

Democracy, targeted redistribution and ethnic inequality*

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Abstract

This paper examines the empirical relationship between democracy and different forms of inequality. We argue that democracy creates incentives for targeted as opposed to general redistribution; that ethnic groups are often convenient targets for group-based distribution; and thus that democracy should reduce inequality between ethnic groups, but with little effect on overall inequality. Using a new data set from 75 countries, we find support for this argument: there is a strong and robust relationship between democracy and between-group inequality, but no such relationship exists between democracy and (a) overall inequality, (b) within-group inequality or (c) polarization. Two-stage least squares analysis with a new instrument for democracy (one based on regional democracy scores at the time of regime inception), along with an analysis of lagged democracy's effect on between-group inequality, indicates that democracy likely causes lower BGI. The analysis therefore underlines the attractiveness for parties in competitive democracies of group-based distributive politics as opposed to general "rich-to-poor" transfers that raise the well-being of all low income individuals.

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1 Introduction

By empowering the poor to vote for redistributive policies, democracy should reduce inequality. This simple intuition, which is made explicit in a wide range of “tax and transfer” models, is among the most influential in studies of democratic processes, and it has been invoked not just to study the politics of redistribution and inequality, but also a range of other topics, including democratization, the effects of famines, and civil conflict. Empirical research, however, has not provided convincing empirical support for the claim that democracy reduces inequality. Although there is a range of evidence that democracy leads to the provision of more public goods, there is little convincing evidence that democratic institutions lead to lower levels of overall inequality or higher levels of assistance for the poor (Timmons 2010, Ross 2006).

One possible explanation for why democracy may not lead to noticeable declines in *overall* inequality is that general “rich to poor” redistribution is in fact a very inefficient tool for parties seeking to build support for a majority in a democracy (Huber and Ting 2011). The benefits to each poor person from any general income-based program will be relatively low if these benefits are spread thinly across all poor people, and redistributive programs with wide eligibility also diminish the ability of politicians to claim credit for assisting their voters. Targeted redistribution programs are therefore a much more efficient vote-seeking tool for politicians in democratic settings. Models have examined a number of ways that groups can be targeted, including geographic districts (Huber and Ting 2011), race (Austen-Smith and Wallerstein 2006), religion (Huber and Stanig 2010), or policy-specific interests like education (Levy 2005). And the policy tools for such targeting are wide ranging, and need not involve cash transfers. Politicians, for example, can require affirmative action in employment practices, can build government offices and industries in particular areas, can adopt agricultural price supports for specific crops, can adopt trade policies for specific goods, and can target groups for public goods through funding for schools, roads, medical care, clean water, public sanitation or other infrastructure needs.

If dictatorships can generally ignore the interests of lower income individuals, and if democracies encourage transfers targeted at particular groups, then compared with dictatorships, democracy should reduce inequality between groups. This is because in order to build majorities in democracies, politicians will have to target groups that include individuals in the bottom half of

the income distribution. Indeed, it is likely the case that it will be most efficient for politicians to target the poorest groups, as such groups should be the least costly (because the poorest individuals will receive the highest marginal utility from targeted transfers). But this group-based targeting need not have a discernible effect on overall inequality. If the costs of transfers to a particular group are widely shared by individuals outside the group, including other individuals in the bottom half of the income distribution, then overall inequality will not be affected. And if a poor group can be targeted at relatively low cost, it will again have little effect on the overall income distribution.

This paper applies this intuition about democracy and targeted transfers to ethnic politics, and specifically to group-based income differences. Ethnic groups will typically be easy to identify and target – they are often concentrated in particular geographic locations, but even if they are not, they usually have observable traits that are targetable. And there is ample evidence that politicians often pursue policies that target specific ethnic groups. Ethnicity therefore provides an obvious mechanism for democratic politicians to create majorities using targeted transfers that benefit subgroups of the poor. Democratic politicians who seek to create low-cost majorities should therefore be expected to pursue policies that benefit one or more relatively poor ethnic groups, improving the well-being of those groups, and thus diminishing between-group inequality relative to dictatorship.

The central objective of this paper is to test empirically this relationship between democracy and between-group economic differences. Even if democracy does not lead to lower overall levels of inequality, does it lead to lower inequality between groups? We show that it does, and provide evidence that this can be a relatively low-cost way to build majorities because between-group economic differences are a relatively low proportion of total inequality in society.

The paper proceeds as follows. The next section describes the two central competing perspectives on the conceptualization and measurement of between-group economic differences: between-group inequality (“BGI”) and “polarization” as defined in Esteban and Ray (1994) (“ER-polarization”). ER-Polarization takes its largest values when there are two equal sized groups, making it very expensive to target groups when ER-polarization is high. By contrast, BGI takes its largest values when there are many groups, making it relatively inexpensive to target groups when BGI increases. We therefore argue that if politicians seek low-cost targeting of groups, there should be a stronger relationship between democracy and between-group inequality than between democracy and polarization.

Section 3 describes a new data set that makes it possible to test the relationship between democracy and group-based economic differences. The data set draws on 161 citizen surveys from 75 countries to provide measures of between-group inequality and ER-polarization. In so doing, we show that these two measures are empirically as well as conceptually distinct. We also investigate biases that exist across the different types of surveys used in creating the data set, an exercise that informs the types of empirical models we estimate.

Scholars of inequality have shown that the familiar Gini coefficient can be decomposed into three components – between-group inequality, within-group inequality and “overlap.” Section 4 uses the new data to examine the relationship between BGI and the other components of the Gini decomposition. We show that between-group inequality is typically a rather small proportion of total inequality, and that most inequality is within groups. Since economic differences between groups are small relative to economic differences within groups, group-based politics should be a relatively attractive strategy for politicians because they can make particular groups better off without large-scale income transfers. And since BGI is a relatively small component of overall inequality, this helps explain why democracy can reduce between-group inequality without a discernible effect on overall inequality.

Our empirical tests are in sections 5 and 6. We first examine simple OLS regression models, showing there is a strong and robust relationship between BGI and democracy, but that there is no such relationship between ER-polarization – or other elements of the Gini decomposition – and democracy. Thus, our empirical results show that if democracy has an effect on inequality, it is only through the inequality that exists between groups. We then probe the possibility of a causal effect of democracy on between-group inequality using two strategies. First we examine the effect of lagged democracy on BGI. Second we describe a new instrument for democracy, one based on average regional democracy at the time of regime inception, to estimate two-staged least squares models. The tests support the existence of a causal impact of democracy on between-group inequality. We conclude the paper by arguing that based on these empirical results, future research on democracy and on ethnic politics should focus on improving our understanding of the mechanisms used for group-based targeting.

2 Two measures of group-based inequality

There are two main schools of thought about how to create theoretically appropriate measures of group-based economic differences. Between-group inequality is based on a fractionalization perspective, which assumes that group-based problems increase with the likelihood that a given individual will encounter individuals from other groups. If members of different groups have different interests, then group-based conflict will increase as group fragmentation increases. When there are no measures of group attributes (like income) other than their number and size, this perspective justifies the well-known index of ethno-linguistic fractionalization, or *ELF*, which measures the probability that two randomly chosen individuals will not belong to the same group. It is written as

$$ELF = 1 - \sum_{i=1}^N p_i^2, \quad (1)$$

where p_i is the proportion of individuals who belong to group i .

BGI incorporates income differences between groups into the fractionalization perspective. It measures the extent to which groups' average incomes are different, weighted by the sizes of the groups. The formula is:

$$BGI = \frac{1}{2\bar{y}} \left(\sum_{i=1}^m \sum_{j=1}^n p_i p_j | \bar{y}_j - \bar{y}_i | \right). \quad (2)$$

Like the Gini Index, BGI has a possible range from 0 to 1, and as we will explain below, is one of three components that together constitute the Gini.

The second main approach to between-group differences is called polarization, originally proposed in Esteban and Ray (1994). Esteban and Ray motivate their measure by proposing that individuals feel identification toward their own group proportional to the size of their group, and they feel antagonistic toward other groups proportional to their economic distance from them. The total polarization in society is a weighted sum of each group's identification with itself multiplied by its antagonism toward each other group (Esteban and Ray 1994, pp. 830-831). Their general measure is

$$ER\text{-Polarization} = k \left(\sum_{i=1}^m \sum_{j=1}^n p_i^{1+\alpha} p_j | \bar{y}_j - \bar{y}_i | \right) \quad (3)$$

where k is some constant greater than 0 and α is a parameter greater than 0 that can take on any value up to 1.6. We make k a scaling parameter that is equal to one over the mean income of the country. Note that if α were allowed to take the value 0, the measure would differ from BGI only by a scalar multiplication. Esteban and Ray (1994) are ambivalent about the precise number α should take within the allowable range. In order to maximize the measure's difference from BGI, we set α equal to 1.5, close to the top of the allowable range. The measure takes its highest value when there are two equally size groups with maximal income difference between them.

To study civil conflict, Reynal-Querol (2002) develops a measure of ethnic polarization ("EP") (see also Montalvo and Reynal-Querol 2005), which is essentially ER-polarization under the assumption that there are no economic (or other substantively important) differences between groups. Like ER-Polarization, EP is maximized when there are two groups of equal size. It is written as

$$EP = 1 - \sum_{i=1}^N \left(\frac{1/2 - p_i}{1/2} \right)^2 p_i \quad (4)$$

EP, then, is the "polarization-equivalent" of ELF. Both measures assume there are no substantive differences between groups, and if one starts with a baseline of two equal-sized groups, EP will decline and ELF will increase as one of these groups is fractionalized into other groups.

Although measures of group-based inequality have been used as explanatory variables in studies of civil conflict,¹ to our knowledge there have been no efforts to describe empirically the variables that explain cross-national differences in these two group-based inequality. At the turn of the 21st century (the period of our data), group-based economic differences will be due in large part to historically contingent and situation specific events that may have occurred some time ago. In many countries, ethnic groups are geographically concentrated, and some geographic regions are more economically advantageous than others because of differences in the fertility of land, weather patterns, access to easily navigable routes, and proximity to urban economic centers, among other reasons. The dynamics of modernization, colonialization and state formation can also create and cement group-based economic advantages (e.g., Bates 1983, 1990; Gelner 1964; Laitin 1998; Marx 1998 and Posner 2005).

But if democracy affects group-based economic differences via incentives to target spe-

¹Examples include Cedarman et al (ND), Houle (2011), Mancini (2008), Ostby (2008), and Stewart (2008).

cific groups, should we expect a stronger relationship between democracy and BGI or between democracy and ER-polarization? Holding income differences constant, ER-polarization increases as group fractionalization decreases, taking its maximum when there are two equal-sized groups. As a consequence, as ER-polarization increases, it becomes more expensive for politicians to target any particular group with economic benefits (because the smallest group is becoming larger). By contrast, holding income differences constant, BGI increases as group fractionalization increases, making it less expensive to target a particular (smaller) group. If voters voted strictly on ethnicity, this distinction would not matter because politicians would have to target a majority (no matter how many groups that involved). But of course ethnicity is not decisive for vote choice, and many voters cast ballots based on other factors. Thus, strategic politicians typically will not have to target enough ethnic groups to win a majority. They can selectively target smaller groups to complete their majority. To the extent this is the case, democracy should have a stronger effect on BGI than on ER-polarization.

3 Measuring BGI and ER-polarization

Testing the relationship between democracy and group-based economic differences requires data on the “income” and group identity of individuals. To create the income-based measures, we use individual-level surveys with this information. A central goal is to create a data set that includes as wide a range of countries as possible, and we often use more than one survey from particular countries. The surveys are from 1992-2008,² and there are five different type of surveys that we use:

- The World Values Survey (WVS) (wave 3-4, 1996 and 1999).
- The Comparative Study of Electoral Systems (CSES) (from 1996-2004).
- The Afrobarometer (2002-2006).
- The Demographic and Health Surveys (DHS) (1992-2008).

²There is one exception to this time frame – we have only one survey from Cote d’Ivoire, which is from 1988.

- Various fine-grained surveys which we call “Household expenditure surveys” (HES), including the LSMS (Living Standards Monitoring Surveys), miscellaneous country-specific studies, country census files from IPUMS, and the Luxembourg Income Study (LIS).

3.1 What is a “group”?

Since different surveys can use different definitions of groups, it is useful to have a definition of “group” that can be consistently employed across a range of surveys. To this end, we follow the definition of groups found in Fearon (2003), which emphasizes groups be understood as “descent groups” that are locally viewed as socially or politically consequential. Depending on the country, Fearon’s identification of groups may be based on race (e.g., the US), language (e.g., Belgium), religion (e.g. France), tribe (e.g., many African countries), or even some combination of these factors. The strong advantage of this approach is that it attempts to apply a consistent definition of groups across a wide range of countries. While the question of how to define a group is important and contentious, the most important issue for present purposes is that the definition plausibly identifies groups that could be targeted. That is clearly the case with the Fearon definition. Of course, the same issues explored in this study could be explored using alternative definitions of groups.

To determine whether the Fearon groups are sufficiently well-identified by a survey to merit the inclusion of the survey in the data set, we can employ a *10 percent rule*. The rule works as follows. For each survey, we calculate the percentage of the population (per Fearon’s data) that we cannot assign to any of Fearon’s groups, and we retain the survey if this number is less than 10. For example, if there are three groups in Fearon’s data, and group 1 represents 12 percent of the population according to Fearon, then we do not use the survey if it does not include group 1 (because 12 percent violates the 10 percent rule). We sum the percentages of all the Fearon groups that we cannot identify and omit the survey if this sum is greater than 10 percent. This ensures that we are using a consistent definition of groups across the surveys.

3.2 Measuring “income”

The other key variable in constructing our measures is “income,” which the surveys measure either directly or indirectly. First consider the direct measures. The best measures of income are from the surveys that we place in the HES category. The 29 HES surveys cover 24 countries. These include the data taken directly from a national census, which have fine-grained income categories and very large representative samples. These also include detailed household income and consumption surveys. Some of the HES surveys included ready-made income and/or consumption variables that follow protocols that have been developed by economists (e.g. Deaton 1980, Deaton and Zaidi 2002). For those that do not, we constructed measures of net income and consumption that follow these same protocols. Measures of net income included wages, net earnings from self-employment, net value of home production; value of government subsidized services, pensions, child assistance, alimony, child support, disability insurance, and social benefits; and value of investment, insurance, and rental income.³ Measures of consumption/expenditures include the value of all food consumption, educational expenditures, other market consumer purchases, goods produced and consumed in the home, in-kind payments, rental expenditures, and rental-equivalent use value of durable goods and housing if owned. These two measures are expressed in local currency and measured at the monthly household level. Each total figure, for household expenditure/consumption and household income, is then divided by the size of the household to create the household income and consumption figures we use in the creation of the nation-level measures of group-based economic differences.⁴ As is standard in the use of these surveys to study inequality, we focus on consumption rather than income when both types of measure are available (although the two are very highly correlated), given that consumption-based measures do a better job of differentiating individuals at the low end of the income scale. Indeed, for many individuals in many countries in this study, cash incomes often are non-existent.

The other direct measures of “income” are found in the CSES and WVS, which each have a single question that asks respondents to state the income category of the respondent’s household

³Taxes paid and business expenses (including expenses for home-based agriculture or production) are subtracted out of this to make the income a valid “net” measure of income.

⁴To account for household size, we divide the total household income and consumption by a measure of adult equivalency whenever possible or when it has not been done already in the survey: 1 unit for household head, .7 for other adults and adolescents, .5 for children under 14 years of age.

income. The CSES reports the income as quintiles, whereas the WVS has a different income scale for each country. Since these data are less fine-grained than those in the HES category, they may understate the true levels of group-based inequality (an issue we explore empirically below).

Next consider indirect measures of “income.” In developing parts of the world, cash incomes often do little to distinguish the relative economic well-being of individuals. Consequently, scholars have developed a strategy for assessing economic well-being that involves asking survey respondents about their living conditions and access to material goods. The Demographic Health Surveys (DHS) have been leaders in this regard, and their surveys ask respondents about their possession of assets, services, and amenities that are assumed to be directly related to the economic status of the household. They have a rather large number of questions that include information about the type of flooring, roof, water supply, sanitation facilities, and vehicle; possession of goods such as a refrigerator, radio, television, and telephone; and the number of persons per sleeping room. To construct its wealth index, DHS typically uses all available asset and utility services variables in order to improve the distribution of households across index scores. For categorical variables such as “type of flooring,” DHS first constructs sets of dichotomous variables from the indicator variables. Ordering the categories is at times a subjective exercise affected by the conditions in each country. For example, types of flooring include carpet, ceramic tiling, and parquet; it is not obvious which type of floor wealthier households are more likely to have. Finally, weights are attached to the indicator variables using principal components analysis. The household’s wealth index value, a standardized score with mean zero and standard deviation of one, is calculated by summing the weighted indicator values. Filmer and Pritchett (2001) and McKenzie (2005) discuss the use of asset indicators to create these variables. The variable HV271 in DHS provides the household wealth index. However, this variable is not available for all DHS surveys. Using a procedure similar to that of DHS, we constructed our own household wealth index when the DHS variable does not exist in a given survey.⁵

The Afrobarometer surveys also include no measures of income, but like DHS, include several “well-being” variables. Each survey asks respondents how often they (or family members) have gone without food, water, medical care, cooking fuel, and cash income. Each variable is coded on

⁵Since the principal components analysis returns a variable with mean zero, it cannot be used as an input to derive the Gini decomposition. We therefore convert each DHS income score into a percentile (ranging from 1-100) score.

a five-point scale (from 0 to 4) according to how often the respondent has gone without the item. The third wave also includes questions about whether or not the respondent owns a radio, television, motorbike, or “motor vehicle,” and these are included where available. As with the DHS, we estimate the household affluence by including all of the available asset and needs variables in a principal components factor analysis, and estimate “income” based on the first factor.

These indirect measures of income are attractive in that they allow us to differentiate economic well-being of respondents who often have no cash income. But there is an obvious cost – because it includes no measure of actual cash income, wages, or high-end wealth, this index is most useful in distinguishing differences among the least well-off, masking differences that exist among the more well-to-do. Thus, estimates of various inequality variables risk understating the true level of inequality using the indirect measures. This should be particularly true of the Afrobarometer surveys, which have a more limited range of variables with which to construct the measures of economic well-being.⁶ We analyze this issue below.

3.3 Biases in the surveys

We have a total of 161 surveys from 75 countries available for analysis.⁷ Before employing the group-based inequality measures for substantive research, it is important to explore biases that may exist in the various surveys. One bias is that the surveys are correlated with region and/or with national wealth or democracy. The Afrobarometer, for instance, exists only in Africa, the DHS contains no advanced industrial countries, and the CSES focuses mostly on rich countries. Table 1, which displays the mean Polity2 democracy score, as well as the mean GDP/capita for each of the five survey types, describes these biases. We can see that the DHS countries are on average the least democratic whereas the CSES countries are the most democratic on average. Similarly, the CSES countries are richer on average than other surveys, whereas the DHS and Afrobarometer surveys are quite poor on average. Thus, it is important to bear in mind that the various individual survey types are not random samples of all countries.

⁶See Baldwin and Huber 2010 for a discussion of how Afrobarometer surveys lead to underestimates of BGI.

⁷See Table 11 in the appendix for a complete list of countries and surveys. We use a slightly smaller number of surveys in some of the analyses below because for some countries we lack measures of right-hand side variables. We also exclude South Africa – South Africa obviously has a very unique history of group-based economic differences, and there

Table 1: Average democracy and national wealth of different survey types

Survey	Avg. Polity2 score	Avg. GDP/capita
Afrobarometer	5.1	\$2,483
CSES	8.4	\$16,704
DHS	2.0	\$2,009
WVS	6.1	\$12,253
HES	6.3	\$13,751

Next consider whether the surveys accurately reflect the size of groups. A simple way to do this is to compare the measures of ELF from each of the surveys with the ELF from Fearon's data. The top panel in Figure 1 plots Fearon's measure of ELF against the ELF measure based on surveys, with different symbols for different survey types. There are three points worth noting. First, the correlation is very strong, with a Pearson's r of .94. Second, all of the surveys are systematically underestimating Fearon ELF, particularly in the countries that have low ELF. Third, none of the surveys seem to overestimate or underestimate ELF more than the others. These three points are further illustrated in the OLS regression presented in Model 1 of Table 2, which presents an OLS model where the Fearon measure of ELF is regressed on the survey measure of ELF and indicator variables for each survey type (with the constant suppressed). The coefficient on the survey ELF is .83 (and very precisely measured), and the survey indicators are all positive, indicating that the survey ELF underestimates the Fearon ELF slightly. The tighter relationship between our measures and Fearon's at high levels of diversity than at low levels is more explicitly confirmed by bivariate regression of Fearon ELF on the surveys' ELF at different levels of diversity. In fact, if we estimate the same model for only the 12 countries (and 22 surveys) where the Fearon ELF is less than .2, the coefficient for Survey ELF is -.04 with a p-value of .88, whereas if we estimate the model on the 63 countries (and 140 surveys) where the Fearon ELF is greater than .2, the coefficient for Survey ELF is .73 with a p-value of 0.000). Model 1 also demonstrates that the coefficients of the survey indicators are all very similar in magnitude, suggesting that none of the surveys are particularly

is extreme variation in our South African measures of BGI.

Table 2: Regressing Fearon diversity measures on survey diversity measures with survey indicator variables

	(1) DV = Fearon ELF	(2) DV = Fearon EP
Survey ELF	0.832*** (0.000)	
Survey EP		0.672*** (0.000)
Afrobarometer	0.172*** (0.000)	0.145*** (0.000)
CSES	0.163*** (0.000)	0.286*** (0.000)
DHS	0.152*** (0.000)	0.200*** (0.000)
HES	0.148*** (0.000)	0.247*** (0.000)
WVS	0.143*** (0.000)	0.241*** (0.000)
R-squared	0.980	0.968
N	161	161
Note: OLS models with intercept suppressed and standard errors clustered by country.		

biased relative to the others in their estimates of ELF. It is interesting to note that the very best surveys – those in the HES category – are no different than the others in that they systematically underestimate the Fearon ELF. Fearon’s measure of ELF is based on secondary sources, often of unknown quality, raising the possibility that in fact Fearon may be overestimating ELF. But the more general point we wish to make is that the surveys seem to do a very good job of estimating ethnic fractionalization.

The bottom panel in the figure plots EP using the Fearon data against the survey-based measures of EP. Again we see a strong correlation ($r=.81$), albeit one with more noise than is found for ELF. Model 2 in Table 2 shows that when Fearon’s EP is regressed on EP from the surveys (along with the survey indicators), the coefficient on Survey EP is .67 and the coefficients on most of the surveys is .2 or greater, suggesting that the underestimates of the Fearon EP are largest at low EP. The greatest exception is the Afrobarometer, which has a smaller coefficient than that for the other surveys.

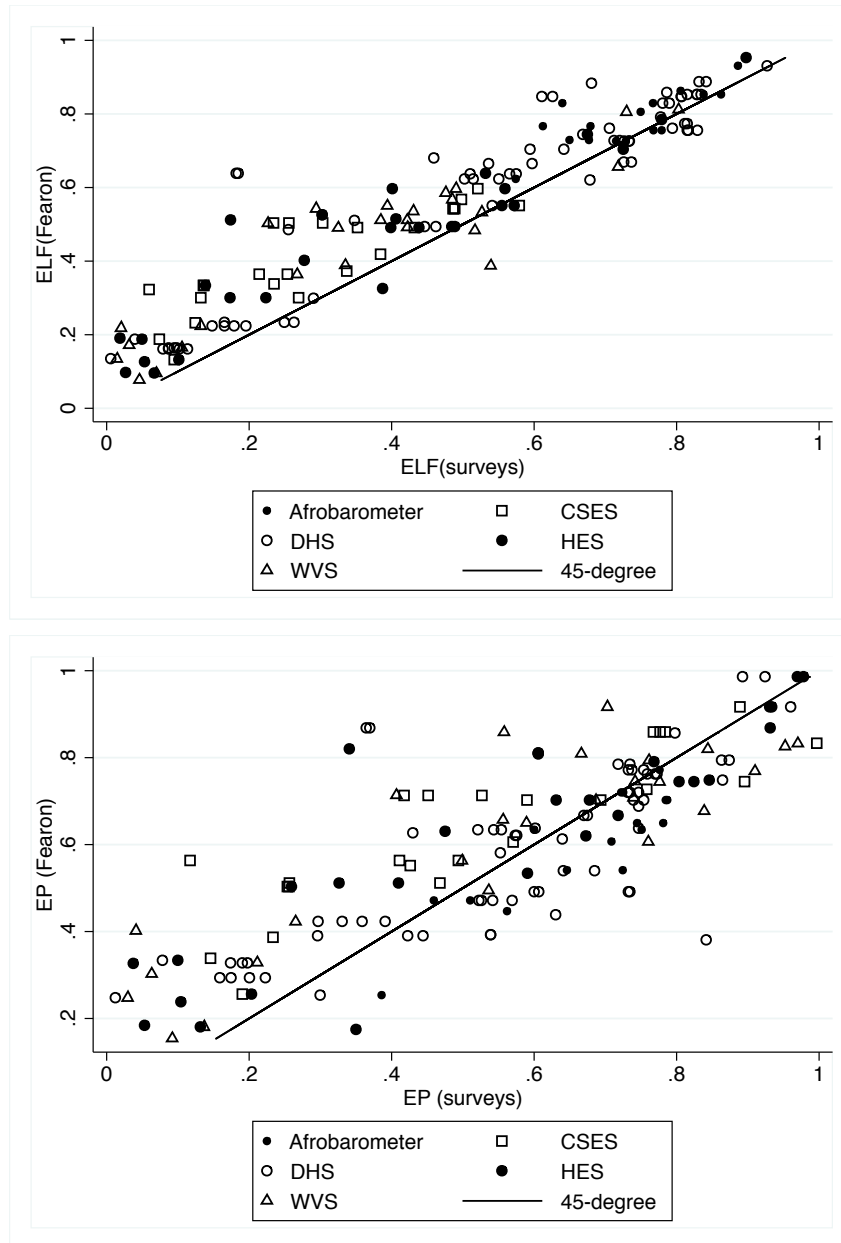


Figure 1: Fearon's diversity measures vs. the survey-based diversity measures

Next we consider the measurement of income in the surveys. Figure 2 plots the Gini coefficient from the World Development Indicators against the Gini calculated from the surveys for each survey type. Not surprisingly, the correlations are extremely weak for most survey types. The top three panels – the DHS, Afrobarometer and CSES – show essentially no relationship between the two Ginis. For the DHS and Afrobarometer, this lack of correlation is almost certainly due to the fact that the indirect measures of income lump all individuals who are relatively well-to-do into the same “income” category, when in fact there are almost certainly large income differences across such individuals. For the CSES, the use of quintiles to measure income essentially ensures no correlation with the WDI Gini. In the bottom panel, the correlations are stronger, particularly for the HES. But even the correlation between the HES Gini and the WDI Gini is quite noisy in countries with a Gini greater than about .30. Given these HES surveys represent the best data we are able to uncover for household income, it raises the question how well the WDI Gini measures inequality, a question that is beyond the scope of what we can explore here.

Our goal, of course, is not to measure overall inequality, but rather to measure the correlation of income with group, and even though the surveys do not produce Ginis that correlate with groups, they should still provide useful information about economic differences between groups. Given that the HES surveys do the best possible job of measuring household income, these can serve as a baseline for evaluating biases in the other survey measures of BGI or ER-polarization. First consider biases in the measurement of BGI. Model 1 in Table 3 presents the results from a regression where BGI is the dependent variable.⁸ The independent variables include indicator variables for each country, indicator variables for regions (with Africa as the omitted category), and indicator variables for the five types of surveys (with HES as the omitted category). The coefficients on the survey indicators are therefore estimated from within-country variation, controlling for region (given that the survey categories are correlated with region). They measure the average difference between each survey type and the HES surveys, which provide the best measures of BGI.

All of the non-HES surveys underestimate BGI (relative to the HES estimates), with a particularly large underestimate using the Afrobarometer surveys. This result for the Afrobarometer is unsurprising given that the indirect measure of “income” is based on a relatively small number of variables in those surveys. Note that the mean and standard deviation of BGI are .052 and .045 re-

⁸We calculate BGI using the “ginidesc” command in Stata (Aliaga and Montoya 1999).

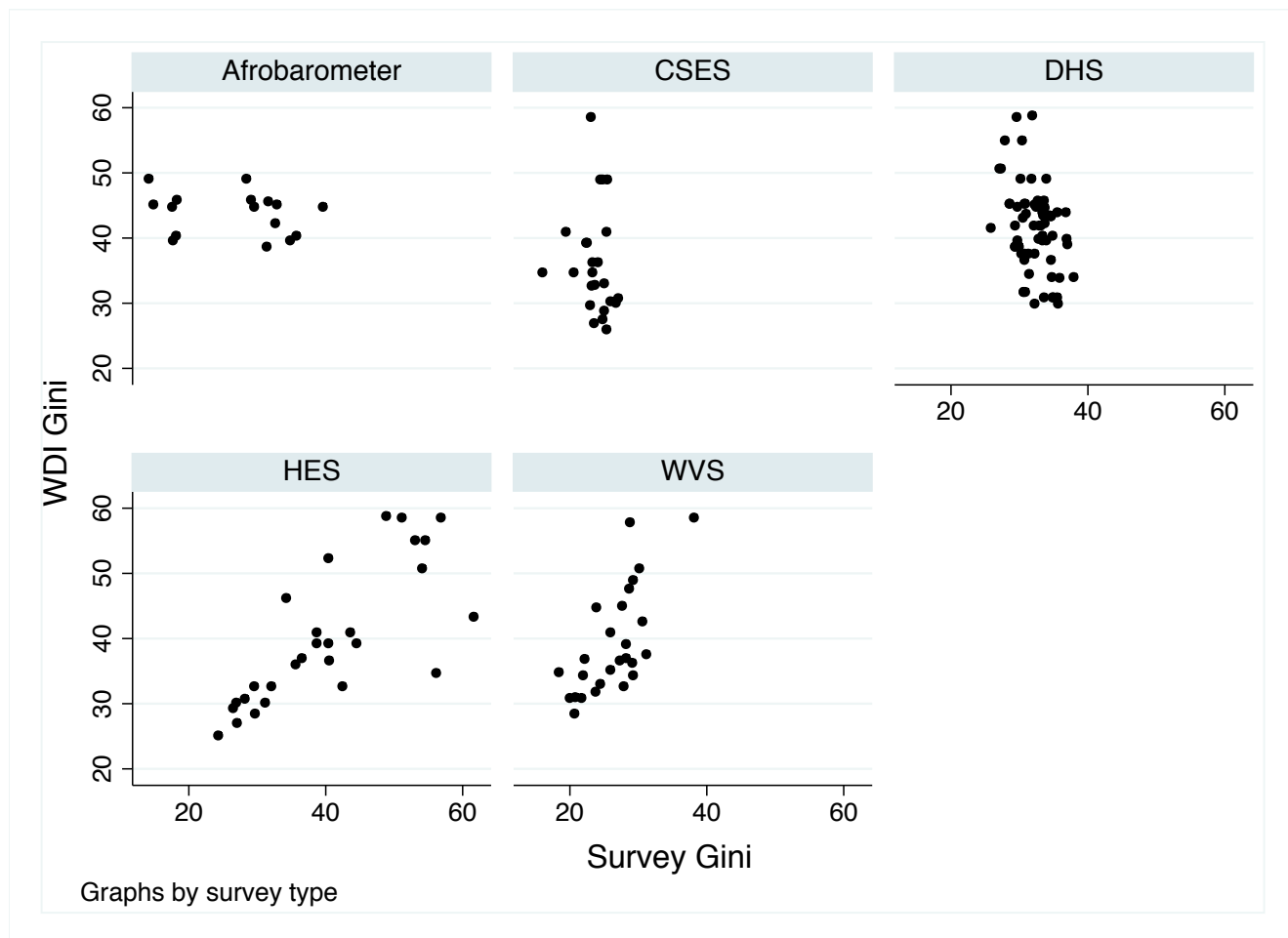


Figure 2: WDI Gini v. Survey-based Gini

spectively, implying that the “underestimate” in the Afrobarometer is non-trivial in size. The other surveys have relatively similar underestimates, though it is interesting to note that the CSES is the survey that produces the estimates that are closest to the HES. Thus, even though CSES income is measured in quintiles (making estimates of Gini meaningless), the between-group incomes differences from these surveys reflect relatively well the between-group differences found in the best surveys available.

Model 2 is the same as Model 1 except that ER-polarization is the dependent variable. Again, each of the surveys underestimates polarization relative to the estimates using the HES surveys. But there is very little difference across the surveys, each of which have a coefficient of around $-.023$, when ER-polarization has a mean and standard deviation of $-.022$. The Afrobarometer still has the largest coefficient in absolute value, but is not much larger than the other surveys. This is likely due to the fact that the African countries in the Afrobarometer have very high ELF, and thus relative low EP, which drives down the value of ER-polarization.

Finally, we briefly explore whether the four measures described are in fact empirically distinct from one another. Table 4 provides correlations of the four variables and the relevant external benchmarks. Unsurprisingly the measures are positively correlated. But adding data on income to the group-based measures clearly yields different measures. For instance, BGI is correlated with the survey-based ELF at $.67$ ($.64$ for Fearon’s ELF), while ER-polarization is correlated with the survey EP at $.48$ ($.53$ for Fearon’s EP). And BGI and ER-Polarization have a correlation of $.64$.

4 Between-group inequality and the Gini Decomposition

To this point, we have focused on differences across groups. But the heterogeneity of groups themselves can also be important, as underlined, for example, in Esteban and Ray (2008 and 2009) and Houle (2011). Moreover, it is important to understand the degree to which between-group differences contribute to overall economic differences. To this end, the well-known Gini index of inequality can be decomposed into three components.⁹ The first is within-group inequality, which is based on calculating the Gini coefficient for each group and summing these coefficients, weighting by group size. The second is between-group inequality. This is the Gini coefficient based

⁹There is no analogous decomposition of ER polarization.

Table 3: Regressing measures of group economic differences on survey indicator variables

	(1)	(2)
	DV=BGI	DV=ER-Polarization
Afrobarom	-0.066*** (0.004)	-0.028** (0.033)
CSES	-0.035** (0.029)	-0.024** (0.011)
DHS	-0.046** (0.019)	-0.023* (0.083)
WVS	-0.042** (0.023)	-0.023** (0.024)
East Europe	-0.125*** (0.000)	-0.019* (0.081)
Latin America	-0.029** (0.014)	0.009** (0.012)
Middle East	-0.086*** (0.000)	0.009** (0.011)
Neo-Europe	-0.091*** (0.000)	0.004 (0.720)
East Asia	-0.064*** (0.001)	0.021** (0.028)
South Asia	-0.074*** (0.000)	-0.014 (0.130)
Constant	0.161*** (0.000)	0.043*** (0.001)
Indicator variables for each country	Yes	Yes
Constant	0.161*** (0.000)	0.043*** (0.001)
R-squared	0.789	0.787
N	161	161

Note: OLS models with standard errors clustered by country.
The omitted region is Africa and the omitted survey is HES.
P-values are given in parentheses. * p<.10, ** p<.05, *** p<.01

Table 4: Correlations of group-based variables

Variables	ELF(Fearon)	ELF(survey)	BGI	EP(Fearon)	EP(survey)	ER
ELF(Fearon)	1.00					
ELF(survey)	0.94	1.00				
BGI	0.64	0.67	1.00			
EP(Fearon)	0.39	0.33	0.26	1.00		
EP(survey)	0.64	0.66	0.46	0.81	1.00	
ER	0.13	0.12	0.64	0.53	0.48	1.00

on the mean income of groups, as discussed above. The third component is called “overlap,” and is related to the inverse of income stratification across groups. Overlap increases as the overlap of group income increases, and is therefore substantively related to both between-group and within-group differences (see Yitzhaki and Lerman 1991 and Lambert and Aronson 1993). Given the difficult interpretation of “overlap,” some scholars prefer to use a general entropy measure, such as the Thiel index, which decomposes cleanly into within-group and between-group components. The Thiel, however, is highly sensitive to the number of groups, and thus cannot be used for the purposes of comparing between-group differences across countries with different numbers of groups.¹⁰

We use the survey data to assess the overall contribution of between-group inequality to the Gini coefficient. Table 5 shows for each survey type, the average of each of the three components. Looking at the far right right column, which gives the total for all surveys, the average BGI is .05, smaller than overlap’s average of .10 and much smaller than the average within-group inequality, which is .16. On average, the percentage of the Gini that is due to between-group economic differences is 16 percent, compared with 31 percent for overlap and 54 percent for within-group inequality. If we focus on the HES surveys, the proportions are similar to the total sample, with 15 percent of inequality due to between group differences and 65 percent of inequality due to within-group differences.

The relatively small size of the BGI component is important. Politicians can target relatively poor groups (and perhaps in particular the least well-off within these groups), making these groups better-off at relatively low cost because group based differences are in fact relatively small. By contrast, within-group differences are relatively large, and therefore reducing within-group differences will be expensive. Put differently, it is much less expensive to reduce average differences between ethnic groups than to engage in class-based politics that lowers within-group inequality. This cost-efficiency could therefore create incentives for politicians to introduce issues of ethnic politics into democratic politics. And if there are incentives for ethnic distributive politics, we should see the least well-off in some groups bear some of the cost of distribution to other other groups, thereby lowering BGI while potentially increasing within-group inequality.

¹⁰The decomposition of the Thiel could be useful, for example, in comparing within and between-state differences over time when the number of states is constant.

Table 5: Decomposition of Gini by survey type

	Afrobarometer	CSES	DHS	HES	WVS	All surveys
BGI	0.0550 (0.197)	0.0194 (0.0807)	0.0657 (0.202)	0.0687 (0.147)	0.0254 (0.0947)	0.0517 (0.157)
Within-group inequality	0.0690 (0.263)	0.166 (0.700)	0.146 (0.456)	0.245 (0.650)	0.168 (0.643)	0.162 (0.537)
Overlap	0.143 (0.540)	0.0522 (0.219)	0.112 (0.342)	0.0898 (0.202)	0.0699 (0.262)	0.0956 (0.306)

Note: Cells show the mean level of each variable and the numbers in parentheses show the average proportions of the total Gini.

5 OLS models regressing group-based inequality measures on democracy.

We now turn to the principal task of this paper, which is to use the measures from the surveys to examine the empirical relationship between group-based inequality and democracy. In this section we estimate simple OLS models, treating each survey as the unit of analysis and estimating the coefficients on democracy when democracy is measured in the same year as the survey. All of the models include two core controls: (1) ELF (measured by Fearon) (when BGI is the dependent variable) or EP (when ER-polarization is the dependent variable) and (2) the Gini (measured by the World Development Indicators), which are key components of group-based economic differences. Given the differences across the surveys demonstrated above, as well as the correlation of the surveys with geography, all models also include regional indicators and survey indicators.¹¹ In all models, the excluded region is Africa and the excluded survey is HES. To facilitate comparisons of the size of the coefficients, all of the continuous variables are standardized to have a mean of 0 and standard deviation of 1. The models are estimated using OLS with standard errors clustered by country.

Table 6 presents models where BGI is the dependent variable. In model 1, the measure of democracy is Polity2, all available surveys are used, and only the core control variables are

¹¹We follow the regional categories used in Haber and Menaldo (2011) except that we recode Guyana (the only country in our data set in their Caribbean category) to belong to Latin America.

included. The results show that Polity2 has a negative and precisely estimated coefficient, as does ELF, with the ELF coefficient being substantially larger. Democracy, of course, is correlated with a wide range of other variables, and it is important to include further controls to improve confidence that the relationship in model 1 is not spurious. Model 2 therefore includes the following controls:

- *National wealth* (measured as the log of GDP/capita using data from the World Development Indicators). Previous research (e.g., Barro 2000) shows an inverse-U relationship between economic growth and inequality (the Kuznets curve), though for most of the countries in the data here, the relationship is likely in the positive range (see Barro 2008). Barro's results are not about inequality between groups, but to the extent that such inequality is correlated with BGI, it is important to control for national wealth.
- *Cultural Fractionalization* ("CF") (taken from Fearon 2003). This is a measure of the cultural difference between groups based on the degree of linguistic differences between groups.¹² Scholars have argued that group-based discrimination and conflict should be largest when cultural differences between groups are largest (e.g., Fearon 2003 and Desmet et al 2009).
- *Geographic Isolation* (of groups). Since at least the 1930s, sociologists have studied and debated whether inter-group contact increases or decreases prejudice and discrimination.¹³ Geographic Isolation is based on the "Isolation" variable used by scholars of residential segregation (see Massey and Denton 1988, 288). The measure uses the region variable available in most surveys to construct this variable, which increases as groups become more isolated in their own region. If intergroup contact decreases discrimination, then the variable should have positive coefficient (i.e., as groups are more regionally isolated from each other, contact declines, and discrimination should increase).¹⁴
- *Natural resource wealth*. There is considerable evidence of a positive correlation between resource wealth and civil conflict, and one reason for such a relationship is that resource wealth leads to inter-group grievances and to conflict to control wealth (see discussion in

¹²Details are in Fearon (2003) and are discussed in Baldwin and Huber (2010).

¹³See Pettigrew and Tropp (2006) for a recent meta-analysis of research on the "contact hypothesis," which maintains that inter-group conflict and discrimination diminishes as individuals interact more with individuals from outside their group. Their study lends support to this view.

¹⁴Details on variable construction are found in Baldwin and Huber 2010.

Table 6: OLS models regressing BGI on Democracy (Polity2)

	All data	All data	Omit Afrobarometer	Omit ELF<.2	DHS & HES only	DHS only
	(1)	(2)	(3)	(4)	(5)	(6)
Polity2	-0.179*** (0.007)	-0.230*** (0.001)	-0.209*** (0.001)	-0.222** (0.019)	-0.246*** (0.008)	-0.232*** (0.005)
ELF	0.668*** (0.000)	0.362** (0.020)	0.332** (0.041)	0.544** (0.011)	0.509* (0.051)	0.370 (0.158)
Gini	-0.036 (0.769)	0.041 (0.717)	0.052 (0.651)	0.005 (0.973)	0.023 (0.877)	-0.196 (0.190)
CF		0.213* (0.064)	0.206 (0.103)	0.208* (0.052)	0.227 (0.106)	0.290*** (0.003)
Geo.Isol.		-0.186* (0.052)	-0.173* (0.095)	-0.102 (0.304)	-0.142 (0.470)	-0.219 (0.246)
(ln)GDP		0.238 (0.241)	0.196 (0.374)	0.427* (0.056)	0.346 (0.316)	1.087*** (0.000)
Resources		-0.176*** (0.000)	-0.162*** (0.001)	-0.220*** (0.000)	-0.208** (0.013)	-0.394*** (0.000)
East Europe	-0.157 (0.545)	-0.138 (0.594)	-0.166 (0.554)	0.014 (0.965)	-0.205 (0.541)	-0.508 (0.113)
Latin America	0.822** (0.024)	0.527 (0.126)	0.501 (0.147)	0.686* (0.088)	0.713 (0.121)	-0.371 (0.272)
Middle East	-0.109 (0.692)	-0.237 (0.342)	-0.276 (0.284)	-0.236 (0.570)	-0.129 (0.737)	-1.272*** (0.008)
Neo-Europe	-0.035 (0.895)	-0.258 (0.499)	-0.260 (0.532)	-0.407 (0.409)	-0.608 (0.370)	
East Asia	0.529* (0.055)	0.281 (0.249)	0.203 (0.407)	0.503 (0.231)	0.519 (0.124)	-0.070 (0.845)
South Asia	-0.224 (0.266)	-0.030 (0.880)	-0.102 (0.623)	-0.010 (0.973)	0.153 (0.617)	-0.247 (0.443)
Afrobarom	-1.072*** (0.001)	-0.876** (0.021)		-1.011** (0.019)		
CSES	-0.825*** (0.000)	-0.914*** (0.000)	-0.905*** (0.000)	-1.375*** (0.000)		
DHS	-0.548** (0.044)	-0.614* (0.075)	-0.606* (0.078)	-0.676* (0.092)	-0.720 (0.141)	
WVS	-0.903*** (0.000)	-0.971*** (0.000)	-0.963*** (0.000)	-1.383*** (0.000)		
Constant	0.509* (0.074)	0.641* (0.051)	0.654** (0.047)	0.804* (0.053)	0.733 (0.105)	0.809*** (0.006)
R-squared	0.626	0.672	0.695	0.613	0.670	0.753
N	161	149	133	113	86	67
No. of countries	75	69	67	52	46	33

OLS models with clustered standard errors (by country). P-values in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$

Ross 2004). We might therefore expect that resource wealth will lead higher inter-group inequality and groups strive to control the resource wealth. Natural resource wealth is total value of coal, oil, natural gas and mineral per capita and is taken from Haber and Menaldo (2011).

Model 2 adds each of these four control variables to Model 1. The coefficient on Polity2 remains negative and precisely estimated, and increases slightly in size relative to model 1. The coefficient for ELF remains negative and precisely estimated, but is much smaller than in model 1. Considering the other controls, we find that larger cultural differences between groups are associated with greater between-group inequality. We find no evidence for the contact hypothesis – greater geographic isolation of groups is associated with less inter-group differences. National wealth is associated with more between-group inequality, though this effect is not precisely estimated.¹⁵ And greater natural resources are associated with less between-group inequality, the opposite that one might expect if one believes that such resources spark grievances and stronger efforts by groups to control wealth.

Before discussing these results further, it is important to assess their robustness, which we do here by estimating model 2 using different subsets of the data. In model 3, we remove the Afrobarometer surveys, which we showed above have the largest underestimates of BGI. We also found above that the surveys provide the poorest estimates of group size in the countries with low ELF, so model 4 removes all countries where $ELF < .2$. Model 5 removes the three surveys for which the income variables are most coarse – Afrobarometer, CSES and WVS (and thus estimates the model using only DHS and HES). And Model 6 uses only the DHS surveys, which provide the greatest number of surveys using the same “income” metric.

The results show that across all models, Polity2 has a negative and precisely estimated coefficient. The other two control variables (besides ELF), that are consistently estimated with precision are Cultural Fractionalization and Natural resource wealth. The Geographic Isolation of groups has a consistently negative sign, but in models 3-6 the coefficient is measured with considerable error. And GDP has a consistently positive sign, but is measured precisely in only two of the models. The Appendix presents two additional tests of robustness, replicating the models in Table 6, but

¹⁵We also estimated the model with a linear and quadratic term for GDP, and the coefficients for both variables were estimated with considerable error while the results for Polity2 were unaffected.

using two different measures of democracy, Freedom House's "Political Rights" score (Table 12) and Freedom House's "Civil Liberties" score (Table 13). Each of these measures of democracy has a *higher* score as democracy weakens (the opposite of Polity2). The substantive results in these two tables are essentially identical to those in Table 6, with a precisely estimated coefficient in the expected direction for each democracy variables in all 12 models. Natural resources again has a robust negative relationship with BGI.

Next consider the relationship between ER-polarization and democracy. Table 7 presents the same models as in Table 6, but using ER-polarization as the dependent variable and Ethnic Polarization (instead of ELF) as the core control for group size differences. In all of the models, Polity2 has a negative coefficient, but it is not precisely estimated in 2 of the 6 models. The only other of the four controls that is consistently precisely estimated is Natural Resource Wealth, which again has a negative relationship with inter-group economic differences, and a precisely estimated coefficient in 4 of 5 models. Tables 14 and 15 in the Appendix provide the same models with the two Freedom House measures of democracy. Using these alternative measures, we find no precisely estimated relationships between democracy and ER-polarization. It is interesting to note that the relationship between ER-polarization and EP is much stronger than the relationship between BGI and ELF, suggesting that ER-polarization is much more sensitive to the simple number and size of groups (as opposed to their income) than is BGI. Of the substantively important controls, only Natural Resource Wealth has a precisely estimated coefficient across the models, with more resource wealth again being associated with less inter-group inequality. The strong robust correlation between democracy and BGI and the weaker, less robust correlation between democracy and ER-polarization is consistent with what one would expect if politicians in democracies attempt to target lower cost groups.

What is the effect of democracy on the other two elements of the Gini decomposition?

¹⁶ Table 8 presents the results from estimating the same models as those in Table 6, but using within-group inequality as the dependent variable. Across all the models, the coefficient is positive, suggesting that if anything, democracy is associated with greater within-group inequality. But this effect is measured very imprecisely. Table 9 presents the models when the dependent variable is

¹⁶We have also regressed the Gini coefficient itself on Polity2 and in these models the coefficient on Polity2 always has a very large standard error and the sign of the coefficient is *positive* in 5 of the 6 models.

Table 7: OLS models regressing ER-Polarization on Democracy (Polity2)

	All data	All data	Omit Afrobarometer	Omit ELF<.2	DHS & HES only	DHS only
	(7)	(8)	(9)	(10)	(11)	(12)
Polity2	-0.095 (0.221)	-0.151* (0.056)	-0.149* (0.059)	-0.080 (0.399)	-0.213* (0.063)	-0.168* (0.088)
EP	0.430*** (0.000)	0.389*** (0.000)	0.420*** (0.000)	0.304** (0.032)	0.565*** (0.000)	0.449*** (0.000)
Gini	0.109 (0.342)	0.089 (0.448)	0.079 (0.518)	0.108 (0.487)	0.051 (0.769)	-0.229* (0.059)
CF		0.126 (0.123)	0.114 (0.184)	0.100 (0.347)	0.099 (0.423)	0.112 (0.190)
Geo.Isol.		-0.043 (0.695)	-0.039 (0.753)	0.082 (0.517)	-0.047 (0.810)	-0.110 (0.367)
(ln)GDP		0.084 (0.705)	0.090 (0.713)	0.267 (0.252)	0.217 (0.590)	1.030*** (0.000)
Resources		-0.120** (0.045)	-0.118* (0.060)	-0.131* (0.062)	-0.153 (0.186)	-0.327*** (0.000)
East Europe	0.240 (0.338)	0.425 (0.129)	0.398 (0.153)	0.548* (0.099)	0.149 (0.685)	-0.034 (0.895)
Latin America	1.033*** (0.003)	1.111** (0.019)	1.070** (0.024)	1.008* (0.051)	1.157* (0.077)	0.204 (0.630)
Middle East	0.147 (0.518)	0.295 (0.407)	0.280 (0.430)	0.167 (0.674)	0.174 (0.743)	-1.018** (0.044)
Neo-Europe	0.507* (0.077)	0.493 (0.271)	0.456 (0.333)	0.094 (0.849)	0.001 (1.000)	
East Asia	1.214*** (0.001)	1.326*** (0.000)	1.337*** (0.000)	1.591*** (0.000)	1.449*** (0.000)	0.893* (0.058)
South Asia	0.039 (0.858)	0.177 (0.455)	0.160 (0.514)	0.391 (0.296)	0.110 (0.760)	-0.281 (0.399)
Afrobarom	-0.798** (0.020)	-0.934* (0.052)		-1.246** (0.031)		
CSES	-1.162*** (0.000)	-1.336*** (0.000)	-1.345*** (0.000)	-2.000*** (0.000)		
DHS	-0.492 (0.142)	-0.729* (0.091)	-0.724* (0.093)	-0.888 (0.104)	-0.811 (0.189)	
WVS	-1.127*** (0.000)	-1.293*** (0.001)	-1.293*** (0.001)	-1.887*** (0.000)		
Constant	0.303 (0.347)	0.432 (0.267)	0.450 (0.248)	0.960* (0.063)	0.612 (0.285)	0.622** (0.049)
R-squared	0.588	0.612	0.610	0.639	0.644	0.700
N	161	149	133	113	86	67
No. of countries	75	69	67	52	46	33

OLS models with clustered standard errors (by country). P-values in parentheses.
 * $p < 10$, ** $p < .05$, *** $p < .01$

the overlap component of the Gini. As for within-group inequality, we again find that Polity2 has a positive coefficient across all models, although it is usually very imprecisely measured. The robust negative relationship between democracy and BGI and the null relationship between democracy and within-group inequality and overlap suggest that if democracy affects the politics of inequality, it is through the effect of democracy on inequality between groups. And the positive (albeit imprecisely estimated) coefficients for democracy when within-group inequality is the dependent variable suggest that democratic politicians possibly “pay” for group-based transfers by decreasing the welfare of the least well off in the groups that are not targeted for government benefits.

6 A causal effect of democracy on between-group inequality?

The previous regressions demonstrate a very strong and robust relationship between democracy and between-group inequality, but not between democracy and ER-polarization or between democracy and the two other elements of the Gini. But given the possibility of omitted variables that may be correlated with democracy, it is not possible to have any confidence that democracy causes a reduction in between-group economic differences. Moreover, there are good reasons to suspect that inequality may in fact affect the level of democracy. Houle (2009), for example, finds that while general inequality does not affect the probability of democratization, it does affect the ability of democracies to consolidate. This section therefore explores whether there could be a causal effect of democracy on between-group inequality using two strategies. First we regress the BGI on lagged democracy scores. Second we estimate models using two-stage least squares with a new instrument for democracy.

Consider the regressions with lagged democracy scores. Since current BGI cannot cause past democracy, if the coefficients on democracy are precisely estimated, we can have greater confidence that the direction of causation works from democracy to between-group inequality. We estimated model 2 using the lagged value of democracy instead of the democracy score in the year of the survey. Since it is not clear what the duration of the lag should be, we estimated fifteen different models, each with a different Polity2 lag, with these lags ranging from year $t - 1$ through year $t - 15$. Figure 3 plots the results for the Polity2 coefficients. The graph shows the value of the Polity2 coefficient (with the 95-percent confidence) for the 15 different lags that we examined, as well as

Table 8: OLS models regressing Within-group Inequality on Democracy (Polity2)

	All data	All data	Omit Afrobarometer	Omit ELF<.2	DHS & HES only	DHS only
	(13)	(14)	(15)	(16)	(17)	(18)
Polity2	0.010 (0.812)	0.035 (0.327)	0.035 (0.331)	0.010 (0.859)	0.046 (0.331)	0.044 (0.275)
ELF	-0.693*** (0.000)	-0.614*** (0.000)	-0.603*** (0.000)	-0.628*** (0.000)	-0.365** (0.034)	-0.367* (0.059)
Gini	0.172** (0.037)	0.131* (0.062)	0.156** (0.023)	0.067 (0.441)	0.185 (0.112)	-0.036 (0.778)
CF		0.021 (0.697)	0.008 (0.890)	0.024 (0.635)	-0.004 (0.961)	-0.079 (0.343)
Geo.Isol.		0.206*** (0.000)	0.215*** (0.000)	0.166** (0.012)	0.332*** (0.000)	0.444*** (0.001)
(ln)GDP		-0.177* (0.084)	-0.206* (0.053)	-0.184 (0.184)	-0.432** (0.017)	-0.071 (0.733)
Resources		0.068** (0.033)	0.073** (0.021)	0.021 (0.670)	0.130** (0.027)	0.030 (0.598)
East Europe	0.852*** (0.000)	0.878*** (0.000)	0.923*** (0.000)	0.645*** (0.004)	1.244*** (0.000)	0.859*** (0.000)
Latin America	0.322 (0.198)	0.543** (0.019)	0.535** (0.018)	0.465* (0.068)	0.618* (0.050)	0.335 (0.212)
Middle East	0.628** (0.012)	0.693*** (0.002)	0.737*** (0.001)	0.651* (0.071)	1.475*** (0.000)	0.537* (0.093)
Neo-Europe	0.514** (0.023)	0.629** (0.015)	0.705*** (0.007)	0.646* (0.066)	0.897 (0.154)	
East Asia	0.459** (0.043)	0.431** (0.040)	0.441** (0.036)	0.404 (0.226)	0.960*** (0.003)	0.435 (0.112)
South Asia	0.746** (0.014)	0.489 (0.124)	0.511 (0.108)	-0.403 (0.104)	1.291*** (0.000)	0.639** (0.025)
Afrobarom	-0.724*** (0.000)	-0.709*** (0.004)		-0.913*** (0.003)		
CSES	-1.112*** (0.000)	-1.000*** (0.000)	-0.994*** (0.000)	-1.126*** (0.000)		
DHS	-0.551*** (0.003)	-0.393* (0.077)	-0.400* (0.072)	-0.662** (0.024)	-0.746*** (0.003)	
WVS	-0.992*** (0.000)	-0.861*** (0.000)	-0.866*** (0.000)	-0.850*** (0.001)		
Constant	0.277 (0.160)	0.103 (0.630)	0.084 (0.688)	0.314 (0.310)	0.100 (0.735)	-0.074 (0.728)
R-squared	0.828	0.844	0.828	0.792	0.878	0.933
N	161	149	133	113	86	67
No. of countries	75	69	67	52	46	33

OLS models with clustered standard errors (by country). P-values in parentheses.

* $p < 10$, ** $p < .05$, *** $p < .01$

Table 9: OLS models regressing Overlap on Democracy (Polity2)

	All data	All data	Omit Afrobarometer	Omit ELF<.2	DHS & HES only	DHS only
	(19)	(20)	(21)	(22)	(23)	(24)
Polity2	-0.018 (0.738)	0.076 (0.123)	0.075 (0.116)	0.094 (0.205)	0.062 (0.275)	0.028 (0.663)
ELF	0.612*** (0.000)	0.467*** (0.000)	0.542*** (0.000)	0.431** (0.021)	0.343 (0.106)	0.241 (0.312)
Gini	0.002 (0.980)	-0.007 (0.928)	-0.010 (0.891)	0.006 (0.951)	0.146 (0.172)	0.256* (0.091)
CF		-0.018 (0.798)	-0.081 (0.338)	0.008 (0.911)	-0.053 (0.677)	0.026 (0.827)
Geo.Isol.		-0.201** (0.035)	-0.201** (0.032)	-0.114 (0.252)	-0.299** (0.027)	-0.442** (0.014)
(ln)GDP		-0.370*** (0.004)	-0.491*** (0.000)	-0.335** (0.041)	-0.862*** (0.000)	-0.987*** (0.002)
Resources		0.089 (0.130)	0.098* (0.079)	0.121 (0.170)	0.192*** (0.003)	0.181** (0.045)
East Europe	-0.920*** (0.000)	-0.460** (0.013)	-0.292 (0.175)	-0.434* (0.065)	-0.207 (0.522)	-0.087 (0.833)
Latin America	-0.806** (0.024)	-0.362 (0.204)	-0.212 (0.445)	-0.287 (0.332)	-0.259 (0.392)	-0.243 (0.553)
Middle East	-0.595*** (0.005)	-0.130 (0.512)	0.041 (0.855)	-0.294 (0.470)	0.343 (0.343)	0.693 (0.248)
Neo-Europe	-1.034*** (0.001)	-0.116 (0.677)	0.179 (0.567)	-0.250 (0.514)	0.989* (0.069)	
East Asia	-0.832*** (0.000)	-0.570*** (0.008)	-0.428* (0.062)	-0.674* (0.061)	-0.503 (0.110)	-0.346 (0.451)
South Asia	-0.548** (0.035)	-0.366** (0.023)	-0.321* (0.079)	-0.488** (0.028)	-0.201 (0.515)	0.101 (0.813)
Afrobarom	-0.876*** (0.009)	-0.614** (0.041)		-0.536* (0.055)		
CSES	-0.342** (0.019)	-0.128 (0.326)	-0.124 (0.350)	-0.186 (0.350)		
DHS	-0.540** (0.044)	-0.426* (0.063)	-0.482** (0.030)	-0.289 (0.104)	-0.670*** (0.006)	
WVS	-0.269 (0.135)	-0.146 (0.288)	-0.187 (0.193)	-0.090 (0.640)		
Constant	0.978*** (0.001)	0.450** (0.033)	0.362* (0.091)	0.473* (0.057)	0.253 (0.303)	-0.685* (0.071)
R-squared	0.714	0.748	0.795	0.587	0.813	0.825
N	161	149	133	113	86	67
No. of countries	75	69	67	52	46	33

OLS models with clustered standard errors (by country). P-values in parentheses.
 * $p < .10$, ** $p < .05$, *** $p < .01$

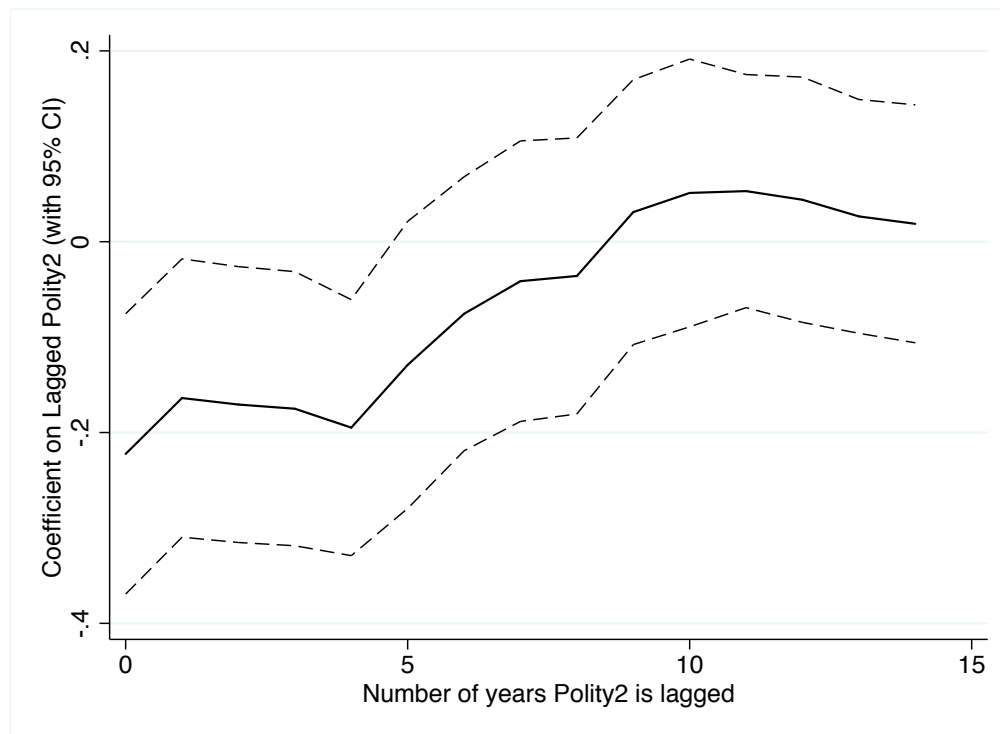


Figure 3: Results for lagged Polity2 using Model 2

for the current year (i.e., model 2 itself). We can see that for each of the lags in the first five years the coefficient remains relatively constant, negative and precisely estimated. This provides support for the possibility of a causal effect of democracy on BGI. At year $t - 6$ the coefficient is negative with a p-value of .10 and from there it quickly trends toward 0 and statistical insignificance. After year 10, the coefficient for Polity2 is positive, but is very imprecisely estimated.

While these regressions with lagged democracy provide evidence of a causal effect of democracy, it is important to bear in mind their limitation. For many countries the democracy scores during the period of our data do not change – for the lag $t - 5$, for example, Polity2 equals the lagged polity score for 44 percent of the surveys. This implies that a non-trivial amount of variation in these tests remains linked to cross-sectional differences. It is therefore important to pursue additional strategies in efforts to pin down a causal effect. To this end, we estimate two-stage least squares models using an instrument for democracy.

The instrument, “Regional Polity at Regime Inception” (RPRI), measures the average *regional* Polity2 score (using the regions defined in Haber and Menaldo 2011) at the time that the country’s regime began (using Polity2’s date for the beginning of the regime), but excluding the

country for which the measure is being calculated. For example, one of the surveys in the data set is from Finland in 2003. According to Polity2, the regime in place in Finland in 2003 began in 1944. The average Polity2 score for *all* countries (not just those countries in our sample) *except* Finland in Finland's region in 1944 is 4.25, which is the score assigned to Finland's 2003 survey for RPRI.¹⁷

The instrument is inspired by Knutsen (2011)¹⁸, who argues that regime change in countries often follows historically contingent geopolitical forces that are largely exogenous to national politics. Huntington (1991), for example, argues that democratization has tended to occur in historical waves. For each wave, there are geopolitical events that lead to democratization in groups of countries. These events include the revolutions in the US and France (wave 1) and the allied victory in WWII (wave 2). The third wave, Huntington argues, started in the mid-1970s in Spain and Portugal, and continued through the 1990s with the fall of the Soviet Union. Such geopolitical factors can directly lead to democratization, such as in Germany and Japan following the war or in many central European countries following the Soviet Union's demise in 1989. But contagion effects are also very important. At least since Starr's (1991) study, scholars have argued the democratization often works via diffusion in the international system, where regional neighbors copy each other, as may be going on currently in several countries in the Middle East region.

Reverse causation is obviously impossible with this instrument, as a country's democracy score today obviously cannot affect regional democracy scores in the past. And to the extent that the democracy score for a country at the time that its regime begins is affected by geopolitical events and regional contagion unrelated to regional concerns about between group inequality, it seems highly plausible that an instrument based on regional democracy at the time of regime choice satisfies the exclusion restriction. Even if the geopolitical events and regional contagions were not driven by concerns about between-group inequality, one might still be concerned that the exclusion restriction will be violated if regions share other unmeasured traits that affect their levels of between-group inequality at the time of regime choice. But this should not be particularly worrisome for two reasons. First, we have uncovered no evidence that BGI is correlated with any

¹⁷It is not possible to operationalize this instrument with any of the Freedom House scores because the Freedom House time series is too short.

¹⁸Knutsen's work in turn builds on Persson and Tabellini 2003, who instrument for institutions by using the date of regime creation.

democratization waves. It is difficult to argue, for example, that regional concerns in Europe about economic differences between groups were part of regime choice in Finland in 1944. Second, and more importantly, if there exist unmeasured regional traits that affect between-group inequality through channels other than democracy, the effects of such unmeasured traits will be captured by the regional indicator variables, which are included in both stages of the 2SLS estimations. We feel that there is a very strong case to be made, then, that the instrument based on the level regional democracy at the time of regime inception affects between-group economic differences only through the level of democracy.

Although RPRI is motivated by arguments in Knutsen (2011), his actual instrument is quite different than RPRI. Knutsen uses an indicator variable called "Wave" which is based on whether the country's regime began during one of Huntington's three waves of democratization. Here, since RPRI uses regional Polity2 averages at the time of regime inception, the instrument captures *regional* contagion.¹⁹ And by using the Polity2 regional averages, we not only have a more fine grained measure than a 0-1 indicator variable, we also avoid the need to arbitrarily define the year-based cut-points for the three waves.²⁰

The bivariate correlation between RPRI and Polity2 is fairly strong ($r = .50$). Further evidence of the strength of the instrument is found at the top of Table 10, which gives the results for RPRI from the first-stage regression models in the two-stage least-squares models. Although to conserve space the table presents the first-stage results for only RPRI, the first stage regressions of course include all other regressors as well, including the regional indicators. We estimate the 2SLS models using the same specifications as in Table 6 and using standard errors clustered by country. We see that across all six models, the coefficient for RPRI is precisely estimated and positive.

The second stage results indicate a negative effect of democracy on between-group inequality. Across all six models the coefficient on the instrument for Polity2 is negative. The coefficient is the least precisely estimated when low ELF countries are omitted and is most precisely estimated when only the DHS surveys are used. And the coefficient is large in size relative to other variables.

¹⁹A variable constructed to take the average value of world polity at the time of regime inception has a very weak correlation with Polity2 in our data.

²⁰To measure his "Wave" instrument, Knutsen defines the "inter-wave" periods as 1922-42, 1958-75, or after 1999, with all other years following a wave. When this variable is used in the analysis here, it produces precisely estimated and negative second-stage coefficients on Polity2, but the first stage estimates of his wave variable, though precisely estimated, have the wrong sign (with regimes beginning between Huntington's three waves having higher estimated Polity2 scores than those of regimes beginning during one of Huntington's waves).

It is even larger than ELF itself in five of six models. Together, then, the regressions with lags and the 2SLS models provide support for the argument that democracy reduces between-group inequality.

We also ran each of the six 2SLS regressions in Table 10 using the other measures of inequality – Gini, Within-group inequality, and overlap – as the dependent variable. As in the OLS models above, in each model, Polity2 is never remotely significant and it often has the wrong sign. Thus, the evidence here strongly suggests that any causal effect of democracy on inequality works through the effect of democracy on between-group inequality.

7 Conclusion

Using a new data set on between-group economic differences, we find a robust relationship between democracy and between-group inequality, but not between democracy and other types of inequality, including ER-polarization of ethnic groups, within-group inequality, "overlap" or the Gini. Moreover, the statistical analysis using a new instrument for democracy suggests this relationship could well be causal, with democracy lowering inequality between groups. Such a causal effect would be consistent with the argument that democracy encourages targeted group-based politics, with politicians seeking support from specific low-cost groups in an effort to build majorities that are not overly inclusive, as opposed to engaging in general "rich to poor" redistribution, which dilutes the value of redistribution for its recipients and which makes it more difficult for politicians to claim credit.

One implication of these findings concerns the possibility of a particular pathway by which democracy may affect public goods provision. Considerable research finds that democracies produce more public goods than non-democracies (e.g., Baum and Lake 2003 and Stasavage 2005) and a recent study finds that high levels of between-group inequality are associated with lower levels of public goods provision (Baldwin and Huber 2010). If democracy leads to lower levels of between-group inequality which in turn leads to higher levels of public goods, then democracy may influence public goods provision in part by encouraging targeted group-based politics. If true, then the benefits of democracy may be distributed quite unevenly among lower income individuals from different groups.

Table 10: 2SLS models regressing BGI on instrument (RPRI) for Democracy (Polity2)

	(25) All data	(26) All data	(27) Omit Afrobarometer	(28) Omit ELF<.2	(29) DHS & HES only	(30) DHS only
<i>First stage results for instrument only</i>						
RPRI	0.249* (0.058)	0.307** (0.037)	0.330** (0.032)	0.281* (0.071)	0.639** (0.012)	0.932*** (0.008)
<i>Second stage regression results</i>						
Polity2	-0.928* (0.093)	-0.612* (0.089)	-0.627* (0.071)	-0.760 (0.125)	-0.366* (0.076)	-0.329* (0.050)
ELF	0.496*** (0.004)	0.334** (0.016)	0.308** (0.038)	0.469** (0.016)	0.492** (0.023)	0.317 (0.145)
Gini	0.084 (0.600)	0.097 (0.440)	0.120 (0.357)	-0.028 (0.848)	0.044 (0.728)	-0.176 (0.190)
East Europe	-0.180 (0.573)	-0.256 (0.333)	-0.283 (0.315)	-0.139 (0.707)	-0.260 (0.390)	-0.623** (0.014)
Latin America	1.214** (0.014)	0.498 (0.174)	0.468 (0.203)	1.046** (0.043)	0.720* (0.075)	-0.399 (0.128)
Middle East	-0.909 (0.266)	-0.788 (0.150)	-0.863 (0.105)	0.152 (0.796)	-0.297 (0.503)	-1.479*** (0.000)
Neo-Europe	0.802 (0.240)	-0.240 (0.557)	-0.221 (0.622)	0.112 (0.885)	-0.584 (0.301)	
East Asia	0.061 (0.929)	0.029 (0.947)	-0.064 (0.885)	-0.636 (0.547)	0.417 (0.208)	-0.220 (0.479)
South Asia	-0.222 (0.537)	0.015 (0.949)	-0.045 (0.861)	-0.335 (0.623)	0.148 (0.569)	-0.290 (0.258)
Afrobarom	-0.540 (0.266)	-0.697* (0.080)		-0.795 (0.113)		
CSES	-0.530 (0.104)	-0.913*** (0.000)	-0.903*** (0.000)	-1.385*** (0.000)		
DHS	-0.586* (0.068)	-0.693* (0.083)	-0.691* (0.084)	-0.838 (0.138)	-0.751 (0.101)	
WVS	-0.806*** (0.003)	-1.026*** (0.000)	-1.022*** (0.000)	-1.329*** (0.000)		
CF		0.194* (0.063)	0.183 (0.103)	0.153 (0.182)	0.209* (0.098)	0.274*** (0.001)
Geo.Isol.		-0.187* (0.053)	-0.168 (0.125)	-0.104 (0.345)	-0.149 (0.403)	-0.256 (0.113)
(ln)GDP		0.460* (0.068)	0.433* (0.084)	0.439** (0.030)	0.402 (0.191)	1.150*** (0.000)
Resources		-0.273*** (0.006)	-0.265*** (0.007)	-0.287*** (0.001)	-0.238*** (0.005)	-0.433*** (0.000)
Constant	0.245 (0.533)	0.734* (0.059)	0.749* (0.055)	0.788 (0.138)	0.765* (0.069)	0.837*** (0.000)
R-squared	0.248	0.573	0.569	0.425	0.658	0.743
N	161	149	133	113	86	67
No. of countries	75	69	67	52	46	33

2SLS models with clustered standard errors (by country). P-values in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$

The analysis therefore highlights the importance of further theoretical and empirical research. How do political parties decide which groups to target? Does turnover in power influence which poor groups receive benefits? Are there other types of groups that also make logical targets for specific benefits. Are there ways to design democratic institutions to limit targeting incentives? More generally, we need to improve our understanding of the mechanisms by which targeting occurs. Politicians, for example, may skew the provision of public schools or roads or health care to particular groups, raising the standards of the poor within these groups while slightly increasing within-group inequality in other groups if middle income and poor voters bear a disproportionate burden in paying for such groups. Or politicians may target some groups with cultural policies while targeting others with economic benefits, with the effect of BGI reductions being offset by increases in general inequality, something that the middle class and poor who receive little economic benefits accept in return for the cultural policies. There are no doubt other pathways as well, and it is likely that such pathways differ across countries with different institutional arrangements or different number of groups. Thus, our understanding of both democratic politics and ethnic politics will benefit from further study of how group-based targeting operates across authoritarian governments and different forms of democratic ones.

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Appendix tables

Table 11: Countries and surveys used in data set

Country	Year	Survey type	Country	Year	Survey type
Albania	2005	HES (LSMS)	Kyrgyz Republic	1997	DHS
Armenia	1996	WVS	Latvia	1999	WVS
Armenia	2000	DHS	Lithuania	1997	CSES
Austria	2000	HES (LIS)	Macedonia	1999	WVS
Azerbaijan	1995	HES (ASLC)	Madagascar	2005	Afrobarometer
Azerbaijan	2006	DHS	Malawi	2000	DHS
Bangladesh	1997	DHS	Malawi	2003	Afrobarometer
Bangladesh	1999	WVS	Malawi	2004	DHS
Bangladesh	2000	DHS	Malawi	2005	Afrobarometer
Bangladesh	2004	DHS	Mali	1995	DHS
Bangladesh	2007	DHS	Mali	2001	DHS
Belarus	2001	CSES	Mali	2002	Afrobarometer
Belgium	1999	CSES	Mali	2005	Afrobarometer
Belgium	1999	WVS	Mali	2006	DHS
Benin	1996	DHS	Mexico	1997	CSES
Benin	2001	DHS	Mexico	1999	WVS
Benin	2005	Afrobarometer	Mexico	2000	CSES
Benin	2006	DHS	Mexico	2003	CSES
Bolivia	2002	HES (MECOVI)	Moldova	1999	WVS
Bolivia	2003	DHS	Moldova	2005	DHS
Brazil	1996	DHS	Mozambique	2002	Afrobarometer
Brazil	1996	WVS	Mozambique	2005	Afrobarometer
Brazil	2002	CSES	Netherlands	1999	WVS
Brazil	2002	HES (PNAD)	New Zealand	1996	CSES
Brazil	2006	HES (LIS)	New Zealand	1996	WVS
Bulgaria	1995	HES (HIS)	New Zealand	2002	CSES
Bulgaria	2001	CSES	Nicaragua	2001	HES (EMNV)
Burkina Faso	1998	DHS	Niger	1992	DHS
Burkina Faso	1998	HES (EP2)	Niger	1998	DHS
Burkina Faso	2003	DHS	Niger	2006	DHS
Cameroon	1998	DHS	Nigeria	1999	WVS
Cameroon	2004	DHS	Nigeria	2005	Afrobarometer
Canada	1997	CSES	Pakistan	1999	WVS
Canada	1997	HES (LIS)	Peru	2000	DHS
Canada	1999	WVS	Peru	2004	DHS
Canada	2001	HES (IPUMS)	Peru	2004	HES (LIS)
Can. Afr. Rep.	1994	DHS	Philippines	1993	DHS
Chad	1997	DHS	Philippines	1998	DHS
Chad	2004	DHS	Philippines	2003	DHS
Colombia	1996	WVS	Philippines	2008	DHS
Cote d'Ivoire	1988	HES (LSMS)	Romania	1996	CSES
Czech Republic	1996	CSES	Romania	1997	HES (LIS)
Dominican Republic	1996	WVS	Russia	1999	CSES
Egypt	1995	DHS	Russia	2000	CSES
Egypt	1999	WVS	Russia	2000	HES (LIS)
Egypt	2005	DHS	Senegal	1992	DHS
Egypt	2008	DHS	Senegal	2002	Afrobarometer
Estonia	1999	WVS	Senegal	2005	Afrobarometer
Estonia	2000	HES (LIS)	Senegal	2005	DHS
Ethiopia	2000	DHS	Singapore	1999	WVS
Ethiopia	2005	DHS	Slovenia	1996	CSES
Finland	2003	CSES	Spain	1996	CSES
Finland	2004	HES (LIS)	Spain	1999	WVS
Gabon	2000	DHS	Spain	2000	CSES
Georgia	1996	WVS	Spain	2004	CSES
Germany	1999	WVS	Sweden	2005	HES (LIS)
Germany	2004	HES (LIS)	Tajikistan	1996	HES (LSS)
Ghana	1993	DHS	Tanzania	1993	HES (HRDS)
Ghana	1998	DHS	Togo	1998	DHS
Ghana	2003	DHS	Turkey	1993	DHS
Ghana	2008	DHS	Uganda	1995	DHS
Guatemala	1995	DHS	Uganda	2005	Afrobarometer
Guatemala	1998	DHS	UK	2004	HES (LIS)
Guatemala	2000	HES (ENCOVI)	Ukraine	1998	CSES
Guatemala	2006	HES (LIS)	United States	1996	CSES
Guinea	1999	DHS	United States	1997	HES (LIS)
Guinea	2005	DHS	United States	1999	WVS
Guyana	2005	DHS	United States	2004	CSES
Hungary	2002	CSES	United States	2005	HES (IPUMS)
India	1999	WVS	Uruguay	1996	WVS
Ireland	1999	WVS	Uzbekistan	1996	DHS
Israel	1995	HES (IPUMS)	Venezuela	1999	WVS
Israel	2005	HES (LIS)	Vietnam	1997	DHS
Kazakhstan	1995	DHS	Vietnam	2002	DHS
Kazakhstan	1999	DHS	Vietnam	2005	DHS
Kenya	1993	DHS	Zambia	1996	DHS
Kenya	1998	DHS	Zambia	2001	DHS
Kenya	2003	Afrobarometer	Zambia	2003	Afrobarometer
Kenya	2003	DHS	Zambia	2005	Afrobarometer
Kenya	2005	Afrobarometer	Zambia	2007	DHS
Kenya	2008	DHS			

Table 12: OLS models regressing BGI on Democracy (FH Political Rights)

	All data	All data	Omit Afrobarometer	Omit ELF<.2	DHS & HES only	DHS only
	(A1)	(A2)	(A3)	(A4)	(A5)	(A6)
Political Rights	0.160** (0.034)	0.232*** (0.002)	0.204*** (0.004)	0.221** (0.012)	0.260*** (0.007)	0.214*** (0.009)
ELF	0.686*** (0.000)	0.391** (0.016)	0.363** (0.033)	0.571** (0.012)	0.566** (0.034)	0.423 (0.121)
Gini	-0.069 (0.596)	-0.016 (0.886)	0.005 (0.967)	-0.035 (0.821)	-0.049 (0.734)	-0.264* (0.060)
CF		0.196 (0.107)	0.187 (0.159)	0.198* (0.081)	0.182 (0.238)	0.259** (0.022)
Geo.Isol.		-0.199** (0.037)	-0.186* (0.072)	-0.123 (0.223)	-0.181 (0.351)	-0.234 (0.214)
(ln)GDP		0.254 (0.209)	0.209 (0.346)	0.489** (0.030)	0.386 (0.263)	1.080*** (0.000)
Resources		-0.182*** (0.000)	-0.166*** (0.001)	-0.232*** (0.000)	-0.211** (0.013)	-0.371*** (0.000)
East Europe	-0.157 (0.554)	-0.135 (0.603)	-0.152 (0.590)	0.010 (0.974)	-0.192 (0.584)	-0.448 (0.206)
Latin America	0.828** (0.028)	0.565* (0.095)	0.530 (0.119)	0.641 (0.110)	0.788* (0.080)	-0.276 (0.415)
Middle East	-0.098 (0.716)	-0.271 (0.309)	-0.289 (0.288)	-0.493 (0.270)	-0.201 (0.629)	-1.275** (0.017)
Neo-Europe	-0.039 (0.888)	-0.248 (0.520)	-0.244 (0.560)	-0.474 (0.351)	-0.607 (0.391)	
East Asia	0.554* (0.063)	0.292 (0.264)	0.224 (0.393)	0.555 (0.197)	0.573 (0.108)	0.008 (0.983)
South Asia	-0.239 (0.263)	-0.040 (0.846)	-0.100 (0.638)	-0.011 (0.971)	0.215 (0.489)	-0.212 (0.520)
Afrobarom	-1.109*** (0.001)	-0.889** (0.018)		-1.043** (0.013)		
CSES	-0.837*** (0.000)	-0.925*** (0.000)	-0.916*** (0.000)	-1.399*** (0.000)		
DHS	-0.555** (0.041)	-0.612* (0.064)	-0.603* (0.069)	-0.699* (0.065)	-0.732 (0.118)	
WVS	-0.905*** (0.000)	-0.982*** (0.000)	-0.973*** (0.000)	-1.443*** (0.000)		
Constant	0.518* (0.072)	0.637** (0.044)	0.647** (0.043)	0.852** (0.037)	0.730* (0.093)	0.780** (0.016)
R-squared	0.619	0.666	0.688	0.610	0.662	0.736
N	161	149	133	113	86	67

OLS models with clustered standard errors (by country). P-values in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 13: OLS models regressing BGI on Democracy (FH Civil Liberties)

	All data	All data	Omit Afrobarometer	Omit ELF<.2	DHS & HES only	DHS only
	(B1)	(B2)	(B3)	(B4)	(B5)	(B6)
Civil Liberties	0.133 (0.116)	0.218** (0.011)	0.213** (0.013)	0.189* (0.059)	0.265** (0.019)	0.278*** (0.002)
ELF	0.686*** (0.000)	0.371** (0.023)	0.347** (0.039)	0.537** (0.022)	0.562** (0.041)	0.401 (0.149)
Gini	-0.076 (0.564)	-0.020 (0.854)	-0.001 (0.992)	-0.020 (0.898)	-0.064 (0.633)	-0.272** (0.031)
CF		0.209* (0.078)	0.195 (0.129)	0.216* (0.054)	0.194 (0.185)	0.269** (0.015)
Geo.Isol.		-0.202** (0.045)	-0.184* (0.086)	-0.128 (0.245)	-0.155 (0.460)	-0.230 (0.245)
(ln)GDP		0.252 (0.236)	0.214 (0.351)	0.485** (0.039)	0.398 (0.271)	1.124*** (0.000)
Resources		-0.159*** (0.001)	-0.147*** (0.004)	-0.205*** (0.001)	-0.195** (0.028)	-0.368*** (0.000)
East Europe	-0.213 (0.446)	-0.232 (0.423)	-0.252 (0.411)	-0.063 (0.855)	-0.277 (0.462)	-0.570 (0.107)
Latin America	0.749** (0.045)	0.441 (0.212)	0.415 (0.240)	0.503 (0.221)	0.645 (0.158)	-0.457 (0.188)
Middle East	-0.089 (0.750)	-0.288 (0.330)	-0.341 (0.250)	-0.571 (0.246)	-0.275 (0.563)	-1.439*** (0.007)
Neo-Europe	-0.081 (0.778)	-0.280 (0.486)	-0.265 (0.537)	-0.516 (0.318)	-0.647 (0.366)	
East Asia	0.530* (0.087)	0.238 (0.390)	0.155 (0.572)	0.519 (0.290)	0.494 (0.190)	-0.125 (0.743)
South Asia	-0.302 (0.176)	-0.137 (0.515)	-0.201 (0.352)	0.046 (0.895)	0.045 (0.886)	-0.368 (0.225)
Afrobarom	-1.164*** (0.000)	-0.945** (0.015)		-1.072** (0.015)		
CSES	-0.867*** (0.000)	-0.957*** (0.000)	-0.948*** (0.000)	-1.406*** (0.000)		
DHS	-0.554** (0.047)	-0.611* (0.075)	-0.605* (0.079)	-0.668* (0.091)	-0.707 (0.152)	
WVS	-0.909*** (0.000)	-0.973*** (0.000)	-0.969*** (0.000)	-1.432*** (0.000)		
Constant	0.559* (0.059)	0.692** (0.039)	0.704** (0.037)	0.885** (0.038)	0.787* (0.086)	0.860*** (0.005)
R-squared	0.613	0.658	0.686	0.600	0.657	0.749
N	161	149	133	113	86	67

OLS models with clustered standard errors (by country). P-values in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 14: OLS models regressing ER-Polarization on Democracy (FH Civil Liberties)

	All data	All data	Omit Afrobarometer	Omit ELF<.2	DHS & HES only	DHS only
	(A7)	(A8)	(A9)	(A10)	(A11)	(A12)
Civil Liberties	0.079 (0.461)	0.159 (0.155)	0.157 (0.175)	0.090 (0.453)	0.234 (0.168)	0.184 (0.189)
EP	0.425*** (0.000)	0.379*** (0.000)	0.410*** (0.000)	0.297** (0.035)	0.555*** (0.000)	0.434*** (0.000)
Gini	0.093 (0.444)	0.052 (0.666)	0.046 (0.711)	0.094 (0.541)	-0.015 (0.929)	-0.284** (0.020)
CF		0.127 (0.120)	0.113 (0.188)	0.100 (0.347)	0.083 (0.520)	0.107 (0.226)
Geo.Isol.		-0.056 (0.614)	-0.050 (0.687)	0.073 (0.571)	-0.074 (0.707)	-0.125 (0.297)
(ln)GDP		0.103 (0.636)	0.105 (0.660)	0.294 (0.210)	0.264 (0.522)	1.047*** (0.000)
Resources		-0.112* (0.068)	-0.109* (0.087)	-0.128* (0.063)	-0.140 (0.230)	-0.307*** (0.000)
East Europe	0.199 (0.416)	0.353 (0.212)	0.332 (0.240)	0.512 (0.127)	0.052 (0.890)	-0.080 (0.752)
Latin America	0.987*** (0.004)	1.054** (0.022)	1.008** (0.029)	0.955* (0.072)	1.078* (0.093)	0.163 (0.693)
Middle East	0.126 (0.555)	0.227 (0.487)	0.216 (0.505)	0.034 (0.927)	-0.021 (0.969)	-1.150** (0.019)
Neo-Europe	0.485 (0.104)	0.484 (0.278)	0.453 (0.335)	0.075 (0.880)	-0.055 (0.948)	
East Asia	1.182*** (0.002)	1.268*** (0.001)	1.277*** (0.001)	1.547*** (0.000)	1.346*** (0.001)	0.821* (0.086)
South Asia	-0.018 (0.935)	0.100 (0.679)	0.085 (0.734)	0.401 (0.291)	-0.035 (0.919)	-0.398 (0.249)
Afrobarom	-0.844** (0.012)	-0.975** (0.043)		-1.267** (0.030)		
CSES	-1.180*** (0.000)	-1.364*** (0.000)	-1.372*** (0.000)	-2.016*** (0.000)		
DHS	-0.494 (0.145)	-0.730* (0.094)	-0.725* (0.097)	-0.890 (0.107)	-0.800 (0.199)	
WVS	-1.127*** (0.000)	-1.295*** (0.001)	-1.296*** (0.001)	-1.908*** (0.000)		
Constant	0.334 (0.289)	0.471 (0.237)	0.488 (0.221)	0.994* (0.059)	0.677 (0.244)	0.664** (0.035)
R-squared	0.585	0.609	0.607	0.639	0.638	0.691
N	161	149	133	113	86	67

OLS models with clustered standard errors (by country). P-values in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 15: OLS models regressing ER-Polarization on Democracy (FH Political Rights)

	All data	All data	Omit	Omit	DHS &	DHS
	(B7)	(B8)	Afrobarometer	ELF<.2	HES only	only
	(B7)	(B8)	(B9)	(B10)	(B11)	(B12)
Political Rights	0.070 (0.487)	0.145 (0.154)	0.141 (0.169)	0.080 (0.476)	0.217 (0.149)	0.148 (0.240)
EP	0.431*** (0.000)	0.389*** (0.000)	0.417*** (0.000)	0.303** (0.036)	0.560*** (0.000)	0.429*** (0.000)
Gini	0.096 (0.425)	0.058 (0.631)	0.051 (0.680)	0.096 (0.535)	-0.002 (0.991)	-0.280** (0.021)
CF		0.123 (0.148)	0.111 (0.209)	0.099 (0.360)	0.076 (0.560)	0.101 (0.255)
Geo.Isol.		-0.055 (0.617)	-0.052 (0.670)	0.074 (0.564)	-0.095 (0.628)	-0.137 (0.254)
(ln)GDP		0.091 (0.678)	0.097 (0.686)	0.289 (0.216)	0.247 (0.533)	1.024*** (0.000)
Resources		-0.121* (0.057)	-0.120* (0.070)	-0.135* (0.057)	-0.152 (0.184)	-0.312*** (0.000)
East Europe	0.226 (0.366)	0.414 (0.134)	0.393 (0.155)	0.541* (0.095)	0.128 (0.724)	-0.017 (0.947)
Latin America	1.010*** (0.005)	1.119** (0.018)	1.074** (0.024)	0.985* (0.060)	1.192* (0.070)	0.284 (0.533)
Middle East	0.145 (0.486)	0.263 (0.441)	0.255 (0.453)	0.057 (0.879)	0.063 (0.903)	-1.079** (0.026)
Neo-Europe	0.472 (0.119)	0.487 (0.277)	0.452 (0.338)	0.065 (0.897)	-0.028 (0.974)	
East Asia	1.208*** (0.001)	1.310*** (0.001)	1.321*** (0.001)	1.593*** (0.000)	1.426*** (0.000)	0.878* (0.072)
South Asia	0.017 (0.938)	0.159 (0.505)	0.149 (0.547)	0.392 (0.279)	0.112 (0.761)	-0.314 (0.373)
Afrobarom	-0.826** (0.015)	-0.940** (0.048)		-1.254** (0.029)		
CSES	-1.173*** (0.000)	-1.340*** (0.000)	-1.348*** (0.000)	-2.009*** (0.000)		
DHS	-0.493 (0.140)	-0.727* (0.086)	-0.722* (0.088)	-0.894* (0.098)	-0.818 (0.174)	
WVS	-1.128*** (0.000)	-1.295*** (0.001)	-1.295*** (0.001)	-1.907*** (0.000)		
Constant	0.323 (0.309)	0.436 (0.254)	0.453 (0.237)	0.983* (0.057)	0.626 (0.259)	0.617* (0.061)
R-squared	0.585	0.609	0.606	0.639	0.638	0.685
N	161	149	133	113	86	67

OLS models with clustered standard errors (by country). P-values in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$