Fractionalization and Economic Freedom

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Abstract
Diversity is often thought to create conflict and harm economic institutions. We hypothesize, however, that the impact of diversity on economic institutions is conditional on political institutions, and may be negative in some settings but positive in others, due to differences in the nature of rent seeking in different regimes. To test this hypothesis, we estimate the impact of ethnic and linguistic fractionalization on economic freedom, conditional on the level of political rights. We find that the marginal impact of ethnic and linguistic fractionalization on economic freedom is positive in the most democratic nations and that the marginal impact of ethnic fractionalization is negative in the most autocratic nations. Our results suggest that the nature of the relation between diversity and economic institutions may be more complicated than prior literature conveys.

Keywords
fractionalization, economic freedom, rent seeking, special interest groups, economic institutions

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In the context of market exchange, diversity is often a force for social good. Diversity of talents, resources, and preferences prompts people to come together and to cooperate in order to reap gains from trade. In the context of political exchange, unfortunately, diversity may be costly to a society rather than beneficial. Ethnic and linguistic diversity especially appear to separate people and create conflict. In this article, we suggest that the impact of such conflict on economic institutions may not be as negative as is commonly understood. More specifically, we hypothesize that the impact of diversity on economic institutions is conditional on political institutions, and may be negative in some settings but positive in others, due to differences in the nature of rent seeking in different regimes.

Several previous studies have empirically established a direct relationship between diversity and the “quality of government” (Alesina, Baqir, and Easterly 1999; La Porta et al. 1999; Alesina et al. 2003; Desmet, Ortuño-Ortín, and Wacziarg 2012), with greater diversity being associated with “bad” economic institutions— institutions that harm economic development. The common explanation is that such diversity is associated with heterogeneity in preferences and sometimes also with distrust, dislike, and even hate. Diversity is thus a source of conflict that affects policy making, in particular, the willingness and ability of people to adopt institutions conducive to exchange. Surprisingly, although the literature has investigated the relation between diversity and economic institutions, it has rarely explored whether or how that relation depends on the democratic and inclusive nature of government or the autocratic and extractive nature of government. A recent exception is Burgess et al. (2015). They find that ethnic favoritism regarding road construction in Kenya during its periods of autocracy disappears during its periods of democracy. In this article, we also depart from the usual approach and suppose that the relation between diversity and economic institutions may be conditional on political institutions. In particular, we consider a potential distinction between the ways that autocrats and democrats seek rents or obtain benefits for themselves through the political process. We, in turn, hypothesize that this distinction implies that the impact of diversity on economic institutions may differ in more autocratic regimes and more democratic regimes.

Often, discussion of rent seeking focuses on the pursuit of government-granted privileges by special interests outside of government, such as firms, industries, and categories of individuals. That is, discussion of rent seeking tends to focus on the demand side. In contrast, we consider a distinction in the supply-side with focus on players within government—the “autocrats” in more autocratic regimes and the “politicians” in more democratic
regimes. Moreover, our interest is in the opportunity (or lack thereof) those players have to use their positions for personal benefit at the expense of others when the populations they govern are more (or less) diverse and more (or less) socially distant or in conflict as a result of that diversity.\footnote{Consider, for example, an autocrat seeking to use his political power for personal benefit at the expense of others. Lack of political freedom and lack of inclusive economic institutions are often coincident, suggesting that autocrats and the political elite with whom they are aligned have substantial latitude to enrich themselves at the expense of others via extractive, rather than inclusive, economic institutions. Autocrats, in other words, may have substantial latitude to supply rents directly to themselves via coercion. We hypothesize that autocrats in more diverse societies may be both more willing and more able to enrich themselves via such rent seeking than autocrats in less diverse societies. In a more diverse society, there may be more groups that are ethnically or linguistically different from the autocrat and associated political elite, and which are therefore more vulnerable to being targeted by the autocrat’s extractive policies. The targeting of more groups may also entail the targeting of a larger share of the population, thereby endangering the autocrat’s hold on power and diminishing the autocrat’s incentive to rent seek. However, to the extent that the diversity is indeed associated with distrust, dislike, and conflict across the diverse groups, the sort of intergroup cooperation and coordination required to threaten the autocrat may well be infeasible and the autocrat’s position therefore secure. In more autocratic societies, we thus expect greater diversity to be associated with more rent extracting policy and therefore less inclusive economic institutions.}

The impact of diversity in the context of a democratic political regime may be quite different, because the nature of rent seeking is quite different. Although politicians in democracies may seek to extract private rents through threats of regulation (McChesney 1987), those who wield political power in democratic societies are less likely to be able to supply rents directly to themselves via coercion (as autocrats and privileged demographic groups in autocracies may be able to do) due to the presence of formal veto players and other inclusive features of democracy. Instead, politicians in democratic societies are more likely to have to seek benefits through exchange and to supply policy to those politically effective groups engaged in rent seeking on the demand side. In the context of democracy, greater diversity may impact such political exchange in two primary ways. Greater diversity may produce greater competition for policy favors, as a government-granted privilege sought by one group is more likely to be
blocked by another group. As such, while the amount of scarce resources wasted on rent seeking may increase, the extent to which policy is adopted that benefits one group at the expense of others and society overall (the extent of extractive economic institutions) may decrease (Heckelman and Wilson 2013). Another possibility is that diversity makes the coordination and cooperation necessary for the formation of politically effective groups that cross ethnic, linguistic, or religious lines more difficult and thus makes pursuit of privilege less likely. In this case, both the amount of rent seeking and the amount of rent seeking–induced policy may decrease. Either way, in more democratic societies, we expect greater diversity to be associated with more inclusive economic institutions.

While much of the prior literature suggests a linear (and inverse) relation between diversity and the quality of economic institutions, our theory suggests a more complex relation, a relation that is conditional on political institutions. A related strand of literature has considered conditional effects on growth rates and national income. For example, Alesina and La Ferrara (2005) find that while ethnic diversity is associated with lower growth rates, an interaction between diversity and the level of income is positive. They suggest that the positive impact of diversity in rich economies may be due to production complementarities associated with the technologically advanced production techniques of more developed economies. Similarly, Alesina, Harnoss, and Rapoport (2013) argue that immigrants may be associated with positive growth effects due to production complementarities—effects that are predicted to be larger for rich countries than for poor countries owing to proximity to the technology frontier. Their findings are consistent with this prediction. Our work differs from this strand of literature in several key regards. First, we examine the determinants of economic institutions, rather than of growth and income. Second, we focus on political institutions as the potential conditioning factor that affects the impact of diversity, rather than production complementarities. Third, the production complementarities literature suggests that the beneficial effects of diversity via productivity may outweigh the costly effects of diversity via conflict. Put differently, literature suggests that the benefits of diversity in the context of economic exchange may outweigh the costly effects of diversity in the context of political exchange. In contrast, we suggest that the conflict associated with diversity in the context of political exchange may actually be beneficial under certain conditions.

While Alesina and La Ferrara (2005) focus on the benefits of diversity associated with production complementarities, they also write that “the importance of adequate ‘rules of the game’ to manage diversity is stressed...
by all disciplines” (763). Consonant with this suggestion, our work focuses on how particular political rules—namely, the extent of political freedom—interact with diversity to generate particular economic rules—namely, the extent of economic freedom. Departing somewhat from this suggestion, the hypothesized mechanism via which political rules interact with diversity to influence economic rules is arguably not an outcome of some purposeful design. Rather, it is a by-product of the impact those political rules have on the nature of rent seeking in various societies.

Collier (2000) similarly suggests a relation between diversity and growth that is conditional on political institutions. In particular, he hypothesizes that the diversity is unrelated to growth in democracies, while it is detrimental to growth in autocracies, and presents evidence consistent with this hypothesis. We examine economic institutions, rather than growth. Moreover, our hypothesis suggests not just that the adverse effects of diversity may be smaller in democracies than in autocracies, but that diversity may actually have beneficial effects on economic institutions in more democratic countries. Consistent with our hypothesis, our empirical findings suggest not only that more democratic institutions may mitigate a potentially adverse impact of diversity on economic institutions, but that highly democratic institutions may lead diversity to be associated with a positive impact on economic institutions.

Data and Methods

Our sample consists of an unbalanced panel with a maximum of 117 countries at six points in time between 1975 and 2002. As La Porta et al. (1999) note, the sort of “good” economic institutions that are instrumental to economic growth include “limited government, a relatively benign and uncorrupt bureaucracy, a legal system that protects property rights and enforces contracts, and modest taxation and regulation” (222). While prior literature has focused on a variety of measures that capture various aspects of these distinct features of a nation’s economic policy environment, we examine a comprehensive measure: the economic freedom index developed by the Fraser Institute. This index contains five broad categories of economic institutions: size of government, legal system and property rights, sound money, international trade, and regulation. Each category is rated from 0 to 10 based on the average score assigned to a variety of components within each category. The overall index is then calculated as the average score across the five categories, with higher scores representing more economic freedom. More economic freedom thus implies, for example, smaller
government and lower taxes; stronger property rights and a more independent judiciary; less inflation and inflation volatility; freer trade in goods, services, capital, and people; and/or fewer business, capital market, and labor market regulations. Consistent with the claim that such institutions are conducive to development, numerous studies have documented a positive relation between the economic freedom index and growth (Doucouliagos 2005).

To capture diversity, our independent variable of primary interest, we use four different measures of “fractionalization,” each of which has been featured in prior studies of the relation between diversity and economic institutions. Rather than try to assess the pros and cons of each fractionalization measure and select among them, we take an agnostic approach and use each of them in our main analysis. The first measure, “ethnolinguistic” fractionalization from Easterly and Levine (1997), is featured in La Porta et al. (1999) and represents the probability that two randomly selected individuals will be from different ethnic or linguistic groups. The next two measures, “ethnic” and “linguistic” fractionalization, are featured in Alesina et al. (2003). These measures are computed in the same way as the Easterly and Levine variable, but are based on different underlying data, and in the case of ethnic fractionalization reflect an effort to construct a measure that captures racial characteristics. The last measure, “language” fractionalization, is from Desmet, Ortúñ-O ortín, and Wacziarg (2012) and captures linguistic diversity as reflected in the genealogy of languages. Desmet, Ortúñ-O ortín, and Wacziarg argue that other measures may underrepresent heterogeneity and use “language trees” to represent language cleavages that have persisted through time. Their measure is available for various levels of “aggregation,” reflecting cleavages that go back thousands of years and cleavages that are more recent. We consider their ELF15 variable, which captures the most recent cleavages.4

The fractionalization data are not available as a time series and thus only exhibit cross-sectional variation in our sample. Each of the fractionalization variables is negatively and significantly correlated with economic freedom (using 1995 levels of economic freedom—one of the middle years of the sample), consistent with the findings of La Porta et al. (1999), Alesina, Baqir, and Easterly (1999), and Alesina et al. (2003), that fractionalization is harmful to economic institutions.5

To capture whether a nation’s political regime is more autocratic or more democratic, we use the Freedom House political rights index. Freedom House rates each country on a scale from 1 to 7. We follow the standard practice of inverting the original scale so that higher numbers represent
more political rights in the form of an individual being more able to vote freely in legitimate elections, participate freely in the political process, and/or have representatives who are accountable to the voters. The data indicate that the level of democracy has been increasing over time, from a median score of 4 in 1973 to a median score of 6 by 1995 (maintained through the end of the sample period). Our primary interest is in assessing the impact of fractionalization on economic freedom conditional on political rights. To do so, we create interaction terms using the fractionalization variables and the political rights index.

Diverse business interests may also influence economic institutions via demand-side rent seeking and rent protection activities. We therefore also control for the presence of special interest groups which may lobby to influence policy using log counts of such groups. These data come from the six existing editions of *World Guide to Trade Associations*, published in 1973, 1980, 1985, 1995, 1999, and 2002. These data largely capture business interests but also include consumer organizations and employee groups. In principle, it is possible that these data might be related to measures of ethnic and linguistic fractionalization (Coates, Heckelman, and Wilson 2007), so that the interest group variable might pick up some of the potential influence of fractionalization on economic freedom. We find, however, that the bivariate correlations between the interest group data and the fractionalization data are quite low, suggesting that fractionalization may not be strongly associated with the formation of market-based special interest groups.

We also control for the log of gross domestic product (GDP) and log of population. In prior literature, findings regarding the significance of fractionalization are often not robust to controlling for per capita income (La Porta et al. 1999; Alesina et al. 2003). Finally, we include latitude and time period dummies.6

We treat both GDP and the interest groups variable as weakly exogenous with respect to economic freedom, given that economic freedom in one year is unlikely to affect total GDP and group formation in the same year but may in subsequent years. We treat democracy (as well as its interaction with fractionalization) as endogenous, since the same factors that influence economic institutions may simultaneously impact political institutions.7 The multiple nonexogenous variables in our model, as well as the relatively small time dimension \((t = 6)\) and reasonably large cross section (117) of our data, suggest the use of the Arellano–Bover/Blundell–Bond system generalized method-of-moments (GMM) estimator. The system GMM estimator addresses the problem of identifying external instruments to account
for endogeneity with the use of “internal” instruments, based on lags of the instrumented variables. It does, however, allow for external instruments, and we use several. In their work on diversity and economic institutions, La Porta et al. (1999) include religion dummies as explanatory variables. However, they conclude that religion is not a robust predictor of policy. We therefore follow Mobarak (2005) and use a dummy variable for countries with majority Muslim populations as an instrument for democracy.\(^8\) We follow Heckelman and Wilson (2014) and use several variables that proxy for stability as instruments for interest groups, including date of independence, time since last upheaval, and a dummy variable indicating pre-1973 Organization for Economic Cooperation and Development membership.\(^9\) These instruments are motivated by Olson’s (1982) theory that interest groups accumulate over time in stable environments. Finally, we also include La Porta et al.’s (1999) legal origin variables as instruments. La Porta et al. focus on legal origin as a determinant of economic institutions. Originally, we therefore included legal origin dummies as explanatory variables in our specification. However, we found that the coefficient estimates on the legal origin dummies were neither individually nor jointly statistically significant. These findings suggest that to the extent legal origin influences policy, it is through the influence of legal origin on democracy, GDP, or interest groups. We therefore use the legal origin dummies as instruments and potential determinants of democracy, GDP, and interest groups, rather than as direct determinants of economic freedom per se.

As explained above, the economic freedom data are based on aggregated underlying components, but some components may be missing for certain countries, producing measurement error. Since both the availability and quality of these data may be related to the countries’ level of development, we use weighted regression with real GDP per capita serving as the weighting series. In addition, errors are Windmeijer corrected and clustered at the country level.

### Empirical Findings

#### Main Results

Coefficient estimates and associated \(p\) values are reported in table 1. Of primary interest are the conditional marginal effects of fractionalization that are implied but not directly revealed by the estimates. These conditional marginal effects are reported in table 2. At the sample mean of the (inverted) political rights index (4.85), fractionalization has a statistically
insignificant impact on economic freedom. This result is consistent with findings in La Porta et al. (1999) that indicate the unconditional relation between fractionalization and economic institutions is not statistically significant when controlling for income per capita (as we do by controlling for GDP and population, both in log form). However, consistent with our hypothesis, when a conditional relation is admitted, the findings indicate

Table 1. Fractionalization Effect on Economic Freedom.

<table>
<thead>
<tr>
<th></th>
<th>Ethnolinguistic</th>
<th>Ethnic</th>
<th>Linguistic</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fractionalization</td>
<td>-2.026 (.217)</td>
<td>-5.398 (.038)</td>
<td>-2.985 (.132)</td>
<td>-1.770 (.188)</td>
</tr>
<tr>
<td>Democracy</td>
<td>-0.099 (.186)</td>
<td>-0.365 (.062)</td>
<td>-0.104 (.443)</td>
<td>-0.099 (.486)</td>
</tr>
<tr>
<td>Fractionalization × democracy</td>
<td>0.676 (.028)</td>
<td>1.038 (.012)</td>
<td>0.685 (.021)</td>
<td>0.413 (.050)</td>
</tr>
<tr>
<td>Special interest groups</td>
<td>0.178 (.012)</td>
<td>0.038 (.667)</td>
<td>0.006 (.953)</td>
<td>0.030 (.757)</td>
</tr>
<tr>
<td>GDP</td>
<td>0.596 (.000)</td>
<td>0.771 (.000)</td>
<td>0.707 (.000)</td>
<td>0.771 (.000)</td>
</tr>
<tr>
<td>Population</td>
<td>-0.658 (.000)</td>
<td>-0.738 (.000)</td>
<td>-0.643 (.000)</td>
<td>-0.744 (.000)</td>
</tr>
<tr>
<td>AR(2) p value</td>
<td>.676</td>
<td>.753</td>
<td>.623</td>
<td>.492</td>
</tr>
<tr>
<td>Hansen p value</td>
<td>.467</td>
<td>.278</td>
<td>.311</td>
<td>.227</td>
</tr>
<tr>
<td>Observations</td>
<td>572</td>
<td>612</td>
<td>602</td>
<td>615</td>
</tr>
</tbody>
</table>

Note: Regressions also include a constant as well as latitude and time dummies. p values reported in parentheses are based on heteroscedasticity-corrected and country-clustered standard errors. Errors are Windmeijer corrected. Orthogonal deviations are used to transform the data to remove fixed effects. Weighted estimation is used with real GDP per capita serving as the weighting series. Excluded instruments are British, French, German, and Scandinavian legal origin; Organization for Economic Cooperation and Development; Muslim; independence; and stability. Interest groups and GDP are treated as predetermined but not strictly exogenous. Democracy and the fractionalization × democracy interaction are treated as endogenous. GDP = gross domestic product.

Table 2. Conditional Marginal Effect of Fractionalization on Economic Freedom.

<table>
<thead>
<tr>
<th>Democracy level</th>
<th>Ethnolinguistic</th>
<th>Ethnic</th>
<th>Linguistic</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>2.709 (.000)</td>
<td>1.865 (.000)</td>
<td>1.807 (.000)</td>
<td>1.124 (.008)</td>
</tr>
<tr>
<td>6</td>
<td>2.032 (.000)</td>
<td>0.827 (.001)</td>
<td>1.122 (.003)</td>
<td>0.710 (.064)</td>
</tr>
<tr>
<td>5</td>
<td>1.356 (.003)</td>
<td>-0.210 (.719)</td>
<td>0.438 (.446)</td>
<td>0.297 (.508)</td>
</tr>
<tr>
<td>4</td>
<td>0.680 (.232)</td>
<td>-1.248 (.201)</td>
<td>-0.247 (.767)</td>
<td>-0.117 (.843)</td>
</tr>
<tr>
<td>3</td>
<td>0.003 (.997)</td>
<td>-2.285 (.098)</td>
<td>-0.931 (.402)</td>
<td>-0.530 (.485)</td>
</tr>
<tr>
<td>2</td>
<td>-0.673 (.526)</td>
<td>-3.323 (.063)</td>
<td>-1.616 (.247)</td>
<td>-0.943 (.320)</td>
</tr>
<tr>
<td>1</td>
<td>-1.349 (.316)</td>
<td>-4.360 (.047)</td>
<td>-2.301 (.173)</td>
<td>-1.357 (.236)</td>
</tr>
</tbody>
</table>

Note: Estimates are based on table 1 coefficients. p values are given in parentheses.
a more complex story at higher and lower levels of the political rights index. As shown in table 2, for countries with a political rights index level of six or above, the impact of fractionalization on economic freedom is positive and statistically significant. This finding applies to just under half of the observations in the sample. Also, in the case of ethnic fractionalization, the impact is negative and statistically significant for countries with a political rights index level of three or below. In other words, greater ethnic and linguistic fractionalization increase economic freedom in sufficiently democratic settings, while ethnic fractionalization reduces economic freedom in sufficiently autocratic settings. These findings suggest that it may be easier to target groups for redistributive takings in autocratic settings based on observable ethnic characteristics rather than based on linguistic differences. In democracies, it may be that both ethnic and linguistic differences make coordination on demand-side rent seeking more difficult or that opposing group demands are offsetting. Signs and significance levels are similar whether using linguistic fractionalization from Alesina et al. (2003) or language cleavages from Desmet, Ortúñ-Oortín, and Wacziarg (2012).

The magnitudes of the effects in table 2 imply that ethnic fractionalization has a stronger impact in autocracies than in democracies. In the most democratic countries, changing the population ethnic diversity from purely homogenous to maximally heterogeneous would be associated with less than a two-unit increase in the country’s economic freedom score. In a pure autocracy, such a change would reduce the score more than four units on the 10-point scale.

Returning to table 1, the coefficient estimate on democracy implies that if everyone belongs to the same ethnic group (fractionalization = 0), more democratic countries are characterized by less economic freedom than are more autocratic countries. The difference is statistically significant only in the case of ethnic fractionalization. With no ethnic heterogeneity, neither the political elite of an autocracy nor politicians in democracies have unpopular groups to target for involuntary redistribution. In more democratic countries, however, a homogeneous population may make coordination and cooperation easier on the demand side and thus increase the formation of politically effective groups that successfully seek rents, thereby lowering economic freedom. Such private rent seeking attempts would be expected to be less influential on an autocrat’s preferences over policy.

The consistency of the estimates in table 1 depends on the validity (exogeneity and relevance) of the instruments employed. In the context of system GMM estimation, two tests are typically used to evaluate
instrument exogeneity—an AR(2) test for second-order serial correlation (there should be none) and Hansen’s overidentification test. Both test statistics are reported in the lower portion of table 1. In all cases, the AR(2) test null of no second-order serial correlation cannot be rejected and the Hansen test null that the overidentification restrictions are valid cannot be rejected, consistent with instrument exogeneity. While these joint tests of instrument exogeneity are available, as far as we are aware, there is no test for the joint relevance, or strength, of the instruments used in system GMM estimation. As a check on instrument relevance, we therefore examine the first stage of a standard two-stage least squares regression of the levels equation portion of the system. We have two potentially endogenous variables (democracy and the interaction between democracy and fractionalization) and two potentially weakly exogenous variables (interest groups and GDP). Standard $F$ tests of the first-stage regressions for each of these variables each exceed ten, with the exception of a value of 9.34 for the interaction variable. These findings suggest that the instruments are relevant. However, these standard $F$ tests do not account for possible intercorrelations among the instruments that may limit their ability to explain all of the endogenous variables. We therefore also examine Angrist–Pischke multivariate $F$ tests. In contrast to the standard $F$ statistics, the Angrist–Pischke test statistics suggest weak instruments. Weak instruments can cause biased estimates. As such, these findings suggest some caution regarding the interpretation of the results.

**Sensitivity Analysis**

We examine the sensitivity of the main findings for ethnic and linguistic fractionalization on two counts—the number of instruments and the exclusion of the highest income observations from the sample. As Roodman (2009) points out, instrument proliferation can be a problem with system GMM when all of the available lags are used as instruments. A rule of thumb is that the number of instruments should not exceed the number of cross-sectional units. In all cases, our regressions easily meet this rule. Nonetheless, we reestimated our main specification and limited the number of instruments used. To limit the number of instruments, one can collapse instruments or limit the number of lags used. If we collapse the instruments, we find that the Hansen test indicates that we reject the null of instrument exogeneity. As such, it is not clear that the findings in this case are meaningful. For what it may (or may not) be worth, with instruments collapsed, we find that the marginal effect of fractionalization is positive and
statistically significant for the most democratic countries, as in the main findings. This result holds for all four measures of fractionalization. In the most autocratic countries, the marginal effect is negative but not statistically significant. In the case of linguistic fractionalization, the $p$ value is .103. We also examine the results using only a single lag of both endogenous and weakly exogenous variables as internal instruments (as well as the excluded instruments described above). In the case of both ethnic and linguistic fractionalization, when only the first lag is used, the Hansen test again indicates that we reject the null of instrument exogeneity. If we instead use only the second lag, we cannot reject the null. We therefore proceed by using only the second lag as internal instruments. Similar to the main findings, when the number of instruments is limited, we find positive conditional marginal effects of fractionalization on economic freedom in the most democratic countries and negative effects in the most autocratic countries. Also, similar to the main findings, the positive effects are statistically significant in the case of democracy levels of six and higher, and the negative effect of ethnic fractionalization in the most autocratic countries is statistically significant. We therefore conclude that the findings are robust to a significant reduction in the number of internal instruments used.

Recall that we have used weighted regression, with real GDP per capita as the weighting series, due to concerns about measurement error that may be more substantial in poorer countries. As a result, richer countries are weighted more heavily in the analysis. We therefore reestimated our main specification and omitted all those observations with GDP per capita greater than US$20,000. That figure is arbitrary. For the ethnic fractionalization sample, it applies to 77 of the 612 observations. Of those 77 high-income observations, 66 have the highest democracy score and 2 have the second highest democracy score. Omitting high-income countries/observations thus mostly omits countries/observations with high levels of democracy. The remaining sample of 535 observations does still contain a large number of observations with high levels of democracy—126 observations have the highest level of democracy and 109 have the second highest level of democracy.

The findings associated with this income-restricted subsample are similar to those just noted for the full sample. We find positive conditional marginal effects of fractionalization on economic freedom in the most democratic countries and negative effects in the most autocratic countries. For the full sample, effects are positive only for democracy levels of six and higher in the case of ethnic fractionalization and for levels of five and higher in the case of linguistic fractionalization. In contrast, when the
highest income observations are omitted, effects are positive for democracy levels of four and higher in the case of ethnic fractionalization, and for all but the most autocratic nations in the case of linguistic fractionalization. For the full sample, positive effects are statistically significant in the case of democracy levels of six and higher. When the highest income observations are omitted, the positive effects are statistically significant in the case of democracy levels of five and higher. Different from the full sample findings, the negative effect of ethnic fractionalization in the most autocratic poor countries is not statistically significant. The main finding that fractionalization has a positive impact on economic freedom in the most democratic nations is thus robust to the exclusion of the highest income countries in the sample.

**Economic Freedom Component Results**

Our main results utilize the overall index of economic freedom. It is conceivable that the relation between diversity and the various components that make up the overall index (government size, legal system and property rights, sound money, international trade, and regulation) differ. For example, in democratic societies with greater diversity, minority groups that commonly face discrimination may be able to overcome collective action problems associated with diversity and join together to form a politically effective group with respect to antidiscrimination policy. Such policy could either reduce measured economic freedom, for example, through increased regulations or increase measured economic freedom through greater protection of minority property rights and equality under the rule of law. (Our main results suggest the former effect, should it exist, is weaker than the latter effect.) To explore whether diversity has a different impact on the various aspects of economic freedom, we maintain the same regression specification but replace the overall economic freedom index dependent variable with the value for each of its five components. The main results described above reveal significant differences between the impact of ethnic and linguistic fractionalization, yet qualitatively similar results from using either the linguistic or language measures of diversity. To conserve space, we therefore report results only for ethnic and linguistic fractionalization.10 The conditional marginal effects implied by regression estimates are presented in table 3.11

Recall that in the case of the overall economic freedom index, the conditional marginal impact of fractionalization is positive for the most democratic countries, diminishes as the level of democracy diminishes, and is
Table 3. Conditional Marginal Effect of Ethnic Fractionalization on Economic Freedom Components.

<table>
<thead>
<tr>
<th>Democracy level</th>
<th>Size of government</th>
<th>Legal system and property rights</th>
<th>Sound money</th>
<th>International trade</th>
<th>Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ethnic</td>
<td>Linguistic</td>
<td>Ethnic</td>
<td>Linguistic</td>
<td>Ethnic</td>
</tr>
<tr>
<td>7</td>
<td>3.076 (.012)</td>
<td>1.307 (.309)</td>
<td>0.908 (.016)</td>
<td>0.983 (.072)</td>
<td>2.009 (.003)</td>
</tr>
<tr>
<td>6</td>
<td>1.469 (.057)</td>
<td>0.454 (.593)</td>
<td>0.166 (.655)</td>
<td>0.855 (.016)</td>
<td>1.151 (.015)</td>
</tr>
<tr>
<td>5</td>
<td>-0.339 (.891)</td>
<td>-0.399 (.650)</td>
<td>-1.241 (.129)</td>
<td>0.726 (.267)</td>
<td>1.294 (.650)</td>
</tr>
<tr>
<td>4</td>
<td>-1.746 (.296)</td>
<td>-1.251 (.352)</td>
<td>-2.315 (.094)</td>
<td>0.598 (.586)</td>
<td>-0.564 (.583)</td>
</tr>
<tr>
<td>3</td>
<td>-3.354 (.167)</td>
<td>-2.104 (.282)</td>
<td>-3.389 (.084)</td>
<td>0.469 (.765)</td>
<td>-1.421 (.330)</td>
</tr>
<tr>
<td>2</td>
<td>-4.961 (.123)</td>
<td>-2.957 (.258)</td>
<td>-4.463 (.080)</td>
<td>0.341 (.868)</td>
<td>-2.279 (.232)</td>
</tr>
<tr>
<td>1</td>
<td>-6.568 (.102)</td>
<td>-3.810 (.247)</td>
<td>-5.538 (.078)</td>
<td>0.212 (.933)</td>
<td>-3.136 (.185)</td>
</tr>
</tbody>
</table>

Note: p values are given in parentheses.
negative for the most autocratic countries, although the effects are not always statistically significant. In all but two cases, a similar pattern is observed for each of the five components of the overall index. The two exceptions are with respect to the impact of linguistic fractionalization on the legal system and property rights component of economic freedom and with respect to the impact of ethnic fractionalization on the regulation component. In both cases, while the impact of fractionalization diminishes as democracy diminishes, the impact is always positive, even if not always statistically significant.

There are a few other patterns evident in the results. In the case of the overall index, ethnic fractionalization has a statistically significant negative marginal impact in the most autocratic nations. In the case of the five components of the index, such a statistically significant effect occurs only in the case of the legal system and property rights component. The findings thus suggest that autocratic elites may be especially using the courts to disadvantage minorities and favor their own ethnic groups.

Of all the components, the estimated impacts of ethnic and linguistic fractionalization are most similar in the case of sound money. For both measures, greater diversity significantly improves sound money policies at the two highest levels of democracy and has no significant effect at lower levels. For linguistic fractionalization, the findings for the sound money and international trade components are similar to the findings for the overall index. Namely, statistically significant positive effects for the most democratic nations and negative but statistically insignificant effects for the most autocratic nations are revealed. The turning point (the point at which the sign of the effect changes) for the overall index occurs at a democracy level of four, while it occurs at a democracy level of three for these two components. For ethnic fractionalization, in the most democratic nations, the positive, statistically significant findings for size of government, sound money, and international trade are similar to the results for the overall index.

Similar to the findings for the overall index, for the median country with a democracy score of 5, fractionalization does not have a significant impact across any of the components of the index. This finding is also consistent with previous literature which assumes a constant effect across all regime types and finds no significant impact of fractionalization across a variety of government policies and outcomes when controlling for per capita GDP. As in the case of the overall index, the results for the various components of economic freedom reveal some significant effects when distinguishing regime type.
Conclusion

In the context of political exchange, as opposed to market exchange, diversity is often thought to create conflict and harm economic institutions. However, we find that the impact of diversity on economic institutions depends on the nature of government, and while negative in some circumstances, is positive in others. In the most autocratic societies, ethnic fractionalization reduces economic freedom, suggesting that greater ethnic diversity creates a stronger incentive for the political elite to intervene in the economy to reward itself at the expense of other less-favored groups. This effect appears to work through policies related to the legal system and property rights. In contrast, in the most democratic societies, ethnic and linguistic fractionalization increase economic freedom, suggesting that diversity may limit the amount of successful rent seeking–induced policy even if it may also increase rent seeking and rent protection efforts. These results for democracies in particular are consistent across a number of the components of economic freedom.

The divisions that diversity creates among populations may thus be especially harmful for economic freedom where political freedoms are limited and, ironically, helpful for economic freedom where political freedoms are abundant. The findings also suggest that in purely homogeneous societies, the rent seeking associated with democracy may be more damaging with respect to economic freedom than the rent seeking associated with autocracy.

To the extent that the diversity is associated with difference, dislike, and distrust that divide people and create conflict, a key concern is the welfare of potentially disadvantaged and vulnerable minority groups. Greater economic freedom has generally been associated with greater economic growth but its impact on inequality is less clear (Berggren 2003). To the extent that the rising tide of growth associated with economic freedom lifts minority boats, our findings suggest that democracy may serve such groups better in more diverse societies. The greater economic freedom associated with diversity in democracies may also create sufficient competition that market incentives reduce discrimination in market exchange. However, if the divisions created by diversity are sufficiently great, taste-based discrimination may still occur, and policy that protects minority groups from discrimination may be desired.

In democratic societies with greater diversity, minority groups that commonly face discrimination may be able to overcome collective action problems associated with diversity and join together to form a politically
effective group with respect to antidiscrimination policy. Such policy could either reduce measured economic freedom, for example, through increased regulations or increase measured economic freedom through greater protection of minority property rights and equality under the rule of law. Our findings suggest that such an effect either works through the latter mechanism or in the former case does not exist or is overwhelmed by other influences that increase rather than reduce economic freedom. As such, an important avenue for future research may be to explore whether the positive impact on economic freedom of greater diversity in more democratic societies benefits or harms potentially disadvantaged and vulnerable minority groups.

Declaration of Conflicting Interests
The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding
The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes
1. Corchón (2008) considers rent seeking in the context of both autocracy and parliamentary rule, but focuses on rent seeking by individuals outside, rather than inside, of government, and does not engage issues related to diversity.
2. Ashraf and Galor (2013) do not explore conditional effects, but their work also highlights a more complex relation between diversity and development than the usual linear specification admits. In particular, they hypothesize that while diversity may be associated with conflict, it may also be associated with production complementarities. Their empirical evidence reveals a hump-shaped effect of genetic diversity on development.
3. Alesina and La Ferrara (2005) also consider an interaction between diversity and democracy in their growth specifications. However, they only examine the sign of the interaction and do not examine the actual marginal impact of diversity conditional on democracy. It could be that their findings are analogous to ours, albeit in a growth context. It could also be that their findings reveal only that democracy mitigates an adverse impact of diversity on growth. In either case, our findings raise the question of whether their findings do indeed reflect the productivity effects they hypothesize or whether they reflect the effects on economic institutions that we hypothesize.
4. At the suggestion of a reviewer, we also considered a measure of language “polarization” from the same data set at the same level of aggregation. Results are quantitatively similar to the language fractionalization results described below.

5. This conclusion is drawn by the authors based on their primary regressions, but the finding is not robust to controlling for per capita gross domestic product (GDP). This point is elaborated on below.

6. Data for GDP and population are taken from World Bank’s World Development Indicators. Data for latitude in degrees are from Global Development Network.

7. Indeed, La Porta et al. (1999) consider political rights as one of their dependent variables capturing government outcomes.

8. Calculations are based on data from World Christian Encyclopedia.

9. Date of independence is from Encyclopedia Britannica. The upheaval measure, created by Coates, Heckelman, and Wilson (2007), represents the number of years since the end of the most recent fundamental regime shift, significant constitutional change, or independence.

10. Results for ethnolinguistic and language fractionalization are available upon request.

11. Coefficient estimates for the underlying regressions are available upon request.

References


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