

# Ethnicity or class? Identity choice and party systems\*

John D. Huber<sup>†</sup>

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## Abstract

This paper develops a theory when ethnic identity displaces “class” (i.e., income-based politics) in electoral politics. The theory emphasizes the role of inequality: when there are a large number of relatively low-income voters (and thus high inequality), class politics becomes less attractive to the lower income voters, who worry that a class-based coalition will dilute the value of winning because it will be too large. This invites ethnic politics, but only if there is a sufficiently high level of ethnic diversity to permit relatively small ethnically-based electoral coalitions. The theoretical model developing this argument considers electoral competition under different electoral laws and different ways of raising government revenues. In addition, the model provides intuitions about the formation of different types of political parties, the effect of democracy on redistribution, and the level of rents to party entrepreneurs. Empirical analysis examines the association between inequality, ethnic diversity and the extent to which political parties have a clear ethnic basis of support.

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<sup>†</sup>Professor, Department of Political Science, Columbia University, New York, NY 10027, [jdh39@columbia.edu](mailto:jdh39@columbia.edu).

# 1 Introduction.

There is considerable variation across countries in the degree to which ethnic identity becomes salient in electoral politics. In some countries, there is a high level of ethnic voting and party system ethnification whereas in other countries with similar levels of ethnic diversity there are much lower levels of ethnic voting and party system ethnification (e.g., Huber 2012). Understanding why ethnic identity becomes salient in elections is important, not the least because there is considerable evidence that when ethnic politics are prevalent, so are negative governance outcomes. In particular, ethnic politics has been linked to lower levels of public goods provisions (e.g., Alesina, Baqir and Easterly 1999, Miguel and Gugerty 2005), lower levels of economic development (e.g., Alesina and La Ferrara. 2005) and higher incidence of domestic violence (Wilkerson 2004) or civil conflict (Esteban, Mayoral and Ray 2012).

When ethnicity becomes important in electoral politics, it displaces other avenues for organizing electoral appeals. Perhaps the alternative that is most prevalent is “class” or income-based politics. In all societies, individuals have a level of economic well-being, or “class,” and politicians often appeal for votes by targeting particular income groups. Voters therefore often view their electoral choices through the lens of either class or ethnicity, which can create a tension for parties as they adopt campaign strategies. If parties make class-based appeals for votes, for example by emphasizing “rich-to-poor” redistribution, they will create electoral coalitions that divide members of the same ethnic group against themselves. And if they make successful ethnic-based appeals, parties will divide individuals with the same level of economic well-being, such as the poor from one ethnic group and the poor from another group. How does this tension get resolved? Why do voters and parties in some situations view politics more through the lens of class and in other situations view politics more through the lens of ethnic identity? The goal of this paper is to develop a theory addressing these questions.

The central argument developed below is that economic inequality and ethnic diversity interact to influence the importance of ethnic identity in electoral politics, and the underlying logic is related to voters’ incentives to belong to the smallest possible winning electoral coalitions. In the theoretical model, political parties form endogenously to compete for votes by representing a particular ethnic group or economic class. Since both ethnic and class identities are difficult to change,

identity-based appeals facilitate parties' efforts to communicate credible campaign messages about which individuals will be included and excluded from electoral coalitions. Voters in the model, for example, understand that a party of the poor will distribute government resources based on income. Voters therefore "choose" their class or ethnic identity at election time by deciding to support parties that make promises to economic or ethnic groups, and in so doing, voters seek to maximize their economic well-being, supporting ethnic parties if that leaves them better off than supporting class parties. In making this choice, voters want to belong to the smallest winning coalition possible because they want to share the spoils of government with as few others as possible.

Inequality and ethnic diversity are central to this dynamic because they determine the relative size of different electoral coalitions. High levels of inequality (where there are a large number of relatively poor individuals) make class-based parties *less attractive* to poor voters because class-based parties in such situations represent a large number of voters, and thus must spread government resources quite thinly in order to represent their constituents. High inequality therefore makes voters more open to ethnic appeals because ethnicity can provide a mechanism for forging relatively small electoral coalitions that exclude some segments of the poor from access to government resources. In countries like many in Africa, for example, class politics might be very difficult to sustain given that nearly everyone is poor, opening the door to ethnic politics, which allows the creation of smaller coalitions, and thus more resources for each member in the winning electoral coalition. But ethnic diversity shapes the strategic incentives associated with economic inequality. In ethnically homogenous societies (where the majority group is very large), ethnic appeals are obviously unconvincing to voters because a party representing a large ethnic group will have to spread the spoils of government very thinly. It is difficult, for example, to win as the party of white people in Norway! This opens the door to class appeals. The effect of inequality on identity politics thus depends on the level of ethnic diversity and *visa versa*.

Inequality and ethnic diversity have a straightforward effect in the model on the responsiveness of voters to class- or ethnic-based parties. It is much less clear, however, what types of party systems should form at different levels of inequality and ethnic diversity when we assume that party formation is costly and that it responds to the incentives created by levels of inequality and diversity. Suppose, for example, that inequality and ethnic diversity are low, so that a class party representing the poor could defeat any other class or ethnic party. Would this class-based

party actually form, and would any other party also form, knowing it would lose? And if no other party forms to confront the party of the poor, what creates incentives for this party to faithfully represent the poor?

In an effort to describe how party systems emerge from social structure, the model here emphasizes the interests of party entrepreneurs who pay the costs to form parties. In the model, such entrepreneurs are motivated both by rent-seeking and policy. The entrepreneurs of winning parties gain rents by keeping the portion of the government pie that they do not promise to voters. Thus, entrepreneurs of winning parties prefer to promise the smallest amount possible to voters in order to maximize the entrepreneurs' rents. Since rent-seeking incentives encourage winning entrepreneurs to offer as little as possible to voters, and since other party entrepreneurs are voters who also care about policy outcomes, some entrepreneurs will be willing to pay the cost of forming a losing party in order to keep the winning party honest – that is, in order to force the winning party to distribute as much as possible to the group the party represents, which benefits the entrepreneur of the losing party. With these assumptions about party entrepreneurs, the model can describe how economic inequality interacts with ethnic diversity to influence party formation, party strategies and the salience of ethnic and class identities in electoral politics.

The paper is organized as follows. The next section reviews related literature. I then describe in section 3 the general structure of the model. Section 4 examines the baseline model under the assumptions of exogenous revenues and plurality electoral laws, and section 5 examines the model under the assumptions of proportional electoral laws with exogenous revenues. I then consider the role of taxes and transfers in section 6. Section 7 examines empirically how ethnic voting behavior across countries is related to the interaction of economic inequality and ethnic diversity. The final section concludes by discussing the broader substantive implications of the model.

## **2 Related literature.**

It is widely accepted that ethnic identity is not strictly primordial, but rather is “constructed,” emerging, often instrumentally, from the social context. At the same time, ethnic categories into which individuals are born – such as race, language, ethnicity, tribe, caste, and in some cases reli-

gion – are intrinsically important because they provide a menu from which politicians can choose as they target voters for inclusion or exclusion in efforts to build winning electoral coalitions (e.g., Bates 1983, Chandra 2004, Horowitz 1985, Laitin 1998 and Posner 2005). Indeed, a central reason that targeting votes based on “ethnicity” can be attractive to voters and parties is that ethnicity often provides a clear marker that makes it possible to delineate unambiguously who is included and excluded from a governing coalition. This is true because individuals cannot decide that they belong to any ethnic group – they cannot decide, for instance, that they are dark skinned if they are light skinned. But individuals are often born with multiple group identities making it is important to understand why particular identities become salient while others do not. Some research therefore focuses on how politicians use ethnicity to target voters. Chandra (2004) emphasizes that ethnic parties are most likely to succeed in patronage-democracies when they have competitive rules for intra-party advancement and when the ethnic group they seek to mobilize is large enough to win. Other focus more explicitly on individual-level calculations that transcend the electoral context, such as Laitin (1998), who emphasizes the size of groups and the expectations that individuals have about the behavior of others.

Posner (2004, 2005) also focuses on the strategic choice of identity, describing ethnic electoral politics as a sort of “ethnic head count” where the challenge politicians face is to form a minimum winning coalition of ethnic groups. Parties strategically employ appeals to particular group identities, and voters invoke the particular identities that give them access to the highest levels of government resources. The model here builds on Posner’s idea that identity choice occurs instrumentally as individuals seek to become part of minimum winning electoral coalitions. But a key difference is the role played by economic class. Like most research in identity politics, Posner focuses on instrumental choices among possible “ethnic” identities, and thus does not consider the possibility that lower income individuals could band together to support parties that represent all the poor rather than parties that represent specific groups. The focus here on the trade-off between ethnic and class politics makes it possible to explore why any ethnic markers become salient in electoral competition in the first place, and to introduce the importance of inequality in shaping the salience of ethnic politics. Similarly, the vast literature on class-based redistribution politics and inequality typically either does not consider the possible disruptive effects of ethnic appeals (e.g., Iversen and Soskice 2006, Lupu and Pontusson 2011) or assumes that ethnic politics are ex-

ogenously determined and are disruptive to class-based redistribution when present (e.g., Alesina and Glaser 2003). By examining how identity choice emerges endogenously, it is possible to gain new insights into the limits and possibilities of class-based redistributive politics, and thus into the circumstances under which ethnic politics emerges in the first place.

The model here is also related to previous political economy models of elections. A number of recent models bring group politics into the analysis by studying the possibility that parties can compete for votes on dimensions unrelated to class. Shayo (2009), for example, explicitly models whether individuals identify with their class or their nationality. Thus, like in the model here, individuals have multiple identities that they can tap at election time, one of which is class (they are rich or poor). But for Shayo, the other identity is not an ethnic group on which individuals can differ, but rather is a single national identity to which all individuals can adhere. Thus, “identity politics” in Shayo does not create a basis for exclusion of particular groups (as it does here) and is not driven exclusively by individual interest in material gain (as it is here). Instead, his model focuses on the fact that national identity is something like a second dimension (as in Romer 1998), the importance of which is influenced by exogenous factors. Nationalist identity can distract the poor from their economic self-interest, leading to lower levels of redistribution. Similarly, Penn (2008) examines how the institutional context affects whether voters will identify with their ethnic group rather than with their national identity, using a framework where voters choose identity instrumentally to maximize well-being, and where voters have an intrinsic attachment to their group. In contrast to these models, voters in the theory developed here have no intrinsic attachments to any group or nationality, but rather use group markers strategically to maximize economic well-being. This is not to argue that group-based attachments are unimportant. Instead, the goal is to explore whether the assumption of such in-group biases is necessary to observe group-based behavior, and to provide intuitions about why such biases might arise in the first place.

The model here also shares much in common with existing models of electoral competition that examine how class coalitions can be disrupted by offering subsets of the poor an opportunity to form coalitions with the rich.<sup>1</sup> Most closely related is Fernández and Levy (2008), who model elections under plurality rule where individuals are either rich or poor, and where (only) the poor

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<sup>1</sup>Examples include Levy 2005, Austen-Smith and Wallerstein 2005, Huber and Stanig 2011, and Huber and Ting 2013.

can have a group identity as well (i.e., the poor can have particular preferences for a group-specific good). Fernández and Levy's general focus, however, is on how the diversity of group interests among the poor affects the propensity for class politics to emerge. Their model suggests that ethnic diversity has a non-monotonic effect on the amount of general (rich to poor) redistribution that occurs, with increases in diversity diminishing redistribution at low levels of diversity and increasing redistribution at high levels of diversity. The model here, by allowing rich and poor to have a shared ethnic identity, explicitly focuses on the tension that can exist between group-based and class-based electoral politics. So doing makes it possible to describe how ethnic diversity and economic inequality interact to influence identity choice and the nature of party systems.

### **3 The model, inequality and ethnic diversity.**

#### **3.1 Identity in electoral campaigns.**

I examine a distributive politics model where parties make commitments about how an exogenous government resource,  $\pi > 0$ , should be distributed to voters, and where voters vote so as to maximize their share of  $\pi$ . While the distributive framework is highly intuitive for thinking about how democratic elections operate – parties make promises about who they will support and voters vote to maximize their well-being based on these party promises – it is well-understood that when one assumes that voters are atomistic, identical and interchangeable, for any distribution of  $\pi$  across voters, there exists some other distribution that is preferred by a majority. Thus, there are no clear predictions about winning party strategies, much less about party formation. Scholars who invoke this framework thus typically assume that the set of parties is exogenous and focus on complicated mixed strategies by parties (e.g., Myerson 1993 and Laslier and Picard 2002).

It is difficult to draw clear inferences about party and voting behavior from distributive models with atomistic voters where equilibria rely on complicated mixed strategies. A party strategy with atomistic voters, for example, typically involves distributing  $\pi$  equally to the members of a particular majority of a specific size, where the particular majority is randomly drawn from the set of all majorities of this size. But how would a party ever communicate such a strategy to voters? And if voters are identical and interchangeable, why should voters trust that parties will honor any commitments they are able to make to specific individuals? After all, a voter knows that a party

could replace one voter in a winning coalition with another at virtually no cost. And how do we think about the implementation of winning policies, where parties give resources to an arbitrary winning majority?

Group-based or “identity” politics – where parties form to target specific groups rather than specific individuals – helps parties and voters address these sorts of issues. Suppose that individuals belong to identifiable groups and that parties can appeal for votes by making promises to entire groups, rather than to specific individuals. This creates a clear means for communicating campaign strategies to voters, as parties merely need to make it known which groups they represent. And it helps with the credibility problem parties can face when they appeal to voters atomistically – voters know that if parties renege on a promise to a group, they will lose the confidence of the entire group, something quite different than renegeing on a specific individual. Group politics also helps with implementation, as policies can focus on large groups rather than specific individuals.

For a particular group identity to be useful in electoral politics, it must be straightforward to include and exclude individuals from group membership. Thus, it must be relatively easy to identify which individuals belong to which groups, and it must be very difficult for individuals to select into particular groups. A “green shirt group,” for example, could never be useful in group-based politics because if the “green shirt party” were to win, it would be straightforward for individuals to put on a green shirt and claim membership in the group. Since identifiability and excludability are keys to group-based politics, ethnicity and class both attractive means for pursuing group-based strategies. In many contexts, it is relatively straightforward to identify the composition of ethnic groups, and it is very difficult for one to change his or her ethnic identity. And though individual incomes certainly can change, one’s economic well-being is usually fairly stable; the distribution of wealth and society is generally fairly well-understood, as are the strategies governments can use for targeting individuals based on their incomes. Parties therefore often seek the support of particular ethnic or economic groups. Of course, this strategy also ties a party’s hands because a party cannot cherry-pick individuals within a group if the group-based strategy is to be credible. And if individuals have multiple identities – such as a class and ethnic identity – party entrepreneurs can face a strategic dilemma regarding the best strategy for seeking votes and influencing outcomes.

The model here therefore assumes that party entrepreneurs must use group identity to make credible campaign promises. Parties representing groups cannot exclude particular individuals from



within groups: they cannot appeal to subsets of an economic class (e.g., to some of the poor) or to subsets of an ethnic group. The assumption that parties cannot appeal to class-based segments of ethnic groups not only has a logic tied to the challenges I have just described that are associated with appeals to atomistic individuals. It is also consistent with existing descriptive research on how ethnic parties appeal for votes. This research does not find that such appeals target particular economic segments within subgroups (e.g., Chanda 2009, Gadjnova 2013). Indeed, the purpose of such parties is to avoid such appeals by seeking votes based solely on ethnic identity.

### 3.2 A general sketch of the model and its link to inequality and ethnic diversity.

The goal is to develop a model of group-based electoral competition that can shed light both on identity choice and the logic of party formation. In the model, voters are either rich or poor (their “class” identity) , and they belong to either the majority or the minority ethnic group (their ethnic identity). Party entrepreneurs are voters who can pay a cost to form a party representing a class (e.g., a party of the rich or a party of the poor) or an ethnic group (e.g., a party of the majority group or a party of the minority group). If they pay this cost, they make credible campaign promises about how government resources will be distributed to the individuals they represent. The entrepreneur for the party of the poor, for example, makes a promise regarding how much each poor person will receive from the government if the party of the poor wins. The winning party distributes the promised government resources to the members of the group the party represents, and the entrepreneur keeps any residual that is not distributed. An individual chooses “class identity” if she supports a class party, and “class politics” prevails if victory by a class-based party ensures that government resources are distributed based on income. An individual chooses “ethnic identity” if she supports an ethnic party and “ethnic politics” prevails if victory by ethnic-based party ensures that government resources are distributed based on ethnic identity.

Formally, consider a population  $n$  of measure 1. Let  $A$  denote the majority group, which has a size of  $n_A$ , and let  $B$  denote the minority group, which has a size of  $n_B$ , so that  $n_A + n_B = n$  and  $n_A > n_B$ . Individuals are rich (R) or poor (P).<sup>2</sup> Let  $n_P$  denote the number of poor individuals in society and  $n_R$  denote the number of rich individuals. The poor are a majority, with  $n_P > n_R$  and

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<sup>2</sup>Esteban and Ray 2011, Fernández and Levy 2008 and Huber and Ting 2013 are recent examples of models that classify voters as rich or poor.

$n_R + n_P = n$ . The number of individuals in ethnic group  $j$  and class  $k$  is denoted by  $n_{jk}$  and the set of individuals in ethnic group  $j$  and class  $k$  is denoted by  $j_k$  (so, for example,  $n_{AR}$  is the number of individuals in group  $A$  who are rich and  $A_R$  denotes this set of individuals). Thus, individuals belong to one of four subgroups:  $A_P$ ,  $A_R$ ,  $B_P$  and  $B_R$ . Since  $n_{AR} = n_A - n_{AP}$ ,  $n_{BP} = n_P - n_{AP}$  and  $n_{BR} = 1 - n_P - (n_A - n_{AP})$ , the structure of the population is defined by three parameters:  $n_A$ ,  $n_P$  and  $n_{AP}$ . I ignore the substantively uninteresting case where any subgroup has a majority (which means that  $n_{AP} < \frac{1}{2}$ ). In large electorates, the probability that the groups or subgroups are identical in size obviously goes to zero. It therefore simplifies the analysis to eliminate substantively uninteresting ties by assuming that no subgroups or groups are exactly the same size: i.e., for any  $r, s \in M = \{A, B, P, R\}$ ,  $n_r \neq n_s$ , and for any  $r, s, w, u \in M$ ,  $n_{rs} \neq n_{wu}$  and  $n_{rs} \neq n_u$ .

Before transfers or government action occurs, there is a fixed level of income in society, with the rich holding some fraction of income and the poor holding the rest. As a consequence, as the number of poor increases (and thus the number of rich decreases), inequality increases. Indeed, with this assumption that the rich and poor each control a fixed level of income, the Gini coefficient can be written strictly as a function of  $n_P$ . As an illustration, consider the case where the total income in society is  $Y = 1$ . Assume that the rich have one-half of the total income (so that the rich share is  $Y^R = \frac{Y}{2}$ ) and the poor have the other half (so that the poor share is  $Y^P = Y^R = \frac{Y}{2}$ ). The poor share  $Y^P$  equally and the rich do the same, so there are only two levels of income in society (before government action occurs). Let  $y^P$  (alternatively,  $y^R$ ) be the income of a poor (rich) individual. Then  $y^P = \frac{1}{2n_P}$  (and  $y^R = \frac{1}{2n_R}$ ). Given that  $n_P > n_R$ ,  $y_P < y_R$ . It is straightforward to show that with this assumption about pre-existing income, the Gini coefficient of inequality can be written as

$$\begin{aligned} G &= n_P - Y^P \\ &= n_P - \frac{1}{2}. \end{aligned}$$

Thus, in the model,  $G$  increases as  $n_P$  increases.

The parameters also define standard measures of ethnic diversity like ELF, a measure of ethnolinguistic fractionalization, and EP, a measure of ethnic polarization (Reynol Querol 2002). These measures are essentially identical when there are only two groups, and both are increasing as  $n_A$  decreases.

I begin by assuming that parties compete for votes by offering platforms that describe how exogenous government revenues,  $\pi > 0$ , will be distributed to voters. This assumption not only makes the model simple to analyze, it also captures a reality in many democracies in the developing world, where direct taxes on income or wealth represent a small proportion of government revenues. Instead, revenues often come from “exogenous” sources, such as natural resources, foreign aid, sales from state-owned farms or industries, or taxes on imports or exports. Of course, income taxes can also be important sources of revenue, and below I consider an extension of the model where government revenues come from an income tax on the rich.

Since parties can form to represent a class or a group, there are at most four parties that can form:  $P_P$  (representing the poor);  $P_R$  (representing the rich);  $P_A$  (representing the majority group  $A$ ); and  $P_B$  (representing the minority group  $B$ ). Each party therefore represents two subgroups –  $P_A$ , for example, represents subgroups  $A_P$  and  $A_R$ .

As in Feddersen, Sened and Wright (1990), party formation occurs in two stages. First, in the party entry stage, voters can nominate themselves to become a party entrepreneur for a group to which they belong. A poor voter, for example, can nominate herself to become the party entrepreneur for a party that represents the poor. From the set of individuals who self-nominate, one is randomly chosen to lead the party. This entrepreneur is obligated to pay a cost  $\delta > 0$  (which can be arbitrarily small) to form the party representing her group. Since members of a subgroup are identical, I will treat them as a single actor in the party formation strategy. Each ethnicity-class subgroup,  $jk$ , is represented by two potential parties, so voters make party formation decisions about two different parties. The poor in  $A$  (subgroup  $A_P$ ), for example, must decide about forming  $P_A$  and  $P_P$ . For all  $j, k = m$ , let  $e_{jk}^m = \{0, 1\}$  be the formation strategy of subgroup  $jk$  regarding party  $P_m$ , where 0 denotes that members of the subgroup  $jk$  will not pay  $\delta$  to form  $P_m$  and 1 denotes that these member will pay  $\delta$  to form the party. For example,  $e_{AP}^A = 1$  denotes that members of  $A_P$  will pay  $\delta$  to form  $P_A$  and  $e_{AR}^A = 0$  denotes that members of  $A_R$  will not pay  $\delta$  to form  $P_A$ . Let  $e^m = \max(e_{jk}^m)$  for all  $j = m$  and  $k = m$ , so that  $e^m = 1$  if any voter represented by  $P_m$  is willing to pay  $\delta$  to form  $P_m$ . Then the vector  $\mathbf{e} = (e^A, e^B, e^P, e^R)$  defines the parties that form. If voters from two subgroups seek to form the same party – for example if members of  $A_R$  and  $A_P$  seek to form  $P_A$  – then one is randomly chosen to be the party’s entrepreneur. Below I show that this assumption about random selection has no substantive implications because the entrepreneur

for a given party always has the same incentives, and thus adopts the same platform, regardless of from which subgroup the entrepreneur is selected.

In the second stage, party entrepreneurs, having observed which parties have formed, adopt platforms. Party  $P_m$ 's platform is  $p_m > 0$ , and it describes the amount of  $\pi$  that will be paid to each individual the party represents if the party wins. If an entrepreneur pays  $\delta$  to form  $P_A$ , for example, then  $p_A$  describes how much each member of  $A$  will receive if  $P_A$  wins. Let  $\mathbf{p}(E) = (p_A, p_B, p_P, p_R)$  be the vector of party platforms given party formation decisions represented by  $\mathbf{e}$ . If  $e^m = 0$  then  $p_m = 0$ . Where it creates no confusion, I will refer to the set of party platforms from which voters choose simply as  $\mathbf{p}$ .<sup>3</sup>

If a party representing  $m$  ultimately adopts  $p_m = x$  and  $P_m$  wins, then each voter in  $m$  – no matter how they vote – receives  $x$ . Parties therefore cannot discriminate against particular members of the group they represent, but instead must treat all group members the same. This implies that the maximum platform for a party representing group  $m$  is  $\frac{\pi}{n_m}$ , which occurs if the party entrepreneur proposes to distribute the entire  $\pi$  to the group her party represents. The amount that parties can “pay” for votes therefore varies with the size of the group the party represents.

### 3.3 Agent utility functions.

After a party system forms and voting takes place, a voter receives the amount promised to his or her group in the platform of the winning party. Thus a voter receives the promised amount if the voter belongs to one of the two subgroups that the winning party represents and receives zero otherwise. Formally, let  $p_m^*(\mathbf{p})$  be the platform of the winning party,  $P_m$ , which represents individuals from group or class  $m$ , and let  $u_{jk}(p_m^*)$  be the quasi-linear utility of a voter of ethnic group  $j$  and class  $k$  given  $p_m^*$ . Then

$$u_{jk}(p_m^*) = \begin{cases} 0 & \text{if } j \neq m \text{ and } k \neq m \\ p_m^* & \text{if } j = m \text{ or } k = m. \end{cases}$$

The utility function of party entrepreneurs has three components. First, as noted above, an

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<sup>3</sup>As will be obvious below, without two stages, there can be no pure strategy equilibrium. In one stage where parties adopt platforms at the same time they enter, no party would wish to pay the cost of entry and lose (because they would have received the same outcome from not forming). But the winning party would wish to adopt the smallest platform possible, making it non-optimal for no other party to have formed.

entrepreneur pays a cost  $\delta > 0$  of offering a platform. Although the cost can be arbitrarily small, its presence ensures that parties will not form unless there is some benefit of doing so. Second, entrepreneurs can obtain personal rents from forming parties and winning control of the government. Specifically, if the entrepreneur offers the winning platform, she keeps any government resources that are not distributed to voters after honoring the platform. This residual for the entrepreneur of the winning party,  $P_m$ , is  $r_m = \pi - (p_m * n_m)$ , which we can think of as the political rents that accrue to party entrepreneurs. Politicians therefore have an incentive to offer the smallest possible winning platform so as to maximize the rents they receive. Finally, party entrepreneurs are voters and thus receive the policy utility resulting from the winning platform.

Let  $p^*(\mathbf{p})$  be the winning platform given party system  $\mathbf{p}$  and equilibrium voting strategies. Suppose a voter from subgroup  $jk$  has proposed to pay the cost of party formation and has been selected to be  $P_M$ 's entrepreneur. The utility for this entrepreneur is given by:

$$u_{jk}^m(p^*(\mathbf{p})) = \begin{cases} u_{jk}(p^*(\mathbf{p})) - \delta & \text{if } P_m \text{ loses (i.e., if } p_m \neq p^*(\mathbf{p})) \\ u_{jk}(p^*(\mathbf{p})) + r_m - \delta & \text{if } P_m \text{ wins (i.e., if } p_m = p^*(\mathbf{p})). \end{cases} \quad (1)$$

### 3.4 Equilibrium behavior.

Given a party system,  $\mathbf{p}$ , voters will choose the party that results in the highest payoff. Voters from each subgroup are identical and vote in the same way. Voters in subgroup  $jk$  can be represented only by one of two parties. Let these parties be  $P_m$  and  $P_{m'}$  and let  $v_{jk} = P_m$  denote that subgroup  $jk$  supports  $P_m$ . Define  $\mathbf{v}_{-jk}(\mathbf{p})$  as the vector of voting strategies for the three subgroups other than  $jk$  given the party system  $\mathbf{p}$ . Define  $p^*(v_{jk} = P_m | \mathbf{v}_{-jk}(\mathbf{p}))$  as the winning platform that results for party system  $\mathbf{p}$  if subgroup  $jk$  supports  $P_m$  and other subgroups have voted as specified in  $\mathbf{v}_{-jk}(\mathbf{p})$ . A Nash equilibrium voting strategy for subgroup  $jk$  is given by:

$$v_{jk}^*(\mathbf{p}) = \begin{cases} \emptyset & \text{if } p_m = p_{m'} = 0 \\ P_m & \text{if } p_m > 0 \text{ and } p_{m'} = 0 \\ P_m & \text{if } u_{jk}[p^*(v_{jk} = P_m | \mathbf{v}_{-jk}(\mathbf{p}))] > u_{jk}[p^*(v_{jk} = P_{m'} | \mathbf{v}_{-jk}(\mathbf{p}))] \\ P_m & \text{if } u_{jk}[p^*(v_{jk} = P_m | \mathbf{v}_{-jk}(\mathbf{p}))] = u_{jk}[p^*(v_{jk} = P_{m'} | \mathbf{v}_{-jk}(\mathbf{p}))] \text{ and } r_m > r_{m'}. \end{cases} \quad (2)$$

A Nash equilibrium at the voting stage exists if the vote choice of all subgroups satisfies equation 2.

Equation 2 states that if no party represents a voter, the voter abstains. If there is only one party that represents the voter, the voter plays the weakly dominant strategy, which is to support this party. Finally, there may be both a class and ethnic party that represent a voter. In this case, the voter chooses the party that yields the highest expected utility given the strategies of other voters. If a voter is indifferent between his class- and ethnic-based parties, the voter supports the party whose entrepreneur has the largest surplus (i.e., who has the largest  $r_m$ ). This tie-breaking rule makes it possible to avoid requiring party entrepreneurs to choose platforms that maximize on an open set. Suppose, for example, that a voter is pivotal in choosing between  $P_j$  and  $P_k$  and that  $p_j = p_k$ . By assumption,  $n_j \neq n_k$ , so assume  $n_j < n_k$ . This implies that it is always possible for  $P_j$  to offer more to its voters. If  $P_k$  proposes to distribute all of  $\pi$  to voters, for example, its platform is  $\frac{\pi}{n_k}$ . But then since  $n_j < n_k$ ,  $P_j$  could propose  $\frac{\pi+\epsilon}{n_k}$  and win against the larger group. Of course, as  $\epsilon \rightarrow 0$ ,  $\frac{\pi+\epsilon}{n_k}$  converges to  $\frac{\pi}{n_k}$ . The tie-breaking assumption rules out the need to make such “ $\epsilon$ ” proposals.

A Nash equilibrium exists in party strategies if members of each subgroup make optimal entry and platform decisions. Consider the platform stage. Let  $\bar{p}_m(\mathbf{e})$  be a platform for  $P_m$  conditional on the vector of entry strategies, and let  $\bar{\mathbf{p}}_{-m}(\mathbf{e})$  be the vector of platforms for parties other than  $P_m$ . Together,  $\bar{p}_m(\mathbf{e})$  and  $\bar{\mathbf{p}}_{-m}(\mathbf{e})$  define a party system,  $(\bar{p}_m(\mathbf{e}), \bar{\mathbf{p}}_{-m}(\mathbf{e}))$ . Voters will choose optimally given this party system, producing the outcome  $p^*(\bar{p}_m(\mathbf{e}), \bar{\mathbf{p}}_{-m}(\mathbf{e}))$ , and yielding for  $P_m$ 's entrepreneur the utility defined in Eq. 1, which we can label  $u_m(p^*(\bar{p}_m(\mathbf{e}), \bar{\mathbf{p}}_{-m}(\mathbf{e})))$ . Suppose  $P_m$ 's entrepreneur is from  $jk$ . Then  $\bar{p}_m$  is optimal if:

$$u_{jk}^m(p^*(\bar{p}_m(\mathbf{e}), \bar{\mathbf{p}}_{-m}(\mathbf{e}))) \geq u_{jk}^m(p^*(\tilde{p}_m(\mathbf{e}), \bar{\mathbf{p}}_{-m}(\mathbf{e}))) \text{ for all } \tilde{p}_m \neq \bar{p}_m. \quad (3)$$

A Nash equilibrium exists in the platform stage if eq. 3 is satisfied for all entrepreneurs who have entered. One problem that could arise for party entrepreneurs who generate expectations about outcomes based on voting equilibria is that there could in principle exist multiple Nash equilibria in the voting stage. One could make further assumptions about equilibrium selection in such cases, but as will become clear below, this is not a problem in practice because the possibility of multiple

Nash equilibria in voting never arises.

Next consider party entry. Let  $e_{jk}^m$  be a party formation strategy for a subgroup  $jk$  that can form  $P_m$  (because  $j = m$  or  $k = m$ ) and let  $\mathbf{e}_{-m}$  be the vector describing which parties other than  $P_m$  have formed. Then the vector of party formation strategies is given by  $(e_{jk}^m, \mathbf{e}_{-m})$ , which will trigger the equilibrium updated platforms and thus a policy outcome defined by  $p^*(\mathbf{p}(e_{jk}^m, \mathbf{e}_{-m}))$ . Subgroup  $jk$  will pay  $\delta$  to enter if

$$u_{jk}^m(p^*(\mathbf{p}(e_{jk}^m = 1, \mathbf{e}_{-m}))) \geq u_{jk}(p^*(\mathbf{p}(e_{jk}^m = 0, \mathbf{e}_{-m}))) \quad (4)$$

Each subgroup, then, must decide whether to pay the cost of entry given the entry strategies of other parties, and given the resulting platforms and voting outcomes from each vector of entry strategies. A Nash equilibrium exists in the initial platform stage if eq. 4 is satisfied for all subgroup party formation decisions. That is, holding the party formation strategy of all other parties constant, members of each subgroup, for each party they can form can form, choose optimally, understanding that the other party entrepreneurs choose their platforms optimally given party formation decisions, and that voters choose optimally given the party system. I will focus on pure strategy Nash equilibria.

## 4 Analysis of the plurality rule case.

I begin the analysis by describing why there can only be two-party equilibria in the plurality rule case.

**Lemma 1** *If a pure strategy equilibrium exists under plurality rule, there will be two (and only two) parties that form.*

**Proof.** *There can exist no one-party equilibria.* Suppose  $P_m$  is the only party to form. Then the rent-seeking incentives of  $P_m$ 's entrepreneur require that  $P_m$  offer the smallest possible platform, say  $p_m = \epsilon$ . But given  $p_m$  approaches zero, it cannot have been an equilibrium for no other party to have entered. In particular, there is at least one potential party that represents a subgroup represented by  $P_m$ . Call this party  $P_{m'}$  and this subgroup  $jk$ . Then if a voter from  $jk$  forms  $P_{m'}$ ,

it can offer a larger platform, either winning or forcing  $p_m \geq p_{m'}$ . Given  $\delta$  is arbitrarily small, the entrepreneur for  $P_{m'}$  prefers entering because it increases the policy payoff she receives, Thus, there can be no one-party equilibrium.

*There cannot be more than two parties in any equilibrium.* A potential entrepreneur will pay the cost of entry only if either (a) she is going to win, or (b) she is going to lose, but by entering obtains a better payoff from the platform of the winning party than she would if she did not enter. Suppose there are three or more parties that have formed. From the definition of voting strategies in eq. 2 and the assumption about no ties in group size, there will be a unique winner for any vector of platforms. Let  $p_1$  be the platform of the winning party,  $P_1$ . A potential entrepreneur for another party will pay the cost of entry only if the entrepreneur is represented by  $P_1$  and if  $p_1$  is larger if the potential entrepreneur enters. But given the rent-seeking incentives of entrepreneurs, the optimal platform by  $P_1$  will be the smallest platform that wins, and this can be influenced by only one other platform, which means that it cannot be optimal for more than one other party to form. ■

Next, lemma 2 shows that since the parties care about both rents and policy outcomes, the platforms of the two parties will be independent of which subgroup is a party's entrepreneur. The rents from winning drive party entrepreneurs of winners to adopt the smallest possible proposal and the policy utility from platforms drives party entrepreneurs for losing parties to adopt the largest possible platform.

**Lemma 2** *For any party, the optimal platform in a pure strategy equilibrium will be the same regardless of from which subgroup the entrepreneur is chosen.*

**Proof.** From lemma 1, there can only be two parties. With two parties, one will always win because it represents a smaller majority. Thus, its entrepreneur, regardless of the subgroup it represents, has an incentive to offer the smallest winning platform. The losing party can form for only one reason: its entrepreneur is from a subgroup that is also represented by the winning party and thus it will receive a policy payoff based on the winners platform. Any entrepreneur for this party has an incentive to offer the largest platform possible so as to force the largest possible platform by the winning party. This "largest" possible platform is constrained only by the size of the group the party represents, and so will be independent of the party entrepreneur's identity. ■



Since there are only two parties in any equilibrium, there must be one party that has a clear advantage because it represents a smaller majority. This fact makes it possible to clearly define the optimal party platforms in any equilibrium.

**Lemma 3** *Consider a two-party system where  $P_m$  and  $P_{m'}$  both form and  $n_m < n_{m'}$ . If there exists a pure strategy equilibrium, then it must be true that:*

- (i) *There exists one subgroup that is represented by both parties; and*
- (ii)  *$p_m = p_{m'} = \frac{\pi}{n_{m'}}$  and  $P_m$  wins.*

**Proof.**

(i) If this were not true, then there would be one party representing the majority of one identity (either group or class) and another party representing the minority for this same identity. The party representing the majority party would win for any platforms by the two parties, and thus the net benefit for any entrepreneur for the minority party would be  $-\delta$ , implying it could not have been an equilibrium for this party to form.

(ii) In equilibrium,  $p_m = p_{m'} = \frac{\pi}{n_{m'}}$  and  $P_m$  wins. For any  $p_m \geq p_{m'}$ ,  $P_m$  will win. Since  $n_m < n_{m'}$ ,  $P_m$  can always propose  $p_m \geq p_{m'}$ . Thus, there can be no equilibrium where  $p_m < p_{m'}$  (because  $P_m$ 's entrepreneur would prefer to offer  $p_m = p_{m'}$  and win), and there can be no equilibrium where  $p_m > p_{m'}$  (because  $P_m$ 's entrepreneur prefer the smallest winning platform possible so as to maximize her rents,  $r_m$ ). Since  $p_m = p_{m'}$  in any equilibrium, it must be true that  $p_m = p_{m'} = \frac{\pi}{n_{m'}}$  because for any platform  $p_m < \frac{\pi}{n_{m'}}$ , the entrepreneur for  $P_{m'}$  could offer a platform  $p_{m'} > p_m$  and win. ■

Lemma 3 indicates that if there exists a pure strategy equilibrium, it will be unique. There can be no pure strategy equilibrium where the two parties do not promise the same amount to their constituents: if the losing party offers less than the winning party, the winning party's entrepreneur would have preferred to offer something smaller to extract more rents. It also cannot be an equilibrium for both parties to offer anything less than the maximum platform that could be offered by the party representing the larger group. If any party offers something less than this platform, the other party's entrepreneur would have preferred offered something more so it could win.

Why does the losing party pay the costs to form? Party entrepreneur's care both about

rents and policy outcomes. The losing party's entrepreneur cares directly about the winning party's platform because the entrepreneur must belong to a group represented by the winning party. The benefit for the losing party's entrepreneur from entering, then, is that so doing affects the platform of the winner, which is why this party's entrepreneur proposes to distribute the entire platform to voters. If party entrepreneurs cared only about rents from winning, the entrepreneur for the losing party would never have an incentive to form. But rents are crucial as well. Since party entrepreneurs care about rents from winning, they want to offer the smallest winning platform possible. Thus, the losing party must form to force the winning party to pay as much as possible to the voters its represents

Which two parties can form? Lemma 4 describes why the party of the rich and the party of the minority ethnic group can never form in a two-party equilibrium.

**Lemma 4** *In any pure strategy equilibrium, no entrepreneur will form either  $P_R$  or  $P_B$ .*

**Proof.** Consider  $P_R$ . There are three possible two-party equilibria to consider.

(1)  $P_R$  and  $P_P$  form. This cannot be an equilibrium because  $P_P$  would win for any  $p_R$ , yielding a negative net benefit for any entrepreneur forming  $P_R$ .

(2)  $P_R$  and  $P_A$  form: By lemma 3, in any equilibrium the two parties must offer the same platform, which implies that  $P_R$  would win (given  $n_R < n_A$ ) and that  $n_{AP} < n_R$  (otherwise  $n_R$  could never win). Consider the payoff to an entrepreneur from forming  $P_P$ . If  $P_R$ ,  $P_A$  and  $P_P$  form, then in any voting equilibrium,  $v_{BR} = P_R$  and  $v_{BP} = P_P$ . If  $v_{AP} = P_A$  then it must be true that  $v_{AR} = P_R$ , which could not be an equilibrium (because the poor in  $A$  would then prefer to support  $P_P$ ). Thus, if  $P_P$  enters, in any equilibrium in voting strategies,  $v_{AP} = v_{BP} = P_P$  and  $P_P$  wins. yielding a higher utility to the entrepreneur for  $P_P$  than would have been obtained from not forming. It therefore cannot be an equilibrium for  $P_P$  not to form when only  $P_A$  and  $P_R$  have formed.

(3)  $P_R$  and  $P_B$  form: Consider the case where the equilibrium voting outcome from this party system makes  $P_R$  the winner, which implies that the rich in  $B$  prefer  $P_R$  to  $P_B$  and  $n_R > n_{BP}$ . If  $P_P$  forms, then in any voting equilibria, the rich in  $A$  support  $P_R$  and the poor in  $A$  support  $P_P$ . If  $n_{AP}$  is sufficiently large that the poor in  $A$  determine the voting outcome, then  $P_P$  obviously has an incentive to form. So assume  $n_{AP} < \min(n_R, n_B)$  and consider whether an entrepreneur has an incentive to form  $P_P$ . Since it must be true that  $v_{AP} = P_P$  and  $v_{AR} = P_R$ , there are 4 possible

voting equilibria to consider:

- $v_{BP} = v_{BR} = P_B$ . This is not a NE because the rich in  $B$  prefer  $P_R$  given  $v_{AP} = P_P$  and  $v_{BP} = P_B$ .
- $v_{BP} = P_B$  and  $v_{BR} = P_R$ . This is not a NE because the outcome is  $P_R$ , which means the poor in  $B$  must prefer  $v_{BP} = P_P$ .
- $v_{BP} = P_P$  and  $v_{BR} = P_B$ . This is not a NE because the poor in  $B$  would prefer voting for  $P_B$  given that  $v_{BR} = P_B$ .
- $v_{BP} = P_P$  and  $v_{BR} = P_R$ . It is straightforward to verify that this satisfies eq 2 for all subgroups, and thus this would be the unique equilibrium if  $P_P$  formed. Since  $P_P$  would always win by entering, it cannot be an equilibrium for it to not enter when only  $P_R$  and  $P_B$  have formed and  $P_R$  is expected to win.

The logic is the same for why  $P_A$  must enter when only  $P_R$  and  $P_B$  have formed and  $P_B$  is expected to win.

The proof for why  $P_B$  cannot form is analogous and is omitted. ■

In any equilibrium only the parties representing majorities can form. It cannot be an equilibrium for the majority and minority party for the same identity to form (because the party representing the minority will always lose and cannot influence the platform of the winning party). It also cannot be an equilibrium for a party representing a minority of one identity to form with the party representing the majority of the other identity (because the party representing the minority of its identity would win, making it non-optimal for the party representing the majority of this identity to not have formed). And it cannot be an equilibrium for the two parties representing the minority of their identity to form (again because there will always be a party representing a majority of one of these identities that could have formed and won, making it non-optimal not to have formed). Thus, the only equilibria that can exist are those where the only two parties that form are those representing majorities.

Proposition 1 shows that there always exists a unique pure strategy equilibrium where both of these parties form and offer the same platform, with the winning party being the one

representing a smaller majority.

**Proposition 1** *Under plurality rule with windfall revenues, there is always a unique Nash equilibrium in pure strategies where*

- One  $P_A$  and  $P_P$  form
- $p_A = p_P = \frac{\pi}{n_P}$  if  $n_A < n_P$
- $p_A = p_P = \frac{\pi}{n_A}$  if  $n_A > n_P$

The equilibrium voting strategies given  $\mathbf{p}$  are

- $v_{AR}(\mathbf{p}) = P_A$
- $v_{BR}(\mathbf{p}) = \emptyset$
- $v_{BP}(\mathbf{p}) = P_P$
- $v_{AP} = P_A$  if  $n_A < n_P$  and  $P_P$  if  $n_A > n_P$

**Proof.** By lemma 1, in any equilibrium, there must be two parties, and by lemma 4, these parties cannot include  $P_R$  or  $P_B$ . By lemma 3, if there is an equilibrium with  $P_P$  and  $P_A$ , then  $p_A = p_P = \frac{\pi}{n_P}$  if  $n_A < n_P$ , and  $p_A = p_P = \frac{\pi}{n_A}$  if  $n_P < n_A$ . Thus, if an equilibrium exists it must be unique and be the one described in the statement. It only remains to show that these party formation and voting strategies represent a Nash equilibrium.

It is straightforward to confirm that the voting strategies satisfy eq. 2: the poor in  $A$  are the only subgroup represented by more than one party, and they support the party representing the smaller electoral majority (and hence the party that yields the largest residual for the entrepreneur).

Consider the party strategies, beginning with the case where  $n_A < n_P$ .

(1)  $e^R = 0$  is optimal. Suppose not. Since  $P_B$  has not formed it must be true that the poor in  $B$  support  $P_P$  and that the rich in  $B$  support  $P_R$ . There are two cases to consider. In the first, the rich in  $A$  are not pivotal (because  $n_{AP} > n_R$ ). In this case, the outcome will obviously be  $P_A$  and the net benefit of forming  $P_R$  is  $-\delta$ , so  $P_R$  cannot form. In the second case, the rich in  $A$  are pivotal (because  $n_{AP} < n_R$ ) and  $P_R$  can only reap a positive benefit of entering if the rich in  $A$

support  $P_R$ . But if this were true, then it is not a Nash equilibrium for the poor in  $A$  to support  $P_A$ : if they support  $P_A$ ,  $P_R$  wins and if they support  $P_P$ , it wins. Thus, in this case the outcome will be  $P_P$  and the net benefit of forming  $P_R$  is again  $-\delta$ .

(2)  $e^B = 0$  is optimal. The entry of  $P_B$  cannot affect the voting strategies of voters in  $A$ , and thus for any  $p_B > 0$ ,  $P_A$  will win. Thus, the net benefit of forming  $P_B$  is negative.

(3)  $p_P = \frac{\pi}{n_P}$  is optimal. By lemma 3,  $p_P = \frac{\pi}{n_P}$  if  $P_P$  forms. It therefore remains to show that the entrepreneur prefers entering over not entering. By forming, the entrepreneur receives  $\frac{\pi}{n_P} - \delta$ . Given the entry decisions by other parties, if  $P_P$  does not form, the entrepreneur for  $P_A$  can offer  $p_A = \epsilon$ , yielding  $\epsilon$  which is worse than the payoff of forming given  $\delta$  is arbitrarily small.

(4)  $p_A = \frac{\pi}{n_P}$  is optimal. Given  $p_A = \frac{\pi}{n_P}$ , the entrepreneur for  $P_A$  prefers  $p_A$  to any lower platform less than  $p_A$  (because such a platform would lose). Similarly, since any  $p_A \geq p_P$  will win, the entrepreneur prefers  $p_A$  to anything larger (because this maximizes the residual).

The logic when  $n_P > n_A$  is identical and is omitted. ■

Since  $P_A$  and  $P_P$  must form in any two-party equilibrium, the poor in  $A$  are pivotal because they are represented by both parties. This means that the party representing the smaller majority has a clear advantage. The most that the party representing the larger majority can offer is to divide  $\pi$  equally among all members of this group. But an entrepreneur for a party representing the smaller majority group can always promise more because the party has fewer constituents who need to be paid if the party wins. Thus, if  $n_A < n_P$ , an entrepreneur for  $P_A$  can offer more than the best platform that the entrepreneur for  $P_P$  could offer. By contrast, if  $n_P < n_A$ , an entrepreneur for  $P_P$  can offer more than the best platform that the entrepreneur for  $P_A$  could offer. In either case, the winning party's entrepreneur reaps positive rents that increase as the size of the losing party's group grows larger. The losing party nevertheless has an incentive to form because so doing forces the winning party to offer a larger platform than would be necessary if the losing party did not form.

Equilibrium outcomes are therefore a function of  $n_P$  (a measure of inequality) and  $n_A$  (a measure of ethnic homogeneity). As inequality becomes large ( $n_P$  increases), the value to the poor of class politics decreases because there are so many poor who must share the spoils

of government. As a consequence, when there are a lot of poor individuals, party entrepreneurs representing ethnic groups can build successful electoral coalitions that include some poor and exclude others. Similarly, as a society becomes more homogenous, it is very difficult to build an attractive coalition around ethnicity, making class politics more salient. The level of inequality that triggers ethnic politics is not, however, independent of the level of ethnic diversity. In a relatively heterogeneous society where there can be a small ethnic majority, ethnic politics may prevail for almost any level of inequality, making inequality essentially irrelevant. But as the society becomes less diverse, the level of inequality becomes more important, with class politics most likely to be triggered when the number of poor is small, and thus when inequality is relatively low. The model, then, suggests not only an interaction between ethnic diversity and inequality in triggering ethnic politics, it also suggests that given a permissive level of ethnic diversity, class politics will be most likely when inequality is *lowest*.

## 5 Proportional representation with windfall revenues.

Under proportional representation (PR), the number of seats won by a party is proportional to the number of voters who support it. Elections might therefore produce no majority winner, resulting in coalition bargaining. This section explores the implications of PR for the emergence of ethnic-versus class-based electoral politics.

Interactions begin with party formation following the same structure as under plurality rule. Voters vote strategically so as to achieve the highest possible payoff given the voting strategies of others and the dynamics of coalition formation. As under plurality rule, indifferent voters select the party that produces the largest total residual.

If a party wins a majority, it implements its platform and the party leader keeps the residual. If no party wins a majority, then party platforms during the electoral stage become irrelevant and a coalition bargaining process begins. Each leader of a party that receives votes can make a coalition proposal,  $c_{mm'} = x$ , which states that  $P_m$  proposes a coalition with  $P_{m'}$  to give  $x$  to each person represented by  $P_m$  and  $P_{m'}$ . Such proposals can win only if  $P_m$  and  $P_{m'}$  represent a majority in the legislature and if  $c_{mm'} = c_{m'm}$  (that is, the two parties agree on the proposal). If  $P_R$  and  $P_B$  receive support from a majority, for example, and  $c_{BR} = c_{RB} = x$ , then  $P_B$  and  $P_R$  form a majority

coalition and all individuals who are rich or in group  $B$  receive  $x$ . Under coalitions, party leaders share equally the residual that is not distributed to voters. Thus, leaders from different parties in the same coalition have identical interests – they want to offer the smallest amount possible to their voters so as to maximize their rents.

Without additional constraints, when no majority exists, party leaders in a coalition have opportunities to bargain in bad faith vis-à-vis their constituents. At the extreme, party leaders can keep  $\pi$  entirely for themselves. Such behavior would of course only work in the short-term, as voters would punish party leaders who did not bargain faithfully on behalf of the groups they represent. It is therefore important to impose an additional constraint on party behavior, and I adopt the following “good faith” assumption: a party leader pays a large cost  $\phi > 0$  if she accepts a coalition proposal that gives her party’s constituents a lower payoff than these constituents would have received had they voted for any other party that has formed. Suppose, for example, that  $P_A$  forms and receives the support of the poor in  $A$ . If the rich in  $A$  support  $P_R$  in anticipation of a coalition with  $P_B$ ,  $c_{BR}$  cannot give constituents less than the rich in  $A$  would have received from supporting  $P_A$  (the payoff of which is conditional on the voting strategies of other subgroups).

In equilibrium, party formation strategies must be optimal at the entry and platform stages, just as in the plurality case. Voters vote optimally given the party platforms and given expectations about coalition formation. And party entrepreneurs maximize their utility in the coalition bargaining stage by agreeing to coalition bargains that provide the highest possible utility, subject to the “good faith” constraint. Although there are up to four parties and a wide variety of coalitions, it is straightforward to show that there are only three possible equilibrium governance outcomes.

**Lemma 5** *Under proportional representation, there exist only three possible equilibrium outcomes:*

1.  $P_A$  wins a majority; or
2.  $P_P$  wins a majority; or
3. No party wins a majority and  $P_R$  and  $P_B$  form a majority coalition.

**Proof.** By the same logic in the proof of Lemma 4, it can never be an equilibrium for  $P_R$  or  $P_B$  to win a majority. It therefore remains to show that the only possible equilibrium majority coalition includes only  $P_R$  and  $P_B$ . Any other coalition must include either  $P_A$  or  $P_P$ . No equilibrium can result in a coalition of  $P_A$  with another party,  $P_k$ . Such a coalition could at most provide  $\frac{\pi}{n_A+n_k}$  to

individuals represented by  $P_A$  and  $P_k$ , which would yield no residual for the party entrepreneurs. But the entrepreneur for  $P_A$  could always offer a platform that all members of  $A$  prefer to this best possible outcome under the coalition, and that yields a positive residual for the entrepreneur. Thus it can never be an equilibrium for a party entrepreneur to adopt any  $p_A$  that leads the groups in  $A$  to split their vote in a way that results in a coalition of  $P_A$  with  $P_k$ . The logic for why there cannot be an equilibrium between  $P_P$  and another party is identical: the entrepreneur for  $P_P$  always prefers to offer a platform that wins a majority to offering a platform that results in a coalition. ■

Lemma 5 makes it relatively straightforward to characterize equilibria under PR. Recall  $\mathbf{p}^* = (p_A, p_B, p_P, p_R)$  is the vector of equilibrium party platforms, and let  $\mathbf{v}^*(\mathbf{p}^*) = (v_{AP}, v_{AR}, v_{BP}, v_{BR})$  be the equilibrium vector of voting strategies, and let  $c_{mm'}^*$  be the equilibrium coalition agreement when no party wins a majority.

**Proposition 2** *Under proportional representation,*

(1) *If  $n_A < n_P$  and  $n_{AP} < n_B$  then  $P_A$  wins and*

$$\begin{aligned}\mathbf{p}^* &= \left(\frac{\pi}{n_P}, \frac{\pi}{n_P}, 0, 0\right) \\ \mathbf{v}^* &= (P_A, P_A, P_P, \emptyset)\end{aligned}$$

(2) *If  $n_A < n_P$  and  $n_{AP} > n_B$  then  $P_B$  and  $P_R$  form a majority coalition and*

$$\begin{aligned}\mathbf{p}^* &= \left(\frac{\pi}{n_A}, 0, p_B > 0, p_R > 0\right) \\ \mathbf{v}^* &= (P_A, P_R, P_B, P_R \text{ or } P_B) \\ c_{BR}^* &= c_{RB}^* = \frac{\pi}{n_A}\end{aligned}$$

(3) *If  $n_A > n_P$  and  $n_{AP} < n_R$ , then  $P_P$  wins and*

$$\begin{aligned}\mathbf{p}^* &= \left(\frac{\pi}{n_A}, \frac{\pi}{n_A}, 0, 0\right) \\ \mathbf{v}^* &= (P_P, P_A, P_P, \emptyset)\end{aligned}$$

(4) *If  $n_A > n_P$  and  $n_{AP} > n_R$  then  $P_B$  and  $P_R$  form a majority coalition and*

$$\begin{aligned}\mathbf{p}^* &= \left(0, \frac{\pi}{n_P}, p_B > 0, p_R > 0\right) \\ \mathbf{v}^* &= (P_P, P_R, P_B, P_R \text{ or } P_B) \\ c_{BR}^* &= c_{RB}^* = \frac{\pi}{n_P}\end{aligned}$$

**Proof.** (1)  $n_A < n_P$  and  $n_{AP} < n_B$ : Following the same logic found under plurality rule, the specific platforms of  $P_P$  and  $P_A$  are optimal given that  $P_B$  and  $P_R$  do not form, and the voting strategies are optimal given the party system. It therefore remains to show that  $P_B$  and  $P_R$  cannot enter. Since  $n_{AP} < n_B$  implies  $n_A < n_R + n_{BP}$ , there cannot exist an equilibrium where a coalition of  $P_R$  and  $P_B$  is the winner (because the entrepreneur for  $P_A$  can always ensure that the rich in



$A$  prefer  $P_A$  to this coalition). And since  $n_A < n_P$ , an entrepreneur for  $P_A$  can always ensure that the poor in  $A$  prefer  $P_A$  to  $P_P$  (and the entrepreneur has an incentive to do so in order to obtain the residual). Thus, there cannot exist an equilibrium where any members of  $B$  receive a payoff from the winning party, and  $P_B$  therefore cannot form (because the expected payoff of doing so is negative). Given  $P_B$  will never form,  $P_R$  can never be a credible coalition partner (because the rich in  $A$  will never prefer a coalition between  $P_A$  and  $P_R$  to a majority victory by  $P_A$ ), and thus the optimal platform for  $P_A$  is independent of  $p_R$ , making the expected payoff of forming  $P_R$  negative.

(2)  $n_A < n_P$  and  $n_{AP} > n_B$ : Given the party system, the voting strategies are optimal. Since  $p_P = 0$ , in any voting equilibrium,  $v_{AP} = P_A$  and  $v_{BP} = P_B$ . Given  $p_A = c_{BR}$ , the rich in  $A$  vote for the party that yields the largest total residual, which is  $P_R$  given  $n_{AP} > n_B$ . The rich in  $B$  can support either  $P_R$  or  $P_B$  with no effect on the outcome. Thus, it remains to show that party formation strategies are optimal.

By lemma 5, there cannot be an equilibrium where only  $P_R$  and  $P_B$  form (because if this occurred, one of these parties would win a majority). There also cannot be an equilibrium where  $P_R$  and  $P_B$  do not form because by forming they win with certainty (because  $n_{AP} > n_B$  ensures that no party can offer a platform that defeats the coalition) and reap a positive residual for their entrepreneurs. Thus, in any equilibrium  $P_R$  and  $P_B$  and at least one other party must form.

For  $P_R + P_B$  coalition to prevail and satisfy the “good faith” assumption, it must be true  $c_{BR} \geq p_A$  (because given  $v_{AP} = P_A$ ,  $P_A$  will win if the rich in  $A$  change their vote to support  $P_A$ ). Thus, the optimal platform for  $P_A$  is  $\frac{\pi}{n_A}$  (because this maximizes the policy payoff for the rich in  $A$ ). Since  $P_A$  adopts  $p_A = \frac{\pi}{n_A}$ , the optimal coalition agreement is also  $\frac{\pi}{n_A}$  (because this maximizes the rents).

(3)  $n_A > n_P$  and  $n_{AP} < n_B$ : The structure of the proof is identical to that of (1) and is omitted.

(4)  $n_A > n_P$  and  $n_{AP} > n_B$ : The structure of the proof is identical to that of (2) and is omitted. ■

Proposition 2 suggests that like under plurality rule, inequality and ethnic diversity interact to influence identity choice under PR. Class politics under PR can emerge when inequality is

sufficiently low (where “low” is determined by the level of ethnic diversity), and ethnic politics can emerge when ethnic diversity is sufficiently high (where “high” is determined by the level of inequality). But PR also makes it possible for party entrepreneurs to break up both group and class politics by dividing the majority ethnic group or the poor against themselves.

Suppose class politics prevails under plurality rule ( $n_A > n_P$ ). With PR electoral rules, the poor in  $A$  are no longer pivotal: since they can only support parties that represent a majority of the population, they can never be represented by a party that is a feasible coalition partner. Instead, the poor in  $B$  are pivotal. The poor in group  $B$  could be part of a pure class coalition with the poor in  $A$  (supporting  $P_P$ ) or they could support  $P_B$  which could form a majority coalition with  $P^R$ . When the number of poor in  $A$  is greater than the number of rich, the door opens for the coalition. Party entrepreneurs for  $P_B$  and  $P_R$  can ensure that the poor in  $B$  obtain more from a coalition with the rich than from supporting  $P_P$ . Proportional representation, then, makes it possible for party leaders to form smaller winning coalitions than would be possible in a class-politics equilibrium under plurality rule, thereby dividing the poor (the poor in  $A$  support a different party than the poor in  $B$ ) and dividing the majority group (the rich in  $A$  support a different party than the poor in  $A$ ). By the same logic, PR can alter undermine the ethnic politics equilibrium when  $n_A < n_P$ , with the rich in  $A$  preferring the coalition between  $P_R$  and  $P_B$  to a  $P_A$  victory if  $n_{AP}$  is sufficiently large.

## 6 Government revenues from taxes on the rich.

In some democratic contexts, substantial government revenues come from taxes on income, and these taxes affect government revenues directly (because they determine government revenues) and indirectly (because they labor decisions, and thus the amount of income that can be taxed). This section assumes that government revenues come from taxes on the rich, and that these taxes also affect the incentives of the rich to engage in revenue-generating labor. This makes it possible to explore the impact of taxes on the incidence of ethnic versus class politics. I focus on the case of plurality rule, where the poor in  $A$  are pivotal in determining whether  $P_A$  or  $P_P$  prevails in equilibrium (although the logic developed here would apply under PR as well).

Assume that only the rich pay taxes, and that the rich receive utility from consumption,  $C$  and leisure,  $\mathcal{L}$ . They can supply labor,  $L$ , at a fixed wage,  $w$  (which is set equal to 1), and

they have a fixed stock of capital,  $K$ . There is a proportional tax rate,  $t$ , on labor income. If  $P_P$  wins, the rich receive nothing from the government; they only pay taxes. I will not make an assumption about how revenues are shared among the rich and poor if  $P_A$  wins, but rather assume the (tax free) transfer to the rich in group  $A$  will be  $\lambda_{AR}$ . The budget constraint on consumption is  $C = (1 - t)L + K + \lambda_{AR}$ , where  $\lambda_{AR} = 0$  if  $P_P$  wins. The rich in  $B$  always receive 0 under group or class politics, so  $\lambda_{AR} = 0$  for the rich in  $B$ . The time constraint is  $T = \mathcal{L} + L = 1$ . Let  $\alpha$  be the weight that the rich give to consumption, and for simplicity assume that  $\alpha$  is the same for the rich in both groups. Then the preferences over consumption and leisure are given by  $U(C, \mathcal{L}) = \alpha \ln C + (1 - \alpha) \ln \mathcal{L}$ , which (substituting the budget and time constraints) can be written as  $U(C, \mathcal{L}) = \alpha \ln ((1 - t)L + K + \lambda_{AR}) + (1 - \alpha) \ln (1 - L)$ .

Let  $L_C^*(t)$  be the equilibrium labor output as a function of  $t$  if class politics prevails because  $P_P$  wins, and let  $L_E^*(t)$  be the equilibrium labor output if ethnic politics prevails because  $P_A$  wins. I focus on parameter values that produce an interior solution. A central implication of having ethnic politics prevail in any equilibrium is that the government transfer to the rich in  $A$  reduces the marginal value of labor for this group, and thus results in less labor by the rich when ethnic politics prevails than when class politics prevails.

**Lemma 6**  $L_C^*(t) > L_E^*(t) \quad \forall t$ .

**Proof.** Note that  $U(C, \mathcal{L})$  is concave in  $t$  for both ethnic and class based politics. Solving the first-order conditions when  $\lambda_{AR} = 0$  yields  $L_C^*(t) = \frac{K(1-\alpha)+\alpha(t-1)}{t-1}$ , which is decreasing in  $t$ . And for ethnic politics (when  $\lambda_{AR} > 0$ ),  $L_E^*(t) = \frac{(K+\lambda_{AR})(1-\alpha)+\alpha(t-1)}{t-1}$ , which is also decreasing in  $t$ .  $L_C^*(t) > L_E^*(t)$  whenever  $\lambda_{AR} > 0$ , which is always true by the definition of ethnic politics. ■

There is an economic cost of ethnic politics. Taxpayers in the model have a diminishing marginal utility of consumption, and thus they will work less if they are given a transfer that requires no work. Under ethnic politics, the rich in  $A$  receive transfers, which reduces their incentive to provide revenue-generating labor. Since the rich in  $A$  work less when  $P_A$  wins than when  $P_P$  wins, total economic output from labor will be less when ethnic politics prevails than when class politics prevails. This also means that total government revenues from taxes will be less when  $P_A$  wins.

Let  $t_C^*$  be the equilibrium tax rate under class politics (i.e., the tax rate set by  $P_P$  if it wins) and let  $\pi_C^*(t_C^*)$  be total government revenues when the rich are making optimal labor decisions in response to  $t_C^*$ . Similarly define  $t_E^*$  as the equilibrium tax rate under ethnic politics and  $\pi_E^*(t_E^*)$  as the resulting government revenues. Even though the entrepreneurs for  $P_A$  and  $P_P$  have the same incentives – to set  $t^*$  to maximize revenues so as to maximize rents – Lemma 7 shows that total government revenues are always greater in an equilibrium when  $P_P$  wins than when  $P_A$  wins.

**Lemma 7**  $\pi_C^*(t_C^*) > \pi_E^*(t_E^*)$ .

**Proof.** If class politics prevails, the rich in both groups respond identically (because no rich receive transfers) and thus total government revenue is given by

$$\begin{aligned}\pi_C^*(t_C^*) &= t_C^* * L_C^*(t_C^*) * n_R \\ &= [t_C^* * L_C^*(t_C^*) * n_{AR}] + [t_C^* * L_C^*(t_C^*) * n_{BR}].\end{aligned}$$

Under ethnic politics, the rich in  $A$  respond differently to  $t_E^*$  than do the rich in  $B$ . The rich in  $B$  receive no transfers, and thus their optimal labor output is given by  $L_C^*(t_E^*)$ . The rich in  $A$  do receive transfers, and thus their optimal labor output is given by  $L_E^*(t_E^*)$ . Total revenues are therefore

$$\pi_E^*(t_E^*) = [t_E^* * L_E^*(t_E^*) * n_{AR}] + [t_E^* * L_C^*(t_E^*) * n_{BR}].$$

Consider two possible cases. In the first,  $t_E^* = t_C^*$ . This implies that the revenues received from labor output by the rich in  $B$  will be the same under ethnic and class politics, and thus  $\pi_C^*(t_C^*) > \pi_E^*(t_E^* = t_C^*)$  if the rich in  $A$  produce more revenues under class politics than under ethnic politics, which is true if  $t_C^* * L_C^*(t_C^*) > t_C^* * L_E^*(t_E^* = t_C^*)$ , or if  $L_C^*(t_C^*) > L_E^*(t_C^*)$ , which is true by Lemma 6.

In the second case,  $t_E^* \neq t_C^*$ . Given  $t_C^*$  is revenue maximizing when the rich receive no transfers, we know that there are more revenues generated by the rich in  $B$  under class politics than under ethnic politics (i.e.,  $t_E^* * L_C^*(t_E^*) < t_C^* * L_C^*(t_C^*)$  for any  $t_E^* \neq t_C^*$ ). In addition, the rich in  $A$  produce fewer government revenues under ethnic politics. To see this, note that by Lemma 6, for any  $t_E^* \neq t_C^*$  it must be true that  $t_E^* * L_E^*(t_E^*) < t_E^* * L_C^*(t_E^*)$ . In addition, given  $t_C^*$  is revenue maximizing under class politics, it must also be true that  $t_E^* * L_C^*(t_E^*) < t_C^* * L_C^*(t_C^*)$ . By transitivity,

$t_E^* * L_E^*(t_E^*) < t_C^* * L_C^*(t_C^*)$ , ensuring that  $\pi_C^*(t_C^*) > \pi_E^*(t_E^*)$ . ■

We can now describe the conditions under which ethnic or class politics prevails in the model where government revenues are endogenously determined by taxes.

**Proposition 3** *In any pure-strategy equilibrium under plurality rule where revenues come from income taxes on the rich,  $P_A$  can win only if  $n_P > \frac{\pi_C^*(t_C^*)}{\pi_E^*(t_E^*)} n_A$ , which implies that the conditions for class politics are easier to satisfy when government revenues are obtained from taxes on the rich than when they are obtained from exogenous windfalls.*

**Proof.** In Proposition 1, where revenues are from windfalls, the poor in  $A$  are pivotal and ethnic politics prevails if  $n_P > n_A$ . With taxes on the rich, the maximum that an entrepreneur for  $P_A$  could offer is  $\frac{\pi_E^*(t_E^*)}{n_A}$  and the maximum that an entrepreneur for  $P_P$  could offer is  $\frac{\pi_C^*(t_C^*)}{n_P}$ . Thus, an entrepreneur for  $A$  could only win if  $n_P > \frac{\pi_C^*(t_C^*)}{\pi_E^*(t_E^*)} n_A$ . From Lemma 7,  $\pi_C^*(t_C^*) > \pi_E^*(t_E^*)$ , which implies that it is more difficult for the entrepreneur for  $P_A$  to win when revenues derive from taxes on the rich. ■

Proposition 3 suggests that inequality and ethnic diversity interact in the same way to influence identity choice when revenues are raised through taxes rather than windfalls, with class politics occurring when inequality is sufficiently low relative to diversity. But it is also the case that taxes on the rich makes ethnic-based politics less attractive in general to the poor in  $A$ . The reason is related to the differential effect of taxes on revenues under ethnic-based as opposed to class-based politics. The labor model used here makes the standard assumption that there is diminishing marginal utility from money (and thus labor). Consequently, if taxpayers are given transfers, their incentives to work are reduced, which reduces the amount of revenues that the government collects. The pivotal poor in  $A$ , then, care not simply about the size of the winning coalition if  $P_P$  or  $P_A$  wins, they also care about how big the pie will be under the two possible outcomes. It could be that  $n_A$  is smaller than  $n_P$  (making  $P_A$  more attractive), but that the negative effect of a  $P_A$  victory on  $\pi$  is sufficiently large that the poor in  $A$  prefer the class-based politics associated with a  $P_P$  victory. A similar logic will obviously make it more difficult to satisfy the conditions for ethnic politics under PR (case (3) in proposition 2). And since there are more rich who receive transfers

under coalition politics than under ethnic politics, it will also undermine the value of the  $P_R$  and  $P_B$  coalition to the poor in  $B$  when PR exists.

## **7 Inequality, ethnic diversity and the importance of ethnic identity in elections.**

The model describes why inequality should play a role in the emergence of ethnic politics, underscoring that this role should depend on the degree of ethnic diversity in society. When it is possible to form a small majority based on ethnic identities, inequality should have little effect on voting outcomes because there should be a strong incentive for ethnic politics at almost any level of inequality. As societies become more homogenous, inequality should become more salient, with greater inequality tipping politics in the direction of ethnic rather than class coalitions. Thus, the effect of inequality on ethnic voting should be positive, but it should decline as the ethnic diversity of society increases, disappearing when society is sufficiently diverse that it will be difficult for class politics to prevail at any level of inequality. Similarly the effect of ethnic diversity on ethnic voting should be positive, but this effect should decrease as inequality increases. This section explores whether there exist evidence of these associations.

### **7.1 The Gini and the number of poor voters.**

As noted above, under the model's assumption that there are only two incomes, the Gini coefficient is a direct function of  $n_P$ , making it reasonable to focus on the Gini in examining the empirical implications of the model. Before doing so, however, it is useful to probe a bit further the link between  $n_P$  and the Gini. One could ask, for example, whether it makes sense to conceptualize  $n_P$  as exogenous in the first place. An alternative approach would be to assume that  $n_P$  is set by the winning party, which uses policy to determine the highest point in the income distribution that will receive class-based benefits. But under this assumption of an endogenous  $n_P$ , ethnic voting behavior – which is widely observed empirically – could never emerge in equilibrium where voters are trying to maximize their share of the government pie. Class politics would always prevail because politicians could always use income-based targeting to create the smallest possible winning

coalition of 50%+1. Given the weak role of class and the prevalence of ethnic politics in some systems, it is useful to ask why such precise targeting of the median voter might be difficult.

One key problem with this sort of micro-targeting by income is that there are typically a large number of voters very near the median income in society, making it difficult to exclude individuals just above the median. Consider the top panel in Figure 1, a histogram describing the distribution of household income in Brazil in 2002. Over 12 percent of the population is included in the median income bin, and roughly 17 percent of the population are in the three income bins (out of 100) adjacent to the median. And incomes are quite compressed just above the median. The survey respondent at the median makes 235 real, the respondent at the 52nd percentile makes 241 reals. As a practical matter, it would of course be extremely difficult to narrowly target the individuals at or below the 50th percentile and to exclude everyone above this point. Thus, attempts to do so are not likely to be viewed as particularly clear or credible to voters.

While politicians doubtfully have the policy instruments necessary to execute such fine-grained targeting possible, perhaps neither is necessary for class politics to prevail. In a standard tax-and-transfer model like Meltzer and Richard (1981), redistribution occurs essentially by assuming that decisions about tax rates and about distribution are folded into one decision: parties compete on tax rates, assess the same rate on all voters, and distribute the resulting revenues equally to all voters. The result is net redistribution: since the median income is lower than the mean, the voter with the median income prefers the tax rate that maximizes tax revenues. The model presented here, however, suggests that useful insights can be gleaned by disentangling the tax decision and the distribution decision. One reason is that in many societies, a large number of individuals lack cash incomes and substantial revenues come from non-tax sources, like natural resources or foreign aid. In such situations, the most salient dimension of party competition is clearly about how to distribute revenues rather than how to raise them, and it makes little sense to assume that distribution decisions must be based on individual income. In addition, the model here suggests that even when parties compete on taxes, if we treat party formation as endogenous and allow competition on distribution as well, it may well be the case that all parties may wish to adopt revenue maximizing tax rates and that the key party platform difference are related to how government revenues should be distributed.

But even if one embraces the value of exploring a theoretical model in which the income

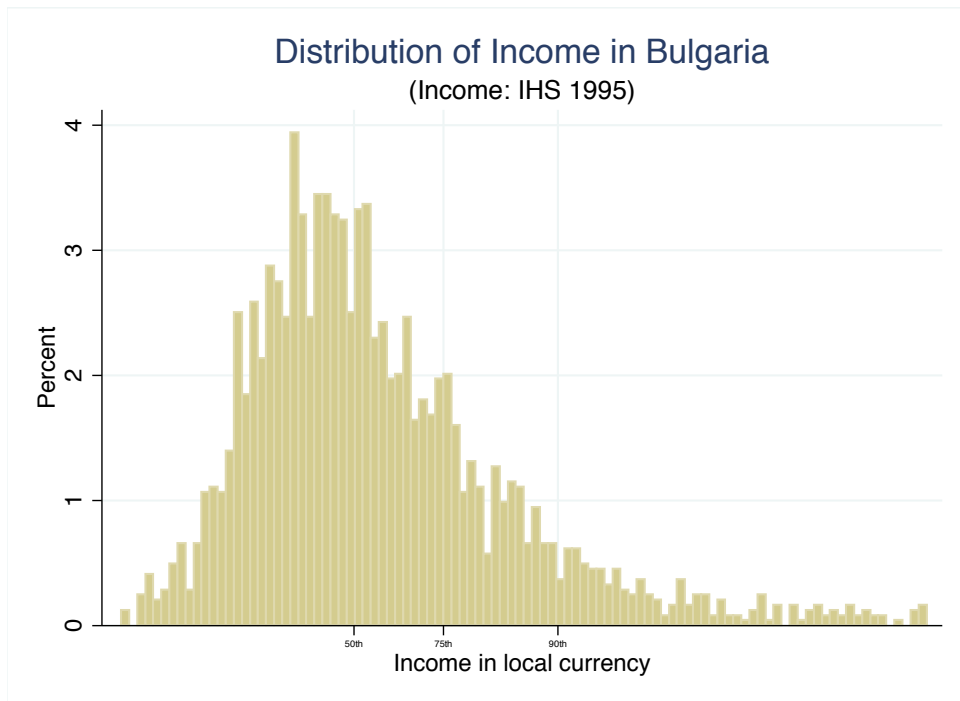
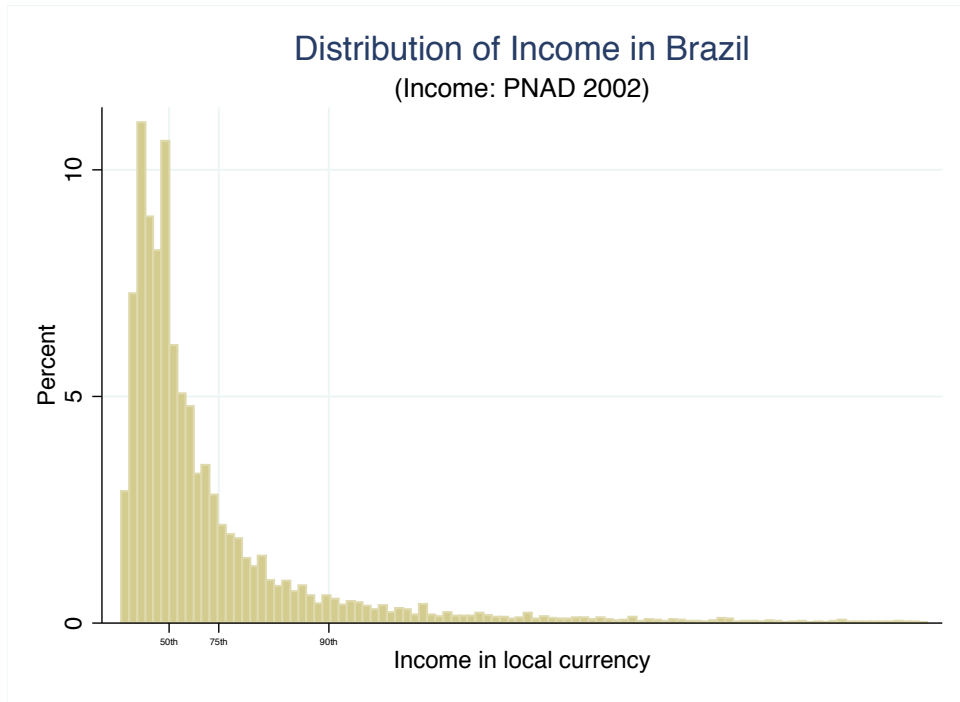


Figure 1: Income distributions in Brazil and Bulgaria



distribution is exogenous – that is, where politicians do not determine  $n_P$  – there remain questions about the link between inequality and  $n_P$  in this model. The level of inequality in a society will be a function of (a) the variation in the income of individuals and (b) the number of individuals at different levels of income. In the model, (a) is fixed and can be set at any level of income difference. Then as  $n_P$  increases, the Gini increases. But higher levels of inequality could be driven not by the number of individuals at different points in the income distribution, but rather by the diversity in the incomes of individuals at these points. It is therefore important to understand whether the Gini is a good proxy for testing intuitions from the model.

The central intuition of the model concerns voter expectations about the size of winning coalitions. How do voters form expectations about “how many people are poor,” to use the language of the model? That is, how do people think about the question of how many people will share the government pie if class politics prevails. The key factor from the perspective of the theoretical framework here is not some objective measure of poverty which counts the number of individuals below some threshold of economic well-being. Voters and parties competing over within-country distribution obviously need not concern themselves at election time with how many poor individuals exist in their country relative to other countries. Instead, what is important is how income is distributed around the median, particularly above it. When contemplating the consequences of class politics, voters want to understand how far up the income distribution a class party will likely go in targeting voters, which will be influenced by how compressed incomes are in the range above the 50th percentile. The greater the mass of voters just above the median income, the larger should be the expected class coalition.

One way to think about the concentration of voters above the median income is to imagine there exists some uncertainty among voters and parties regarding how precisely a class party can target benefits. Let  $\bar{x}_n$  be income of the person at the  $n^{th}$  percentile in the income distribution, so for example  $\bar{x}_{50}$  is the median income. Suppose a class party cannot precisely target a specific income, but rather distributes the pie to voters who have an income  $I \leq \bar{x}_{50} + \epsilon$ , where  $\epsilon$  is a random variable drawn from some distribution with positive support that is bounded above by the income of a rich person that would never possibly receive class-based benefits. For example,  $\epsilon$  might be drawn from a uniform distribution drawn from the interval  $[0, \alpha(\bar{x}_{90} - \bar{x}_{50})]$  where  $\alpha$  is some positive number less than 1. Then for any  $\epsilon$ , the proportion of the population that receives

government benefits will increase as the mass of voters above the median moves closer to the median and farther from  $\bar{x}_{90}$ . That is, if a relatively large proportion of the population that is richer than the median are very close to the median in income, voters's should expect that the number of voters receiving benefits from a class party will be bigger than the number of voters receiving such benefits if voters who are richer than the median are farther from the median voter in their incomes.

Consider the examples from Brazil and Bulgaria in Figure 1. Note that in Brazil, there are many individuals who are richer than the median who have incomes that are relatively close to the median. We can see this by noting that the individual at the 75th percentile in the income distribution is much closer to the median voter than to the person at the 90th percentile. In Bulgaria, by contrast, the individual at the 75th percentile is almost as close to the voter at the 90th than to the voter at the 50th. Thus, if a class party were to distribute to  $I \leq \bar{x}_{50} + \epsilon$ , more individuals would receive the class-based benefits in Brazil than in Bulgaria. For example, if  $\epsilon$  is drawn from the uniform interval  $\bar{x}_{90} - \bar{x}_{50}$ , and  $\alpha = .4$ , the expected value (mean) of  $\epsilon$  is  $.4 * \frac{\bar{x}_{90} - \bar{x}_{50}}{2}$ . Then in Brazil, the expected income of an individual receiving class-based benefits is 392 real, which is an individual in the 69th percentile. By contrast, the expected income of an individual receiving class-based benefits in Bulgaria is 5661 lev, which is an individual in the 64th percentile. We should therefore conclude that in Brazil, the number of individuals who are “poor” – that is, who expect to receive class-based benefits if class-politics prevails – is substantially greater than the number of such individuals in Bulgaria.

To measure the proportion of voters who might expect to receive class-based benefits, one could choose some  $\bar{x}_n \in (\bar{x}_{50}, \bar{x}_{n'})$  and then calculate the relative distance,  $RD_{x_n}^{x_{n'}}$ , to the median and to the richer person at  $\bar{x}_{n'}$ . For example, for  $n = 75$  and  $n' = 90$ , we could calculate

$$RD_{75}^{90} = \frac{\bar{x}_{90} - \bar{x}_{75}}{\bar{x}_{75} - \bar{x}_{50}}.$$

Returning to Figure 1, we can see that in Brazil, the voter at the 75th percentile is quite close in income to the voter at 50th percentile relative to the distance to the 90th percentile and  $RD_{75}^{90} = 2.22$ . In Bulgaria, the voter at the 75th percentile is not nearly so close to the median voter (relative to the voter at the 90th percentile), and  $RD_{75}^{90} = 1.29$ . We should therefore expect more voters in

Brazil to believe they could be included in a class coalition than voters in Bulgaria.

A reasonable proxy for  $n_P$ , then, would be a variable like  $RD_{75}^{90}$  that measures the extent to which incomes are concentrated or dispersed in the region of the income distribution above the median. Unfortunately, calculating such a measure requires very detailed information about the income distribution, which is not widely available. But data on Gini coefficients is widely available, and the Gini will capture much of the same information that is captured by, for example,  $RD_{75}^{90}$ . Recall that the Gini essentially describes the proportion of income in society that is held by each percentile of the income distribution. For example, if the poorest 1 percent have 1 percent of the income, the poorest 50 percent have 50 percent of the income, the poorest 75 percent have 75 percent and so on for each point in the income distribution, inequality is 0. If only one person has income, the Gini will converge to 1. In general, the Gini will increase as the proportion of income held by individuals at the  $n^{th}$  percentile decreases. Note that  $RD_{x_n}^{x_{n'}}$  will increase as the individuals with income at  $\bar{x}_n$  move closer in their incomes to the individuals at the median, and that as this move to the median occurs, the proportion of societal income held by individuals at or below  $\bar{x}_n$  will decline. So an increase in  $RD_{x_n}^{x_{n'}}$  must be correlated with an increase in the Gini.

We can see that this is true empirically. I have identified high-quality fine-grained household income or expenditure surveys from 23 countries that are very diverse in their levels of inequality (with Gini ranging from .25 to .62). Using these surveys to calculate  $RD_{75}^{90}$  yields a correlation of  $RD_{75}^{90}$  and Gini of .81. The choice of  $n = 75$  and  $n' = 90$  is of course somewhat arbitrary, so I have also calculated  $RD_{60}^{90}$  and the correlation with the Gini is .77. Thus, it is reasonable to use the Gini as a proxy for  $n_P$  in our model because the Gini provides crucial information about how concentrated the income distribution is in the region just above the median, which should affect voter expectations about the likely size of a class coalition.

## 7.2 The empirical relationships between inequality, ethnic diversity and ethnic parties.

The empirical analysis requires system-level measures of ethnic voting, inequality and ethnic diversity. Since the model suggests that ethnic identity in elections is most attractive when the ethnic majority is smallest, I use “ethnic polarization” (EP) as the measure of ethnic diversity (Reynol-

Querol 2002). EP is directly linked to the size of the majority: it takes its largest values as a society moves toward two groups of equal size (and thus grows larger as the largest group moves toward a bare majority). Thus, the importance of ethnicity in elections should be largest when this variable is large.<sup>4</sup> The definition of groups and the measure of ethnic polarization are taken from Fearon (2003). The available measures are constant within countries over time.

The measure of inequality comes from Solt (2009). Solt develops a methodology for creating comparable, time-varying measures of the Gini index across a wide variety of countries, and his data include a measure of the gross Gini (GINI), which is inequality before taxes and transfers occur. This measure, then, taps the distribution of income before taking into account the redistributive effect of government.<sup>5</sup> To limit the possibility of reverse causation, I lag GINI, as well as all other time varying right-hand side variables.

To measure the extent to which patterns of party support are “ethnified,” I use the “Party Voting Polarization” (PVP) measure from Huber (2012). To construct PVP, one first compares the ethnic basis of support for each party with the ethnic basis of support for each other party to measure the extent to which any two parties differ in their ethnic bases of support. This measure of difference takes the value 0 if the ethnic basis of support is identical for the two parties (for example, if both parties get 80 percent of their support from group 1 and 20 percent from group 2), and it takes its maximum value 1 if one party receives all its support from one group and the other party receives all its support from a different group. Formally,  $\tilde{r}_{jk}$  is the distance in the electoral bases of support for parties  $i$  and  $j$ , which is defined as

$$\tilde{r}_{jk} = \sqrt{\frac{1}{2} \sum_{g=1}^G (P_g^i - P_g^j)^2}, \quad (5)$$

where  $P_g^i$  and  $P_g^j$  are the proportion of supporters of parties  $i$  and  $j$  who come from group  $g$ , and there are  $G$  groups. To create a measure of how ‘ethnified’ the party system is, one aggregates the measures of distance, invoking the polarization perspective to weight the party distances by party

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<sup>4</sup>The formal definition of EP is from Reynol Querol (2002) is  $EP = 1 - \sum_{i=1}^G \left( \frac{1/2 - s_i}{1/2} \right)^2 s_i$ , where  $s_i$  is the size of group  $i$  and there are  $G$  groups. Ethnolinguistic fractionalization (ELF) is not directly tied to the size of the majority and thus maps less clearly to expectations about bargaining under group-based politics.

<sup>5</sup>Qualitatively identical results are obtained when using Solt’s measure of the net Gini, which measures inequality after taxes and transfers occur.

size, so that

$$PVP = 4 \sum_{i=1}^N \sum_{j=1}^N p_i p_j^2 \tilde{r}_{jk}. \quad (6)$$

PVP, then, is a measure of the role that ethnic identity plays in describing the bases of support for parties. Since it invokes the polarization perspective in aggregating the differences between pairs of parties, it takes its maximum value when there are two parties, each of equal size and each with their own basis of ethnic support.<sup>6</sup> The expectation from the model is that the degree to which voters will sort themselves at election time based on ethnicity will depend on inequality and EP. We should expect to find that PVP increases with GINI and EP, but that there should be an interaction between these two right-hand side variables, with the association between GINI and PVP being largest at low levels of EP, and with this association diminishing as EP grows large. Similarly, the association between EP and PVP should be positive but should diminish as GINI grows large.

There are non-zero measures of PVP from 39 countries in Huber (2012), with at most 4 surveys in one country and with 23 countries having one survey. I regress PVP on lagged GINI and EP, as well as other controls. The controls include:

- PR, an indicator variable that takes the value 1 if the electoral law is proportional representation.
- RESSEG, a measure of how geographically isolated groups are from each other. It is calculated from the surveys, with details in Huber (2012).
- AFRO2, AFRO3, CSES, indicator variables for surveys used, with WVS the omitted category (see Huber 2012).
- GDP, the lagged value (by one year) of the log of real GDP per capita. The source is the Penn World Tables (2011).
- POP, the log of the population in millions, lagged one year, as reported by the Penn World Tables (2011).

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<sup>6</sup>See discussion in Huber (2012).

- OIL/DIAM, an indicator variable that takes the value 1 if the country is ‘rich in oil’ or produces (any positive quantity of) diamonds. A country is ‘rich in oil’ if the average value of its oil production in a period is larger than 100 US dollars per person in 2000 constant dollars. The source is Ross (2011).

I estimate OLS models with robust standard errors clustered at the country level. The results are given in Table 2.

Model 1 includes GINI and EP (but not their interaction) and the controls. EP has the expected positive coefficient, but it is not precisely estimated ( $p=.19$ ). The coefficient for GINI is also positive, but is not at all precisely estimated ( $p=.64$ ). The only substantive variable that has a reasonable precisely estimated coefficient is the PR indicator variable, which has a negative coefficient ( $p=.102$ ). Many of the variables in model 1 are measured with substantial error, so model 2 drops the variables from model 1 that have the most imprecisely estimated coefficients. The coefficient for EP and GINI are more precisely estimated than in model 1, and EP is significant at the .10 level ( $p=.08$ ). The coefficient estimate for PR is now very precisely estimated.

As noted, however, the model suggests an interaction of ethnic diversity and inequality. Model 3 therefore adds the interaction of GINI and EP to model 1. The coefficient for EP is now positive and very precisely estimated ( $p=.04$ ) and the coefficient for GINI is positive and imprecisely estimated. But the interaction has the expected negative coefficient and is very precisely estimated ( $p=.02$ ). Thus, the estimated association between inequality and ethnic parties declines as ethnic polarization increases. Model 4 removes the variables from model 3 that are estimated with considerable error, and the coefficients for EP and the interaction of EP and GINI are even more precisely estimated than in model 3.

The magnitude of the coefficient for GINI and its standard error depend on the level of EP. The left panel in Figure 2 plots the marginal effect of the inequality coefficient and its 95-percent confidence interval at different levels of EP. At low levels of EP, the coefficient for GINI is positive – higher levels of inequality are associated with stronger ethnic bases of support for parties. The estimated coefficient is significant at the .05 level when EP is less than one-standard deviation below the mean EP. But consistent with the argument, this coefficient is declining in EP. When EP is above this level, the coefficient for GINI is no longer significant, and the estimated coefficient

Table 1: Inequality, ethnic diversity and the ethnic bases of parties

	(1)	(2)	(3)	(4)
GINI	0.115 (0.243)	0.160 (0.222)	0.116 (0.238)	0.054 (0.217)
EP	0.230 (0.173)	0.273* (0.151)	0.320** (0.148)	0.348*** (0.115)
GINI*EP			-0.387** (0.165)	-0.403*** (0.105)
PR	-0.744 (0.444)	-0.886** (0.364)	-1.046** (0.422)	-1.057*** (0.361)
OIL/DIAM	-0.457 (0.395)	-0.452 (0.374)	-0.362 (0.368)	-0.320 (0.342)
RESSEG	0.005 (0.235)		0.079 (0.220)	
GDP	0.075 (0.206)		-0.165 (0.217)	-0.118 (0.162)
POP	0.111 (0.222)		0.056 (0.211)	
AFRO2	0.435 (0.605)		-0.258 (0.676)	
AFRO3	0.766 (0.583)	0.520 (0.348)	0.090 (0.691)	
CSES	-0.437 (0.282)	-0.355 (0.260)	-0.333 (0.239)	-0.238 (0.224)
CONSTANT	0.766** (0.378)	0.957*** (0.304)	1.129** (0.419)	1.102*** (0.326)
N	63	64	63	64
R-squared	.33	.36	.44	.43

Note: The DV is PVP. Robust standard errors clustered by country in parentheses. \* p<.10, \*\* p<.05, \*\*\* p<.01

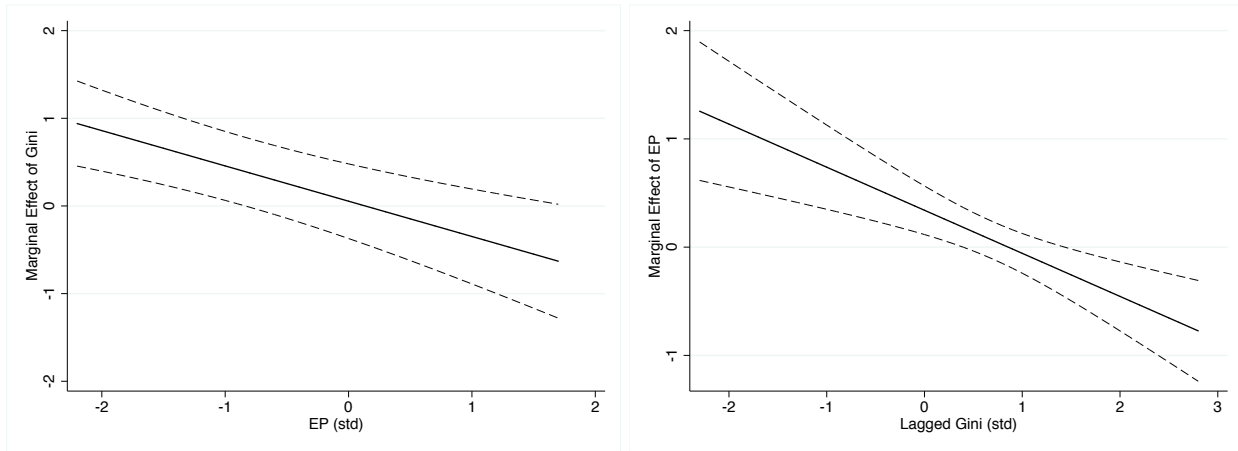


Figure 2: The marginal effect of GINI and EP on PVP

actually becomes negative (but not significant) when EP reaches its mean level. Thus, inequality is associated with a greater importance of ethnic identity in voting, but only when ethnic polarization is sufficiently low.

The right panel in the figure depicts the estimated coefficient for EP at different levels of GINI, along with its 95%-confidence interval. As expected, the estimated coefficient EP is positive but declining as GINI increases. When GINI is sufficiently low, an increase in EP is associated with an increase in PVP. The coefficient is statistically significant at the .05 level if the value of GINI is greater than a point that is slightly above the mean of EP. Thus, for both EP and GINI, the patterns in the data are largely consistent with the expectations from the model.

## 8 Discussion.

I conclude the paper by summarizing some of the central substantive implications and intuitions that emerge from analysis of the theoretical model, and by discussing some implications for future research.

*Electoral laws and party systems.* In the model, inequality and ethnic diversity should interact to influence party systems and identity choice under both PR and plurality systems. The central difference between the two electoral laws is that under some conditions, PR can undermine both class and ethnic politics by encouraging a coalition of the rich with the minority group. This



potential difference across electoral systems is driven by the assumption that under plurality rule, parties cannot credibly commit to supporting both ethnic and class groups. If hybrid parties – that is, parties that represent both a class and a group, such as a party of the rich and minority group – could form under plurality rule, there would be no difference in the model between outcomes under plurality rule and outcomes under PR. In situations where a party of the minority group and a party of the rich form a coalition under PR, under plurality rule we should expect the winning party to be one that appeals to voters who are rich or in the minority group. It may be perfectly reasonable to assume that it is more difficult for the same party to credibly commit to both an ethnic group and a class than it is for such coalitions to emerge after coalition bargaining. The poor in a minority group, for example, might reasonably worry that if they support a hybrid party representing the rich and the minority group under plurality rule and it wins, then the rich within this party might adopt policies that are disadvantageous to the poor. Such a poor voter might reasonably expect that if it supports a party that represents only the minority group to bargain on its behalf in the coalition politics of PR, there will be less risk. The model obviously cannot resolve this issue, but this discussion underlines the fact that the effects of electoral laws on identity choice and party systems might be driven principally by the ability of parties to credibly commit to multi-identity governing coalitions before elections (as they must under plurality rule) as opposed to after elections (as they can under PR). The greater the problems of *ex ante* commitment, the greater should be the differences between PR and plurality rule.

*Taxes, windfalls and ethnic politics.* The model also suggests that the dynamics of identity choice in elections should be similar when government revenues are derived from taxes on the rich compared with when government revenues are derived from exogenous sources, like natural resources. But when government revenues are derived from sources like oil, the conditions for ethnic politics are generally easier to satisfy. The reason is that with taxes, ethnic politics diminish government revenues by diminishing incentives of rich individuals who receive ethnic benefits to work. Thus, government revenues from income taxes are smaller under ethnic politics than under class politics, diminishing incentives for poor individuals in the winning ethnic groups to support ethnic politics. The model therefore suggests that research on ethnic politics should consider the effect of creating access to government resources based on ethnic identity on economic output.

*Party systems.* By considering the rent-seeking and policy incentives of entrepreneurs who

pay the cost to form parties, the model provides intuitions about why we often see party systems that have both ethnic and class-based parties. Rent-seeking incentives encourage entrepreneurs from winning parties to offer as little as possible to the voters they represent. The role of the losing party is to limit this rent-seeking behavior. If the social structure, for example, advantages one type of party – say a class party – a losing ethnic party still forms in equilibrium in order to force the winning party to offer as much as possible to the group it represents. Party entrepreneurs are willing to pay the cost of forming losing parties because they benefit from the policy that results.

*Rents for party entrepreneurs.* Since the rents for entrepreneurs are shaped by the platforms of losing parties, the model sheds light on how inequality and ethnic diversity can influence the level of rents in a political system. The losing party proposes to distribute the entire pie to its constituents, and thus the residual left for the winning party increases with the number of voters in the group represented by the winning party (because as this number increases, the winning party must provide a smaller amount to each voter it represents). In situations where ethnic politics prevails, for example, the rents to the ethnic party entrepreneur will increase with inequality (because the ethnic party entrepreneur need only pay  $\frac{\pi}{n_P}$  to the voters in her ethnic group in order to win). Similarly, if class politics prevails, the entrepreneur will gain more rents as society becomes more ethnically homogenous. In general, rents will increase as the number of voters in the group represented by the losing party grows large relative to the number of voters represented by the winning party. The model therefore highlights a pathway for linking the study of ethnic and class politics to opportunities for rent-seeking by politicians. Rent-seeking, should be high, for example, in societies that are ethnically diverse with high levels of inequality.

*Democracy and redistribution.* A central substantive implication of the model concerns the circumstances under which democracy should do the most to reduce inequality. Previous research has emphasized that ethnic diversity can diminish redistribution because inter-group antipathies, which are typically taken as exogenous, discourage voters from supporting general redistributive policies from which they would benefit in order to prevent benefits from reaching members from other groups (e.g., Gilens 1999, Alesina and Glaser 2003). As in these existing studies, in the model developed here, redistribution is lower when ethnic politics prevails than when class politics prevails. But the logic is quite different: lower redistribution occurs under ethnic politics because when class politics prevails, government resources go to all poor voters and to no rich voters, whereas

when ethnic politics prevails, government resources go to some voters who are rich (those in the winning ethnic group) and are denied to some who are poor (those in the losing ethnic group). Thus, when democratic politics centers on ethnic rather than class identity, elections have smaller redistributive effects. But these smaller redistributive effects are not due to the willingness of voters to make themselves worse off in order to harm voters from other groups. On the contrary, ethnic politics prevails out of the economic self-interest of voters. That is, when ethnic politics prevails, it is because poor voters in winning ethnic groups are better off economically when government resources are distributed based on ethnic rather than class identity. A rather sobering implication of this theoretical framework is that democracy will do the least to reduce inequality when inequality is highest because high inequality encourages less-redistributive ethnic politics.

*Democratic transitions.* Since the emergence of ethnic politics as opposed to class politics influences the redistributive consequences of democracy, the model could be usefully embedded into a framework theorizing about democratization itself. Studies such as Acemoglu and Robinson (2005) and Boix (2003) emphasize that when autocrats consider the possibility of transitioning to democracy, they consider how democracy will affect the autocrats' own economic well-being. Under the class-based models these studies invoke (where distribution occurs based on income), economic inequality raises the cost of democracy because it leads to larger rich-to-poor transfers. But the model here suggests that inequality might play a different role in this calculation. In particular, if high inequality is linked to the emergence of ethnic politics, and if ethnic politics benefit the rich in the winning group, then inequality may lead to a lower cost of democracy if the elites in autocracy are from the group that is expected to win under democracy. The model therefore provides a different sort of lens through which to examine the strategic incentives inherent to democratization, one which takes into account how the effect of inequality is mediated by the potential for ethnic politics, and one that can focus our attention on the ethnic identity of autocratic elites.

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