Does Social Diversity Impede Sound Economic Management? An Empirical Analysis, 1980-2012

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Abstract

Several celebrated scholars argue that diverse preferences and coordination failure due to ethnic and cultural diversity hamper the social cohesion necessary for good economic management, leading to development failure. Using several measures of diversity, we find that higher levels of ethno-linguistic and cultural fractionalization are conditioned positively on higher economic growth by an index of economic freedom, which is often heralded as a good measure of sound economic management. High diversity in turn is associated with higher levels of economic freedom. We do not find any evidence to suggest that high diversity hampers change towards greater economic freedom and institutions supporting liberal policies. The effect of diversity, moreover, is conditioned positively by higher democracy. Our results raise serious doubt about the centrality of social diversity for explaining economic failure, nor is there evidence to suggest that autocratic measures are required under conditions of social diversity to implement growth-promoting policies. This is good news because history and culture seems to matter less than rational agency for ensuring sound economic management.

> The history of underdevelopment suggests that a major stumbling block to beneficial institutional change in many poor countries lies in the distributive conflicts and asymmetries in bargaining power among social groups. Bardhan (2005: 521)

1. Introduction

The founding father of Singapore, Lee Kuan Yew, credits 'social discipline' for the phenomenal economic rise of his country (Sen 1999). Countries such as Singapore apparently demonstrate that autocratic measures are probably necessary, particularly in culturally fractionalized societies for creating the social stability necessary for economic growth (Colletta, Lim and Kelles-Viitanen 2001). Such thinking informs the so-called "Asian model" (Diamond 2008).[1] Recent studies, particularly in economics, support the logic (Alesina, Easterly and Matuszeski 2006, Easterly, Ritzen and Woolcock 2006). According to these scholars, the more congruent territorial borders are with nationality, the better the chances for good economic policy to appear endogenously from within these societies because social cohesion determines good institutions and policies for development (Banerjee, Iyer and Somanathan 2005, Easterly 2006b). This paper addresses the question of whether or not social diversity hampers the adoption of sound economic policies, including institutions that promote property rights and the rule of law. We also examine whether democracy conditions diversity´s effect on sound economic management, defined as economic freedom, because the index of economic freedom is strongly associated with higher growth and is endorsed by proponents of the 'diversity deficit' perspective (Easterly 2006a).[2] Are political leaders

[1] Although ethnic and linguistic diversity alone do not determine the degree of 'social cohesion,' they are viewed as the major underlying source of social friction at the root of development problems. We refer to ethnic fractionalization and cultural fractionalization interchangeable because we use measures of ethnic diversity and cultural distance. See Alesina & La Ferrara (2005) for review of the problems associated with identifying cultural difference. While it is customary to refer to cultural difference as the source of social fragmentation, class and caste divisions as well as territorial and historical factors may also, however, determine the social cohesiveness of a country (Bardhan 2005). Our focus is specifically on ethnic and cultural (linguistic) diversity.

[2] We use the Index of Economic Freedom (EFI), a widely-used measure of free-market economic policies and institutions that correlates positively with economic growth and social development. See the numerous journal articles listed at www.freetheworld.com. See also results presented in Table 1.

constrained from making better institutional and economic policy choices because of social diversity?[3]

This study is novel in several ways. Firstly, this is the only study we know of that directly addresses the question of ethnic diversity and the ability of rulers to devise and maintain sound economic policy. Secondly, we address the question of a conditional effect between regime type and social diversity on good economic management. Thirdly, we use an array of measures of ethnic diversity collected by a variety of scholars, since what is social diversity and how to measure it are debated (Alesina et al. 2003, Fearon 2003b). Our results are easily summarized. Using panel data on 115 countries (including OECD and non-OECD countries) during the years 1980-2010 (31 years), we find that measures of ethnic and cultural fractionalization associate with higher levels of economic freedom, a standard measure of good economic governance. In other words, higher diversity is associated with higher levels of economic freedom. There seems to be no discernible effect of diversity on the rate of change of economic freedom, which suggests that diversity is not a hindrance to policy change. Finally, we find that the effects of fractionalization on economic freedom are not conditioned by regime type (democracy vs. autocracy) either way. Arguments suggesting that fractionalization equates with social frictions that hinder sound economic management might be wrong. Indeed, our results suggest a diversity dividend at the national level, supporting studies suggesting the same conducted at the sub-national level (Gisselquist, Leiderer and Nino-Zarazua 2016).

2.1 The Diversity Deficit

Debate on whether social fractionalization marked by multiple ethnic and linguistic identities are a good or bad thing for political and economic development is an old one, but it endures. John Stuart Mill argued that for democracy to be stable, a country had to be relatively

[3] While debates on diversity address economic growth and not free-market policies and practices *per se*, the identified causal path is that diversity prevents liberal, free-market conditions because of rent-seeking (Easterly 2006b). Free-market supporting institutions and policies supposedly drive sustainable growth and the virtuous circles of development (Acemoglu and Robinson 2012). Rather than focusing on growth, which is affected by many exogenous factors, such as foreign assistance and the discovery of natural resources, we focus more directly on free-market conditions, the supposed pathway from diversity to economic failure.

homogenous, a theme that pervades the work of many theorists of democracy (Dahl 1982, Rabushka and Shepsle 1972). Recently, several economists suggest that poor countries remain poor because of artificial borders. Africa's 'growth tragedy' maybe attributable to high social fractionalization, which stymies development due to distributional conflicts, coordination failure, lack of property rights and economic liberty, and the problems associated with taxation and public goods provision (Alesina and Rodrik 1994, Alesina, Baqir and Easterly 1999, Alesina, Easterly and Matuszeski 2006, Easterly and Levine 1997, Kimenyi 1997). For many, the problem of artificial borders explains development failure. Of course, artificial borders could easily have created societies with two groups or with many, but artificiality of borders is generally conflated with diversity and cultural heterogeneity. Ethnno-linguistic fractionalization is blamed for socio-cultural dislocation. Easterly et al. (2006, p. 105) succinctly elucidate the connection between cultural fractionalization and low social cohesion thus:

> *Socially cohesive societies … have fewer potential/or actual leverage points for groups, individuals, or events to expose and exacerbate social fault lines ….*

Scholars pessimistic about the chances for endogenous institutional change argue that most poor countries lack the preconditions for the emergence of good governance, largely because these countries have artificial borders where ethnic and cultural diversity act as hindrances to sound political and economic governance due to the many social frictions arising from diversity. As Easterly (2006, p. 113) writes,

> *In many ethnically divided countries today, politicians often exploit ethnic animosities to build a coalition that seeks to redistribute income to* us *from* them.

Thus, social frictions arise from simple ethnic discrimination and the real and perceived exploitation of minorities regardless of the type of government in place. He goes on to write (Easterly 2006, p. 113),

> *Different ethnic groups may have conflicting interests in public services: group A may want a road in their region when group B may want a road in* their *region; the more segregated ethnic groups are, the less likely group B voters are to use or care about the road in group A's region. This may cause voters to choose a lower level of public services overall.*

Political corruption is also attributed to ethnic diversity. According to Easterly (2006, p. 114), 'corrupt politics merge with ethnic politics as parties compete to win resources for their own ethnic groups.' High diversity also apparently inhibits trust, and low trust societies supposedly suffer corrupt government due to collective action problems (Bardhan 2005, Putnam 1993). In summary, ethno-linguistic diversity account for governance failure because of distributional conflicts, coordination failure, diverse preferences, lack of secure property rights and economic liberties, poor taxation and public goods provision, and political corruption. Indeed, according to Banerjee, Iyer and Somanathan (2005: 639), "one of the most powerful hypotheses in political economy is the notion that social divisions undermine economic progress."

2.2 The Diversity Dividend

Contrary to John Stuart Mill, Lord Acton, asserted that social diversity was good for progress because it stabilized democracy and ensured good governance. In particular, Acton saw minorities playing a crucial role in the advance of liberty because they acted as a check against abusive majorities and absolute power (Kukathas 2003). Others see democracy and market forces strengthened by the inner conflicts driven by social divisions, whereas

gemeinschaft among *das volk* would lead to abuse of power and weak institutions (Hirschman 1994). Indeed, political scientists have argued that a multiple of cross-cutting cleavages have a stabilizing effect on democracy, whereas reinforcing cleavages tend to generate instability (Dahl 1982, Houle 2015, Lijphart 1977). Why cultural differences measured by ethno-linguistic fractionalization alone matter and why it might supersede all other ties are critical questions and theoretically quite ambiguous (Selway 2011).

High diversity, which should generate cross-cutting cleavages, could prevent mass nationalist mobilization by large majorities (Gubler and Selway 2012). High diversity in this way might necessitate social cooperation rather than promote conflict by encouraging the polarization of two relatively large groups within a society (Lijphart, 1999; Esteban and Ray, 2008). These scholars argue that higher diversity forces ethnic coalition building and creates cross-cutting cleavages that force institutional arrangements for elite accommodation that is better for economy and society in the long-run, such as the many consociational arrangements seen in places such as The Netherlands, Belgium, and South Africa, not to mention the highly fractionalized African countries, such as Botswana and Mauritius, which are considered relative successes (Collier 2001a, Lijphart 1999, Posner 2004).

There is some empirical evidence suggesting that relative homogeneity might be more problematic than diversity when it comes to serious social frictions (Collier and Hoeffler 2004, de Soysa 2009, Esteban and Ray 2008, Horowitz 2000, Welch 1998). Indeed, some large-N statistical studies find that ethnic diversity correlates positively with better human rights, suggesting that diversity might not result in "social frictions" because human rights are usually violated when there is serious social dissent (de Soysa 2009, Lee et al. 2004, Poe 2004, Walker and Poe 2002). As these scholars see it, diversity can be a source of good because as the field of new institutional economics suggests, ethnic and other cultural ties can reduce transaction costs between groups by allowing easier in-group policing (Fearon and Laitin 1996, North 1990). Ethnic and other cultural differences in society do not determine economic and political failure, but are not destined to be bad for economic and political

outcomes, but it is suggested that some inherent tensions might be channeled in positive directions as well (Laitin, 2008; Sen, 2006).

The empirical evidence for ethnic diversity's effect on social and economic outcomes is not straightforward. For one, there are issues about the proper measurement of diversity, where indicators measured according to varying definitions can yield different results (Alesina et al. 2003, Fearon 2003b). Most indicators, nevertheless, are highly correlated with each other. Another issue is that evidence for measurable social frictions because of high diversity often points in the other direction; i.e. high diversity predicts lower political frictions (Collier 2001a, de Soysa 2009, Esteban and Ray 2008). Why would economic and political failure occur without high levels of social conflict? It could very well be that ethnicized political discourses under conditions of economic adversity are mistaken to be the cause, rather than a consequence. Moreover, it may not be conditions of diversity that matter but that relative homogeneity leads to conditions of polarization and ethnic nepotism, where large groups compete for position because of the fear of being permanently marginalized. If this is the case, then the greater the diversity the better it might be for economic and political governance. Finally, several sub-national studies suggest that high social diversity increases public goods, even if studies at the national level suggest the opposite (Gisselquist, Leiderer and Nino-Zarazua 2016). Finally, the cross-national empirical analyses of the effect of ethnic and other diversity on per capita economic growth rates yield highly mixed results, with many reporting no statistically significant results from ethnic diversity to economic growth (Baggio and Papyrakis 2010, Lian and Oneal 1997).[4]

[4] See also our results reported in Table 1. Many of the cited studies cannot be compared, however, because models of economic growth differ as do estimating techniques and data. Since annual growth rates could be highly sensitive to business cycle effects, natural resource discoveries, and other global market effects on trade and commodity prices etc, the arguments about how social diversity affects economic progress is best addressed by estimating diversity's effect on growth promoting institutions and policies.

2.3 Could Diversity Impede Economic Policy Change?

Thus far, our discussion has been about whether high diversity and sound economic institutions and management can go together. However, an equally important issue is whether or not high diversity is a barrier against economic policy liberalization, or policy change. An association between high diversity and poor free-market conditions might be due to factors associated with the deep past; for example, as a result of colonial institutions and fortunate geographic conditions related to trade and access to markets. Thus, we also look at change in free-market policy conditions, which addresses the issue of whether or not countries with high diversity can undertake reform. Arguments about the Asian model to economic success are based on the view that policy change requires a strong hand at the helm of government.

Economic policy reforms have distributive effects (Alesina and Drazen 1991, Haggard and Webb 1994). Simply put, free-market policy reforms will generate winners and losers. In models explaining reform, or the lack of it, the general view is that people in positions of power will try to displace the costs of reforms on others and reap the benefits. In these models (see Alesina and Drazen 1991), reforms are delayed, or never materialize, due to "wars of attrition" between groups who will try to wait out the other group until one concedes to bearing greater costs. The redistributive effects of policy changes are likely to affect ethnic and cultural groups in a country differentially. In poor countries in particular, the labor market is likely to be segmented according to ethnic groups, and policy changes can affect the wage rate of these groups at differential rates. Thus, ethnic groups will act as interest groups that either support the policy reforms or oppose them. In a fragmented society, thus, agreement is likely to be less smooth due to the many "interests" and "preferences" that would have to be satisfied to find the consensus for change. As Bardhan (2005) points out, collective action problems are likely to be severe even if change would be pareto-superior for all groups, and that power asymmetries between groups will lead to coordination failure.

However, policy changes do happen because ethnic groups are also made up of individuals, firms, households, and social organizations that have a plethora of economic interests, including the interests of ethnic elites for maintaining their privileged status. Moreover, governments are able to affect reforms by building coalitions that support change (Haggard and Webb 1994, Weyland 1998). It is not clear at all why cultural fragmentation should be the problem without knowing exactly how some groups will be hurt more than others from economic policy reforms. In other words, there is little reason to believe that cross-cutting cleavages would not help reform. Further, the type of political regime might condition the effect of diversity on the direction of reform efforts. Economic policy changes take place in a political environment. How ethnic and cultural fragmentation affects the ability to affect reform may depend crucially on political institutions (Acemoglu and Robinson 2012, Haggard and Webb 1994). The recent changes have suggested that democracy and economic reforms can go hand in hand (Acemoglu and Robinson 2006). In a democracy, the interests of the ethnic groups are likely to be brought to the table, which may delay reforms or help generate consensus necessary for effecting change. This study thus also tests for a conditional effect between democracy and high diversity on economic policy level and change towards greater liberalization. In other words, how do diversity´s effects on economic policy change depending on the presence of democratic politics?

3. Methods and Data

3.1 Model Specification

We use panel data containing 116 countries (see Appendix 1) covering 1980–2012 period to evaluate empirically the hypothesis that ethnic divisions affect economic policy reforms in the short run and the level of economic freedom in the long run. First, however, we test the basic proposition that highly diverse countries that cannot manage good economic policy are those that fail to generate growth. We utilize the data described in detail below. Since some of the

data are not available for all countries or all years, the panel data are unbalanced and the number of observations depends on the choice of explanatory variables. We thus estimate:

$$EFI_{it} = \phi_1 + \psi_2 FRAC_{it} + \psi_3 Z_{it} + \upsilon_t + \omega_{it} \qquad (1)$$

Where, EFI_{it} is the Economic Freedom Index for country ***i*** at year ***t***. We consider the Fraser Institute's Economic Freedom Index constructed by Gwartney and Lawson (2008) as our indicator of policy reforms.[5] Indeed, William Easterly (2006b) argues that the EFI be used as a benchmark by aid agencies to gauge the extent of favorable economic governance. These data are available in five year-intervals over the period 1970–2000, and on yearly basis thereafter. This index is a comprehensive measure made up of five sub-indices capturing: expenditure and tax reforms; property rights and legal reforms; trade reforms; reforms related to access to sound money; labor, business and credit reforms. These five sub-indices are in turn roughly made up of 35 components of objective indicators under each sub index. In order to construct the indices, each variable in the respective sub-indices was transformed to an index on a zero to 10 scale. Where higher values of the original variable indicate higher freedom, the formula $[(V_i - V_{min}) / (V_{max} - V_{min})] \times 10$ was used for transformation. Conversely, when higher values indicate less freedom, the formula was $[(V_{max} - V_i) / (V_{max} - V_{min})] \times 10$. The sub-component indices were then averaged to determine each component. The component indices within each area were averaged to derive indices for each of the five main areas. The final index is then ranked on a scale of 0 (not free) to 10 (totally free). Finally, the missing years between the reported quintiles (for 1980-1985; 1985-1990; 1990-1995; 1995-2000) for this variable are interpolated. Since the score on EFI changes slowly between the five year periods measured, the interpolated values should not be problematic. However, we analyze all our results with the uninterpolated (quintile) data for comparability.[6]

[5] See the list of studies that use Fraser Institute's EFI measure as a proxy for reforms: http://www.freetheworld.com/papers.html

[6] For detailed methodology on the EFI, see: http://www.freetheworld.com/datasets_efw.html

$FRAC_{it}$ measures our main variable(s) – cultural diversity. To measure cultural diversity, we use a variety of measures capturing fractionalization within societies based on ethnic, linguistic and cultural difference. Primarily, we use a measure of ethnolinguistic fragmentation that was constructed by Fearon and Latin (2003). Their ethnic fractionalization index is based on data sourced from a Soviet ethnographic atlas, which was constructed by a team of 70 researchers in 1960 in the then Soviet Union and printed in the 1964 in *Atlas Narodov Mira* (Atlas of Peoples of the World). This measure captures the probability that two randomly drawn individuals in a country are from different ethnolinguistic groups. The ethnic fractionalization index will increase with the number of ethnolinguistic groups and will increase the more equal the size of the groups. It is noteworthy that Fearon and Latin (2003) filled in values for missing countries in Atlas of Peoples of the World using various other sources, such as CIA Fact book, Encyclopedia Brittanica, and the Library of Congress Country Studies to derive the required information on ethnic groups in these missing countries.[7] It should be noted that we prefer to use fractionalization measures using all groups rather than just politically-relevant groups as some others have done because using only politically-relevant groups underestimates the extent of fractionalization and is plagued by selection bias (Marquardt and Herrera 2015).

Next, we use two measures of fractionalization developed by Alesina et al. (2003). The objective of these measures is to distinguish clearly between ethnic and linguistic heterogeneity. Ethnic and linguistic differences, according to Alesina et al. (2003), were previously lumped together as part of an ethnolinguistic fractionalization measure. Alesina et al. (2003) base their definition of ethnicity on both racial and linguistic characteristics. For instance, ethnicity, they argued, in some of the European and Sub-Saharan African countries is largely based on languages. While the definition of ethnicity for Latin American countries involve a combination of racial and linguistic characteristics. In order to construct an alternative measure, they collected disaggregated data on 650 ethnic groups for 190 countries

[7] More details on data collection and methodology, see Fearon and Latin (2003)

from multiple sources, such as the Encyclopedia Britannica (2001), which was the source of the data in 124 of 190 countries along with data from the CIA's World Fact Book and several other sources. If two or more sources for the index of ethnic fractionalization were identical to the third decimal point, then Alesina et al. (2003) used these sources. If their sources diverged resulting in variance in the index of fractionalization to the second decimal point, then they used the source where the reported ethnic groups constituted the greatest share of the total population. The formula used for constructing both Fearon and Laitin (2003) and Alesina et al. (2003) indices is:

$$Frac_j = 1 - \sum_{i=1}^{N} S^2_{ij} \qquad (2)$$

Where, S_{ij} is the share of group i (i = 1……N) in country j. Note that a higher value represents greater fractionalization and vice-versa.[8] When we look at the descriptive statistics of both measures we find the correlation to be very high (0.91). While the sample mean of Fearon's measure is 0.47, the mean of Alesina's measure is 0.45 for our sample of countries. In the case of South East Asia and most European countries, Alesina's index shows more fractionalization than Fearon's index, while countries from other geographic regions are closer to each other. Given the way the Alesina et al. (2003) measure is constructed, this is not surprising.

Finally, we also use another measure developed by Fearon (2003) which is an index measuring cultural and linguistic distance, which is most appropriate to test arguments about diverse preferences and coordination failure because language politics feature highly in such stories. This measure captures the distance (difference) between the language of a majority group and the largest minority on a language tree developed by linguists for identifying the roots of the world's languages as a proxy for the cultural distance between different ethnic groups in a country. Using the distance between languages, the cultural distance measure

[8] See Alesina et al. (2003) for more details on how the index is constructed.

attempts to capture cultural proximity between the majority and the largest minority.[9] For example, the difference between Tamils and Sinhalese in Sri Lanka is likely to be greater than the differences between Czechs and Slovaks, or Serbs and Croats. Again, the index is coded on a scale of 0 to 1 where highest value represents large cultural distance between ethnic groups. All fractionalization measures are time invariant and do not account for changes due to migration. We do not think this is a limitation given that we are addressing studies that have used fractionalization in a similar way and that migration is likely to have only a small impact on overall fractionalization measures over the time period we address.

Finally, Z_{it} includes the vector of control variables which are discussed below. υ_t are time dummies and ω_{it} is the error term for country ***i*** at time ***t***.

$$\Delta\ EFI_{\ it} = \phi_1 + \psi_2\ EFI_{it-1} + \psi_3\ FRAC_{\ it} + \psi_4\ Z_{it} + \upsilon_t + \omega_{i\,t} \qquad (3)$$

Where, $\Delta\ EFI_{it}$ is the year-to-year change in Economic Freedom Index which is our measure for economic policy reforms (Bjørnskov and Foss 2010, Dreher, Sturm and Vreeland 2009) for country ***i*** at year ***t***. A positive value of economic reforms thus indicates a movement towards more free market policies and a negative value would be a move towards more state regulation and dirigisme. In other words, the economic reforms capture the new policy decisions taken by the state in the short run and not necessarily the accumulation of reforms over the years resulting in economic freedom (i.e. EFI) in the long run, which we also use in our analysis. Note that we also control for policy convergence by including a lagged value of EFI because countries already at high values change much slower than those at lower values. As before, we also include time dummies (υ_t).

The vector of control variables **(Z_{it})** includes other potential determinants of EFI and economic policy reforms, which we obtain from the extant literature on the subject. We follow Gassebner et al. (2011), Dreher et al. (2009) and Pitlik (2007) and other

[9] For the detailed methodology on construction of this index, see Fearon (2003)

comprehensive studies on the determinants of Economic Freedom (Potrafke 2013, Bjørnskov and Potrafke 2012). The list of potential control variables is long, but we are aware of the trap of "garbage-can models" or "kitchen-sink models" in which various variables are dumped onto the right hand side of the equation, making interpretation of results difficult (Achen 2005, Schrodt 2014). We adopt the conservative strategy of accounting only for three key factors that affect EFI, adding several more only in robustness checks.

Accordingly, we control for the level of development by including per capita income (logged) in US$ 2000 year constant prices obtained from the World Development Indicators (World Bank 2012). We include total population (logged), which influences both economic reforms and ethnic fractionalization, since larger countries tend to have higher fractionalization. To measure the nature of the political regime in power, we include the Polity IV (polity2) democracy index (Gurr and Jaggers 1995). We subtract the autocracy score from the democracy score, which is standard practice. Thus, the democracy score ranges from +10 (full democracy) to –10 (full autocracy). In robustness checks, we also include a measure of economic crisis, which is a dummy variable indicating whether a country has experienced one or more of the following crises, namely systemic banking, currency, and debt (Laeven and Valencia 2008). Countries under IMF programs may reform faster due to pressure from structural adjustment programs. We include a discrete variable taking the value 1 if a country is under an IMF program for more than five months in a financial year and 0 otherwise (Dreher 2006). We also test the effect of fractionalization holding constant civil war defined as a conflict between a government and rebel movement where at least 25 deaths have occurred in a single year (Gleditsch et al. 2002). These data are from the Uppsala Conflict data program (UCDP). The descriptive statistics are provided in Appendix 2 and the details on definitions and data sources are provided in Appendix 3.

We use the Newey-West estimator which allows us to compute an AR1 process for autocorrelation and obtain Huber-White corrected robust standard errors that are robust to heteroscedasticity (Newey and West 1987). Note that while we include time fixed effects, we

do not include country fixed effects because our main variables of interest – ethnic fractionalization measures are "time invariant." The usage of two-way fixed effects will not only be collinear with time-invariant or largely time-invariant regressors, but will also generate biased estimates (Beck 2001). However, we do generate regional dummies for the following geographic regions namely, South Asia, East Asia, Americas (North, South, Central America and Caribbean), Europe, Middle East North Africa and Sub-Saharan Africa. We control regional dummies in all our models. We treat Europe as the reference category.

3.2 Conditional effects

To examine our arguments further, we estimate an interaction effect between our various measures of fractionalization and democracy as shown below:

$$EFI_{it} = \phi_1 + \psi_2 FRAC_{it} + \psi_3 FRAC_{it} \times Dem_{it} + \psi_4 Dem_{it} + \psi_5 Z_{it} + \upsilon_t + \omega_{it} \qquad (4)$$

Where, $FRAC_{it} \times Dem_{it}$ is the interaction term between our measures of ethnic fractionalization discussed in the previous section and the Polity measure of democracy (Dem_{it}). As before, we use the Newey-West estimator and control for time fixed effects and regional fixed effects in all our estimations.

4. Empirical Results

Table 1 presents the empirical results of our test of economic growth. Tables 2–4 present our main results. Table 2 presents results for EFI with basic controls, and our various measures of ethnic diversity added stepwise.[10] Table 3 reports the results replacing EFI level with economic reforms (change in EFI) as our dependent variable. Finally, Table 4 presents the conditional effects between the measures of ethnic diversity and political regimes on economic policy.

[10] Data and do files used to generate all results will be made available upon publication.

Table 1 reports the effect of the conditional relationship between all our measures of diversity and the level of economic freedom (EFI) on the rate of growth of per capita income, controlling for several important factors including the lagged dependent variable.[11]

********** Table 1 About Here **********

Do good economic institutions and policies captured by the EFI mediate the effect of diversity on economic growth? As seen there, diversity interacted with EFI has positive effects on growth, whereas diversity when EFI is zero has statistically significant negative effects on growth. The results remain the same across all our measures of diversity. The EFI when diversity is zero (the unconditional term) is independently statistically significant in two of the five tests (the three terms are jointly highly significant).[12] It is important to note that interpretation of interaction terms even in linear models could be quite tricky as the statistical significance changes depending upon the level of the conditioning variable; i.e. the EFI (Ai and Norton 2003). Also, the standard errors of conditional effects cannot be obtained simply from the regression (Brambor, Clark and Golder 2006).

The conditional plots for each of the interaction terms shows that the negative effects of fractionalization on GDP growth turn positive and statistically significant only at roughly the middle of the EFI scale, which runs from 1 to 10 (see figures 1-5).

***** Figure 1 about here *****

***** Figure 2 about here *****

***** Figure 3 about here *****

***** Figure 4 about here *****

[11] Results remain the same without the inclusion of the LDV and in several alternative models.

[12] In additive models (without interactions) none of the measures of ethnic diversity are statistically significant, but EFI shows a positive and statistically highly significant effect on economic growth (see appendix).

***** Figure 5 about here *****

While the results reported in Table 1 and figures 1-5 support the basic premise that good economic policy mediates the potential negative effects of high diversity on growth, the crux of the matter remains whether diversity is an obstacle to implementing sound economic management and whether the political regime in place is a mediating factor. We turn to these critical questions next.

Table 2, reports the impact of various measures of ethnic fractionalization on the level of economic freedom. Are countries with greater diversity also likely to have greater economic freedom?

****** Table 2 about here *****

Column 1 shows a positive but insignificant effect of Fearon's measure of ethnic fractionalization on the level of economic freedom. When we replace Fearon's measure of ethnic diversity with Alesina's ethnic fractionalization measure in column 2 the results continue to remain statistically insignificant. However, we do find that Alesina's linguistic fractionalization measure in column 3 is positive and significantly different from zero at the 1% level. A standard deviation increase in Alesina´s linguistic fractionalization increases economic freedom by roughly 0.14 points which is about 11% of a standard deviation of economic freedom. Thus, the largest substantive impact is shown by Alesina´s linguistic fractionalization.

Next, we test fractionalization measured with the ethnic groups recorded by the Soviet Atlas (column 4). Again, the effect of fractionalization is positive and statistically significant at the 1% level. A standard deviation increase in this measure would raise economic freedom by 0.8 points which is about 6% of a standard deviation in economic freedom. Finally, the cultural distance measure in column 5, measured as the linguistic distance between the majority and the largest minority, also shows a positive and statistically significant effect. A standard deviation

increase in cultural distance is associated with roughly a 7% increase of a standard deviation of the level of economic freedom index. While we find a significant positive effect of greater fractionalization on the level of economic freedom, one might argue that the substantive effects are fairly small. Interestingly, the largest positive effect seems to be from Alesina´s linguistic fractionalization.

Our findings, however, contradict the arguments that rely on ethnic and cultural fractionalization to explain the heart of development failure. Indeed, the results do not support what some term "one of the most powerful hypotheses in political economy" (Banerjee, Iyer, and Somanathan 2003). They specifically contradict the arguments of Easterly and Levine (1997), Alesina and La Ferrara (2005), and Montalvo and Reynal-Querol (2005) among others who argue that the negative effect of ethnic fractionalization on economic development is related to the coordination problems and diverse preferences between various ethnic groups in highly fractionalised countries for adopting sound economic policies; particularly since our results are based specifically on an index of economic freedom hailed by Easterly (2006b). On the contrary, our findings imply that if Bangladesh had a sample mean value of cultural distance (0.29) instead of it its actual value of 0.14, its EFI score during the 1980-2010 period would have increased by 9% of its actual value of 5.1, all other factors remaining equal. This is interesting because coordination failure, according to the traditional theories, should be greatest between two ethnic groups that are far apart culturally based on linguistic difference (Fearon 2003).

It is noteworthy that these results remain robust when we estimate the sample of only developing countries (i.e. non-OECD countries).[13] The control variables perform as expected, where the level of development predicts higher economic freedom as does democracy, but the highly significant negative effect of country size is interesting. Many who show that ethnic fractionalization matters for worse economic outcomes fail to control for country size. The size of the domestic market might be acting as a powerful force on rent seeking, regardless of the

[13] Results not shown but available upon request from the authors.

degree of social diversity. It is also noteworthy that adding several other variables, i.e. the level of income, democracy, and population size, crises, IMF program participation, and civil conflict, has only a small effect on all our measures of ethnic diversity, which are still positive and significantly different from zero at the 1% level (results not shown here and are provided upon request). This suggests that the theorized mechanisms through which fractionalization may matter for bad economic management are not supported in the data.

****** Table 3 about here *****

Next, we turn to Table 3 in which we use change in EFI as our proxy for economic policy reforms in the short term. As can be seen from results, none of the ethnic diversity measures have any statistically significant effect on the annual rate of policy change. In other words, our results show no effect whatsoever of greater fractionalization on policy change towards increased economic freedom. Note that these results remain the same when adding a range of other control variables. The statistical significance of these results are likely to be affected by slow nature of policy change, but they certainly draw into question arguments that suggest that countries that are fractionalized are unable to embark on meaningful economic reform because the results taken together show that larger diversity associates with higher economic freedom.

4.1 Conditional effects of fractionalization and democracy on economic freedom

We now turn to the interactions between our various measures of ethnic fractionalization and regime type. Perhaps the effect of fractionalization is conditioned by democracy to have a greater or lesser impact. As discussed earlier, many suggest that democracy is a dangerous 'luxury' in ethnically fractionalized countries because the social discipline required for rational economic policies might be compromised. The results are presented in Table 4.

****** Table 4 about here *****

As seen there, the estimated interactions between cultural diversity and democracy are positive, albeit statistically significant only in column 5. Again, we rely on the graphical interpretation as shown in Figure 6, which corrects standard errors and depicts the magnitude of the interaction effect shown in column 1 in Table 4. To calculate the marginal effect of Fearon's ethnic fractionalization, we take account of both the conditioning variable (political regime) and the interaction term. We show the total marginal effect conditional on democracy graphically.

*****Figure 6 about here*****

On the y-axis of Figure 6, the marginal effect of Fearon's ethnic fractionalization index is displayed, and on the x-axis the political regime index is shown at which the marginal effect is evaluated. The figure includes the 90% confidence interval. As seen in Figure 6, and in line with our results of the previous estimation reported in Table 2, an additional unit increase in Fearon's ethnic fractionalization would increase the EFI (at the 90% confidence level at least) only if the political regime score is greater than +3 (on a scale of -10 to +10), which is in the range of democracy. Figure 6 also shows that Fearon's ethnic fractionalization has no effect on the EFI when the political regime score is below +3 (on the scale of -10 to +10), i.e. in the range of autocracy. Thus, the marginal effects are insignificant when the lower bound of the confidence interval is below zero. These results suggest that countries with ethnic diversity, which are democracies, are more likely to witness an increase in economic freedom.

Similar results are displayed in Figure 7, which captures the interaction effect between Alesina's linguistic fractionalization measure and political regime type shown in column 3 in Table 4. Note that the interaction between regime type and Alesina's ethnic fractionalization

measure reported in column 2 of Table 3 is statistically significant across all the class intervals of the political regime type index. The marginal effects of Alesina´s linguistic fractionalization is displayed on the y-axis of Figure 7 and the marginal effect of the democracy index at which the effect is evaluated at the 90% confidence is displayed on the x-axis.

***** Figure 7 about here *****

Figure 7 shows that Alesina's linguistic fractionalization has a positive effect on EFI (at the 90% confidence level) across the regime type, i.e. between -10 and +10. However, the substantive effects become stronger as regime type moves towards +10, i.e. towards full democracy. For instance, a standard deviation increase in linguistic diversity is associated with a six-point jump in the EFI when regime type is 10 (i.e. full democracy), which is statistically significant at the 1% level. Clearly, democracy, rather than autocracy enhances the effects of linguistic fractionalization on sound economic governance, a result that clearly contradicts the view that coordination failure and diverse preferences require autocracy to fix.

***** Figure 8 about here *****

Figure 8 depicts the conditional effect of cultural and linguistic distance as it varies by democracy. As seen, an additional unit increase in cultural and linguistic distance would increase economic freedom (at the 90% confidence level at least) only if the political regime score is greater than -8 (on a scale of -10 to +10). Figure 3 also shows that cultural and linguistic fractionalization has no effect on economic freedom when the political regime score is below -8 (on the scale of -10 to +10), i.e. in the range of strict autocracy. However, like before, the substantive effects become stronger as regime type moves towards +10, i.e. towards full democracy. For instance, a standard deviation increase in cultural and linguistic

distance is associated with a five points jump in the EFI when regime type is 10 (i.e. full democracy), which is statistically significant at the 1% level.

***** Figure 9 about here *****

Finally, Figure 9 shows the interaction effect between fractionalization measured by the Soviet Atlas and regime type shown in column 5 in Table 4. As seen there, ethnic fractionalization measured by the Soviet Atlas has a consistently positive effect on economic freedom (at the 90% confidence level), when the political regime score is greater than -2 (on a scale of -10 to +10). For instance, a standard deviation increase in the Soviet Atlas diversity index is associated with a 5.7 points jump in economic freedom when democracy is 10 (i.e. full democracy), which is statistically significant at the 1% level.

It is noteworthy that these interactions remain robust even for the restricted sample of developing countries (not shown). Interestingly, none of these interactions are statistically significant when we replace the dependent variable of level of EFI with change in EFI (our proxy for economic reforms). These results suggest that social diversity is not a factor in the short run, but ethnic and linguistic diversity are associated with economic freedom in the long run, both independently and when accompanied by democracy. The results certainly contradict those who argue that ethnic and other social diversities hamper economic reforms in democracies, and that some form of autocratic stability is necessary for good economic policymaking under conditions of social diversity.

With respect to the results on control variables, they are consistent with those reported by previous studies. There is a positive relationship between economic development (per capita GDP) on the level of EFI. For instance, a standard deviation increase in per capita income (log) is associated with 0.86 points increase in EFI, which is significantly different from zero at the 1% level. This suggests that economic freedom is higher in richer countries. However, the statistical significance on income vanishes in Table 3 when we replace EFI with

change in EFI as the dependent variable. We also find a strong positive effect of institutional factors like democracy on economic policy reforms and the level of economic freedom. A point increase in democracy is associated with 0.25 and 0.003 points increase in EFI and economic policy reforms, which are significantly different from zero at 1% level respectively. Our findings support the arguments of Pandya (2014) that democracies show greater propensity towards economic policy reforms independently of other factors, but the substantive effects are small.

As robustness checks we also add various other control variables namely, economic crises, participation in IMF programs, and civil conflict. We find that economic and financial crises, associated with currency, debt and banking are associated with lower economic policy reforms and level of economic freedom. Also, contrary to others, we find that participating in an IMF program for more than five months in a financial year associates with more economic policy reforms and higher economic freedom in the long run (Boockmann and Dreher 2003, Dreher and Rupprecht 2007). These results suggest temporarily at least that the pessimism around IMF involvement and economic policy reforms might be premature. Lastly, countries in armed conflict have no significant impact on economic reforms, but they have lower levels of economic freedom, an effect that is statistically significant at the 1% level.[14] These results might reflect the view that sound economic management and greater liberalization also reduces the risk of political repression and violence (de Soysa and Fjelde 2010, de Soysa and Vadlamannati 2013, de Soysa 2016).

4.3 Robustness checks

We examine the robustness of our main findings in several ways. First, we replace our interpolated EFI with the uninterpolated EFI scores presented in quintiles for the 1980-2000 period. Estimating our models reported in Table 1-3 with the uninterpolated EFI does not yield very different results. Secondly, we include additional control variables, such as the

[14] All results reported in robustness tests will be made available on an online appendix.

level of inflation, left-leaning governments in power, and count of the number of years of civil peace since independence, which could influence both the degree of ethnic fractionalization as well as economic policy reforms.[15] Inclusion of these additional variables does not change our baseline results much. Next, we interacted time fixed effects with regional dummies, allowing time and place to vary while holding the effect of fractionalization constant, which yielded very little change to the basic results. This suggests that the effect of diversity is independent of a specific time and regional space.

Finally, because democracy may be endogenous to economic freedom, we ran our basic models using the System-GMM (SGMM) estimator by treating democracy, EFI, the lagged dependent variable and the interaction term as endogenous and assuming rest of the controls as exogenous. We use the average polity score of neighboring countries as an instrument for country-level democracy. Moreover, we use the interaction between democracy of neighboring countries and diversity measures as an instrument for the interaction variable of democracy and diversity measures. The idea of peer effects influencing the likelihood of a country's an individual country´s performance is not new to the literature (Gleditsch and Ward 2006). Similarly, such diffusion measures are used by Simmons and Elkins (2004) in assessing diffusion in financial policy among countries. Gassebner et al. (2011) find that a country's economic policy reforms are affected by reforms adopted by its neighboring countries. We applied two lags for both the instruments in the instrument matrix and collapsed the instruments matrix as suggested by others (Roodman 2006). Our results basically remain the same as those reported in Table 4 (estimated using Newey West). The Hansen J-test was employed to check whether the selected internal instruments satisfy the exclusion restriction, and it did support the validity of the instruments. Also, the second order autocorrelation, as expected in SGMM estimations, is absent. These results suggest that the

[15] The peace years count variable is computed from the UCDP database using the 25 battle death threshold as the criteria for counting the onset of a civil war. See http://www.pcr.uu.se/research/UCDP/.

effects of the interactions are likely unbiased by endogeneity between democracy and economic freedom.

5. Conclusions

A spate of recent scholarly work, particularly in economics, blames social diversity for the development failure of poor countries (Alesina and La Ferrara 2005, Alesina, Easterly and Matuszeski 2006, Easterly 2006b). Apparently, poor countries have artificial borders where different cultural groups exist with high social frictions that prevent good economic policy making. These scholars blame colonial powers for making countries that made no natural sense in terms of creating culturally homogenous countries. Since diverse societies will have diverse preferences, these countries suffer coordination failure, leading to all sorts of bad outcomes, such as lower public goods provision, higher corruption and nepotism, and delayed reforms and other maladies. Aid efforts, among other interventions to help the poor, are seen as wasteful because the endogenous conditions based in diversity thwart the implementation of good policies that enhance markets (Easterly 2006b). Indeed, some claim these hypotheses to add up to a central problem in political economy (Banerjee, Iyer and Somanathan 2003).

Others have argued just the opposite, taking a more favorable view of diversity because high diversity can act as a check on absolute and permanent majorities that may lead to rent-seeking and political polarization (Collier 2001; Sen 2006). Ethnic ties may act as mechanisms for reducing transaction costs in the absence of good institutions, as new institutional economics and theories of social capital suggest. Moreover, cross-cutting cleavages may also reduce the propensity for large-scale ethnic polarization because of off-setting interests, which may stimulate better institutions for managing pluralistic interests in society, such as proportional representation and other consociational arrangements (Lijphart 1977). Nonetheless, the theoretical stories about the promise and perils of ethnic diversity are equally plausible and the empirical evidence on whether or not ethnic and other cultural fractionalization matters is still rather mixed. The artificial borders argument also does not

address why two large groups in an "artificial" country might be less harmful than a country with many groups. For example, the so-called ethnic problems in Rwanda and Burundi and a host of other areas do indeed have ethnic dimensions and possibly relate to artificial borders, the question is however to understand more systematically why other areas with similar divisions, such as Botswana, Mauritius, and Chile, show relative success, even if they might also be considered artificial. Future studies may also examine more closely the reasons for differential bargaining power of groups rather than simply look at group sizes and numbers.

Our empirical results show, nonetheless, that ethnic and other social diversity predicts higher levels of economic freedom. The effects of fractionalization are not statistically significant on policy change (reforms). We also find that regime type (democracy) matters more than autocracy for conditioning fractionalization´s effect positively on the level of economic freedom and change. These results contradict the arguments about ethnic and other diversity underpinning development failure and that autocratic governments might be required to reform countries with high diversity. Future studies will do well to revisit the question of ethnic diversity and economic growth since data and techniques for assessing economic growth have vastly improved recently. Moreover, studies that have shown diversity to be bad for public goods provision might have to be reanalyzed with the inclusion of population size in the models. It may very well be that discourses of conflict, particularly the discourses of blame and recrimination based in ethnic ties are a result of economic crises and failure mistaken as cause. What might matter ultimately is sound political management and statesmanship on the part of rulers. Our results caution against overemphasizing cultural diversity as *the* underlying cause of institutional underdevelopment, as others too have suggested (Collier 2001b, Laitin 2008, Lijphart 1977, Sen 2006). The good news for progressive-minded policy is that history may matter a whole lot less than human agency. Why some political leaders manage their diversity and identity-related questions better than others is still an open question worthy of greater empirical scrutiny. The role of institutions,

both formal and informal, is certainly a promising path for future inquiry (Acemoglu and Robinson 2012, North, Wallis and Weingast 2013).

Table 1: Conditional effects of ethnic and cultural fractionalization and economic freedom on the growth rate of GDP, 1980-2012

	(1)	(2)	(3)	(4)	(5)
	GDP growth	**GDP growth**	**GDP growth**	**GDP growth**	**GDP growth**
Ethnic Fractionalization (Fearon)	**-6.777*** **				
	(1.910)				
Ethnic Fractionalization (Fearon) × EFI (t-1)	1.053***				
	(0.290)				
Ethnic Fractionalization (Alesina: Ethnic)		**-6.608*** **			
		(1.817)			
Ethnic Fractionalization (Alesina: Ethnic) × EFI (t-1)		0.980***			
		(0.276)			
Ethnic Fractionalization (Alesina: Lingustic)			**-3.460** **		
			(1.440)		
Ethnic Fractionalization (Alesina: Lingustic) × EFI (t-1)			0.480**		
			(0.228)		
Ethnic Fractionalization (Soviet Atlas: Ethnolingustic)				**-5.984** **	
				(2.415)	
Ethnic Fractionalization (Soviet Atlas: Ethnolingustic) × EFI (t-1)				0.991***	
				(0.369)	
Cultural & Linguistic Distance					**-4.213*** **
					(1.625)
Cultural & Linguistic Distance × EFI (t-1)					0.634**
					(0.249)
Economic Freedom Index (t-1)	0.0384	0.0780	0.475***	0.254	0.309**
	(0.173)	(0.168)	(0.142)	(0.149)	(0.150)
Per capita GDP (log) (t-1)	-0.514***	-0.518***	-0.569***	-0.511***	-0.516***
	(0.0984)	(0.0975)	(0.0899)	(0.0956)	(0.0963)
Democracy (Polity) (t-1)	-0.00835	-0.0110	-0.0208	-0.00387	-0.0125
	(0.0177)	(0.0177)	(0.0181)	(0.0177)	(0.0184)
Population (log) (t-1)	0.123**	0.113**	0.109**	0.135**	0.126**
	(0.0527)	(0.0526)	(0.0522)	(0.0536)	(0.0531)
IMF programs (t-1)	-0.0610	-0.0449	0.0491	-0.0853	-0.0448
	(0.214)	(0.215)	(0.197)	(0.215)	(0.215)
Civil conflict (t-1)	-0.00770	-0.000429	0.161	0.0431	0.0383
	(0.239)	(0.238)	(0.223)	(0.243)	(0.241)
Economic Crises (t-1)	-1.166***	-1.160***	-1.152***	-1.217***	-1.179***
	(0.392)	(0.392)	(0.381)	(0.392)	(0.390)
Lagged Dependent Variable	0.280***	0.280***	0.299***	0.282***	0.282***
	(0.0467)	(0.0467)	(0.0402)	(0.0470)	(0.0467)
Constant	6.275***	6.358***	4.347***	4.462***	4.514***
	(1.608)	(1.533)	(1.249)	(1.429)	(1.374)
Time Fixed Effects	YES	YES	YES	YES	YES
Number of Countries	116	116	116	116	116
Total Observations	3,225	3,225	3,145	3,200	3,225

Notes: Robust standard errors in parenthesis; statistical significance: ***p<0.01, **p<0.05

Table 2: The effects of cultural diversity on the level of economic freedom (basic model), 1980-2012

	(1)	(2)	(3)	(4)	(5)
	EFI	**EFI**	**EFI**	**EFI**	**EFI**
Ethnic Fractionalization (Fearon)	0.0615				
	(0.0863)				
Ethnic Fractionalization (Alesina: Ethnic)		0.0506			
		(0.0993)			
Ethnic Fractionalization (Alesina: Lingustic)			0.461***		
			(0.0862)		
Ethnic Fractionalization (Soviet Atlas: Ethnolingustic)				0.361***	
				(0.103)	
Cultural & Linguistic Distance					0.255***
					(0.0783)
Per capita GDP (log) (t-1)	0.529***	0.529***	0.549***	0.526***	0.533***
	(0.0197)	(0.0197)	(0.0197)	(0.0203)	(0.0198)
Democracy (Polity) (t-1)	0.0193***	0.0193***	0.0243***	0.0202***	0.0189***
	(0.00450)	(0.00453)	(0.00458)	(0.00453)	(0.00444)
Population (log) (t-1)	-0.0554***	-0.0554***	-0.0536***	-0.0530***	-0.0583***
	(0.0135)	(0.0135)	(0.0132)	(0.0137)	(0.0135)
Constant	2.997***	2.997***	2.610***	2.910***	2.961***
	(0.326)	(0.327)	(0.315)	(0.334)	(0.321)
R-squared	0.607	0.607	0.626	0.615	0.613
Regional Fixed Effects	YES	YES	YES	YES	YES
Time Fixed Effects	YES	YES	YES	YES	YES
Sample	**Full sample**	**Full sample**	**Full sample**	**Full sample**	**Full sample**
Number of Countries	115	115	112	114	115
Total Observations	3,245	3,245	3,164	3,219	3,245

Notes: Robust standard errors in parenthesis; statistical significance: ***p<0.01, **p<0.05

Table 3: Effects of ethnic and cultural fractionalization on annual change in the index of economic freedom (reforms), 1980-2012

	(1)	(2)	(3)	(4)	(5)
	Δ EFI	**Δ EFI**	**Δ EFI**	**Δ EFI**	**Δ EFI**
Ethnic Fractionalization (Fearon)	0.00149				
	(0.0156)				
Ethnic Fractionalization (Alesina: Ethnic)		-0.000348			
		(0.0167)			
Ethnic Fractionalization (Alesina: Lingustic)			-0.00240		
			(0.0140)		
Ethnic Fractionalization (Soviet Atlas: Ethnolingustic)				0.0107	
				(0.0192)	
Cultural & Linguistic Distance					-0.00434
					(0.0141)
Economic Freedom Level (t-1)	-0.0267***	-0.0267***	-0.0267***	-0.0267***	-0.0266***
	(0.00456)	(0.00456)	(0.00462)	(0.00457)	(0.00458)
Per capita GDP (log) (t-1)	-0.00369	-0.00370	-0.00327	-0.00449	-0.00382
	(0.00404)	(0.00404)	(0.00408)	(0.00411)	(0.00407)
Democracy (Polity) (t-1)	0.00391***	0.00390***	0.00372***	0.00401***	0.00390***
	(0.000671)	(0.000676)	(0.000678)	(0.000683)	(0.000667)
Population (log) (t-1)	-0.00374	-0.00374	-0.00368	-0.00415	-0.00368
	(0.00219)	(0.00219)	(0.00219)	(0.00222)	(0.00219)
Constant	0.304***	0.304***	0.301***	0.315***	0.305***
	(0.0565)	(0.0566)	(0.0566)	(0.0580)	(0.0565)
R-squared	0.137	0.137	0.138	0.138	0.137
Regional Fixed Effects	YES	YES	YES	YES	YES
Time Fixed Effects	YES	YES	YES	YES	YES
Sample	**Full sample**	**Full sample**	**Full sample**	**Full sample**	**Full sample**
Number of Countries	115	115	112	114	115
Total Observations	3,225	3,225	3,145	3,200	3,225

Notes: Robust standard errors in parenthesis; Δ EFI is change in economic freedom index; statistical significance: ***p<0.01, **p<0.05

Table 4: Conditional effects of ethnic and cultural fractionalization and democracy on level of economic freedom, 1980-2012

	(1) EFI	(2) EFI	(3) EFI	(4) EFI	(5) EFI
Ethnic Fractionalization (Fearon)	0.0725				
	(0.0960)				
Ethnic Fractionalization (Fearon) × Democracy (t-1)	0.0182				
	(0.0119)				
Ethnic Fractionalization (Alesina: Ethnic)		0.0672			
		(0.107)			
Ethnic Fractionalization (Alesina: Ethnic) × Democracy (t-1)		0.0105			
		(0.0126)			
Ethnic Fractionalization (Alesina: Lingustic)			0.604***		
			(0.0939)		
Ethnic Fractionalization (Alesina: Lingustic) × Democracy (t-1)			0.00348		
			(0.0109)		
Ethnic Fractionalization (Soviet Atlas: Ethnolingustic)				0.416***	
				(0.111)	
Ethnic Fractionalization (Soviet Atlas: Ethnolingustic) × Democracy (t-1)				0.0124	
				(0.0142)	
Cultural & Linguistic Distance					0.240***
					(0.0836)
Cultural & Linguistic Distance × Democracy (t-1)					0.0335***
					(0.0103)
Democracy (Polity) (t-1)	0.0122	0.0166**	0.0261***	0.0189***	0.00689
	(0.00796)	(0.00801)	(0.00700)	(0.00710)	(0.00641)
Per capita GDP (log) (t-1)	0.522***	0.519***	0.533***	0.513***	0.526***
	(0.0213)	(0.0213)	(0.0205)	(0.0218)	(0.0201)
Population (log) (t-1)	-0.0347**	-0.0343**	-0.0294**	-0.0292**	-0.0344**
	(0.0138)	(0.0138)	(0.0134)	(0.0139)	(0.0136)
Economic & Financial Crisis (t-1)	-0.391***	-0.393***	-0.385***	-0.388***	-0.387***
	(0.0540)	(0.0541)	(0.0528)	(0.0543)	(0.0539)
IMF Program	0.130***	0.123***	0.130***	0.129***	0.130***
	(0.0441)	(0.0440)	(0.0435)	(0.0442)	(0.0438)
Civil Conflict	-0.322***	-0.317***	-0.375***	-0.352***	-0.333***
	(0.0573)	(0.0572)	(0.0601)	(0.0576)	(0.0568)
Constant	2.729***	2.739***	2.307***	2.621***	2.663***
	(0.328)	(0.328)	(0.314)	(0.333)	(0.320)
R-squared	0.623	0.623	0.643	0.632	0.633
Regional Fixed Effects	YES	YES	YES	YES	YES
Time Fixed Effects	YES	YES	YES	YES	YES
Sample	**Full sample**	**Full sample**	**Full sample**	**Full sample**	**Full sample**
Number of Countries	115	115	112	114	115
Total Observations	3,245	3,245	3,164	3,219	3,245

Notes: Robust standard errors in parenthesis; statistical significance: ***p<0.01, **p<0.05

Figure 1: Ethnic Fractionalization (Fearon), EFI & Marginal Effect on GDP growth

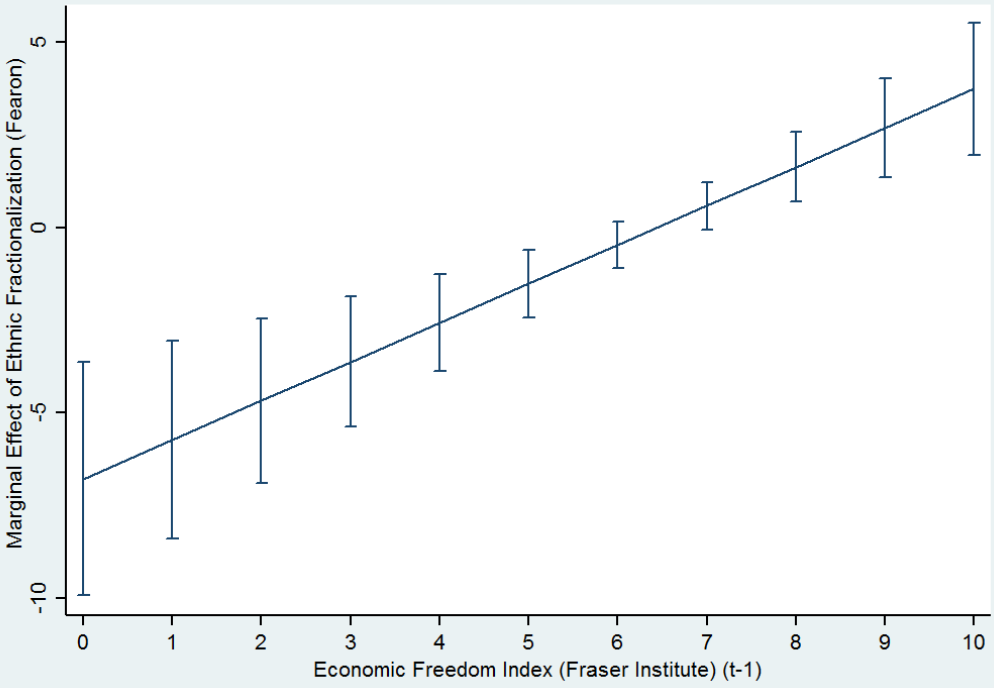


Figure 2: Ethnic Fractionalization (Alesina), EFI & Marginal Effect on GDP growth

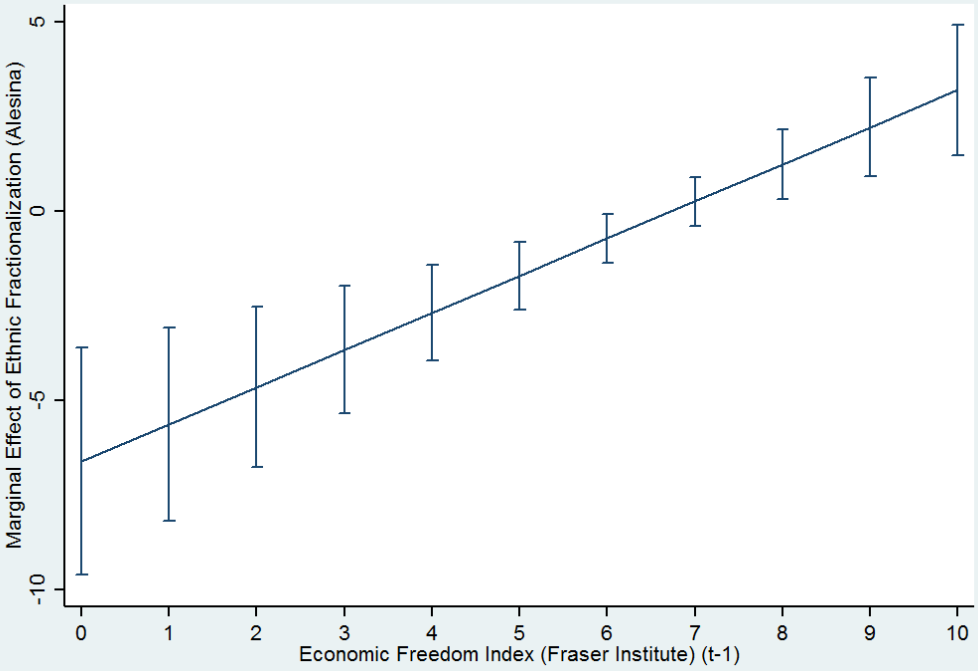


Figure 3: Ethno-Linguistic Fractionalization, EFI & Marginal Effect on GDP growth

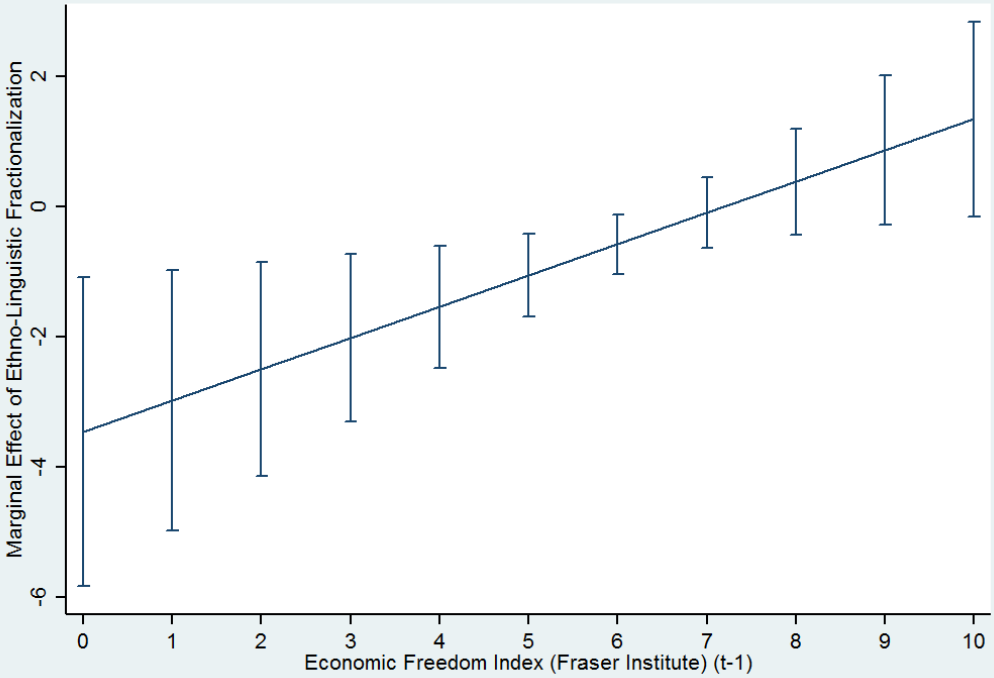


Figure 4: Culture & Linguistic distance, EFI & Marginal Effect on GDP growth

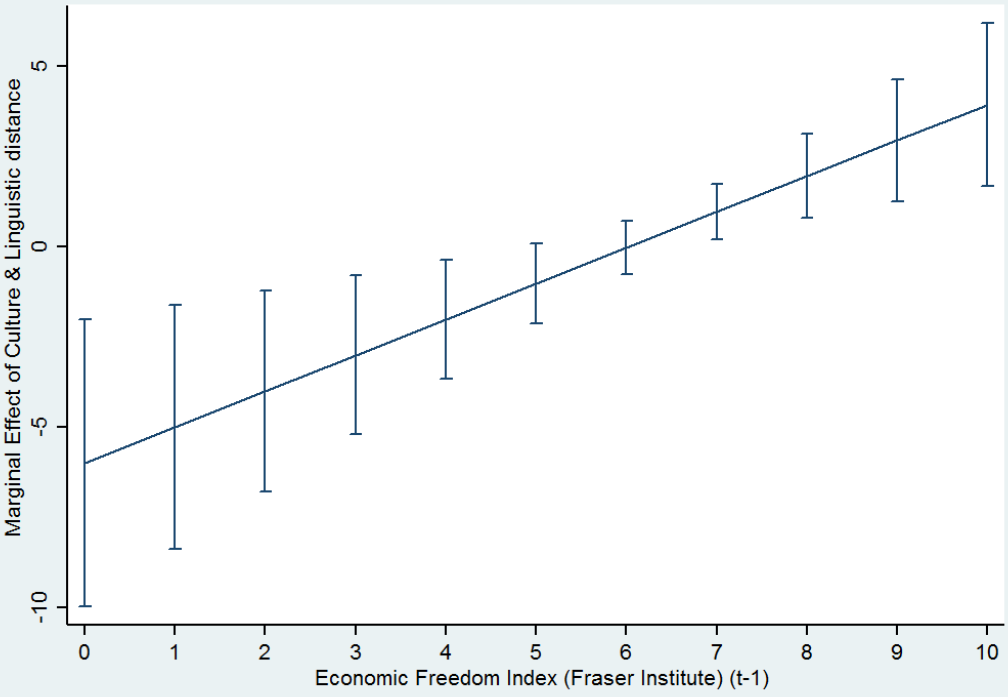


Figure 5: Ethnic Fractionalization (Soviet Atlas: Ethnolinguistic), EFI & Marginal Effect on GDP growth

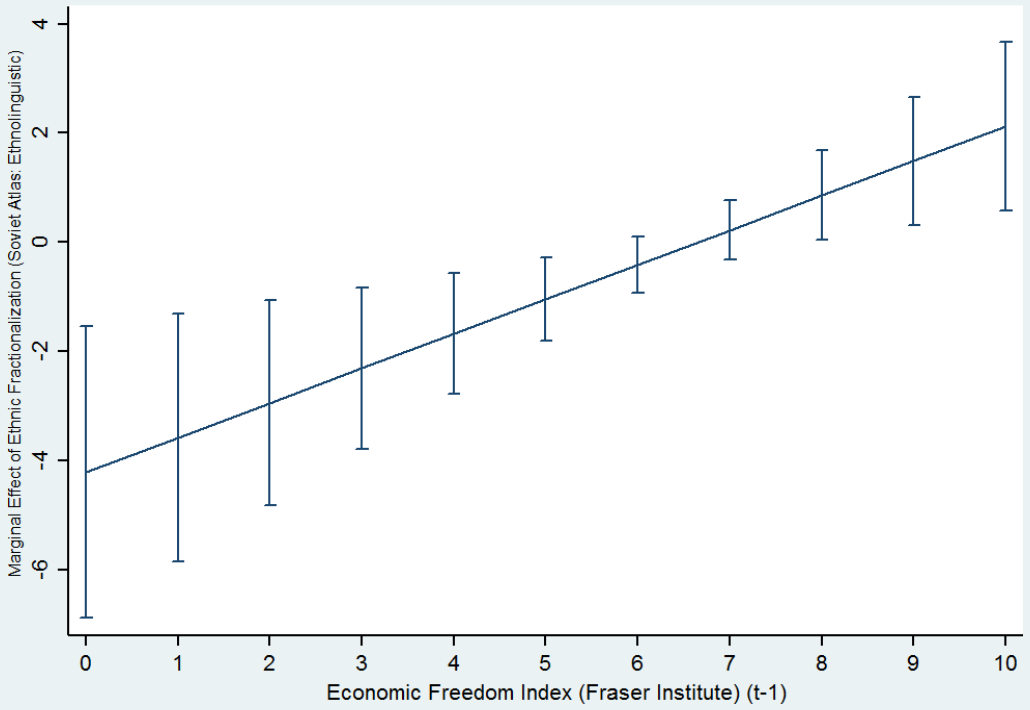


Figure 6: Ethnic Fractionalization (Fearon), Democracy & Marginal Effect on EFI

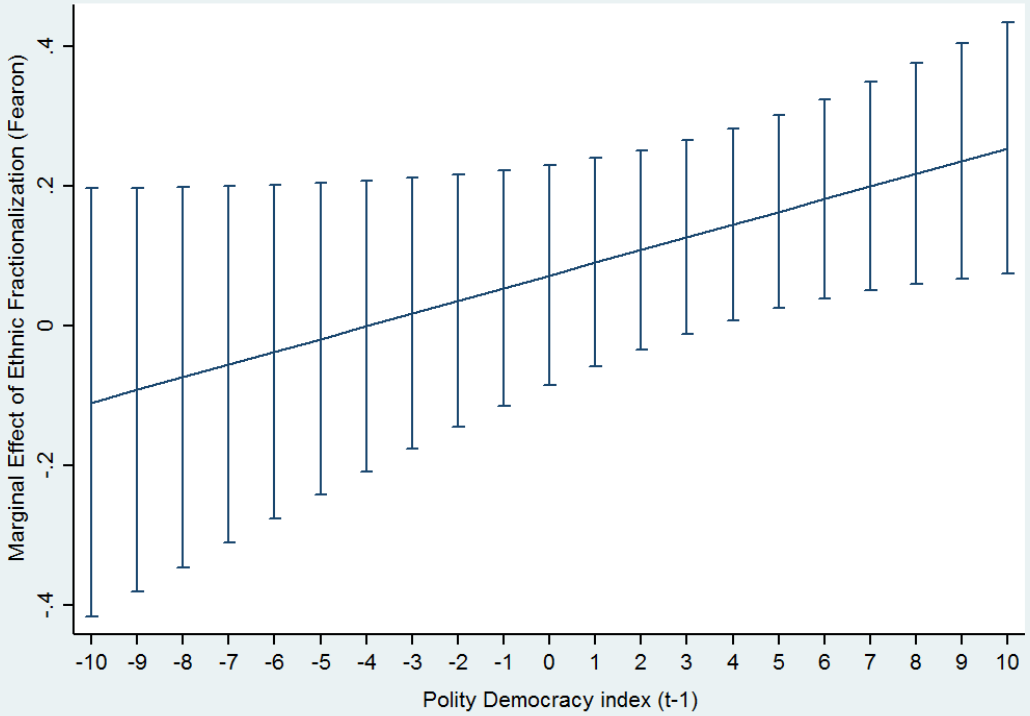


Figure 7: Ethnic Fractionalization (Alesina), Democracy & Marginal Effect on EFI

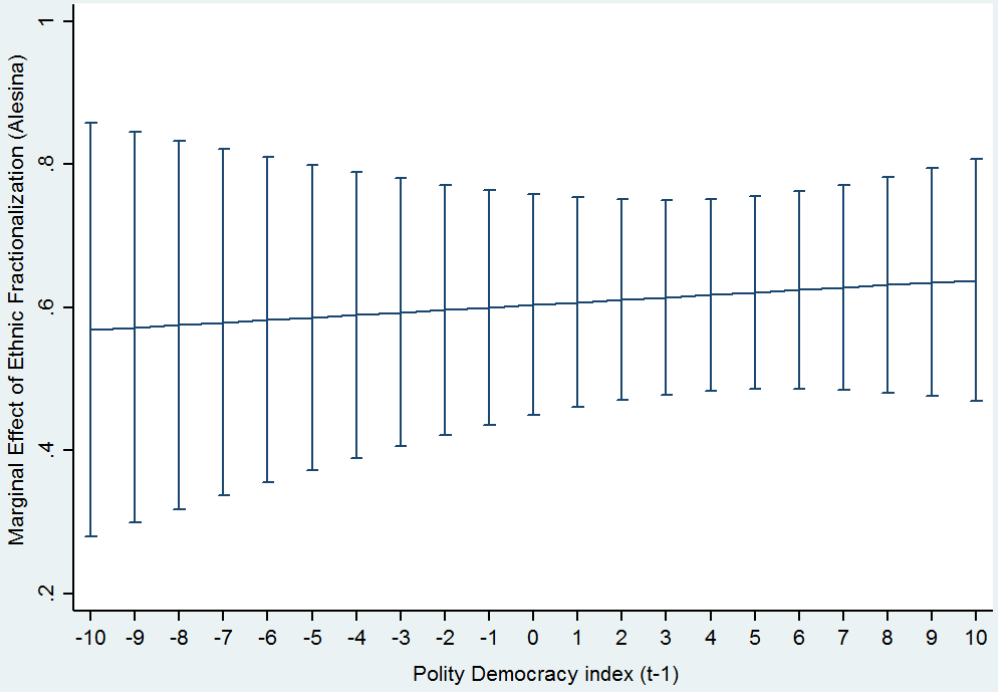


Figure 8: Culture & linguistic distance, Democracy & Marginal Effect on EFI

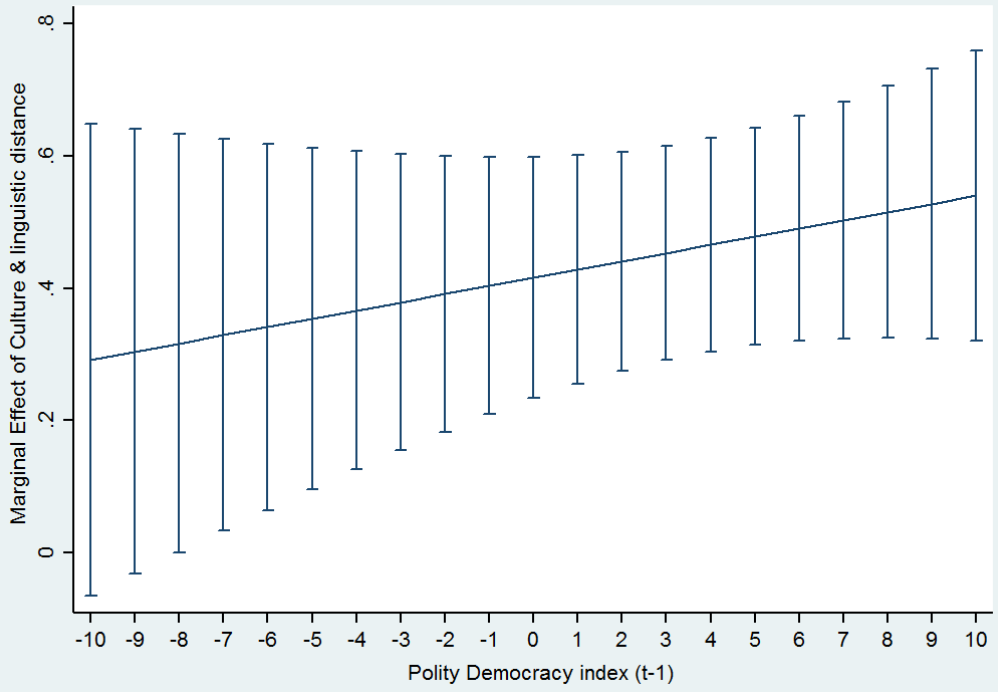
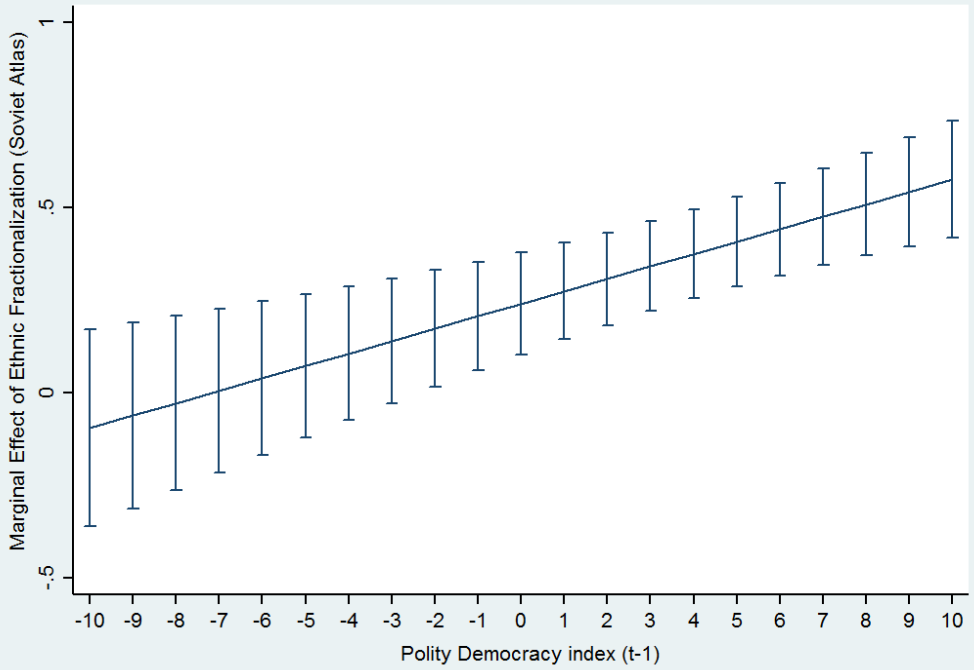


Figure 9: Ethnic Fractionalization (Soviet Atlas: Ethnolinguistic), Democracy & Marginal Effect on EFI



Appendix

Appendix 1: List of countries in sample

Albania	Dominican Republic	Kuwait	Russian Federation
Algeria	Ecuador	Latvia	Rwanda
Argentina	Egypt, Arab Republic	Lithuania	Senegal
Australia	El Salvador	Madagascar	Sierra Leone
Austria	Estonia	Malawi	Singapore
Bahrain	Fiji	Malaysia	Slovak Republic
Bangladesh	Finland	Mali	Slovenia
Belgium	France	Mauritius	South Africa
Benin	Gabon	Mexico	Spain
Bolivia	Germany	Morocco	Sri Lanka
Botswana	Ghana	Myanmar	Sweden
Brazil	Greece	Namibia	Switzerland
Bulgaria	Guatemala	Nepal	Syrian Arab Republic
Burundi	Guinea-Bissau	Netherlands	Taiwan
Cameroon	Guyana	New Zealand	Tanzania
Canada	Haiti	Nicaragua	Thailand
Central African Republic	Honduras	Niger	Togo
Chad	Hungary	Nigeria	Trinidad and Tobago
Chile	India	Norway	Tunisia
China	Indonesia	Oman	Turkey
Colombia	Iran, Islamic Republic	Pakistan	Uganda
Congo, Democratic Republic	Ireland	Panama	Ukraine
Congo, Republic	Israel	Papua New Guinea	United Arab Emirates
Costa Rica	Italy	Paraguay	United Kingdom
Cote d Ivoire	Jamaica	Peru	United States
Croatia	Japan	Philippines	Uruguay
Cyprus	Jordan	Poland	Venezuela, RB
Czech Republic	Kenya	Portugal	Zambia
Denmark	Korea, Republic of	Romania	Zimbabwe

Appendix 2: Descriptive statistics

Variables	Mean	Standard Deviation	Minimum	Maximum	Observations
Economic Freedom	6.08	1.30	1.78	8.90	3371
Δ Economic Freedom Index	0.06	0.17	-1.14	1.11	3255
Per capita GDP (log) (t-1)	8.01	1.63	4.40	11.27	3370
Population (log) (t-1)	16.21	1.57	11.15	21.01	3450
Economic & Financial Crisis (t-1)	0.08	0.27	0.00	3.00	3480
IMF Program	0.31	0.46	0.00	1.00	3494
Civil conflict	0.18	0.38	0.00	1.00	3494
Democracy (Polity) (t-1)	3.11	6.98	-10.00	10.00	3366
Ethnic Fractionalization (Fearon)	0.47	0.27	0.00	1.00	3596
Ethnic Fractionalization (Alesina E)	0.45	0.25	0.00	0.93	3596
Ethnic Fractionalization (Alesina L)	0.39	0.29	0.00	0.92	3503
Cultural & Linguistic Distance	0.40	0.29	0.00	0.93	3565
Ethnic Fractionalization (Soviet Atlas)	0.30	0.21	0.00	0.73	3565

Appendix 3: Data sources and definitions

Variables	Definitions and sources
Economic Freedom Index (EFI)	EFI is made up of five sub-indices capturing: expenditure and tax reforms; property rights and legal reforms; trade reforms; reforms related to access to sound money; labor, business and credit reforms. These five sub-indices are made up of 35 components of objective indicators. The final index is ranked on the scale of 0 (not free) to 10 (totally free) sourced from Fraser Institute.
Economic Policy reforms (Δ EFI)	Reforms denote year-to-year changes in the overall EFI
Ethnic Fractionalization (Fearon)	Obtained from Fearon and Laitin (2003) and is defined as the probability that two randomly-chosen people will be from different ethnic groups. The index ranges from 0-1 where highest value implies higher levels of ethnic fractionalization
Ethnic Fractionalization (Alesina)	Obtained from Alesina (2003a) and is defined as the probability that two randomly-chosen people will be from different ethnic groups. The index ranges from 0-1 where highest value implies higher levels of ethnic fractionalization
Cultural Distance Index	Obtained from Fearon (2003a) and is defined as the cultural difference between ethnic groups in a country based on language. The index ranges from 0-1 where highest value implies higher levels of ethnic fractionalization
Per capita GDP (log) (t-1)	Per capita GDP at 2005 US$ constant prices (logged) lagged by a year obtained from World Development Indicators 2012.
Population (log) (t-1)	Count of total population (logged) lagged by a year obtained from World Development Indicators 2012.
Democracy (t-1)	Polity IV, polity2 index coded on the scale of -10 to +10 where highest value implies full democracy lagged by a year sourced from Gurr (2002)
IMF Programs > 5 Months	Dummy takes the value 1 if a country has been in an IMF program for more than five months during the year and 0 otherwise, obtained from Dreher (2006)
Economic & Financial crisis (t-1)	Dummy takes the value 1 if a country is exposed to either currency crisis, banking crisis, debt crisis (or all together) lagged by a year sourced from Laeven and Valencia (2008)
Civil War	Dummy coded 1 for each year a country has at least one active conflict obtained from Uppsala Conflict Data Program, 2009

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