Minorities and Democratization*

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Abstract

We analyze the process of democratization in a polity with groups that are divided along ethnic as well as economic lines. We show that: (i) the presence of ethnic minorities, in general, makes peaceful democratic transitions less likely; (ii) minorities suffer from discriminatory policies less in democracies with intermediate levels of income inequality; and (iii) in new democracies with low levels of income inequality, politics is divided along ethnic lines, and at greater levels of inequality economic cleavages predominate.

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1 Introduction

Recent work on democratization emphasizes the importance of distributive conflicts among socioeconomic classes. The influential work by Acemoğlu and Robinson (2001, 2006), Boix (2003) and Rosendorff (2001) suggest that democracy is an equilibrium outcome of a conflict between income groups over the distributive implications of extending the franchise. Though such work has reinvigorated the study of democratization, its emphasis does not speak to the group-based conflicts that characterize many societies. Indeed, a large body of work in other fields has shown that conflicts between majority and minority groups, whether ethnic, religious or regional, have important implications for politics, and distributive politics in particular. So, in this paper we extend the logic underpinning recent distributive models of democratization to include identity-based groups. We develop a model that allows a discussion of the impact of minorities on democratization, the degree of violence characterizing democratic transitions in heterogeneous societies, the conditions under which new democracies will privilege group-based politics rather than distributive ones, and the extent of group-based discrimination in nascent democracies.

In developing such a model, we bring together two important, but heretofore disassociated bodies of literature—that on democratization and that on minority politics. Perhaps the most influential work in the former tradition is by Acemoğlu and Robinson (2001, 2006), who argue that ruling elites will voluntarily democratize when economic inequality is neither too high nor too low: in the former democracy would result in an unacceptably high levels of redistribution from the rich to the poor, while in the latter ruling elites do not need to democratize since the extra income to be gained by the poor in the case of a successful revolt is outweighed by the potential
costs of a failed revolt. Hence peaceful democratization should be observed mostly in
countries with intermediate levels of inequality.

While economic divisions are certainly one important factor affecting the possi-
bility and sustainability of democratic systems of governance, a glance around the
globe attests to the fact that ethnic, racial, religious or sectional divisions often play
a crucial and even decisive role. For example, the three-way sectional divisions in
Iraq have thus far frustrated attempts to build a vibrant, participatory democracy,
tribal loyalties in Sudan have embroiled that country’s central government in conflict
for over two decades, ethnic rivalries tore the new democracy in Czechoslovakia into
two countries, and Nigeria’s stability has been constantly threatened by tribal and
ethnic tensions that have at times toppled democratically elected governments. In-
 deed, there is a large body of literature showing that such cleavages can be equally, if
not more important than economic ones. From qualitative to quantitative to formal,
research shows that heterogeneous societies provide fewer public goods, have smaller
government, and more conflict (e.g. Alesina and Glaeser 2004, Shayo 2009). In a
set of findings particularly relevant for distributive models of regime type, it also
seems to be the case that the existence of minorities has important implications for
distributive preferences (e.g. Roemer 1998, Scheve and Stasavage 2006). Though the
precise mechanism is not clear, citizens in diverse societies prefer to redistribute less.

Thus, we have theoretical findings linking democratization to distributive struggles
and a separate body of work linking social heterogeneity to distributive struggles, and
it is surprising that the two literatures have not met. The literatures on minorities
and democratization tend to talk past one another: the minorities literature does not
address democratic transitions, while the transitions literature focuses on economic
incentives for democracy rather than ethnic, racial, religious divisions. We bring the
two literatures together by altering the Acemoğlu and Robinson model of political transitions to include a minority group; in particular, taxes can transfer wealth from rich to poor and/or from the minority group to the majority. The upper class starts in power and decides to democratize or not. If not, the lower class groups can attempt to democratize via revolution or not. Under autocracy, the upper class sets tax rates. Under democracy, a majority is needed to pass tax rates, and this majority can be either class-based or group-based. This setup allows us to assess the impact of minorities on democratization, examine if democratic transitions are likely to be more peaceful or violent in ethnically divided societies, discuss when new democracies revolve around ethnic as opposed to economic cleavages, and investigate the conditions under which democracy leads to less ethnic discrimination.

We find that ethnic divisions do impede transitions to democracy, for at least two reasons. First, under autocracy the minority ethnic group is already being exploited reduces the gains from a violent revolution, just as lower levels of income inequality reduce these gains in the benchmark model with no ethnic division. Thus we would predict that the larger the minority ethnic group — and in particular, the larger the upper class of the minority group — the less likely are democratic transitions. Second, which we do not explore in detail, a successful revolution may require cooperation between groups, and if trust has not been established among them to a sufficient extent, this may make potentially profitable collective action unobtainable.

We also find that minorities suffer the least discrimination under democracies with intermediate level of income inequality; here they are induced to be a part of the ruling coalition by lower levels of ethnic discrimination. In fact, under certain conditions, only lower-income citizens from the ethnic minority revolt against autocracy. Finally, politics in new democracies is ethnic-based for low levels of inequality and class-based
for high levels of inequality.

As for the empirical implications of our approach, previous empirical literature combined voluntary democratization with democracy via revolution. For example, neither Przeworski, et. al. (2000), Rodrik, et. al. (2004), nor Epstein, et. al. (2006) find any direct effect of ethnic fractionalization on the probability of a transition to democracy. Our model indicates that larger minority groups reduce the chances of voluntary democratization, but increase the odds of democracy via revolution. This finding suggests that empirical work should distinguish between these two paths to democracy, and the failure to do so might explain the weak findings linking ethnic fragmentation and democracy. Indeed, as Figure 1 shows, the probability of different types of democratic transitions does vary by ethnic fragmentation. While the overall relation between ethnicity and transitions is non-uniform, the two sub-trends of violent and peaceful transitions do fit the predictions of our model.

[FIGURE 1 HERE]

In the following section, we review the relevant literature. Then, in the next section we present our model. We then describe and analyze our equilibrium, present comparative statics, and review some variations of the basic model. We conclude in a final section, while we provide the full equilibrium analysis in the appendix.

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1 The figure was generated by analyzing regime data for 169 countries between 1960 and 2000 from Epstein, et. al. (2006). A democratic transition is a change to a score of 8 or higher on the -10 to 10 Polity scale, and a violent transition is a democratic transition taking place with a country experiencing civil or ethnic war, as defined in Goldstone, et. al. (2010). Note that the countries ranked below 0.25 on Herfindahl concentration index have high ethnic diversity where as countries ranked above 0.7 on Herfindahl concentration index have low ethnic diversity. Thus, the common measure of ethnic fractionalization is one minus the Herfindahl concentration index.
2 Literature Review

The political economy literature has long recognized the links between ethnicity (group identity), democracy, and redistribution as well as redistribution and regime transitions, while the implications of ethnicity for regime transitions largely remain an open question.

The earlier work on the relationship between ethnicity and democracy is mainly discussed through the lens of “democratic stability,” where the question is not whether, but to what degree ethnic cleavages reduce the long-term viability of democracies. In this literature, at one end of the spectrum, Rabushka and Shepsle (1972) argue that the two are simply incompatible, and Kaufman (1996) advocates complete separation of ethnic groups following bouts of violence. The participants in the consociationalism debate are more sanguine on the topic, although even Horowitz (1994, p. 37) admits that “things can be done... but there are good systemic reasons why it is difficult to produce institutions, conducive to emergence of multi-ethnic democracy.”

The explanations for the link between ethnicity and viability of democracies correspond to different theories of ethnic rivalries. For those scholars who see ethnic rivalries as modern-day expressions of primordial ethnic conflicts, democracy just gives these groups the freedom to attack each other. For those who see ethnic tensions not as predestined, but as the result of political processes, conflict arises from the incentives the politicians have in different political systems. In an influential statement of this view, Bates (1983, p 152) argues “ethnic groups represent, in essence, coalitions which have been formed as part of rational efforts to secure benefits created by forces

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of modernization-benefits which are desired but scarce.” Fearon (1999) addresses the question of why political coalitions in some countries are based on ethnicity and suggests that coalitions that want to capture political pork have an incentive to limit the size of winning coalition. In turn, they choose to distribute pork on criteria that cannot be easily chosen or altered, and ethnicity works better than other criteria like political affiliations or ideological beliefs. Similarly, Snyder (2000) suggests that leaders in new democracies can gain followers by advocating nationalistic policy programs that exclude others from power.

Recently, a growing literature recognizes the connection between group identity (ethnic, religious, racial or otherwise) and redistribution in democracy. These works show that heterogeneous societies redistribute less, grow less, provide fewer public goods, and more conflict, have smaller welfare states, and strong group identification reduces preferences for redistribution. For instance, Easterly and Levine (1997) place the blame for Africa’s growth "tragedy" at the door of ethnic divisions, showing that it was the most divided societies that had the worst post-colonization growth records. Alesina, Baqir and Easterly (1999) similarly show the negative correlation between ethnic fractionalization and overall GDP levels. Alesina and Glaeser (2004) argue that a significant component of the difference in the size of welfare states in the US as opposed to Europe is the higher degree of racial heterogeneity in the US. Lieberman (2009) shows that racial divisions inhibit governments’ response to AIDS epidemic.

The theoretical literature provides two broad ways through which strong group identities reduce preferences for redistribution: First, group identity can bring a second dimension to politics, and people that correctly identify their economic interests

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can be distracted by this second dimension, e.g. religion, race, national identity (de la O and Rodden 2008, Austen-Smith and Wallerstein 2006, Shayo 2009). Second, group identity can shape preferences for redistribution across income groups. For example, Scheve and Stasavage (2006) argue that religiosity makes one conservative regardless of income. Similarly, de la O and Rodden (2008) suggest that religious identification reduces preferences for redistribution, and Austen-Smith and Wallerstein (2006) show that racial politics, when affirmative action is an alternative way of redistribution, reduces preferences for redistribution in the way religious politics does. Luttmer (2001) argues that people support redistribution less if people that benefit from redistribution are from different races. Shayo (2009) introduces a model where group identity (class and nation) is included in the utility function of the voters. Here, whichever group a voter identifies with is endogenous to the status of the groups and the perceived similarity between a voter and other members of its group. Shayo shows that if the poor identify with the nation rather than with their class, then the poor tend to prefer lower levels of redistribution. Other scholars also argue politicians strategically use group differences to reduce redistribution (Alesina and Glaeser 2004) or shift voter preferences for redistributive politics in order to gain seats (Amat and Wibbels 2009).

All of these studies are suggestive as to the problems that ethnic divisions can bring to democracy, but they do not address democratic transitions, where the question is whether these problems are worse in democracy than in autocracy, and how they might affect the incentives of autocratic leaders to peacefully relinquish control. For instance, autocratic leaders often use ethnic divisions as a means to control the population, making outcomes even less efficient even without democratic rule.

On the other hand, studies of democratic transitions rarely address the problems
that ethnic divisions might cause, focusing instead on the role that income inequality plays in encouraging or discouraging transitions. Acemoğlu and Robinson (2001, 2006), for instance, develop a political economy model of regime transitions where the society is divided along economic lines. They show that the upper class will voluntarily democratize when the economic disparities are not too high or too low: in the former democracy would result in an unacceptably high level of redistribution from upper to lower class, and in the latter the ruling upper class do not need to voluntarily cede power since the return to redistribution for lower class under democracy will be too low.

In a similar vein, Rosendorff (2001) provides a formal model where the ruling elites face a revolutionary threat by the workers that may lead to the expropriation of the elites’ productive assets. Here, the elites may choose to fight or democratize. If the elites choose to democratize, this will lead to more redistribution to the workers, which may be preferable to a very costly conflict. Rosendorff argues that if the income inequality is lower at the beginning, then the redistributive losses the elites will suffer in democracy are not too large making democracy more tolerable for them.

Boix (2003) also develops a formal model of regime transitions where the population is divided along economic lines, and the upper class decides to repress the lower class to maintain autocracy or democratize. If the upper class represses the lower class, then the lower class decides to acquiesce or revolt. This model also generates results similar to the two models above, and Boix also discusses how the economic structure, in particular the extent to which the capital is mobile and the ability of agents to exit influence the costs of tolerating democracy.

These approaches take a similar view to the forces promoting or impeding democratization, but they don’t examine the possibility of ethnic divisions. The one
exception is Acemoğlu and Robinson (2006, pp. 203–7) who provide a brief model and
discussion to illustrate how democratic politics as well as regime transitions might
work when identities other than class are salient in the population. Our model differs
from theirs in two important respects: First, we allow for peaceful as well as violent
transitions to democracy. Second, in our model, taxes and transfers are set by a
coalition, which is formed through bargaining and may include both ethnic majority
and minority. In contrast, the ethnic majority always makes the decisions in democ-
racy in the Acemoğlu and Robinson model. Thus, the question of minorities and
democratization remains largely unaddressed, and in particular, the interplay of eth-
nic and economic divisions, and the possibility of cross-ethnic or cross-class coalitions
in democracy have yet to be investigated in a consistent manner. It is these issues
that we tackle in the present work.

3 Model

We present a variant of the Acemoğlu and Robinson (2001, 2006) model of democ-
ratization, adding the possibility that groups are divided along ethnic as well as
economic lines. The state starts out in autocracy, and can transition to democracy
either peacefully or via a revolution. Politics in either autocracy or democracy can
revolve around an ethnic or economic axis, depending on the distribution of wealth,
vio
lence potential, and the overarching political institutions in place at any given
time.
3 MODEL

3.1 Actors and Timing

3.1.1 Demographics

There is a continuum of risk neutral agents with measure 1. The society is segregated along two dimensions: income and ethnicity. Each agent belongs to upper class \( (u) \) or lower class \( (l) \); and belongs to ethnic group 1 or 2. Let \( t \in \{u, l\} \) denote an agent’s income group, \( i \in \{1, 2\} \) denote his ethnic group. Then \( ti \) denotes the type of an agent. Let \( \lambda_{ti} \in [0, 1] \) be the ratio of \( ti \) agents; \( \sum_{t,i} \lambda_{ti} = 1; \lambda_{i} = \sum_{t} \lambda_{ti} \) be the ratio of agents in income group \( i \); and \( \lambda_{t} = \sum_{i} \lambda_{ti} \) be the ratio of \( t \)-class agents. Without loss of generality, we assume that ethnic group 1 is the majority, i.e. \( \lambda_{1} > \lambda_{2} \). We also assume that the upper class is a minority, i.e. \( \lambda_{u} < \lambda_{l} \). For simplicity, we assume that the ratio of the upper class agents within each ethnic group is the same. So \( \lambda_{u1}/\lambda_{l1} = \lambda_{u2}/\lambda_{l2} = \lambda_{u} \), \( \lambda_{ti} = \lambda_{i}\lambda_{t} \) for all \( t \) and \( i \), and \( l1 \) is the largest group.\(^5\)

3.1.2 Economy

Let \( x \) be the total income. Upper class agents share \( x_{u} = \alpha x \) equally, and lower class agents share \( x_{l} = (1 - \alpha)x \) equally, where \( \alpha \in (0, 1) \). Then an upper class agent’s income is \( x_{ui} = \frac{\alpha x}{\lambda_{u}} \), and a lower class agent’s income is \( x_{li} = \frac{(1-\alpha)x}{\lambda_{l}} \), \( i \in \{1, 2\} \). An upper class agent’s income is larger than a lower class agent’s income, i.e. \( x_{ui} > x_{li} \), which is equivalent to \( \alpha > \lambda_{u} \), so \( \alpha \) measures income inequality. The total income of group \( i \) agents is \( x_{i} = \lambda_{ui}x_{ui} + \lambda_{li}x_{li} = \lambda_{i}x \).

Parallel to Acemoğlu and Robinson, we assume that the government can tax group 1, group 2 and upper class agents via income taxes and distribute the tax revenues equally. We will refer to a tax imposed on an ethnic group as an *ethnic tax*, and the

\(^5\)Our equilibrium analysis goes through without this assumption. However, the assumption simplifies graphical presentation of the results and the comparative statics analysis without compromising our qualitative claims.
tax imposed on the upper class as an \textit{economic tax}.\footnote{The ethnic tax should be thought of as a set of institutions, both economic and political, that reduce the income of the taxed ethnic group ($i$) and increase that of the other group ($j$). For an example of a model with similar microfoundations, and a review of the relevant literature, see Alesina and La Ferrara (2005). Ethnic taxes will create economic inefficiencies (as do all taxes), so that the amount of income gained by $j$ will be less than that lost by $i$. We abstract from such considerations here, but they could be incorporated into model extensions.} Let $\tau_i$ denote the ethnic tax rate imposed on group $i$, $\tau_u$ the economic tax rate imposed on the upper class, and $T$ the per capita transfers. Then disposable incomes of agents are given as follows:

\[
\begin{align*}
    y_{u1} &= (1 - \tau_1)(1 - \tau_u)x_{u1} + T, \\
    y_{l1} &= (1 - \tau_1)x_{l1} + T, \\
    y_{u2} &= (1 - \tau_2)(1 - \tau_u)x_{u2} + T, \\
    y_{l2} &= (1 - \tau_2)x_{l2} + T.
\end{align*}
\]

We impose a balanced budget, so total transfers must be equal to total tax revenues:

\[
T = [1 - (1 - \tau_u)(1 - \tau_1)]\lambda_{u1}x_{u1} + [1 - (1 - \tau_u)(1 - \tau_2)]\lambda_{u2}x_{u2} + \tau_1\lambda_{l1}x_{l1} + \tau_2\lambda_{l2}x_{l2}.
\]

3.1.3 Politics

Tax rates are set by the political process, which is either democratic or autocratic, each with its own basis for allocating resources. Initially, the political regime is authoritarian and $u1$ is in power, allowing this group to set policy unilaterally. If power is not ceded voluntarily, then it can only be seized by force via a revolution. Under democracy, policy must be ratified by a majority. This already gives us some indication of how ethnic minorities will be rewarded in either system: in autocracy, they will succeed in proportion to their violence potential, while in democracy it is
their numbers that are important.

When a fraction $\lambda$ of the population uprisens, the probability of a successful revolution $p = \nu \lambda$ is proportional to the size of the uprising mass. The coefficient $\nu$ measures the efficiency with which force is used by the insurgents. The total cost of uprising is proportional to the damage done to the economy ($\psi$) as well as to the size of the uprising mass and the size of the economy, $c = \psi \lambda x$, which is also the per capita cost to all members of society. This captures the notion that a more widespread rebellion is likely to do more damage to the productive resources of the economy.

Democratization can occur through two routes: peacefully, or via a lower class revolution. As illustrated in Figure 2, the timing of the moves is as follows:

1. $u_1$ decides whether to democratize or not.

2. If $u_1$ democratizes, the regime switches to democracy.

3. If $u_1$ decides not to democratize, lower class agents $l_1$ and $l_2$ independently decide whether to revolt. If the uprising is successful, the regime switches to democracy. Otherwise, the regime remains autocratic.

4. Under autocracy, $u_1$ sets $(\tau_u, \tau_1, \tau_2)$. Note that once tax rates are set, the corresponding transfer is determined by the balanced budget condition.

5. Under democracy, the largest group ($l_1$) makes a proposal for $(\tau_u, \tau_1, \tau_2)$. If the proposal is accepted by a majority, then it is implemented. If it is rejected, then a no-tax reversion point $\tau_u = \tau_1 = \tau_2 = T = 0$ is implemented.

[FIGURE 2 HERE]
3.2 Equilibrium

We predict the outcome of this game by its symmetric subgame perfect equilibrium, where agents of the same type adopt the same strategy.

We provide the formal statements of equilibria and proofs in the appendix; here we summarize the equilibrium and provide the intuition behind the actions that the various groups take. The full equilibrium is illustrated in Figure 3, drawn for \( \lambda_{l1} < \frac{1}{2} \). The case where \( \lambda_{l1} \geq \frac{1}{2} \) gives group \( l_1 \) all the power in democracy corresponds to Region 3 in the figure.

[FIGURE 3 HERE]

To understand the actors’ equilibrium behavior, working from the end of the game backward, let us begin with the fact that in autocracy, the group in power, \( u_1 \), maximizes its revenue by taxing ethnic group 2 (\( \tau_2 = 1 \)), but levying no economic tax (\( \tau_u = 0 \)). Since the tax rates for a given period are set only after the democratization and revolution decisions, \( u_1 \) has no incentives to do anything other than get the highest transfer possible. In particular, \( u_1 \) cannot commit to future redistribution under autocracy; democratization provides the only source of credible commitment.

To find out whether \( u_1 \) in fact democratizes, we must look ahead to see what outcomes would result under democracy. If group \( l_1 \) has over half the population, then democratic politics is essentially a dictatorship by this group, which will set maximal ethnic and economic taxes to get the highest transfer possible. If it has under half the population, though, it must find a coalition partner, and its natural allies are \( l_2 \) for a lower class coalition, or \( u_1 \) for an ethnic coalition.

When economic inequality (measured by \( \alpha \)) is high (Region 2 or 3 in Figure 4), the gains to taxing the rich are high as well. This gives \( l_1 \) incentives to attract the
support of $l_2$ in a democracy. In fact, if inequality is high enough (Region 3), $l_1$ can propose a high ethnic tax as well ($\tau_2 = 1$), and $l_2$ will agree since the gains from the economic tax are so large. As inequality begins to fall (to Region 2), $l_1$ keeps $l_2$ as a partner but lowers the ethnic tax to make $l_2$ just indifferent. But if inequality is low enough (Region 1), the returns from the economic tax are too small to offset the concessions made to group 2. In this case, $l_1$ prefers to team with $u_1$, lowers $\tau_u$ to less than 1, and sets the ethnic tax to 1. Thus, discrimination against minorities in democracies is lowest at intermediate levels of income inequality. Table 1 summarizes tax rates, transfers and the disposable income levels under democracy.

**Table 1**

Backing up to the revolution stage, we find that a revolt is most attractive when the violence potential ($\nu$) is high and the damage to the economy ($\psi$) is low. Beyond that, groups will rebel when their payoffs in democracy most greatly exceed their payoffs under autocracy. Each of $l_1$ and $l_2$ benefit equally from an increase in the economic tax, but $l_2$ specifically gains from the reduction in the ethnic tax in the intermediate-inequality range discussed above. Thus we have the interesting result that for intermediate values of inequality ($\alpha$), there are conditions under which only the ethnic minority revolts.\(^7\)

Finally, $u_1$ has no incentives to democratize if neither $l_1$ nor $l_2$ would revolt, so the question is whether $u_1$ will democratize peacefully when credibly threatened with an uprising. Ceding power would avoid a potentially costly revolt, but it makes certain a transition that is only probabilistic otherwise. Group $u_1$ has more incentives to go

\(^7\)Notice that this holds even though $l_2$ knows that $l_1$ will make the first offer in democracy and thus obtain all the surplus value in the coalition. The incentives for $l_2$ alone to revolt would thus only increase if, upon successfully overthrowing the autocracy, it got to make the first offer instead of $l_1$.\]
the peaceful route as violence potential and damage to the economy via revolution rise, since they will suffer more under the revolution. Combining this with the result in the previous paragraph (that incentives to revolt rise when damage done to the economy is low), we conclude that peaceful transitions occur for intermediate values of damage $\psi$. Above this range, no transition occurs since incentives for a revolt are quite low and below this range, transition comes only through revolution. Group $u1$ is also more willing for a transition when inequality is low, so that it will be part of the winning coalition in democracy, and less willing when $l1$ is over half the population, in which case $l1$’s strength works against it.

### 3.3 Discussion

Comparing the predictions of our model with those of Acemoğlu and Robinson, note that the case of no ethnic divide corresponds to $\lambda_2 = 0$. Since the lower class comprises the majority, $\lambda_2 = 0$ implies that $\lambda_1 = 1$ and $\lambda_{l1} > \frac{1}{2}$, which corresponds to Region 3 of our analysis in Figure 4 above.

In that region, our model predicts that peaceful democratization occurs if $\frac{u_1}{\nu \lambda_1} \leq \frac{\lambda_{u \psi}}{1-\lambda_{u \psi}}$, whereas in Acemoğlu and Robinson the corresponding region becomes $\frac{\psi}{\nu} \leq \frac{\lambda_{u \psi}}{1-\lambda_{u \psi}}$ after replacing $\lambda_1 = 1$. Since $\lambda_1 < 1$ and $\frac{\lambda_{u \psi}}{1-\lambda_{u \psi}} < 1$, our lower bound is higher and our upper bound is lower, compared with Acemoğlu and Robinson. So peaceful democratization becomes less likely the larger the minority group. And since revolutions occur for values of inequality $\alpha$ above this region, they become more likely with larger minority groups.

An alternative way to look at the comparative statics with respect to the size of ethnic minority $\lambda_2$ is to fix inequality $\alpha$ and define the peaceful democratization region in terms of the economic damage via revolution $\psi$. In general, $l2$ uprises
whenever \( l1 \) uprises, and \( u1 \) does not democratize if \( l1 \) does not revolt. As mentioned above, in Region 3 of our analysis, democratization occurs if \( \frac{\psi}{\nu \lambda_1} \leq \alpha \leq \frac{\lambda u \lambda_1}{1 - \lambda_1 \nu} \), or equivalently if \((\frac{1}{\lambda_1} - \nu)(\frac{1}{\lambda_u} - \lambda_1) \equiv \psi \leq \psi \equiv \lambda \alpha \lambda_1 \). In other words, if \( \psi \) is larger than \( \psi_h \), the economic damage of revolution is large enough that \( l1 \) will not revolt, so the upper class does not democratize; if \( \psi \) is smaller than \( \psi_l \), the economic damage of revolt is small enough that the upper class does not avert a revolution in any case.

Peaceful democratization occurs in the middle region \( \psi_l \leq \psi \leq \psi_h \). We denote the length of that region by \( D = \psi_h - \psi_l \). We also denote the length of the revolution region, where both lower classes uprise, by \( R = \psi_l - 0 = \psi_l \). Table 2 summarizes the comparative statics with respect to \( \lambda_2 \) in all regions.\(^8\) As shown, larger minority groups make peaceful democratization less likely in almost all cases, and they make violent revolution more likely in all regions.

\[\text{[TABLE 2 HERE]}\]

What drives these comparative statics? An increase in \( \lambda_2 \) means a decrease in \( \lambda_1 \), that is, shrinking \( u1 \) and \( l1 \). In Region 3, the difference between the tax base in autocracy and democracy is the wealth of \( u1 \), since the rich minority \( u2 \) is maximally taxed under either regime. As the size of the minority group \( \lambda_2 \) grows, \( u1 \) shrinks, which dulls the incentives for democratic transition all around. For the lower class, it means less extra revenue from taxing the rich, and so makes them less willing to revolt. For \( u1 \), it means that their wealth will be taxed away and spread among not only lower classes but a larger ethnic minority as well, so they are less willing to cede power and more willing to risk a revolution. Hence the middle region in Figure 3(b) is squeezed from the top and the bottom, making peaceful democratization less likely and a violent revolution more likely.

\(^8\)Also, for some values of \( \psi \) in Region 2, only \( l2 \) uprises in autocracy.
In the limit, as $\lambda_2$ goes to 0, peaceful transitions are more likely than for any positive value of $\lambda_2$. This extends the results analyzed in Region 3 above: as long as the equilibrium coalition in democracy is class-based, that is, $l_1$ and $l_2$ form a majority coalition, ethnic divisions make transitions less likely. However, the economic drive behind this result in Region 2 is slightly different than that in Region 3. In Region 2, ethnic minority lower class $l_2$ is more willing to uprise than $l_1$ and $u_1$ does not democratize when $l_1$ does not uprise. So the democratization region is determined by $l_1$’s decision to uprise and $u_1$’s decision to democratize. Also, the differences between the tax base in autocracy and democracy are the wealth of $u_1$ and the wealth of $l_2$, since the rich minority $u_2$ is maximally taxed under either regime. As the size of the minority group $\lambda_2$ grows, the tax revenues collected from $l_2$ grow in both autocracy and democracy; however as $u_1$ shrinks, the tax revenues collected from $u_1$ drop in democracy, making democracy economically less attractive for $l_1$ and making $l_1$ less willing to revolt. As in Region 3, for $u_1$, it means that their wealth will be taxed away and spread among a larger group, so they are less willing to democratize peacefully and more willing to risk a revolution.

The only time that this relation fails to hold is when the equilibrium democratic coalition is $l_1 - u_1$ in Region 1, which is based on exploiting minorities to the maximum extent possible. In that region, as the size of the minority group $\lambda_2$ grows, the economic tax on $u_1$ in democracy increases at a diminishing rate,\textsuperscript{9} and the size of $u_1$ shrinks linearly. The net impact of that change on the tax revenues collected from $u_1$ depends on the value of $\lambda_2$. For smaller ethnic minority groups, the increase in the economic tax rate outweighs the drop in the size of $u_1$, making democracy more valuable for lower classes. In contrast, for larger ethnic minority groups, the drop in

\textsuperscript{9}The economic tax in democracy, $\tau_u$, is a concave and increasing function of $\lambda_2$ in Region 1.
the size of $u_1$ outweighs the increase in the economic tax rate, dulling the incentives for transition to democracy.

Finally, although a violent revolution by both lower classes becomes more likely as the size of the ethnic minority $\lambda_2$ increases in Region 2, the interval of damage to the economy via revolution $\psi$ in which only $l_2$ uprises shifts down and shrinks. This region is determined by $l_1$ and $l_2$’s decisions to revolt. As the size of the ethnic minority grows, $l_2$’s disposable income increases in autocracy, whereas it remains constant in democracy so that $l_2$ becomes less willing to revolt, and the upper line in Region 2 in Figure 4 shifts down. An increase in the size of the ethnic minority also shifts down the middle line, which determines $l_1$’s decision to revolt, but at a slower rate. Because, while $l_1$’s disposable income increases in autocracy, it also increases in democracy but at a slower pace, dulling $l_1$’s incentives to revolt at a slower pace accordingly.

Summing up, both ethnic and class divisions appear in autocracy, since the autocrat cannot gain anything by setting economic tax greater than zero or ethnic tax less than one. Similar results obtain in democracy, when inequality is high ($\alpha > \hat{\alpha}$) or when $l_1$ comprises over half the population. Otherwise, it is economic factors that determine the axis around which politics is organized. When inequality is low ($\alpha < \alpha^*$), ethnic coalitions form with the majority oppressing the minority. When inequality is intermediate ($\alpha^* < \alpha < \hat{\alpha}$), class-consciousness develops, and the lower class coalition $l_1 - l_2$ expropriate the wealth of the rich. Furthermore, if the cost of revolution is high, the lower class has no incentive to revolt and autocracy is stabilized. If the cost is low, the upper class prefers a risky revolution to a peaceful democratization. Therefore democratic transition occurs peacefully only for intermediate values of the cost of revolution. Finally, larger minority groups make peaceful democratization less
likely for moderate and high levels of income inequality ($\alpha > \alpha^*$), and they make violent revolution more likely for all levels of income inequality.

4 Conclusion

This essay investigated the questions of when the presence of an ethnic minority impacts the likelihood of a democratic transition, and when politics revolves around minority issues. Our model allows for either class-based or ethnically-based coalitions, the former bent on taxing the rich’s wealth, and the latter based on extracting discrimination rents from the smaller ethnic group. We find that class-based coalitions are more likely when economic inequality is higher, while more equal wealth distributions give rise to ethnically-based discrimination. These themes are important in the comparative analysis of institutional arrangements, and they bear more systematic theoretical and empirical investigation, which we leave to future work.

Finally, the one defining characteristic of ethnic minorities in the model is that they exist on a non-economic dimension. What distinguishes ethnicity from other non-economic variables such as religion, language, or region is the low rate of mobility across groups over time.\textsuperscript{10} We could modify our model to accommodate this possibility by adding a second period to the game, identical to the first, except that with some probability each lower class individual has transitioned to the upper class, and vice-versa, but with no movement between the ethnic groups.

Such multi-period models with inter-generational mobility are examined in Lev-entöglu (2005, 2012), and have the property of making the classes more sympathetic

\textsuperscript{10}Indeed, this is the basis for treating race as a suspect category in U.S. law under the 14th Amendment’s equal protection clause, requiring strict scrutiny. Thus any legal classification based on race must be narrowly tailored to achieve a compelling state interest. But see Laitin (1998) for an argument that racial boundaries are at least partially permeable.
to each other. In other words, it is as if the utility functions of the upper classes included some positive weight on the utility of the lower classes, and vice-versa. Relative to the base model, this should increase the likelihood of peaceful transitions and reduce economic taxes in equilibrium. But relative to a model with no ethnic divisions, the equilibrium could well exhibit fewer peaceful transitions to democracy and more violent revolutions. Thus ethnic conflict could work against the possibility of non-violent transitions.

A Equilibrium Analysis

We summarize the equilibrium in this section and the analysis in the following sections. Define the following critical values of income inequality:

$$\alpha^* = \frac{\lambda_2(1 - \lambda_2)}{1 - \lambda_{u1}} < 1, \text{ and } \hat{\alpha} = \frac{1 - \lambda_{l2}}{1 + \lambda_{l1}} \in (\alpha^*, 1).$$

Then define Region 1 (Low Inequality and Large Minority) as $\alpha \leq \alpha^*$; Region 2 (Intermediate Inequality and Large Minority) as $\alpha^* \leq \alpha \leq \hat{\alpha}$; and Region 3 (High Inequality or Small Minority) as $\alpha \geq \hat{\alpha}$.

**Upper Class Actions**

Under autocracy, $u1$ always implements $(\tau_u = \tau_1 = 0, \tau_2 = 1)$. The following conditions summarize $u1$’s equilibrium democratization decision:

- **Region 1**: When $\lambda_{l1} < \frac{1}{2}$ and $\lambda_u \leq \alpha < \alpha^*$, $u1$ democratizes if and only if $(\frac{1}{\lambda_1} - \nu)\lambda_2 \leq \psi \leq \nu \frac{\lambda_{ul1}}{1 - \lambda_{u1}} \lambda_2$.

- **Region 2**: When $\lambda_{l1} < \frac{1}{2}$ and $\alpha^* \leq \alpha < \hat{\alpha}$, $u1$ democratizes if and only if $(\frac{1}{\lambda_1} - \nu)(\lambda_2 + \frac{\lambda_{l1} \alpha}{\lambda_u(1 - \lambda_{l2})}) \leq \psi \leq \nu(\frac{\alpha}{1 - \lambda_{l2}} - \lambda_2)$.

- **Region 3**: When $\lambda_{l1} \geq \frac{1}{2}$ or $\alpha \geq \hat{\alpha}$, $u1$ democratizes if and only if $(\frac{1}{\lambda_1} - \nu)(\frac{1}{\lambda_u} - \lambda_1) \alpha \leq \psi \leq \nu \alpha \lambda_1$.

**Lower Class Actions**

The equilibrium behavior of lower class agents, including the decision to uprise or not, and which coalitions to form in democracy, are given as follows:

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11In fact, $\tau_1 = 0$ in all equilibria of the game, so from here on we will omit it from the summary analysis.
A. EQUILIBRIUM ANALYSIS

First we will show that the regime may switch to democracy either if an uprising occurs. Let $x_i$ denote the disposable income of $ti$ agents, $T_d$ denote the transfers in equilibrium under democracy.

Case 1: $\lambda_{l1} \geq \frac{1}{2}$.

$L1$ can implement any tax-transfer scheme, since $l1$ alone constitutes the majority. Then $l1$ optimally sets $\tau_1 = 0$, that is it does not tax its ethnic group; $\tau_u = \tau_2 = 1$, it taxes the upper class and ethnic minority group (group 2). Then $T_d = x_u + \lambda_{l2}x_{l2} = x_2 + \lambda_{u1}x_{u1} = x_2 + \alpha x_1$. The disposable incomes under democracy are given as follows:

$$y_{u1}^d = y_{u2}^d = y_{l2}^d = T_d,$$

$$y_{l1}^d = x_{l1} + T_d.$$

Case 2: $\frac{1}{2} > \lambda_{l1} \geq \lambda_{l2}$.

$L1$ is the largest group, however, it needs a coalition partner to form a majority. First we will show that $l1$ forms a majority with either $u1$ or $l2$. $l1$ does not include $u2$ in any majority.
\(\lambda_1 > \frac{1}{2}\) and \(\lambda_1 > \frac{1}{2}\) imply that \(l1\) can form a majority coalition with either \(u1\) or \(l2\). Suppose that \(l1\) forms a majority coalition with \(u2\). In that case, (i) if \(l1\) sets \(\tau_u > 0\) then it has to set \(\tau_1 > 0\) in order to gain \(u2\)’s support. Then \(l1\) would do better by forming a majority with \(l2\), since \(l2\) would vote for \(\tau_u > 0\) and \(\tau_1 = 0\). (ii) If \(l1\) sets \(\tau_2 > 0\) then it has to set \(\tau_1 > 0\) in order to gain \(u2\)’s support. Then \(l1\) would do better by forming a majority with \(u1\), since \(u1\) would vote for \(\tau_2 > 0\) and \(\tau_1 = 0\). Second, \(l1\) will prefer to keep \(u2\) out of the majority, since adding a new group to a majority constrains \(l1\) further. This proves our claim.

\(l1\) will choose its majority coalition partner in order to maximize its disposable income. In order to summarize the equilibrium outcome and payoffs under democracy, first define the following critical levels of income inequality: \(\check{\alpha} = \frac{\lambda_u}{1-\lambda_u}; \alpha^* = \frac{\lambda_2(1-\lambda_2)}{1-\lambda_u}\), and \(\hat{\alpha} = \frac{1-\lambda_2}{1-\lambda_1}\). Then it is easy to show that (i) \(\check{\alpha} < \lambda_u\); (ii) \(\alpha^* < \check{\alpha} < 1\). Since \(\lambda_u < \alpha\) by assumption, the region \(\alpha < \alpha^*\) is relevant only if \(\lambda_u < \alpha^*\).

Next we analyze \(l1\)’s optimal decision in democracy.

If \(l1\) forms a majority with \(l2\), then \(l1\)’s optimal tax proposal will be, \(\tau_u = 1\) and \(\tau_2 = \max \tau \text{ subject to } T_d(\tau) \geq \tau x_{12}, \) where \(T_d(\tau) = x_u + \lambda_2 \tau x_{12}\). That is, \(l1\) fully taxes the upper class, and proposes the maximum tax rate \(\tau_2\) that \(l2\) would accept. Note that \(T_d(\tau)\) is the transfer generated by the tax scheme (\(\tau_u = 1, \tau_2 = \tau\)). \(l2\) votes for (\(\tau_u = 1, \tau_2 = \tau\)) only if the transfer it will receive, \(T_d(\tau)\), is greater than or equal to the tax it will pay, \(\tau x_{12}\). Otherwise, \(l2\) does not vote for the proposal, the status quo tax rates \(\tau_u = \tau_2 = 0\) are implemented, and \(l2\) avoids paying tax.

So, if \(l1\) forms a majority with \(l2\), \(l1\)’s optimal proposal is \(\tau_u = 1\) and \(\tau_2 = \min\{1, \frac{x_u}{(1-\lambda_2)x_{12}}\}\). Note that \(\tau_2 = 1\) if \(\alpha \geq \hat{\alpha}\), and \(\tau_2 = \frac{x_u}{(1-\lambda_2)x_{12}}\) otherwise. When \(\alpha \geq \check{\alpha}\), \(l2\) votes for \(\tau_u = \tau_2 = 1\), which is \(l1\)’s unconstrained optimal. So, \(l1\) forms a majority with \(l2\) when \(\alpha \geq \hat{\alpha}\).

If \(\alpha < \check{\alpha}\) and \(l1\) forms a majority with \(l2\), then it proposes \((\tau_u = 1, \tau_2 = \frac{x_u}{(1-\lambda_2)x_{12}})\) and \(l2\) accepts the proposal. Then the transfer is given by \(T_d = \frac{x_u}{1-\lambda_2}\).

If \(\alpha < \check{\alpha}\) and \(l1\) forms a majority with \(u1\), then \(l1\)’s optimal tax proposal will be, \(\tau_2 = 1\) and \(\tau_u = \max \tau \text{ subject to } T_d(\tau) \geq \tau x_{u1}, \) where \(T_d(\tau) = x_u + \lambda_1 \tau x_{u1}\). That is, \(l1\) fully taxes group 2 agents, and proposes the maximum tax rate \(\tau_u\) that \(u1\) would accept. Note that \(T_d(\tau)\) is the transfer generated by the tax scheme (\(\tau_u = \tau, \tau_2 = 1\)). \(u1\) votes for (\(\tau_u = \tau, \tau_2 = 1\)) only if the transfer it will receive, \(T_d(\tau)\), is greater than or equal to the tax it will pay, \(\tau x_{u1}\). Otherwise, \(u1\) does not vote for the proposal, the status quo tax rates \(\tau_u = \tau_2 = 0\) are implemented, and \(u1\) avoids paying tax. So, \(l1\) proposes \((\tau_u = \frac{x_u}{(1-\lambda_1)x_{u1}}, \tau_2 = 1)\) and \(u1\) accepts the proposal. Note that \(\tau_u < 1\) if and only if \(\alpha > \hat{\alpha}\). Since \(\alpha > \lambda_u > \hat{\alpha}\), \(\tau_u < 1\) and the transfer is \(T_d = \frac{x_u}{1-\lambda_u}\).

A comparison of these alternative transfers gives \(l1\)’s optimal decision when \(\alpha < \check{\alpha} : l1\) forms a majority with \(l2\) if and only if \(\frac{x_u}{1-\lambda_2} \geq \frac{x_u}{1-\lambda_1}\), or equivalently \(\alpha \geq \alpha^*\).

To summarize the equilibrium in democracy:

1. If \(\lambda_u \leq \alpha < \alpha^*\) (Region 1), \(l1\) forms a majority with \(u1\). The optimal tax rates and the corresponding disposable incomes are given as follows: \(\tau_2 = 1,\)
\[ \tau_u = \frac{x_2}{(1-\lambda_{u1})x_{u1}}, \quad T_d = \frac{x_2}{1-\lambda_{u1}}, \quad \text{and} \]

\[
\begin{align*}
y_{u1}^d &= x_{u1}, \\
y_{l1}^d &= x_{l1} + T_d, \\
y_{l2}^d &= y_{u2}^d = T_d.
\end{align*}
\]

2. If \( \alpha \geq \alpha^* \), \( l1 \) forms a majority with \( l2 \). The optimal tax rates and the corresponding disposable incomes are given as follows:

(a) if \( \alpha^* \leq \alpha < \hat{\alpha} \) (Region 2), then \( \tau_e = 1, \quad \tau_2 = \frac{x_u}{(1-\lambda_{l2})x_{l2}}, \quad T_d = \frac{x_u}{1-\lambda_{l2}}, \quad \text{and} \)

\[
\begin{align*}
y_{u1}^d &= y_{u2}^d = T_d, \\
y_{l1}^d &= x_{l1} + T_d, \\
y_{l2}^d &= x_{l2}.
\end{align*}
\]

(b) if \( \alpha \geq \hat{\alpha} \) (Region 3), then \( \tau_2 = \tau_u = 1, \quad T_d = x_2 + \alpha x_1, \quad \text{and} \)

\[
\begin{align*}
y_{u1}^d &= y_{u2}^d = y_{l2}^d = T_d, \\
y_{l1}^d &= x_{l1} + T_d.
\end{align*}
\]

A.2 Autocracy

If the regime remains autocratic, \( u1 \) optimally sets the tax rates as follows: \( \tau_2 = 1, \quad \tau_1 = \tau_u = 0 \). Then, the transfer is given by \( T_a = x_2 \), and the disposable incomes are given as follows:

\[
\begin{align*}
y_{u1}^a &= x_{u1} + T_a, \\
y_{l1}^a &= x_{l1} + T_a, \\
y_{u2}^a &= T_a, \\
y_{l2}^a &= T_a.
\end{align*}
\]

A.3 Equilibrium

Given the equilibrium tax rates under democracy and autocracy:

**Lower Class Actions**

If \( u1 \) decides not to democratize, then each lower class group decides whether to uprise or not in the following subgame. Consider groups \( li \) and \( lj \), \( i \neq j \). Let \( \gamma_j = 0 \) if \( lj \) does not uprise, \( \gamma_j = 1 \) if \( lj \) uprises. Given \( lj \)'s decision, group \( li \) uprises if and only if

\[
(1-(\gamma_j\lambda_{lj}+\lambda_{li})\nu)y_{ti}^a + (\gamma_j\lambda_{lj}+\lambda_{li})\nu y_{li}^d - (\gamma_j\lambda_{lj}+\lambda_{li})\psi x > (1-\gamma_j\lambda_{lj}\nu)y_{ti}^a + \gamma_j\lambda_{lj}\nu y_{li}^d - \gamma_j\lambda_{lj}\psi x
\]
If $l_i$ uprises, the size of uprising mass becomes $\gamma_j \lambda_{ij} + \lambda_{li}$. Then the uprising fails with probability $1 - (\gamma_j \lambda_{ij} + \lambda_{li}) \nu$, in this case $l_i$'s disposable income is given by $y_{li}^d$. The uprising is successful with probability $(\gamma_j \lambda_{ij} + \lambda_{li}) \nu$, in this case $l_i$'s disposable income is $y_{li}^a$. The per capita cost of uprising is $(\gamma_j \lambda_{ij} + \lambda_{li}) \psi x$. Thus, the left hand side of the above inequality is $l_i$'s expected payoff from uprising. If $l_i$ does not uprise, then the size of uprising mass is given by $\gamma_j \lambda_{ij}$, and $l_i$'s expected payoff can be calculated accordingly as in the right hand side of the above inequality. Equivalently, $l_i$ uprises if and only if

$$\nu (y_{li}^d - y_{li}^a) > \psi x.$$ 

So, $l_i$'s decision is independent of $l_j$'s decision and vice versa.

**Upper Class Actions**

Let $\gamma_i$ denote $l_i$'s equilibrium uprising decision in the subgame when $u_1$ does not democratize. Then $u_1$ democratizes if and only if

$$y_{u1}^d \geq (1 - \sum_i \gamma_i \lambda_{li}) y_{u1}^a + (\sum_i \gamma_i \lambda_{li}) \nu y_{u1}^d - \sum_i \gamma_i \lambda_{li} \psi x$$

If $u_1$ democratizes, $u_1$'s payoff is given by $y_{u1}^d$. If $u_1$ decides not to democratize, lower class groups decide whether to uprise. The uprising fails with probability $1 - (\sum_i \gamma_i \lambda_{li}) \nu$, in this case $u_1$'s disposable income is given by $y_{u1}^a$. The uprising is successful with probability $(\sum_i \gamma_i \lambda_{li}) \nu$, in this case $u_1$'s disposable income is $y_{u1}^d$. The per capita cost of uprising is $(\sum_i \gamma_i \lambda_{li}) \psi x$. Thus, the right hand side of the above inequality is $u_1$'s expected payoff from not democratizing. Let $\delta = 1$ if $u_1$ democratizes, and $\delta = 0$ otherwise.

$$\delta = 1 \text{ if and only if } \sum_i \gamma_i \lambda_{li} \psi x \geq (1 - (\sum_i \gamma_i \lambda_{li}) \nu) (y_{u1}^a - y_{u1}^d).$$

Now, we can work out the equilibrium in every case. Suppose that $\lambda_{l1} < 1/2$. The analysis of Region 3 applies for the case $\lambda_{l1} \geq 1/2$ directly.

- **Region 1:** $\lambda_u \leq \alpha < \alpha^*$.

The tax rates in democracy are $\tau_2 = 1$, $\tau_u = \frac{\lambda_{u1}}{1 - \lambda_{u1}} x_{u1}$, $T_d = \frac{\lambda_{u1}}{1 - \lambda_{u1}} x_2$. Then both $l_1$ and $l_2$ uprise if and only if $\nu \frac{\lambda_{u1}}{1 - \lambda_{u1}} x_2 > \psi x$. When $\nu \frac{\lambda_{u1}}{1 - \lambda_{u1}} x_2 > \psi x$, $u_1$ democratizes if and only if $\lambda_l \psi x \geq (1 - \lambda_l \nu) (y_{u1}^a - y_{u1}^d) = (1 - \lambda_l \nu) x_2$, that is

$$\delta = 1 \text{ if and only if } \psi_{l1}^1 \equiv \frac{1}{\lambda_l - \nu} \lambda_2 \leq \psi \leq \nu \frac{\lambda_{u1}}{1 - \lambda_{u1}} \lambda_2 \equiv \psi_{l1}^1.$$

- **Region 2:** $\alpha^* \leq \alpha < \hat{\alpha}$.
The tax rates in democracy are \( \tau_u = 1, \tau_2 = \frac{x_u}{(1-\lambda_2)\kappa_{x_2}}, T_d = \frac{x_u}{1-\lambda_2} \) in this region. Then \( y_{l1}^d - y_{l1}^a = T_d - T_a \) so that \( l1 \)'s uprising decision is given as

\[
\gamma_1 = 1 \text{ if and only if } \nu(T_d - T_a) > \psi x.
\]

Similarly, \( y_{l2}^d - y_{l2}^a = x_{l2} - T_a > T_d - T_a \). The last inequality follows from \( T_d = \tau_2 x_{l2} \) and \( \tau_2 < 1 \). \( l2 \)'s uprising decision is given as

\[
\gamma_2 = 1 \text{ if and only if } \nu(x_{l2} - T_a) > \psi x.
\]

When \( \psi x > \nu(x_{l2} - T_a) \), neither group uprises, so democratization does not occur in this region. When \( \psi x \leq \nu(T_d - T_a) = \nu(\frac{x_u}{1-\lambda_2} - x_2) \), both \( l1 \) and \( l2 \) uprise if \( u1 \) does not democratize. Then \( u1 \) democratizes if and only if

\[
\lambda_1 \psi x \geq (1 - \lambda_1 \nu)(y_{u1}^a - y_{u1}^d) = (1 - \lambda_1 \nu)(x_{u1} + T_a - T_d).
\]

When \( \nu(T_d - T_a) < \psi x \leq \nu(x_{l2} - T_a) \), only \( l2 \) uprises. Then \( u1 \) democratizes if and only if

\[
\lambda_2 \psi x \geq (1 - \lambda_2 \nu)(y_{u1}^a - y_{u1}^d) = (1 - \lambda_2 \nu)(x_{u1} + T_a - T_d).
\]

We will show that \( \nu(x_{l2} - T_a) < (\frac{1}{\lambda_2} - \nu)(x_{u1} + T_a - T_d) \). This follows from (i) \( (\frac{1}{\lambda_2} - \nu)(x_{u1} + T_a - T_d) \) is increasing in \( \alpha \); (ii) \( \nu(x_{l2} - T_a) \) is decreasing in \( \alpha \); and (iii) \( (\frac{1}{\lambda_2} - \nu)(x_{u1} + T_a - T_d) > \nu(x_{l2} - T_a) \) holds when \( \alpha = \alpha^* \) and \( \nu = \frac{1}{\lambda_1} \), the largest possible value for \( \nu \). This proves that \( \nu(x_{l2} - T_a) < (\frac{1}{\lambda_2} - \nu)(x_{u1} + T_a - T_d) \). Then \( \psi x \leq \nu(x_{l2} - T_a) < (\frac{1}{\lambda_2} - \nu)(x_{u1} + T_a - T_d) \) implies that \( u1 \) does not democratize when \( \nu(T_d - T_a) < \psi x \leq \nu(x_{l2} - T_a) \).

In summary, when \( \alpha^* \leq \alpha < \hat{\alpha} \), \( u1 \)'s democratization decision is given as follows:

\[
\delta = 1 \text{ if and only if } (\frac{1}{\lambda_1} - \nu)(\lambda_2 + \frac{T_{l1}\alpha}{\lambda_a(1-\lambda_2)}) \leq \psi \leq \nu(\frac{\alpha}{1-\lambda_2} - \lambda_2).
\]

- **Region 3:** \( \alpha \geq \hat{\alpha} \)

The tax rates in democracy are \( \tau_u = 1, \tau_2 = 1, T_d = x_2 + \alpha x_1 \). Then \( y_{l1}^d - y_{l1}^a = T_d - T_a = \alpha x_1 \), so each lower class uprises if and only if \( \psi \leq \nu \alpha \lambda_1 \). If \( \psi > \nu \alpha \lambda_1 \), there will be no uprising, so \( u1 \) will not democratize, i.e. \( \delta = 0 \). If \( \psi \leq \nu \alpha \lambda_1 \) and \( u1 \) does not democratize, then both lower classes will uprise. Then, \( u1 \) democratizes if and only if

\[
\lambda_1 \psi x \geq (1 - \lambda_1 \nu)(y_{u1}^a - y_{u1}^d) = (1 - \lambda_1 \nu)(\frac{1}{\lambda_1} - \lambda_1)\alpha x.
\]

That is

\[
\delta = 1 \text{ if and only if } (\frac{1}{\lambda_1} - \nu)(\frac{1}{\lambda_1} - \lambda_1)\alpha \leq \psi \leq \nu \alpha \lambda_1.
\]

This same analysis applies to \( \lambda_{l1} \geq \frac{1}{2} \).
B Comparative Statics Analysis

For notational convenience, rename the variables that determine the democratization region as follows: Let \( \psi^i_h \) and \( \psi^i_l \) be the upper bound and lower bound of the democratization region, respectively, in region \( i \in \{1, 2, 3\} \). Similarly, \( D^i = \psi^i_h - \psi^i_l \) be the length of democratization region in region \( i \in \{1, 2, 3\} \).

**Comparative Statics with respect to \( \lambda_1 \):**

It is obvious that \( \frac{\partial \psi^1_h}{\partial \lambda_1} < 0, \frac{\partial \psi^2_h}{\partial \lambda_1} < 0, \) and \( \frac{\partial \psi^3_h}{\partial \lambda_1} > 0. \)

Now consider \( \frac{\partial \psi^1_l}{\partial \lambda_1} :\)

\[
\frac{\partial \psi^1_l}{\partial \lambda_1} = \nu \frac{\lambda_u}{1 - \lambda u_1} \left( \frac{\lambda_2}{1 - \lambda_{u_1}} - \lambda_1 \right)
\]

So \( \frac{\partial \psi^1_l}{\partial \lambda_1} > 0 \) if and only if \( \lambda_2 > \lambda_1(1 - \lambda_{u_1}) \) or equivalently \( \lambda_1 < \frac{\lambda_2^2}{\lambda^2_1} \). That is, \( \frac{\partial \psi^1_l}{\partial \lambda_1} \) is positive for larger values of \( \lambda_2 \) and negative for smaller values of \( \lambda_2 \).

Now consider \( \frac{\partial \psi^2_l}{\partial \lambda_1} :\)

\[
\frac{\partial \psi^2_l}{\partial \lambda_1} = \nu \left( 1 - \frac{\alpha \lambda_1}{(1 - \lambda_{l_2})^2} \right).
\]

Then \( \frac{\partial \psi^2_l}{\partial \lambda_1} > 0 \) if and only if \( \alpha < \frac{(1 - \lambda_{l_2})^2}{\lambda_1} \). Note that \( \dot{\alpha} = \frac{1 - \lambda_{l_2}}{1 + \lambda_{l_1}} < \frac{(1 - \lambda_{l_2})^2}{\lambda_1} \), because the last inequality is equivalent to \( \lambda_1 = \lambda_{l_1} + \lambda_{l_2} < (1 + \lambda_{l_1})(1 - \lambda_{l_2}) = 1 + \lambda_{l_1} - \lambda_{l_2} - \lambda_{l_1} \lambda_{l_2} \).

By canceling out \( \lambda_{l_1} \) and rearranging the terms, we obtain \( \lambda_{l_1}(2 + \lambda_{l_1}) < \frac{1}{\lambda_{l_2}} \) and (i) \( \lambda_{l_1} < 1 \) and \( \lambda_{l_1} < \frac{1}{2} \) imply \( \lambda_{l_1}(2 + \lambda_{l_1}) < \frac{5}{4} < 2 \); (ii) \( \lambda_{l_2} < \frac{1}{2} \) implies \( 2 < \frac{1}{\lambda_{l_2}} \). So, \( \frac{\partial \psi^2_l}{\partial \lambda_1} > 0 \) since \( \alpha < \dot{\alpha} < \frac{(1 - \lambda_{l_2})^2}{\lambda_1} \).

Now consider \( \frac{\partial \psi^3_l}{\partial \lambda_1} :\)

\[
\frac{\partial \psi^3_l}{\partial \lambda_1} = \left( \frac{1}{\lambda_1} - \nu \right) \left( -1 + \frac{\alpha \lambda_1}{(1 - \lambda_{l_2})^2} \right)
\]

so that \( \frac{\partial \psi^3_l}{\partial \lambda_1} < 0 \) because of the same reasoning above.

These results imply that \( \frac{\partial D^2}{\partial \lambda_1} > 0 \) and \( \frac{\partial D^3}{\partial \lambda_1} > 0 \).

The sign of \( \frac{\partial D^1}{\partial \lambda_1} \) can be positive or negative:

\[
\frac{\partial D^1}{\partial \lambda_1} = \frac{1}{\lambda_1} - \frac{\nu \lambda_1}{(1 - \lambda_{u_1})^2}.
\]

Then \( \frac{\partial D^1}{\partial \lambda_1} > 0 \) is equivalent to \( \nu < (\frac{1 - \lambda_{u_1}}{\lambda_1})^2 \). The last inequality holds for all \( \nu < \frac{1}{\lambda_1} \) if and only if \( \lambda_1 < (1 - \lambda_{u_1})^2 \). For example this inequality holds when \( \lambda_1 = \lambda_3 = 0.51 \) and it is violated when \( \lambda_1 = 0.8, \lambda_1 = 0.51, \lambda_{l_1} = 0.51 \) in both cases. So, the sign of \( \frac{\partial D^1}{\partial \lambda_1} \) is indeterminate.
C Figures and Tables

Figure 1: Impact of Ethnic Diversity on Probability of Democratic Transitions
Figure 2: Game Tree
Figure 3: Equilibrium Outcomes
Table 1: Equilibrium Outcomes in Democracy

<table>
<thead>
<tr>
<th>Majority</th>
<th>$\lambda_1 &lt; \frac{1}{2}$ and Region 1</th>
<th>$\lambda_1 &gt; \frac{1}{2}$ or Region 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\tau_a$</td>
<td>$\frac{x_2}{(1-\lambda_1)xu_1}$</td>
<td>$x_u$</td>
</tr>
<tr>
<td>$\tau_2$</td>
<td>$\frac{x_2}{1-\lambda_1}$</td>
<td>$\frac{x_2}{1-\lambda_2}$</td>
</tr>
<tr>
<td>Transfer, $T_d$</td>
<td>$x_1 + T_d$</td>
<td>$x_1 + T_d$</td>
</tr>
<tr>
<td>$y_{u1}^d$</td>
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<td>$T_d$</td>
</tr>
<tr>
<td>$y_{l1}^d$</td>
<td>$T_d$</td>
<td>$T_d$</td>
</tr>
<tr>
<td>$y_{u2}^d$</td>
<td>$T_d$</td>
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<tr>
<td>$y_{l2}^d$</td>
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</tbody>
</table>
Table 2: Comparative statics with respect to $\lambda_2$, the size of the minority ethnic group. $D =$ the size of the peaceful democratization region; $R =$ the size of the revolution region.
References


