squared measure (on an average 70 percent). More importantly, we see that for public sector expenditure and HDI (the aggregate dependent variables), '*ELF85*' and '*Ethnic frac*' remain highly significant but in the case of PCA, this significance vanishes. But for '*Ethnic*', coefficients on all

the aggregate measures of dependent variables (PCA, HDI and public sector expenditure) remain significant lending credibility to Alesina et al.'s construction. Lastly, we analyze the comparative 'rival' nature of the nine individual dependent variables (for public goods) by regressing the '*Ethnic frac*' index on each of these dependent variables and including all controls. These results, which are the main conclusion of our paper, are presented in Table-7. We see that on average, the public sector that is the most vulnerable to ethnic diversity is the health-care sector specifically '*infant mortality*' followed by the water and sanitation sector proxied by '*Improved sanitation facilities*' and '*Improved rural water source*' followed by the other two health-sector proxies; '*immunization of measles*' and '*immunization of DPT*'. On the other hand, the public sector that is the least vulnerable to ethnic diversity is the education sector proxied by '*literacy rate*', '*public spending on primary education*' and '*primary school completion rate*'. Our intuition for these results is that, as stressed upon continuously by global organizations, 'Education for All' is a common cause and the past few decades have seen a burgeoning public and private supply of basic education world-wide. However, the health care and sanitation sector still remains neglected in more ethnically heterogeneous societies; it could be that in such countries, the wealthier ethnic groups have allocation powers over the scarce health and sanitation resources.

Conclusions and Concerns

The measures of ethnic diversity created by Roeder (2001), Alesina et al. (2002) and Fearon (2003) all point towards the same results as established in previously conducted research; ethnic diversity lowers public good provisioning. However, Fearon (2003)'s index of ethnic diversity depicts the most significant relationship and higher coefficient values on average, compared to the other two indices of ethnic diversity. In fact, the individual measures and aggregate measures of provision of public goods are highly influenced by the ethnic diversities in a country. The individual measures help us to pinpoint exactly which public sectors (health care and sanitation) are being influenced the most by the ethnic composition of a country. The inclusion of HDI as an aggregate measure of provisioning of public good is an insightful approach in this paper, and the result strongly suggests that controlling for other factors, ethnically diverse countries tend to perform worse on the Human Development Index. For the robustness checks, we have controlled for the influential political, democratic, historical and demographic variables which have significant impact on explaining the variation in provision of

public goods. Including these controls especially of ‘Political regime’, ‘Democracy Index’, ‘Corruption Score’, ‘Colonization’, ‘Civil War’ and ‘Years since independence’, we have found consistent strong and negative significant effects of ethnic diversity on public good provisioning.

One of the possible concerns of this analysis is that we have assumed ethnic diversity to be exogenous; it is possible that allowing it become endogenous and introducing an instrumental variable for it might increase the explanatory power of the ethnic diversity variable we have used (Ahlerup 2009). Secondly, cross country analysis using secondary data is mostly subject to some margin of error especially when we are trying to establish a causal relationship. Historically ethnic diversity has been a more or less stable phenomenon so we can safely say that ethnic composition was affecting the quality and provision of public goods and not the other way round. However, in the past couple of decades, as the rate of migration and refugee movements have increased, it could be that ethnic compositions are changing around the world and this could make ethnic diversity an endogenous factor.

All of these suggest a critical role for policy makers in developing countries especially in the presence of corruption, civil unrest and violence; factors that are proving to be harder to resolve. Specifically, we should be interested in designing cost-efficient public-private partnership projects (especially that provide better access to health care facilities and to water and sanitation) that focus on community and NGO involvement, greater publicly available information and higher incentives for stakeholders to contribute. The governments can also follow in Tanzania’s footsteps; by introducing a unifying language and a nation-wide reform measures that serve to increase cooperation between ethnic groups including fairer budget distributions and political representation for various ethnic factions.

APPENDIX –A

Demographic measures

Log of the area of the country

Countries with largest area	Countries with smallest area
Russia	Monaco
Canada	Tuvalu
China	Macao SAR, China
United States	Sint Maarten (Dutch part)
Brazil	Bermuda

(Surface Areas in square kilometers – World Bank Indicators)

Log of Population

Countries with largest population	Countries with smallest population
China	Tuvalu
India	Palau
United States	St. Martin (French part)
Indonesia	San Marino
Brazil	Turks and Caicos Islands

(Population Total – World Bank Indicators)

Natural Resources - Total natural resources rents (% of GDP). Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents.

Countries with largest Natural Resources
Iraq
Republic of Congo
Mauritania
Saudi Arabia
Gabon

(Total Natural Resources Rents as percentage of GDP – World Bank Indicators)

Number of countries with no natural resources – 29

Democratic and Political Measures:

Democracy index - The Economist Intelligence Unit’s index of democracy, on a 0 to 10 scale, is based on the ratings for 60 indicators grouped in five categories: electoral process and pluralism; civil liberties; the functioning of government; political participation; and political culture. Each category has a rating on a 0 to 10 scale, and the overall index of democracy is the simple average of the five category indexes. The category indexes are based on the sum of the

indicator scores in the category, converted to a 0 to 10 scale. Adjustments to the category scores are made if countries do not score a 1 in the following critical areas for democracy:

1. Whether national elections are free and fair
2. The security of voters
3. The influence of foreign powers on government
4. The capability of the civil service to implement policies.

If the scores for the first three questions are 0 (or 0.5), one point (0.5 point) is deducted from the index in the relevant category (either the electoral process and pluralism or the functioning of government). If the score for 4 is 0, one point is deducted from the functioning of government category index. The index values are used to place countries within one of four types of regimes:

1. Full democracies--scores of 8-10
2. Flawed democracies--score of 6 to 7.9
3. Hybrid regimes--scores of 4 to 5.9
4. Authoritarian regimes--scores below 4

Threshold points for regime types depend on overall scores that are rounded to one decimal point.

Countries with highest democracy index	Countries with lowest democracy index
Norway	Saudi Arabia
Sweden	Syria
Iceland	Chad
Denmark	Guinea-Bissau
New Zealand	North Korea

(Democracy Index 2012 – The Economist Intelligence Unit)

Corruption Index - The Corruption Perceptions Index ranks countries and territories based on how corrupt their public sector is perceived to be. A country or territory’s score indicates the perceived level of public sector corruption on a scale of 0 - 100, where 0 means that a country is perceived as highly corrupt and 100 means it is perceived as very clean.

Countries with highest Corruption index	Countries with lowest Corruption index
Denmark	Myanmar
Finland	Sudan
New Zealand	Afghanistan
Sweden	North Korea
Singapore	Somalia

(Corruptions Perceptions Index 2012 – Transparency International)

Freedom Status - Country is assigned a numerical rating from 1 to 7 for both political rights and civil liberties, with 1 representing the most free and 7 the least free. The ratings are determined by the total number of points (up to 100) each country receives on 10 political rights questions and 15 civil liberties questions; countries receive 0 to 4 points on each question, with 0 representing the smallest degree and 4 the greatest degree of freedom. The average of the political rights and civil liberties ratings, known as the freedom rating, determines the overall

status: Free (1.0 to 2.5), Partly Free (3.0 to 5.0), or Not Free (5.5 to 7.0). PR and CL stand for political rights and civil liberties, respectively; 1 represents the most free and 7 least free.

Countries with highest Freedom Status (total 48 countries)	Countries with lowest Freedom Status (total 9 countries)
United States	Equatorial Guinea
Switzerland	North Korea
Sweden	Saudi Arabia
Norway	Somalia
Luxemburg	Sudan

(Freedom In The World 2012 – Freedom House)

Procedure to enforce contract - Number of procedures to enforce a contract are the number of independent actions, mandated by law or courts that demand interaction between the parties of a contract or between them and the judge or court officer.

Countries with Largest number of procedures to enforce contract	Countries with lowest number of procedures to enforce contract
Syrian Arab Republic	Ireland
Kosovo	Singapore
Sudan	Rwanda
Belize	Austria
Iraq	Belgium

(Procedures to enforce a contract – World bank Indicators)

Political Regime - The Economist Intelligence Unit’s index of democracy, on a 0 to 10 scale, is based on the ratings for 60 indicators grouped in five categories: electoral process and pluralism; civil liberties; the functioning of government; political participation; and political culture. Each category has a rating on a 0 to 10 scale, and the overall index of democracy is the simple average of the five category indexes. The category indexes are based on the sum of the indicator scores in the category, converted to a 0 to 10 scale. Adjustments to the category scores are made if countries do not score a 1 in the following critical areas for democracy:

1. Whether national elections are free and fair
2. The security of voters
3. The influence of foreign powers on government
4. The capability of the civil service to implement policies.

If the scores for the first three questions are 0 (or 0.5), one point (0.5 point) is deducted from the index in the relevant category (either the electoral process and pluralism or the functioning of government). If the score for 4 is 0, one point is deducted from the functioning of government category index. The index values are used to place countries within one of four types of regimes:

1. Full democracies--scores of 8-10
2. Flawed democracies--score of 6 to 7.9
3. Hybrid regimes--scores of 4 to 5.9

4. Authoritarian regimes--scores below 4

Threshold points for regime types depend on overall scores that are rounded to one decimal point (The Economist n.d.)

Historical Measures:

Colonization – this variable describes countries by their colonizers. Colonizers: Belgium, France, Italy, Netherlands, Portugal, Spain, Uk, USSR are assigned to the countries which they've colonized (Central Intelligence Agency n.d.).

Civil Wars – Dummy variable is taking value of 1 if country had civil war since 1970, otherwise 0. Number of countries with civil war - 45 (Wikipedia n.d.).

Economic Measures

Log of GNI per capita in 2010

Countries with largest GNI per capita PPP	Countries with smallest GNI per capita PPP
Qatar	Congo, Dem. Rep.
Macao SAR, China	Liberia
Norway	Eritrea
Luxembourg	Burundi

(World Bank Indicators)

APPENDIX-B

Table 1: Ethnic Diversity Indices on individual measures of public goods provision

	(1)	(2)	(3)	(4)	(5)	(6)
	Education Sector			Health Sector		
VARIABLES	Public spending on education	Literacy rate	Primary completion rate	Infant mortality	Immunization measles	Immunization DPT
<i>Ethnic</i> (Alesina et al.)	-1.684** (0.789)	-32.77*** (7.564)	-32.54*** (6.431)	53.01*** (7.201)	-15.24*** (4.382)	-16.63*** (4.113)
Constant	5.655*** (0.431)	99.25*** (3.653)	103.4*** (2.755)	4.826 (3.099)	94.12*** (1.971)	95.67*** (1.751)
Observations	100	98	120	182	182	182
R-squared	0.049	0.205	0.186	0.266	0.076	0.099
<i>ELF85</i> (Roeder)	-0.567 (0.665)	-28.40*** (7.035)	-31.14*** (6.184)	43.51*** (7.273)	-15.73*** (4.523)	-16.09*** (4.229)
Constant	5.229*** (0.343)	97.26*** (3.319)	102.5*** (2.441)	9.052** (3.622)	94.22*** (2.177)	95.55*** (1.991)
Observations	89	93	109	164	163	163
R-squared	0.007	0.174	0.189	0.198	0.091	0.102
<i>Ethnic frac</i> (Fearon)	-1.546** (0.755)	-36.77*** (6.471)	-32.62*** (6.203)	58.33*** (7.152)	-22.77*** (4.142)	-24.10*** (4.103)
Constant	5.604*** (0.451)	100.8*** (3.101)	102.8*** (2.761)	2.499 (3.316)	98.46*** (1.793)	99.78*** (1.694)
Observations	89	87	101	152	152	152
R-squared	0.049	0.257	0.197	0.297	0.189	0.221
	(7)	(8)	(9)	(10)	(11)	(12)
	Sanitation and water sector		Communication and infrastructure sector	Overall measure of public goods		
VARIABLES	Improved sanitation facilities	Improved water source rural	Telephone lines	HDI	Public sector expense	PCA
<i>Ethnic</i> (Alesina et al.)	-54.09*** (8.054)	-39.18*** (5.702)	-30.32*** (5.227)	99.83*** (12.46)	-17.86*** (4.163)	-4.952*** (0.750)
Constant	96.33*** (3.854)	98.28*** (2.542)	33.24*** (2.855)	38.64*** (6.815)	34.94*** (2.082)	2.245*** (0.354)
Observations	169	169	183	164	106	109
R-squared	0.221	0.241	0.160	0.272	0.156	0.340
<i>ELF85</i> (Roeder)	-54.96*** (8.061)	-31.91*** (6.234)	-28.15*** (4.707)	91.39*** (12.28)	-19.04*** (3.960)	-4.746*** (0.722)
Constant	96.88***	95.52***	31.22***	42.00***	36.30***	2.183***

	(3.992)	(3.174)	(2.916)	(7.098)	(2.116)	(0.327)
Observations	152	154	162	153	98	101
R-squared	0.249	0.178	0.185	0.255	0.200	0.327
Ethnic frac (Fearon)	-66.98*** (7.663)	-41.60*** (6.182)	-30.62*** (4.632)	104.4*** (12.33)	-16.90*** (4.270)	-4.891*** (0.726)
Constant	102.3*** (3.884)	99.37*** (2.921)	31.96*** (2.986)	37.44*** (7.283)	34.83*** (2.300)	2.184*** (0.365)
Observations	143	145	152	144	95	96
R-squared	0.318	0.256	0.218	0.296	0.141	0.317

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 2: Included controls for democracy and politics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Primary completion rate	Infant mortality	Improved sanitation facilities	Improved water source rural	HDI	Public sector expense	PCA
<i>Ethnic</i>	-19.64** (7.759)	33.11*** (7.605)	-40.49*** (9.752)	-22.54*** (5.918)	46.56*** (11.14)	-10.82** (5.118)	-2.621*** (0.759)
Democracy Index	0.608 (2.553)	-5.588** (2.551)	1.559 (3.086)	1.210 (1.953)	-7.104* (3.728)	1.397 (1.583)	0.0450 (0.260)
Corruption Score	0.0458 (0.141)	-0.444*** (0.154)	0.530*** (0.182)	0.537*** (0.126)	-1.093*** (0.257)	0.0521 (0.121)	0.0306** (0.0122)
Procedures to enforce contact	-0.468 (0.287)	0.356 (0.332)	-0.379 (0.414)	-0.346 (0.257)	0.640 (0.533)	-0.259 (0.233)	-0.0855*** (0.0289)
Freedom status (Not Free)	9.023 (5.577)	-14.18** (6.801)	16.14** (7.768)	5.441 (5.369)	-13.82 (9.336)	-1.750 (4.063)	1.174** (0.543)
Freedom status (Partly Free)	-0.157 (6.803)	-5.040 (7.097)	4.866 (8.381)	4.426 (5.210)	1.876 (9.932)	-2.225 (4.047)	0.177 (0.651)
Political regime (Flawed Democ.)	18.77* (10.07)	-0.0940 (11.75)	4.324 (14.25)	3.099 (9.100)	6.833 (18.25)	-3.163 (7.069)	2.043** (0.962)
Political regime (Full Democ.)	14.05 (12.61)	16.28 (14.62)	-1.759 (17.85)	-9.710 (11.64)	13.65 (23.68)	-5.006 (9.342)	1.357 (1.305)
Political regime (Hybrid)	17.78** (7.015)	-0.811 (8.189)	-1.135 (10.55)	2.468 (7.265)	10.88 (12.82)	-5.340 (5.455)	1.893*** (0.593)
Constant	94.03*** (17.52)	52.83** (20.23)	67.39*** (25.17)	72.76*** (16.52)	120.9*** (29.62)	35.35*** (13.08)	1.212 (1.802)
Observations	90	136	126	129	131	91	84
R-squared	0.429	0.550	0.425	0.491	0.695	0.313	0.646
<i>ELF85</i>	-14.02* (8.102)	26.07*** (6.994)	-34.31*** (9.049)	-20.21*** (5.885)	41.07*** (10.58)	-14.75*** (4.383)	-2.020** (0.913)
Democracy Index	0.674 (2.553)	-5.430** (2.583)	3.022 (3.171)	1.670 (1.964)	-8.054** (3.859)	1.527 (1.476)	0.0799 (0.276)

Corruption Score	0.0800 (0.138)	-0.444*** (0.149)	0.452** (0.178)	0.508*** (0.114)	-1.059*** (0.252)	0.0535 (0.119)	0.0340*** (0.0114)
Procedures to enforce contact	-0.375 (0.305)	0.377 (0.336)	-0.208 (0.405)	-0.208 (0.258)	0.483 (0.536)	-0.252 (0.220)	-0.0701** (0.0312)
Freedom status (Not Free)	8.898 (5.929)	-10.64 (7.139)	17.23** (8.264)	0.799 (5.718)	-12.69 (10.17)	-3.607 (4.127)	0.999* (0.539)
Freedom status (Partly Free)	-0.476 (6.896)	-4.841 (7.381)	2.763 (8.148)	4.408 (5.069)	3.174 (9.905)	-1.519 (4.106)	0.0814 (0.643)
Political regime (Flawed Democ.)	19.15* (10.82)	0.559 (12.65)	3.820 (15.23)	-1.088 (9.561)	7.776 (19.35)	-5.586 (6.977)	1.862* (1.040)
Political regime (Full Democ.)	14.78 (13.76)	14.71 (15.35)	0.320 (18.68)	-11.87 (11.88)	12.36 (24.27)	-7.715 (9.129)	1.225 (1.428)
Political regime (Hybrid)	18.92** (7.353)	0.265 (8.797)	0.823 (11.32)	-1.204 (7.365)	10.79 (14.04)	-7.249 (5.876)	1.930*** (0.606)
Constant	85.98*** (17.20)	52.62*** (19.56)	53.42** (25.06)	69.51*** (17.38)	132.1*** (29.69)	38.28*** (12.51)	0.180 (1.918)
Observations	87	132	122	125	127	87	81
R-squared	0.369	0.509	0.402	0.449	0.681	0.350	0.588
<i>Ethnic frac</i>	-12.94 (7.947)	31.41*** (7.404)	-42.91*** (9.802)	-20.59*** (6.393)	43.29*** (11.60)	-10.58** (5.036)	-1.767** (0.835)
Democracy Index	0.565 (2.570)	-6.224** (2.686)	2.781 (3.123)	2.371 (2.072)	-9.069** (3.879)	1.720 (1.634)	0.159 (0.276)
Corruption Score	0.0944 (0.140)	-0.427*** (0.163)	0.544*** (0.190)	0.517*** (0.129)	-1.130*** (0.274)	0.0806 (0.132)	0.0380*** (0.0123)
Procedures to enforce contact	-0.510* (0.302)	0.293 (0.344)	-0.173 (0.417)	-0.175 (0.251)	0.432 (0.554)	-0.228 (0.240)	-0.0776** (0.0327)
Freedom status (Not Free)	10.83* (6.344)	-15.04** (7.288)	17.42** (7.694)	6.398 (5.040)	-12.90 (10.06)	-4.123 (4.322)	1.238** (0.603)
Freedom status (Partly Free)	0.287 (7.079)	-6.127 (7.271)	7.785 (7.733)	7.122 (4.314)	1.049 (10.11)	-3.178 (3.992)	0.238 (0.687)
Political regime (Flawed Democ.)	20.52* (10.67)	0.244 (12.37)	3.384 (14.71)	2.896 (9.249)	9.927 (19.04)	-7.021 (7.196)	1.884* (1.065)
Political regime (Full Democ.)	16.99 (13.53)	16.26 (15.24)	-4.660 (18.30)	-10.14 (11.54)	20.66 (23.93)	-9.983 (9.586)	0.998 (1.434)
Political regime (Hybrid)	19.27*** (7.061)	-0.479 (8.486)	-3.606 (10.88)	1.168 (7.310)	14.00 (13.16)	-6.933 (5.536)	1.879*** (0.648)
Constant	89.12*** (17.36)	58.72*** (20.30)	53.75** (24.78)	59.43*** (16.41)	139.2*** (30.55)	34.43** (13.33)	-0.372 (1.929)
Observations	86	129	120	123	124	87	81
R-squared	0.412	0.535	0.435	0.495	0.701	0.303	0.613

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3: Included controls for history (Colonization, Civil Wars and Years since independence)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Primary completion rate	Infant mortality	Improved sanitation facilities	Improved water source rural	HDI	Public sector expense	PCA
<i>Ethnic</i>	-20.32** (8.652)	37.79*** (8.581)	-37.30*** (10.22)	-28.12*** (7.263)	67.11*** (16.34)	-15.92*** (4.828)	-2.727*** (0.989)
Colon (France)	5.784 (5.442)	-17.54 (17.16)	-6.651 (7.952)	12.85 (9.523)	-25.45*** (5.745)	-0.353 (3.185)	0.959 (0.820)
Colon (Italy)		-67.87*** (16.63)	61.84*** (6.344)		-128.7*** (4.716)		
Colon (Netherlands)	50.82*** (3.202)	-53.19*** (16.96)	27.96** (11.10)	33.26*** (9.287)	-59.65*** (7.040)	-1.183* (0.648)	3.564*** (0.697)
Colon (Others)	27.43*** (5.181)	-46.31*** (16.95)	26.53*** (7.597)	33.21*** (9.437)	-76.63*** (7.996)	12.41*** (3.292)	4.177*** (0.795)
Colon (Portugal)	1.813 (4.915)	-19.57 (22.15)	-2.151 (15.01)	11.62 (14.10)	-34.47* (17.54)	8.286*** (1.636)	0.0274 (0.767)
Colon (Spain)	27.71*** (4.335)	-47.32*** (17.07)	26.66*** (6.903)	28.10*** (9.163)	-64.59*** (7.923)	-3.913 (3.570)	3.583*** (0.700)
Colon (USSR)	36.25*** (3.592)	-46.78*** (17.36)	40.83*** (6.978)	34.72*** (10.09)	-70.87*** (7.657)	10.95*** (3.225)	4.364*** (0.767)
Colon (UK)	23.81*** (4.475)	-36.98** (17.15)	19.45** (7.566)	32.88*** (9.494)	-61.38*** (8.741)	2.941 (2.280)	3.203*** (0.764)
Civil wars	5.071 (3.947)	3.689 (4.638)	-5.348 (5.153)	-2.112 (3.575)	17.37** (7.687)	0.467 (2.950)	0.363 (0.370)
Independence period in years	0.0208* (0.0107)	0.0280 (0.0343)	-0.00339 (0.0248)	-0.00461 (0.0188)	0.00207 (0.0292)	0.0107** (0.00456)	0.00154 (0.000935)
Constant	72.07*** (6.463)	47.50*** (18.16)	70.19*** (9.217)	65.73*** (10.17)	111.2*** (10.88)	26.77*** (4.245)	-2.120** (0.943)
Observations	104	157	144	144	143	92	94
R-squared	0.429	0.446	0.412	0.376	0.452	0.520	0.636
<i>ELF85</i>	-22.22** (9.129)	31.40*** (8.543)	-40.22*** (10.65)	-21.78** (8.781)	66.04*** (14.39)	-14.49*** (5.031)	-2.667*** (1.000)
Colon (France)	9.014 (6.969)	5.904 (7.083)	-13.79* (8.076)	-2.024 (6.217)	-25.86*** (9.314)		-0.137 (0.764)
Colon (Italy)		-28.19*** (1.403)	37.32*** (1.045)		-99.42*** (1.366)		
Colon (Netherlands)	52.11*** (7.257)	-26.99*** (6.687)	22.26* (11.51)	16.85*** (6.401)	-60.32*** (11.99)	-1.337 (2.877)	2.223*** (0.790)
Colon (Others)	27.38*** (4.916)	-23.72*** (5.015)	22.04*** (5.560)	22.18*** (3.952)	-81.14*** (8.966)	12.74*** (2.926)	3.006*** (0.503)
Colon (Portugal)	6.072 (5.728)	3.962 (15.12)	-6.544 (14.36)	-2.499 (11.39)	-38.26** (18.19)	8.778*** (2.481)	-0.808 (0.586)

Colon (Spain)	29.99*** (4.821)	-24.21*** (5.031)	20.82*** (5.593)	14.86*** (4.124)	-67.63*** (9.248)	-2.827 (2.546)	2.516*** (0.415)
Colon (USSR)	37.67*** (5.783)	-23.48*** (6.723)	35.63*** (6.401)	20.75*** (6.398)	-73.77*** (10.31)	11.30*** (3.136)	3.145*** (0.668)
Colon (UK)	20.90*** (7.264)	-9.680 (7.192)	10.78 (7.520)	16.11** (6.352)	-61.35*** (12.04)	3.873 (3.067)	1.512* (0.804)
Civil wars	1.313 (4.521)	7.201 (4.713)	-7.667 (5.135)	-5.353 (3.810)	22.49*** (7.757)	-0.610 (3.043)	-0.241 (0.471)
Independence period in years	0.0128 (0.0122)	0.0257 (0.0326)	-0.00195 (0.0241)	-0.00885 (0.0203)	0.00559 (0.0310)	0.0128** (0.00500)	0.000525 (0.00154)
Constant	73.07*** (5.461)	25.83*** (7.635)	78.34*** (6.813)	77.98*** (5.277)	111.7*** (9.396)	26.04*** (3.180)	-0.714 (0.588)
Observations	97	144	132	134	136	87	89
R-squared	0.435	0.399	0.456	0.356	0.456	0.495	0.636
<i>Ethnic frac</i>	-16.37* (9.368)	40.71*** (8.149)	-45.27*** (9.712)	-28.14*** (7.555)	66.84*** (15.22)	-15.91*** (5.015)	-2.217** (1.013)
Colon (France)	5.964 (5.812)	-19.54 (14.91)	-5.579 (6.091)	13.97 (8.822)	-25.93*** (7.308)	0.0635 (3.515)	1.007 (0.936)
Colon (Italy)		-44.97*** (14.33)	37.73*** (4.997)		-91.65*** (8.154)		
Colon (Netherlands)	49.51*** (3.578)	-51.08*** (14.09)	18.44*** (3.700)	30.83*** (8.256)	-54.11*** (6.345)	-1.628** (0.816)	3.435*** (0.831)
Colon (Others)	27.23*** (5.330)	-51.15*** (14.22)	32.53*** (5.105)	37.56*** (8.337)	-88.16*** (8.500)	11.49*** (3.535)	4.490*** (0.881)
Colon (Portugal)	3.208 (4.409)	-22.94 (19.60)	2.352 (12.46)	13.76 (12.66)	-40.08** (15.58)	7.561*** (1.935)	0.233 (0.823)
Colon (Spain)	31.00*** (3.203)	-51.38*** (14.05)	26.18*** (4.713)	28.52*** (8.194)	-70.15*** (8.845)	-4.586 (3.991)	3.688*** (0.771)
Colon (USSR)	35.88*** (3.308)	-47.68*** (14.73)	41.38*** (4.573)	35.08*** (9.135)	-71.93*** (8.210)	10.22*** (3.378)	4.353*** (0.836)
Colon (UK)	17.03*** (4.702)	-34.43** (14.62)	16.43*** (5.299)	30.56*** (8.633)	-56.02*** (9.300)	2.513 (2.838)	2.689*** (0.898)
Civil wars	2.344 (4.470)	5.809 (4.490)	-8.331* (4.899)	-4.621 (3.800)	23.90*** (7.341)	0.258 (3.151)	0.0360 (0.487)
Independence period in years	0.00785 (0.0119)	0.0315 (0.0318)	-0.00327 (0.0231)	-0.0101 (0.0195)	0.00770 (0.0281)	0.0118** (0.00471)	0.000374 (0.00153)
Constant	71.66*** (5.998)	46.00*** (15.48)	74.60*** (6.974)	66.39*** (9.026)	110.2*** (10.57)	27.63*** (4.692)	-2.238** (0.950)
Observations	90	133	124	126	127	84	85
R-squared	0.494	0.529	0.539	0.428	0.548	0.492	0.637

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Controls included for Demographics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Primary completion rate	Infant mortality	Improved sanitation facilities	Improved water source rural	HDI	Public sector expense	PCA
<i>Ethnic</i>	-38.42*** (6.472)	56.44*** (7.722)	-60.81*** (9.002)	-34.82*** (5.932)	104.8*** (13.06)	-17.08*** (4.355)	-4.933*** (0.719)
Ln Area	0.648 (1.829)	0.256 (1.732)	-1.950 (1.999)	-1.804 (1.382)	-1.713 (3.711)	0.0217 (1.009)	-0.0484 (0.188)
Ln Pop	0.473 (1.866)	0.636 (1.681)	0.481 (2.223)	0.286 (1.274)	3.369 (3.458)	-2.109* (1.093)	-0.0141 (0.201)
Natural Resources	-0.00543 (0.184)	0.220 (0.142)	0.0407 (0.161)	-0.317*** (0.117)	0.151 (0.265)	-0.207* (0.119)	-0.0290 (0.0182)
Constant	90.02*** (20.50)	-11.73 (18.40)	113.2*** (24.71)	116.6*** (13.05)	4.492 (35.99)	70.99*** (10.33)	3.229 (2.346)
Observations	100	150	140	143	145	92	93
R-squared	0.228	0.323	0.277	0.342	0.305	0.281	0.415
<i>ELF85</i>	-34.77*** (6.786)	45.02*** (7.181)	-59.09*** (8.286)	-29.76*** (5.844)	90.15*** (12.93)	-16.89*** (4.015)	-4.587*** (0.725)
Ln Area	1.660 (1.778)	-0.940 (1.846)	-0.585 (2.235)	-1.388 (1.470)	-3.515 (4.061)	0.0325 (1.064)	0.0940 (0.182)
Ln Pop	-0.695 (1.630)	1.001 (1.665)	0.304 (2.088)	0.257 (1.327)	4.310 (3.643)	-1.619 (1.182)	-0.165 (0.175)
Natural Resources	-0.0668 (0.180)	0.251* (0.149)	0.0133 (0.177)	-0.343*** (0.123)	0.206 (0.291)	-0.203 (0.130)	-0.0392** (0.0177)
Constant	95.16*** (17.51)	1.171 (18.21)	99.46*** (21.43)	110.4*** (12.53)	15.82 (36.45)	63.14*** (10.87)	3.840* (2.051)
Observations	97	145	135	138	139	88	89
R-squared	0.212	0.251	0.284	0.313	0.256	0.288	0.404
<i>Ethnic frac</i>	-35.06*** (6.633)	57.40*** (7.323)	-69.51*** (8.428)	-35.52*** (6.393)	105.8*** (13.02)	-15.35*** (4.266)	-4.550*** (0.718)
Ln Area	1.368 (1.922)	-0.0535 (1.864)	-1.540 (2.038)	-1.623 (1.491)	-2.827 (4.073)	-0.0948 (1.092)	0.0268 (0.206)
Ln Pop	0.360 (1.909)	-0.0968 (1.798)	0.476 (2.005)	0.579 (1.429)	3.535 (3.599)	-1.675 (1.110)	-0.102 (0.192)
Natural Resources	-0.0682 (0.168)	0.139 (0.156)	0.170 (0.164)	-0.265** (0.126)	0.107 (0.301)	-0.185 (0.127)	-0.0373* (0.0197)
Constant	81.23*** (20.17)	4.455 (21.32)	111.8*** (22.91)	109.4*** (16.04)	14.96 (38.20)	64.33*** (11.23)	3.572 (2.225)
Observations	94	139	131	134	135	89	89
R-squared	0.219	0.318	0.336	0.325	0.312	0.244	0.390

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Included controls of Economic measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Primary completion rate	Infant mortality	Improved sanitation facilities	Improved water source rural	HDI	Public sector expense	PCA
Ethnic	-5.789 (6.738)	19.82*** (5.713)	-14.73** (6.253)	-10.91** (5.334)	16.26*** (5.879)	-4.678 (5.074)	-1.011 (0.668)
Ln GNI (PPP)	8.966*** (1.307)	-14.79*** (1.014)	18.40*** (1.196)	11.24*** (0.945)	-34.29*** (1.169)	4.426*** (1.024)	1.309*** (0.101)
Constant	11.53 (13.65)	150.7*** (10.61)	-84.39*** (13.03)	-13.67 (10.33)	381.3*** (11.95)	-11.17 (10.66)	-11.09*** (1.134)
Observations	111	165	154	156	153	104	103
R-squared	0.441	0.670	0.693	0.592	0.909	0.306	0.713
ELF	-9.907 (6.673)	16.22*** (5.055)	-23.70*** (5.307)	-14.19*** (5.215)	17.15*** (5.161)	-8.909* (4.542)	-1.363** (0.642)
Ln GNI (PPP)	8.040*** (1.310)	-14.63*** (1.030)	17.41*** (1.102)	10.31*** (0.985)	-34.60*** (1.156)	4.172*** (1.060)	1.231*** (0.101)
Constant	21.35 (13.64)	150.6*** (10.62)	-71.35*** (11.73)	-3.460 (10.69)	383.6*** (11.55)	-6.559 (11.00)	-10.25*** (1.110)
Observations	102	151	141	144	144	96	95
R-squared	0.431	0.648	0.713	0.564	0.911	0.342	0.702
Ethnicfrac	-5.162 (6.201)	18.02*** (5.341)	-24.53*** (6.158)	-12.14** (5.737)	15.75*** (5.455)	-1.392 (4.376)	-1.165** (0.582)
Ln GNI (PPP)	9.673*** (1.207)	-15.63*** (1.058)	17.32*** (1.168)	11.27*** (0.978)	-35.09*** (1.092)	5.293*** (0.969)	1.319*** (0.0990)
Constant	5.356 (12.78)	158.5*** (10.99)	-69.55*** (12.56)	-13.20 (10.74)	387.5*** (10.99)	-20.05** (9.815)	-11.10*** (1.076)
Observations	97	143	134	137	138	94	92
R-squared	0.512	0.701	0.713	0.607	0.924	0.354	0.716

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6: All controls included

VARIABLES	Ethnic			ELF			Ethnicfrac		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
	Public sector expense	HDI	PCA	Public sector expense	HDI	PCA	Public sector expense	HDI	PCA
Ethnic, ELF, Ethnicfrac	- 13.28** (5.664)	39.00** * (14.04)	-2.044* (1.081)	-11.20** (5.072)	45.04*** (12.72)	-1.944 (1.223)	-10.22* (5.172)	39.36** * (14.25)	-1.220 (1.102)
Democracy index	-0.0968 (1.851)	-6.859* (3.746)	0.201 (0.278)	0.314 (1.743)	-9.068** (3.839)	0.188 (0.303)	-0.0344 (1.885)	-8.412** (3.610)	0.247 (0.298)
Corruption score	0.00644 (0.100)	- 1.123** * (0.307)	0.0193 (0.0134)	0.0373 (0.103)	- 1.099*** (0.309)	0.0267* (0.0137)	0.0683 (0.110)	- 1.092** * (0.319)	0.0281* (0.0153)
Freedom status (Not Free)	-5.179 (3.448)	-6.367 (10.28)	0.486 (0.417)	-5.021 (3.369)	-3.405 (11.32)	0.501 (0.454)	-5.932* (3.168)	-4.878 (10.23)	0.605 (0.449)
Freedom status (Partly Free)	-2.270 (3.292)	3.674 (10.23)	-0.0149 (0.600)	-2.202 (3.707)	4.079 (9.619)	-0.147 (0.545)	-3.714 (3.225)	2.682 (9.733)	-0.106 (0.598)
Political regime (Flawed Democ.)	-3.397 (6.889)	13.61 (17.66)	0.730 (1.159)	-3.965 (6.938)	19.72 (18.86)	0.821 (1.274)	-5.359 (7.039)	15.54 (17.43)	0.875 (1.255)
Political regime (Full Democ.)	-3.861 (8.455)	17.09 (22.86)	0.356 (1.536)	-4.688 (8.644)	22.79 (22.53)	0.262 (1.645)	-6.520 (8.901)	22.51 (21.42)	0.184 (1.670)
Political regime (Hybrid)	-6.719 (6.450)	13.70 (11.93)	0.858 (0.871)	-6.575 (6.580)	18.12 (13.73)	1.121 (0.949)	-6.651 (6.390)	16.22 (11.92)	1.066 (0.941)
Procedures to enforce contact	-0.0700 (0.262)	0.445 (0.557)	0.00172 (0.0339)	-0.112 (0.263)	0.327 (0.559)	0.0129 (0.0358)	-0.0987 (0.266)	0.179 (0.534)	0.0224 (0.0387)
Ln area	-0.217 (0.975)	1.976 (2.208)	-0.0596 (0.180)	-0.524 (1.005)	1.949 (2.325)	-0.0409 (0.193)	-0.769 (1.064)	2.528 (2.383)	-0.0954 (0.200)
Ln Pop	-1.626 (1.132)	-2.076 (2.898)	0.0490 (0.187)	-0.753 (1.219)	-3.022 (2.794)	-0.00878 (0.203)	-0.910 (1.115)	-1.919 (2.992)	0.0585 (0.200)
Natural resources	-0.209 (0.158)	-0.416* (0.222)	-0.00498 (0.0188)	-0.160 (0.165)	-0.539** (0.229)	-0.00838 (0.0179)	-0.172 (0.163)	- 0.573** * (0.218)	-0.00767 (0.0191)
Civil wars	1.582 (3.610)	2.461 (6.070)	0.169 (0.367)	1.158 (3.591)	3.306 (6.216)	-0.162 (0.397)	0.939 (3.760)	6.403 (6.045)	-0.0443 (0.394)
Colon (France)	-4.770 (6.005)	-24.80* (13.84)	0.335 (0.771)		-38.82** (15.44)	-0.658 (0.955)	-4.638 (6.372)	-25.40* (13.56)	-0.0649 (0.859)
Colon (Netherlands)	-2.349 (5.746)	- 47.77** * (17.37)	1.887* (0.998)	-0.978 (4.638)	- 62.10*** (20.28)	0.819 (1.457)	-3.037 (5.719)	-38.81** (16.50)	1.226 (1.097)
Colon (Others)	8.969 (7.212)	- 47.12**	2.293** (1.038)	11.41* (5.850)	- 57.88***	1.016 (1.057)	8.827 (7.661)	- 51.49**	1.891 (1.195)

		*			(16.67)			*	
		(15.41)						(15.14)	
Colon (Portugal)	5.465 (4.880)	-29.89* (17.19)	-0.141 (0.956)	7.173 (4.899)	-44.67** (17.57)	-0.954 (1.175)	5.262 (5.218)	-30.02* (16.93)	-0.365 (1.078)
Colon (Spain)	-8.204 (5.907)	- 53.13** *	2.131** (0.907)	-3.329 (4.715)	- 68.59*** (15.34)	1.104 (0.985)	-6.921 (6.393)	- 54.42** *	1.807* (1.015)
		(14.07)						(14.22)	
Colon (USSR)	4.037 (5.799)	- 63.55** *	3.050*** (0.932)	8.082* (4.677)	- 80.35*** (16.06)	1.995* (1.114)	4.385 (5.928)	- 64.62** *	2.775*** (1.015)
		(14.13)						(13.75)	
Colon (UK)	2.017 (6.620)	-42.91** (16.60)	1.962** (0.952)	5.349 (5.108)	- 55.32*** (19.48)	0.351 (1.167)	1.820 (6.715)	-40.58** (15.46)	1.148 (1.044)
Constant	69.72** * (16.75)	183.1** * (51.90)	-3.629 (2.850)	52.75*** (14.86)	221.9*** (47.48)	-2.410 (2.949)	62.99*** (16.02)	189.6** * (51.14)	-4.734 (3.144)
Observations	85	123	77	81	119	74	82	117	75
R-squared	0.632	0.748	0.758	0.613	0.753	0.725	0.622	0.777	0.742

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7: All controls and 'ethnic frac' on individual dependent variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	Public spending on education	Literacy rate	Primary completion rate	Infant mortality	Immuni zation measles	Immuni zation DPT	Improve d sanitation facilities	Improve d water source rural	Telepho ne lines
<i>Ethnicfrac</i>	-0.327 (1.001)	-13.97 (8.592)	-13.77 (8.587)	29.43*** (8.482)	-17.00** (7.065)	- 18.94*** (6.386)	- 38.07*** (12.24)	-18.02** (7.888)	-8.524* (4.395)
Democracy index	0.418 (0.371)	3.245* (1.792)	1.023 (2.633)	-4.360* (2.435)	0.519 (1.901)	0.803 (1.942)	1.135 (3.226)	1.047 (1.848)	2.967** (1.286)
Corruption score	0.0153 (0.0183)	0.360** (0.149)	0.198 (0.157)	- 0.492*** (0.179)	0.205** (0.101)	0.179* (0.0929)	0.549** (0.220)	0.456*** (0.131)	0.295*** (0.112)
Freedom status (Not Free)	0.142 (0.552)	11.22** (5.390)	7.907 (4.863)	-7.932 (6.044)	6.818** (3.407)	1.589 (3.660)	11.55 (7.525)	1.020 (4.039)	-0.670 (4.008)
Freedom status (Partly Free)	1.034 (0.632)	9.400** (3.782)	0.123 (5.431)	-3.350 (6.405)	2.339 (3.065)	-0.0235 (3.121)	3.517 (7.800)	2.943 (3.871)	-1.904 (3.146)
Political regime (Flawed Democ.)	-0.362 (1.322)	-2.693 (8.260)	15.53 (10.07)	7.750 (11.06)	3.412 (6.939)	-3.500 (7.266)	0.626 (14.20)	0.307 (8.058)	-7.644 (5.376)
Political regime (Full Democ.)	-0.688 (1.892)	-12.23 (9.903)	13.26 (14.17)	21.85* (13.03)	-5.758 (9.367)	-11.61 (9.743)	-3.427 (16.76)	-7.821 (9.842)	-5.541 (8.263)
Political regime (Hybrid)	-0.212 (0.914)	-10.30* (5.804)	14.31* (7.360)	4.973 (7.711)	0.680 (4.963)	-4.527 (4.933)	-2.335 (10.40)	-1.431 (6.130)	-6.225* (3.625)
Procedures to enforce contact	- 0.0930* * (0.0432)	-0.00754 (0.388)	0.113 (0.336)	0.0943 (0.311)	0.202 (0.213)	0.0945 (0.206)	-0.159 (0.419)	0.131 (0.248)	-0.290 (0.212)
Ln area	- 0.00641 (0.191)	-0.927 (1.434)	0.561 (1.539)	1.858 (1.381)	0.393 (0.857)	-0.350 (0.807)	-2.670 (1.847)	-2.582** (1.085)	-0.541 (0.993)
Ln Pop	- 0.00479 (0.201)	1.078 (1.938)	1.179 (1.819)	-1.796 (1.864)	-0.572 (1.127)	0.0214 (1.105)	1.113 (2.398)	2.265* (1.358)	1.393 (1.286)
Natural resources	0.0190 (0.0203)	0.233 (0.141)	0.110 (0.158)	-0.163 (0.121)	-0.0708 (0.117)	-0.0946 (0.111)	0.234 (0.173)	-0.0827 (0.111)	0.0429 (0.0637)
Civil wars	-0.0516 (0.465)	-3.541 (3.815)	0.696 (3.854)	4.235 (3.560)	-0.498 (3.039)	1.068 (2.839)	-2.977 (4.955)	-2.378 (3.432)	-0.121 (1.945)

Colon (France)	-0.239 (1.854)	-10.75 (10.10)	1.859 (6.811)	- 24.62*** (8.345)	- 15.30*** (5.740)	-2.723 (9.629)	-10.77 (8.794)	6.212 (11.46)	0.827 (4.454)
Colon (Netherlands)	-1.940 (1.871)		30.30*** (9.061)	- 53.33*** (9.929)	3.712 (6.103)	-12.38 (9.402)	19.23 (12.09)	18.34 (11.80)	7.278 (5.531)
Colon (Others)	-1.200 (1.848)	12.37 (7.465)	9.134 (8.912)	- 45.76*** (8.670)	-4.638 (6.096)	5.089 (9.555)	14.79 (10.20)	20.49* (11.63)	8.201 (5.055)
Colon (Portugal)	0.182 (1.900)	-1.437 (5.420)	-0.910 (17.56)	-27.36 (17.89)	-1.016 (8.077)	11.59 (9.588)	14.09 (12.36)	11.42 (12.45)	4.633 (4.458)
Colon (Spain)	-1.534 (1.856)	17.26*** (6.229)	18.54** (7.137)	- 51.86*** (7.975)	-1.149 (5.346)	8.093 (9.149)	21.03** (8.860)	17.62 (11.16)	2.777 (4.672)
Colon (USSR)	-0.401 (1.873)	26.10*** (6.979)	26.85*** (7.141)	- 52.31*** (8.354)	-0.360 (6.543)	7.144 (9.890)	32.69*** (9.256)	29.47** (11.43)	14.50*** (5.041)
Colon (UK)	-0.922 (1.851)	4.586 (8.259)	5.429 (8.131)	- 39.03*** (9.255)	-0.268 (5.609)	10.08 (9.109)	10.96 (10.15)	22.77* (11.72)	3.025 (5.050)
Constant	6.053* (3.216)	39.56 (30.72)	24.30 (32.30)	100.7*** (29.36)	82.96*** (18.88)	84.27*** (20.33)	63.74 (38.71)	37.96 (25.02)	-12.68 (18.22)
Observations	69	70	80	121	121	121	113	116	121
R-squared	0.366	0.724	0.643	0.686	0.385	0.391	0.607	0.671	0.700

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