# Positive Discrimination, Negative Consequences? Preferential Policies, Redistribution and Democratic Stability

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**Abstract**

How do preferential policies based on ethnicity, race, or religion affect democratic stability? Is there a right set of policies that are conducive to stability, are there many depending on particular circumstances, or is a policy set blind to these categories of identification more effective in maintaining a stable democratic environment in ethnically, religiously or racially diverse countries? In order to investigate these questions, I construct a simple model where citizens differ not only in their preferences for income redistribution but also a potential set of preferential policies and examine how this second policy dimension affects the likelihood of democratic stability. In the absence of coalition possibilities between different groups, in equilibrium, the society chooses the policy pair of high redistribution and no preferential policies. The stability of democracies characterized by such policy pairs depends on the distribution of income rather than the level of development. Relatively poor democracies of this type are less likely to consolidate if income inequality is low because the ethnic minority has stronger incentives to turn against democracy if income distribution is more equal. If there are coalition possibilities between groups, then the rich and the ethnic minority collude in order to limit redistribution and adopt preferential policies favored by the ethnic minority. However, if this collusion happens in a relatively poor society, then democratic stability becomes highly unlikely regardless of the military strength of the minority. Hence, preferential policies are associated with democratic stability if they are accompanied by limited redistribution at sufficiently large income levels. Democracies that do not adopt preferential policies are more likely to consolidate only if they are highly developed and the income distribution is sufficiently equal.

Very preliminary draft. Comments welcome.

"You can put these people to work and you won't have
a revolution because they've been left out. If they're
working, they won't be throwing bombs in your homes and plants.
Keep them busy and they won't have time to burn your cars."

*U.S. President Johnson, on affirmative action programs*
*in the aftermath of the riots in Watts in 1965.*[*]

# 1 Introduction

How do preferential policies based on ethnicity, race, or religion affect democratic stability in ethnically divided societies? The claim that ethnic diversity carries the potential to destabilize democracies goes back at least as far as John Stuart Mill's *Considerations on Representative Government* (1861/1958).[†] Consequently, in order to contain the destabilizing potential of ethnic diversity in democracies, political scientists have made various proposals of institutional design that are intended to reduce the likelihood of conflict in ethnically divided societies (Horowitz 1985; Nordlinger 1972, Lijphart 1977, Reilly 2001). However, the potential impact of preferential policies as an institutional device on the likelihood of ethnic conflict has received relatively little attention despite several cases where these policies have been implemented in an effort to address the demands of significant sections of the population[‡]. A notable exception to this pattern is Horowitz's classic *Ethnic Groups in Conflict* (1985) in which he adopts a fairly sceptical view of preferential policies as a potential technique of reducing ethnic conflict. According to Horowitz, these policies exacerbate conflict by disrupting an ethnic division of labor in which different groups specialize in different occupations and members of each group compete amongst themselves within these occupations. After the preferential policies take effect, they break down this division of labor and open large fields of inter-ethnic competition which is detrimental to political stability.

The starting point of this paper is that preferential policies can also be the cause of inter-ethnic

[*] quoted in Skrentny (1996).

[†] More recent formulations of the same claim can be found in Rustow 1970, Dahl 1971, Rabushka and Shepsle 1972, Lijphart 1977, Horowitz 1985, Reilly 2001, Sisk 1995.

[‡] Pakistan, Nigeria and Sri Lanka are some major examples.

*cooperation* as opposed to inter-ethnic competition if the ethnic conflict over preferential policies is accompanied by a simultaneous conflict over income redistribution. In order to demonstrate this possibility and its potential implications for the impact of preferential policies on democratic stability, I construct a simple formal model that has no pretense to be innovative and builds on earlier work in formal theory of political representation and democratic stability. In the model, citizens differ not only in their preferences for income redistribution but also a potential set of preferential policies and I examine how this second policy dimension affects the likelihood of democratic stability.

There are two strands of literature that this paper speaks to. First, there is a substantial body of work on the dynamics of political regimes which has focused on the conflict of income redistribution as the key mechanism determining the democratic stability of countries and abstracted away from other factors such as the level of ethnic diversity of a country (Przeworski 2005, Acemoglu and Robinson, 2006, Benhabib and Przeworski 2006). Second, there is a separate literature on the choice of economic policy in democracies which has studied policy implications of ethnic diversity through various democratic channels. In this body of work, ethnic diversity and its impact on policy-making have been analyzed by focusing on affirmative action policies, provision of specific public goods or targeted redistribution via coalition formation between different ethnic and income groups (Roemer 1998, Austen-Smith and Wallerstein, 2006, Huber and Stanig, 2007 and Bandiera and Levy, 2008). In contrast to the literature on political-economic determinants of democratic stability, in this latter set of studies, the relevant actors do not have the option of abolishing the democratic framework in the face of policy choices not preferred by some segment of society. In this paper, I study the chances of democratic equilibrium when group preferences do not only diverge in income but also in a second dimension of a potential preferential policy and the groups have the option of attempting to abolish democracy and establish a dictatorship.

The rest of the paper is organized as follows. In Section 2, I provide examples of preferential policies from different countries to present some of their major features that motivate the assumptions I make in formalizing group preferences with respect to these policies. Section 3 presents the model.

Section 4 proceeds with the analysis of the equilibrium behavior of groups, derives predictions and interprets them. Section 5 concludes. All proofs are put in the Appendix.

## 2 Preferential Policies in Education and Bureaucracy

There are four features of preferential policies that are incorporated into the model: 1. The likelihood of an individual benefiting from preferential policies increases in complementary resources and skills that are unevenly distributed among the members of an ethnic group. 2. Given that an individual is a beneficiary, the same resources and skills also increase the rate of return on these policies. 3. An increase in the scale of these preferential policies (either by higher quotas or by extending its coverage) implies the admission of applicants with fewer resources and lower skills. Hence, the benefits of the preferential policy to the group as a whole increase at a decreasing rate (diminishing marginal returns) due to the dependence of the benefits on these complementary resources and skills. 4. Taking into account this dependence, states have implemented additional programs to support the potential beneficiaries of these policies which have formed the bulk of their cost. This cost depends mainly on the extent of the policy and hence the number of potential beneficiaries. However, despite these complementary programs, the differential capacity of individuals to benefit has remained a recurring outcome of these policies.

There are several cases where preferential policies have exhibited the features highlighted above. For instance, in India, following independence in 1947, at all levels of education, 15 percent of spots has been reserved for the members of Scheduled Castes (SC) and 5 percent for Scheduled Tribes (ST) (Chitnis, 1984). The benefits of these policies have gone disproportionately to the more fortunate members of these groups for several reasons. First, in all levels of education, costs of commuting, boarding or additional school supplies have made it very hard for the children of poorer families to benefit from these policies. Also, some families rely on their school-age children to earn or look after other children and this has also forced them not to use these benefits as extensively and as easily as the more fortunate families do (Sowell 1990, Galanter, 1984). In order to counteract these tendencies, the state has implemented various educational schemes such as scholarship programs, provision of meals and supplies and hostels for SC and ST students. However, the overall pattern of individuals' uneven capacity to benefit from the reserved spots has not changed. As evidence, scholars have pointed out to significant gaps between the percentage of spots allotted for members of these groups and the percentages that are actually occupied by them (Chitnis, 1984, Galanter, 1984). There is also evidence that some of the students from low-status groups have failed to finish a course and those who have survived and finished their studies had poor academic records. Moreover, the fact that SC/ST students are clustered in relatively inferior, low-status courses has also prevented them from getting lucrative or high-ranking jobs (Chitnis, 1984; Galanter, 1984). The same pattern of individuals' differential capacity to become beneficiaries of and to benefit from reservations has also been present in the case of quotas for SC and ST in government employment which were set to 12.5 and 5 percent, respectively, and increased to 15 and 7.5 percent in 1970 (Galanter, 1984, Sowell, 1990, Chintis, 1984).

Another example is Sri Lanka's university admissions policy implemented during 1970s in order to reduce the presence of Tamils in universities and increase the presence of Sinhalese who form the majority of the population (Richard de Silva, 1984). The first step in this process was to set different minimum marks for students sitting for the university admission examination in Sinhalese and Tamil. In 1973, this policy of different minimum marks was changed to the so-called "standardization" of grades by reducing the sets of marks from all three media -English, Sinhalese, and Tamil- to a uniform scale. Finally, in 1974, the policy of standardization was replaced by the district quota system which allocated university places in proportion to the total population of each district. Nominally, this change in policy dropped ethnicity as a criterion of reservations but in reality it was put into effect to reshuffle the ethnic composition of university students more extensively since the earlier policies had only led to meager changes in the presence of Tamils in universities (K.M. de Silva 1997, Richard de Silva, 1984). Another major concern was that the earlier policies had not been very helpful to certain subgroups of Sinhalese, especially the Kandyan Sinhalese who had been long underprivileged in terms of secondary education facilities since they lived predominantly in the underdeveloped interior of the country as opposed to the low-land Sinhalese who lived in urban areas along the south-west coast. Therefore, the allocation of seats on the basis of districts was considered to satisfy especially the demands of the Kandyan Sinhalese (M. de Silva, 1984; Richard de Silva, 1984).

As a result of these policies, the total number of Tamil students entering the university fell in terms of both absolute numbers and percentages (Richard de Silva 1984). Also, as expected, Kandyan Sinhalese obtained relatively easy access to university education after the implementation of the quota system (C. R. de Silva, 1977; Wilson 1979). From the beginning, these policies were opposed not only by the Tamils, but also by the low-land Sinhalese who suffered as a result of the quotas implemented in highly developed districts such as Colombo from which more Sinhalese would have entered universities in the absence of quotas (M. de Silva, 1984). Also, some Sinhalese opposed these quotas purely on grounds of fairness and academic merit. However, similar to the Indian case, despite the implementation of programmes intended to make university programs in sciences equally accessible to all groups, districts that are predominated by Kandyan Sinhalese have struggled to produce the required number of qualified candidates to fill in the places reserved for themselves. For instance, in 1975, from the district of Kandy, only 24 out of 35 seats for studying medicine were filled.

Similarly, in Nigeria, under the Second Republic (1979-1983) which was constructed as a federation of nineteen states as opposed to the three states of the First Republic (Horowitz, 1985), a resolution passed by the Federal House of Representatives in January 1980 called for admissions to federal educational institutions based on a quota system. Consequently, all nineteen boys and girls' colleges adopted a 50 percent state quota in their admissions to be shared equally among all states. The share of admissions on the basis of state quota would be 80 percent in the older and more prestigious King's College and Queen's College in Lagos and in the seven federal Schools of Art and Science. However, the Northerners who are mostly from the ethnic group of Hausa-Fulani were less willing to use the spots reserved for themselves in the universities in the South (Jinadu, 1985). Hence, the extension of preferential policies to areas beyond the stronghold of the Northerners has been less beneficial to the group which implies that the utilization of the quotas has exhibited decreasing marginal returns also in the case of Northerners in Nigeria.

# 3 The Model

Having provided information about the main features of preferential policies across national contexts, in this section, I will proceed with the description of the model which borrows heavily from Przeworski (2005) in formalizing the interactions between groups and their incentives to observe the democratic policy outcomes and from Bandiera and Levy (2008) in formalizing their preferences and the electoral equilibrium between political groups.

## 3.1 The Economic Environment

There are three groups, indexed by $i \in \{P, E, R\}$. Group shares of the population are denoted by $n_i$ with $n_i < \frac{1}{2}$ and $\sum_i n_i = 1$. Hence, none of these groups comprises a majority of the population by itself. These three groups are distinguished by their preferences on two different dimensions of policy. One is a non-negative tax rate $\tau$ proportional to income the proceeds of which are redistributed lump sum to all citizens. The second policy dimension is a potential preferential policy ($p$) in education or public employment that is intended to change the ethnic composition of individuals active in these areas in favor of $E$. Hence, $p$ benefits only $E$ and is financed out of the proceeds of taxation.

This policy of $p$ can be thought of as a quota of spots reserved for the members of a particular ethnic group. Alternatively, the form these policies take may be less clear-cut; but in effect, they may still secure a particular amount of presence for the members of an ethnic group in one of these areas. For instance, in recruiting public officials, only the speakers of a particular language can be made eligible to apply in order to ensure that members of the ethnic group who speak the language take these public offices. This language requirement would also lead to a change in the ethnic composition of the bureaucracy, albeit in a less direct manner than having explicit quotas.

To move on to the description of the rest of the model, the incomes of $P$ and $E$ are the same and equal to $y_p = \alpha_P y$ while the income of the rich is $y_R = \alpha_R y$ where $y$ is average income. $\alpha_P$ and $\alpha_R$ denote multiples of average income and $\alpha_P < 1 < \alpha_R$. There are two dimensions of policy: a proportional tax rate ($\tau$) which the society imposes on itself for redistribution and possibly also for financing $p$; and $p$ is the second policy dimension.

The preferences of the actors can be represented as follows:

$$U_i(\tau, p) = (1 - \tau)\alpha_i y + \tau y - p + I_E v(p)$$

where $v(.)$ is concave and $I_E$ is an indicator function with

$$I_E = \begin{cases} 0 & \text{if } i \in (P, R) \\ 1 & \text{if } i = E. \end{cases}$$

The budget constraint in the economy is

$$\tau y = T + p \tag{3.1}$$

We can characterize the ideal policies and indifference curves of the different groups in the policy space ($\tau$, $p$). The indifference curves of $i$ are defined by

$$\alpha_i y + \tau(y - \alpha_i y) - p + I_E v(p) = constant$$

and, as before,

$$I_E = \begin{cases} 0 & \text{if } i \in (P, R) \\ 1 & \text{if } i = E. \end{cases}$$

Hence, as illustrated in Figure 1, the ideal policy pair of $P$ is ($\tau_P^* = 1$, $p_P^* = 0$), the ideal policy of $R$ is ($\tau_R^* = 0$, $p_R^* = 0$) and $E$'s ideal policy pair is ($\tau_E^* = 1$, $p_E^*$) with $1 = v'(p_E^*)$. In words, $P$, having an income less than the average and no interest in preferential policies, prefers a full redistribution-no preferential policy pair while the rich, having an income above the average and no interest in preferential policies, prefers a no redistribution-no preferential policy pair. $E$ prefers full redistribution just as $P$ does; but in contrast to both $P$ and $R$, $E$ also has an ideal preferential policy which is greater than zero.

Before moving on to the description of the political process, note that there are different settings to which this set-up can be applied. One such setting is that there is an ethnic group that has both rich and poor members who do not benefit from preferential policies while these policies would benefit a poor minority group that has been historically disadvantaged such as the blacks in the case of US or the scheduled castes and tribes in India. Alternatively, one can also think of $P$ and $E$ as two subgroups within the *same* economically backward ethnic group with one subgroup supporting universalist, merit-based policies and a welfare state that addresses economic inequalities on an individual basis while the other subgroup supporting both high levels of redistribution *and* preferential policies to reduce the inequality between themselves and the economically advanced ethnic group represented by $R$. The case of Sri Lanka recounted in Section 2 with the low-land and Kandyan Sinhalese ($P$, $E$) and the Tamils ($R$) can be considered as an example of this alternative set-up.

### 3.2 The Political Process

The way in which I model the democratic political process is based on Bandiera and Levy (2008) and especially Levy (2004) which analyze the influence of parties on policy choices in representative democracies. The key difference of these papers from the canonical citizen-candidate models of Osborne and Slivinski (1996) and Besley and Coate (1997) is the presence of parties and the assumption that parties increase the commitment ability of politicians by allowing them to offer policies that are in the Pareto set of the groups they represent. This Pareto set is larger than the set of the ideal policies of these groups in the case of parties formed by heterogenous groups[§]. As I will also illustrate subsequently, Levy (2004) shows that the increased commitment that parties

[§] For arguments as to how parties can increase the commitment ability of politicians, see Levy (2004).

allow for politicians has substantial impact on the political outcomes if the policy space has more than one dimension and this result makes their framework a convenient modelling choice for the purposes of this paper.

To describe the rest of the political process, there are three parties that represent each of these groups. I will also denote these parties by the same capital letters, $P$, $R$ and $E$. Their objective function consists of the discounted expected utility of the group they represent. Given a particular partition[¶] of parties, they simultaneously choose whether to offer a platform and if so, which one in their Pareto set. If given all other platforms, a party's members are indifferent between offering a platform and not running, they prefer not to run (Call this the tie-breaking rule). Then voters vote for the platform they like most. Having seen the results of the elections and the winning policy, all groups decide whether to obey or rebel. If all parties obey the election results, then the winning policy pair is implemented; and in the next period, new elections are held under identical circumstances as in the previous period. If only one party rebels, conflict ensues. In the case of conflict, either other parties also rebel to establish their own dictatorship or they fight the rebelling party (or parties) to defend democracy. The probability that $i$ wins in a fight is $q_i$, $1 > q_i > 0$ and $\sum_i q_i = 1$. If a party establishes its dictatorship, the game ends in the following sense: The dictatorship of the party which wins the conflict lasts for $T$ periods. If the country returns to democracy afterwards, past conflicts are forgotten and the game starts anew. However, algebraically, the length of the dictatorship does not make a difference in the value of rebelling for any of the parties, so one can also think that dictatorship lasts forever. [‖]

To describe the utilities of each group under all possible political regimes, let $U_i$ stand for the utility of $i$ under democracy while $U_{ij}$ stands for the utility of group $i$ under the dictatorship of $j$. I assume that

$$U_{ij} = \mu \, U_i(\tau_j^*, p_j^*) \text{ where } \mu < 1 \text{ if } i \neq j \text{ and } \mu = 1 \text{ if } i = j.$$

[¶]A partition denotes the way in which parties can run in the elections. They can either run all separately, or they may run as part of coalitions. For instance, $R|P|E$ is a partition in which all parties run separately.

[‖]For the proof of the claim that algebraically the length of the dictatorship does not make a difference, see the proof of Lemma 1 in the Appendix.

The motivation underlying this assumption is that dictatorships use force to repress their opponents by employing various methods such as imprisonment, torture or killings, so the ideal policies of a group implemented under its dictatorship provide lower utility to other groups than the utility of the same policies implemented in a democracy.

In order to analyze groups' incentives to obey the results of the elections, first, we need to figure out what equilibrium policy would obtain in every possible partition of political parties. Following Bandiera and Levy (2008), I will call these equilibrium policies "equilibrium winning platforms" since in elections, there is always only one platform that is offered and that platform wins. These winning platforms are also stable political outcomes in the sense that no party can break the coalition that offers the platform and receive a weakly higher utility from some equilibrium winning platform in the new partition. The proposition below specifies that there are only two such stable political outcomes.

**Proposition 1.** *There are two stable political outcomes of the elections. These stable political outcomes are:* (1) P *runs alone and wins by offering* $(\tau_P^*, p_P^*) = (1, 0)$ *if no coalitions are allowed.* (2) *When coalitions are allowed,* R *and* E *build a stable coalition and win by offering* $(\hat{\tau}<1, \hat{p}>0)$ *with the following conditions:* (*i*) $0 < v(\hat{p}) - \hat{p} < y(1-\alpha_P)$, (*ii*) $y(\alpha_R - 1) > \hat{p}$ *and* (*iii*) $\frac{\hat{p}}{v(\hat{p})} < \frac{1-\alpha_R}{\alpha_P - \alpha_R}$.

*Proof.* See the Appendix. □

The rationale underlying the conditions for the existence of the second outcome is the following: $R$ and $E$ build a coalition if there is a set of policy pairs that both $R$ and $E$ prefer to $(\tau_P^*, p_P^*)$. First, note that for any point in this set, the slope of the indifference curves of $R$ and $E$ are equal to each other (see Figure 2). Hence, at any pair of $(\hat{\tau}, \hat{p})$ in this set, it must be true that

$$y(1 - \alpha_R) = \frac{y(1 - \alpha_P)}{1 - v'(p)} \tag{3.2}$$

After a few algebraic manipulations, this equality can be written as

$$\frac{\alpha_P - 1}{1 - \alpha_R} = v'(\hat{p}) \tag{3.3}$$

So, for given levels of income inequality ($\alpha_P$ and $\alpha_R$), $\hat{p}$ is constant across all the points in this Pareto set. Second, in order for such a set to exist, there must be a tax rate, $\tau_E$, at which $E$ is indifferent between the policy pair of the coalition and $P$'s ideal policy pair. Holding $\hat{p}$ fixed, for any $\hat{\tau} > \tau_E$ in this Pareto set, $E$ prefers the coalition to the ideal policy pair of $P$ since $E$'s utility increases in $\tau$. Similarly, there must also be a tax rate, $\tau_R$, at which $R$ is indifferent between the policy pair of the coalition and the ideal policy pair of $P$. For any $\hat{\tau} < \tau_R$ in this Pareto set, $R$ prefers the coalition to $P$'s ideal policy pair since $R$'s utility decreases in $\tau$. Moreover, it must also be the case that $\tau_E < \tau_R$ so that the set of tax rates that $E$ prefers to the ideal policy pair of $P$ and the set of tax rates that $R$ prefers to the ideal policy pair of $P$ overlap. Finally, note also that $0 < \tau_E < 1$ and $0 < \tau_R < 1$ since we know for sure that $\tau = 0$ would make $E$ worse off compared to $P$'s ideal policy pair and for any $\hat{p} > 0$, $\tau = 1$ would make $E$ better off compared to $P$'s ideal policy pair. Similarly, we also know for sure that $\tau = 0$ would make $R$ better off compared to $P$'s ideal policy pair and $\tau = 1$ would make $R$ worse off for any $\hat{p} > 0$. The conditions in the proposition ensure that all these observations hold, namely, $0 < \tau_E < \tau_R < 1$.

These two election outcomes specified in the Proposition 1 can be interpreted as two different types of democratic polities, one with high levels of redistribution without any preferential policies and the other one with relatively lower redistribution levels accompanied by preferential policies.

Given the two democratic scenarios specified in Proposition 1, I will analyze the stability of the democratic equilibrium for both of these cases separately by checking the conditions under which all 3 groups prefer to obey the results of the elections.

# 4 Analysis

## 4.1 First Case: High Redistribution without Preferential Policies

I start with the case where the winning policy in democracy is $(\tau_P^*,\ p_P^*) = (1,\ 0)$. To find the conditions under which all groups obey the election results, we need to figure out what all groups do if another group rebels. As it turns out, if one group rebels, then all other groups are also better off rebelling. Hence, we get the following lemma which will be useful throughout the analysis of the first case.

**Lemma 1.** *If the winning policy in democracy is* $(\tau_P^*,\ p_P^*) = (1, 0)$*, the best response for the other two groups to any one group rebelling is to rebel.*

*Proof.* See the Appendix. □

### 4.1.1 Analysis of Groups' Incentives to Obey

I start with the incentives faced by the poor group $P$. First, note that a group $i$ obeys the election results if

$$V_i(obey, obey, obey) \geqslant V_i(rebel, rebel, rebel) \tag{4.1}$$

where the first action in parenthesis refers to what $P$ does, the second to what $R$ does and the third to what $E$ does.

Hence, after calculating the corresponding values in (4.1) by using the utilities of every possible outcome for $P$ weighted by their probabilities, we get that $P$ obeys the election results if

$$0 \geqslant y(q_P + q_R\mu\alpha_P + q_E\mu - 1) - q_E\mu p_E^* \tag{4.2}$$

In order to highlight the impact of average income and level of income inequality on the equilibrium strategies of each actor, I will present the conditions under which groups obey results of the elections as a function of these variables. More specifically, a player $i$'s optimal behavior is given by $b_i : \alpha_i \times \mathrm{Y} \rightarrow A_i$ where $\alpha_i = (0, \infty)$, $Y$=$(0, \infty)$ and $A_i = \{obey, rebel\}$. The above inequality always holds since $q_P + q_R\mu\alpha_P + q_E\mu < 1$ and $-q_E\mu p_E^* < 0$. Hence,

$$b_P = \begin{cases} obey & \forall \alpha_i \times \mathrm{Y} \end{cases}$$

The intuition underlying this result is simple and trivial. Since the implemented policy pair under democracy is the same as $P$'s preferred policies, $P$ lacks any incentives to attempt to establish its own dictatorship at the risk of ending up with a dictatorship that implements the ideal policy pairs of one of the other actors. Therefore, $P$ never rebels. Similarly, the rich ($R$) would obey the election results if

$$0 \geqslant y(q_P\mu + q_R\alpha_R + q_E\mu - 1) - q_E\mu p_E^* \tag{4.3}$$

Consequently, $R$'s optimal actions, $b_R(\alpha_R, y)$, are given by

$$b_R = \begin{cases} obey & \text{if } \alpha_R \leqslant \alpha_R^* = \frac{1-\mu(1-q_R)}{q_R} \\ obey & \text{if } \alpha_R > \alpha_R^* \text{ and } y \leqslant \overline{y_R} = \frac{q_E\mu p_E^*}{\mu + q_R(\alpha_R - \mu) - 1} \\ rebel & \text{if } \alpha_R > \alpha_R^* \text{ and } y > \overline{y_R} = \frac{q_E\mu p_E^*}{\mu + q_R(\alpha_R - \mu) - 1} \end{cases}$$

Hence, $R$ has incentives to rebel only if income inequality is sufficiently high. If this is the case, $R$ is better off rebelling if the average income level is also high enough.

The logic underlying $R$'s optimal behavior is the following: R compares the expected benefits of attempting to establish its own dictatorship to its expected cost. The expected benefit of rebelling for $R$ is to prevent its market income from being taxed under its own potential dictatorship and is equal to $q_R(\alpha_R - 1)y$. This benefit depends both on average income *and* income inequality (captured by $R$'s market income share, $\alpha_R$) and it *increases* in both. Holding the average income fixed, the greater the income inequality is, the higher is the market income that $R$ would keep to itself under its own dictatorship and is deprived of in democracy. Hence, as income inequality increases, the temptation of $R$ to attempt to establish its own dictatorship also increases. Similarly, an increase in average income also increases the expected benefit of rebellion for $R$.

The expected cost of rebellion consists of $R$'s loss of utility from the same income as in democracy under a potential dictatorship of $P$ and also a lower income under a potential dictatorship of $E$. This cost is equal to $q_P(1-\mu)y + q_E[y - \mu(y - p_E^*)]$. It also depends on and increases in income since a potential dictatorship of one of the poor groups becomes more costly for $R$ at higher income levels. Hence, as average income increases, the expected benefit of rebelling becomes larger than its cost only if income inequality is sufficiently high. In that case, $R$ rebels if the average income level crosses the threshold $\overline{y_R}$.

Also note that $\overline{y_R}$ decreases as inequality increases and this makes also intuitive sense since greater inequality implies greater expected benefit of rebellion. Therefore, as inequality increases, expected benefit of rebellion exceeds its cost at lower levels of average income and $R$ turns against democracy also at lower levels. Finally, the poor minority $E$ would obey the election results if

$$0 \geqslant y(q_P\mu + q_R\mu\alpha_P + q_E - 1) + q_E(v(p_E^*) - p_E^*) \tag{4.4}$$

Consequently, $E$'s optimal behavior, $b_E(\alpha_E, y)$, is given by

$$b_E = \begin{cases} \textit{obey} & \text{if } y \geqslant \underline{y_E} = \frac{q_E(p_E^* - v(p_E^*))}{q_P(\mu-1)+q_R(\mu\alpha_P-1)} \\ \textit{rebel} & \text{if } y < \underline{y_E} = \frac{q_E(p_E^* - v(p_E^*))}{q_P(\mu-1)+q_R(\mu\alpha_P-1)} \end{cases}$$

For $E$, the expected benefit of rebellion is $q_E(y + v(p_E^*) - p_E^* - y) = q_E(v(p_E^*) - p_E^*)$. This expression captures the intuition that since democracy delivers $E$'s ideal redistribution policy, the only potential benefit of $E$'s own dictatorship comes from implementing the ideal preferential policy $(v(p_E^*))$ net of the decrease in redistribution (-$p_E^*$) due to the implementation of $p_E^*$. This benefit is independent of income and is fixed because $E$'s ideal preferential policy captured by $p_E^*$ does not depend on average income $y$. $E$'s expected cost of rebelling, on the other hand, is $q_R(1-\mu\alpha_P)y + q_P(1-\mu)y$.

This cost reflects $E$'s loss of income due to no redistribution under a potential dictatorship of the rich and the lower utility of full redistribution under the potential dictatorship of the poor. Both of these costs increase in income. So, for a given level of inequality, as average income decreases, cost of rebellion also decreases and if income falls below $\underline{y_E}$, this cost becomes lower than the fixed benefit of rebellion and $E$ is better of rebelling.

Here, the comparative static result of $\underline{y_E}$ is counterintuitive; namely, as inequality increases (lower $\alpha_P$), $\underline{y_E}$ *decreases* (note that both the numerator and the denominator of $\underline{y_E}$ are negative) and the range of income in which $E$ tolerates democracy *widens* for *higher* levels of inequality. The reason for this counterintuitive result is the following: Greater inequality makes expected cost of rebellion also greater since higher inequality in market income implies a greater loss of income for $E$ under a potential dictatorship of $R$ compared to $E$'s income under democracy. But the benefit of rebellion is fixed. Therefore, democracy becomes preferable for $E$ even at lower levels of income when income inequality increases.

The proposition below and its corollary summarize the results of the analysis presented above.

**Proposition 2.** *If income inequality is low ($\alpha_R \leqslant \alpha_R^*$), only $E$ has incentives to rebel. Democracy survives if $y \geqslant \underline{y_E}$. At intermediate levels of income inequality ($\alpha_R^{**} \geqslant \alpha_R > \alpha_R^*$), both $E$ and $R$ have incentives to rebel. $E$ rebels if $y < \underline{y_E}$ and $R$ rebels if $y > \overline{y_R}$. Democracy survives if $\underline{y_E} \leqslant y \leqslant \overline{y_R}$. At these intermediate levels of inequality, such an income range exists. If inequality is high ($\alpha_R > \alpha_R^{**}$) democracy does not survive. There is no income range where both $R$ and $E$ obey the results of elections.*

**Corollary 1.** *The threshold income level $\underline{y_E} = \frac{q_E(p_E^* - v(p_E^*))}{q_P(\mu-1)+q_R(\mu\alpha_P-1)}$ below which $E$ rebels, increases as income inequality* decreases*; hence the income range in which $E$ tolerates democracy shrinks with lower income inequality.*

*Proof.* See the Appendix. □

There are three implications of this proposition. First, democracy may not survive in poor countries *even* at low levels of income inequality if there is an ethnic poor minority that demands preferential policies in its favor and these demands are not met within the democratic framework. Second, at intermediate levels of income inequality, democracies without preferential policies in ethnically divided societies survive only at intermediate income levels. Third, at high levels of inequality, democracies of this type do not survive at any level of income and any possible configuration of military power. At extreme levels of inequality, there is no average income level at which democracy makes both $R$ and $E$ better off than attempting to establish their own dictatorship to implement their ideal policy pairs. Hence, the causal mechanism identified here suggests that the stability of democracies that are characterized by high levels of redistribution without any preferential policies depends more on income inequality than average income levels.

More importantly, as specified in the corollary, in contrast to political economy models of democratic stability where lower income inequality helps to consolidate democracy by limiting the desired amount of redistribution by the poor and thereby preventing the rich from turning against democracy, as the model here highlights, lower inequality can also *destabilize* democracy in relatively poor countries without preferential policies by making the costs of resorting to violence lower for an ethnic poor minority. Hence, in two different poor countries with same per capita income levels but different distributions of income, democracy may survive in the one characterized by high income inequality while it would collapse in the one characterized by low inequality.

### 4.2 Second Case: Low Redistribution under Preferential Policies

In the second possible democratic outcome, the winning policy in democracy is ($\hat{\tau}$ <1, $\hat{p}$ >0).

First, again, we need to figure out the optimal strategies of all actors in cases where another actor rebels. The following lemma states that as in the first case, if one group rebels, all other groups are also better off rebelling.

**Lemma 2.** *If the winning policy in democracy is* $(\hat{\tau} < 1, \hat{p} > 0)$*, the best response for the other two groups to any one group rebelling is to rebel.*

*Proof.* See the Appendix. □

### 4.2.1 Analysis of Groups' Incentives to Obey

$P$ obeys the results of the elections iff

$$V_P(obey, obey, obey) \geqslant V_P(rebel, rebel, rebel) \tag{4.5}$$

which is equivalent to

$$0 \geqslant y[q_P + q_R\mu\alpha_P + q_E\mu - \alpha_P - \hat{\tau}(1-\alpha_P)] + \hat{p} - q_E\mu p_E^* \tag{4.6}$$

For the rest of the analysis, I make the following assumptions:

**Assumption 1.** $\alpha_P > max(\alpha_P^* = \frac{q_P+q_E\mu}{1-q_R\mu}, \alpha_P^{**} = \frac{q_P\mu+q_E}{1-q_R\mu})$ *and* $\alpha_R < \alpha_R^* = 1 + \frac{\hat{p}}{q_R y}$.

**Assumption 2.** $\mu < \frac{\hat{p}(v(p_E^*)-p_E^*)}{p_E^*(v(\hat{p})-\hat{p})}$.

**Assumption 3.** *Under the coalition of* R *and* E*, when* $y$ *increases (decreases),* R *and* E *agree on a new tax rate that takes a value larger (smaller) than the maximum (minimum) feasible rate before the change in income.*

The first two assumptions are merely intended to prevent the proliferation of cases while the third assumption is less innocuous and has substantive relevance. The reason behind the third assumption is the following: In order to analyze the impact of changes in $y$ on the above inequality (4.6), we need to figure out if a change in $y$ also causes a change in $\hat{\tau}$ or $\hat{p}$. To answer this question, first, remember that any policy pair ($\hat{\tau}$, $\hat{p}$) refers to points that lie at the Pareto frontier of $R$ and $E$ where the slopes of the indifference curves of $E$ and $R$ are equal to each other. From Section 3.2, we know that

$$\frac{\alpha_P - 1}{1-\alpha_R} = v'(\hat{p}) \tag{4.7}$$

So, $\hat{p}$ does not depend on $y$.

To figure out if and how $\hat{\tau}$ is affected when $y$ changes, we need to find out what happens to the value of $\tau$ ($\tau_E$ in Figure 2) at which $E$ is indifferent between $P$'s ideal policy and what $E$ would get under the coalition with $R$. At the pair ($\tau_E$, $\hat{p}$) where $E$ is indifferent, we know that

$$U_E(\tau_E, \hat{p}) = y\ (\alpha_P - \alpha_P\tau_E + \tau_E) - \hat{p} + v(\hat{p}) = y.$$

In order for this equality to hold for any pair of ($\tau_E$, $\hat{p}$), it must be true that as $y$ increases, $\tau_E$ should also increase when $\hat{p}$ is fixed since $\alpha_P - \alpha_P\tau_E + \tau_E < 1$. To find out what happens to the value of $\tau$ ($\tau_R$ in Figure 2) at which R is indifferent between $P$'s ideal policy and the coalition with $E$, at the pair ($\tau_R$, $\hat{p}$) where $R$ is indifferent, we know that

$$U_R(\tau_R, \hat{p}) = y\ (\alpha_R - \alpha_R\tau_R + \tau_R) - \hat{p} = y.$$

In order for this equality to hold for any pair of ($\tau_R$, $\hat{p}$), again, it must be true that as $y$ increases, $\tau_R$ should also increase when $\hat{p}$ is fixed since $\alpha_R - \alpha_R\tau_R + \tau_E > 1$.

This implies that the tax rates at which $E$ and $R$ are indifferent between having the coalition and living under $P$'s ideal policies both increase when $y$ increases. However, this does not necessarily mean that the actual tax rate that is implemented under the coalition of $R$ and $E$ also increases since the actual tax rate can take any value that lies in the interval ($\tau_E$; $\tau_R$).

Figure 3 illustrates this story. Suppose that the initial income level of the country is such that the indifference curves of $E$ and $R$ are represented by the solid lines. Hence, any tax rate $\hat{\tau} \in (\tau^a; \tau^b)$ can be implemented under the coalition of $R$ and $E$. Now, suppose $y$ increases. This would make the indifference curves of both $E$ and $R$ steeper since the slope of $R$'s indifference curves is, as we showed before, equal to $y(1 - \alpha_R)$ which would become more negative as $y$ increases; and the slope of $E$'s indifference curves is equal to $\frac{y(1-\alpha_P)}{1-v'(p)}$ which also would become more negative since for values of $p < p^*_E$, $1 - v'(p) < 0$. The new indifference curves are represented by short dashed lines in the figure. Hence, as we showed above, when $y$ increases, we know for sure that the interval of the feasible tax rates under the coalition of $R$ and $E$ shifts to the right. As illustrated in the figure, $\tau^c > \tau^a$ and $\tau^d > \tau^b$; however, there may be an overlap between the intervals of $(\tau^a; \tau^b)$ and $(\tau^c; \tau^d)$ unless there is a sufficiently large increase in $y$. If the increase in $y$ is large enough, then the slopes of the indifference curves for $R$ and $E$ would become steeper enough that there would not be any overlap between the interval $(\tau^a; \tau^b)$ and the new set of feasible tax policies under the coalition. This possibility is illustrated by the long-dashed indifference curves. In that case, there is no overlap between $(\tau^a; \tau^b)$ and $(\tau^e; \tau^f)$. This means that as $y$ increases, the equilibrium tax rates do not necessarily increase; they may even *decrease*; however, it is certainly true that the new set of feasible tax rates that would follow an increase in income include values that are larger than the maximum value in the previous set. Hence, to make the analysis more straightforward; I adopt the Assumption 3.

To go back to the analysis of group's incentives, $P$ obeys the election results if

$$0 \geqslant y[q_P + q_R\mu\alpha_P + q_E\mu - \alpha_P - \hat{\tau}(1 - \alpha_P)] + \hat{p} - q_E\mu p_E^* \tag{4.8}$$

This inequality captures the calculation $P$ makes in deciding whether or not to rebel. In doing this, $P$ compares its expected income after the conflict to its current income under democracy since income is the only thing that $P$ cares about. If the difference between the two is positive and hence (4.8) does not hold, $P$ rebels. Otherwise, it obeys the elections. $P$'s income depends both on $\tau$ and $p$. Higher $\tau$ makes $P$ better off while any $p > 0$ hurts $P$ by lowering the amount of lump-sum redistribution. The first term on the RHS of (4.8) captures the expected change in $P$'s income via $\tau$ if it rebels. The second and third terms capture the expected change in its income via $p$. In democracy, preferential policies hurt $P$ as much as $\hat{p}$ while it would hurt even more in $E$'s dictatorship which only happens with probability $q_E$. Under Assumption 1, the first term is always negative; hence $P$'s expected change in income via $\tau$ is negative. However, if the expected change in $P$'s income via $p$ $(\hat{p} - q_E\mu p_E^*)$ is positive, then, there is a threshold level of income $\underline{y_P} = \frac{q_E\mu p_E^* - \hat{p}}{q_P + \alpha_P(q_R\mu - 1) + q_E\mu - \hat{\tau}(1-\alpha_P)}$ below which $P$ rebels. This expected change in income via

$p$ is positive if $q_E < q_E^* = \frac{\hat{p}}{\mu p_E^*}$. Hence, $P$ has incentives to rebel only if $E$ is militarily weak which makes intuitive sense. If this latter expected change is negative, then $P$ always obeys the results of the elections.

The intuition underlying this result is the following. As income decreases, so does the expected cost of rebelling for $P$ via $\tau$ since $\hat{\tau}$ also decreases as $y$ decreases. This means that democratically chosen level of redistribution gets closer to $R$'s ideal point that it would implement under its own dictatorship and that $P$ wants to evade most. Furthermore, the fact that $\hat{p} - q_E \mu p_E^*$ is positive implies that the democratically chosen preferential policy ($\hat{p}$) is close to $E$'s ideal point ($p_E^*$) even though $E$ is not very strong militarily (low $q_E$). Hence, as average income declines, $P$ observes that the democratically chosen $\hat{p}$ remains close to $E$'s ideal even though $E$ is weak and the democratically chosen $\hat{\tau}$ moves away further from its ideal tax rate; therefore $P$ prefers to attempt to establish its own dictatorship once the income falls below a certain threshold level.

This result sheds some new light on the claim that if individuals are divided both along class and ethnic lines, then redistribution can be limited and hurt the rich less compared to the level that would obtain when individuals are divided only along class lines. In earlier work, scholars have suggested and studied different causal mechanisms through which redistribution can be limited in the context of US and Western democracies. For instance, in Roemer (1998), voter preferences differ along two dimensions one of which is religious/racial/ethnic as opposed to class; in Austen-Smith and Wallerstein (2004), the voter preferences are identical but there are two policy dimensions one of which is a tax rate while the other is an affirmative action policy that also has redistributive consequences. What the result here teaches us is that if the rich attempts to limit redistribution in a relatively poor society in collusion with a militarily weak poor minority in similar ways as in prosperous Western democracies, democracy may collapse, a possibility abstracted away in this earlier work.

To move on to the incentives faced by the rich $R$, $R$ would obey the election results iff

$$0 \geqslant y[q_P\mu + q_R\alpha_R + q_E\mu - \alpha_R - \hat{\tau}(1-\alpha_R)] + \hat{p} - q_E\mu p_E^* \tag{4.9}$$

$R$ also compares its expected income after the conflict to its current income under democracy since income is the only thing that $R$ cares about as well. If the difference between the two is positive, $R$ rebels. Otherwise, it obeys the results of elections. $R$'s income depends both on $\tau$ and $p$. The first term on the RHS of (4.9) captures the expected change in $R$'s income via $\tau$ if it rebels. The second and third terms capture the expected change in its income via $p$. Under Assumption 1, the first term is always negative; hence $R$'s expected change in income via $\tau$ is negative. However, if the expected change in income via $p$ $(\hat{p} - q_E \mu p_E^*)$ is positive which happens if $q_E < q_E^* = \frac{\hat{p}}{\mu p_E^*}$, then, the net expected change in $R$'s income can be positive or negative depending on the specific values the rest of the parameters take. More specifically, $R$ rebels if $y < \underline{y_R} = \frac{q_E \mu p_E^* - \hat{p}}{\mu(q_P + q_E) + \alpha_R(q_R - 1) - \hat{\tau}(1-\alpha_R)}$. However, the impact of a change in income on $R$'s behavior in this case is ambiguous since under Assumption 1 and 2, when $y$ changes, the term in square brackets in (4.9) moves in the opposite direction to that of $y$. So, the impact of a change in income on $R$'s behavior is ambiguous.

Finally, $E$ would observe the election results iff

$$0 \geqslant y[q_P \mu + q_R \mu \alpha_P + q_E - \alpha_P - \hat{\tau}(1 - \alpha_P)] + q_E(v(p_E^*) - p_E^*) + \hat{p} - v(\hat{p}) \tag{4.10}$$

$E$ compares its utility under democracy to its utility in the aftermath of the conflict. This utility depends both on its income *and* the preferential policy directly, not only via its impact on redistribution. The first term on the RHS of (4.10) is $E$'s expected change in utility via $\tau$ if it rebels. The rest of the terms captures the expected change in $E$'s utility by implementing its ideal preferential policy net of its impact on redistribution. Under Assumption 1, the first term is always negative. However, the second term is positive if $q_E > q_E^{**} = \frac{v(\hat{p}) - \hat{p}}{v(p_E^*) - p_E^*}$. In that case, as income decreases, the cost of rebellion becomes smaller and hence the first term becomes less negative. If the income falls below $\underline{y_E} = \frac{v(\hat{p}) - \hat{p} - q_E(v(p_E^*) - p_E^*)}{q_E + q_P \mu + \alpha_P(q_R \mu - 1) - \hat{\tau}(1-\alpha_P)}$, $E$ rebels. Note that this occurs if $q_E > q_E^{**}$ which means that $E$ has incentives to rebel only if it is militarily sufficiently strong and this makes intuitive sense. Otherwise, $E$ obeys the results of the elections regardless of income level.

The proposition below summarizes the analysis of the second case laid out above.

**Proposition 3.** *If $E$ is militarily weak ($q_E \leqslant q_E^{**}$), $P$ rebels if $y < \underline{y_P}$ and $R$ rebels if $y < \underline{y_R}$ while $E$ has no incentives to rebel. Democracy survives if $y \geqslant max(\underline{y_P}, \underline{y_R})$. If $E$ has moderate military power ($q_E^{**} < q_E \leqslant q_E^*$) , then $P$ rebels if $y < \underline{y_P}$ and $R$ rebels if $y < \underline{y_R}$ and $E$ rebels if $y < \underline{y_E}$. Democracy survives if $y > max(\underline{y_P}, \underline{y_R}, \underline{y_E})$. If $E$ is militarily strong ($q_E > q_E^*$), then $P$ and $R$ obey the election results while $E$ rebels if $y < \underline{y_E}$.*

**Corollary 2.** *Democracy always survives if $y > max(\underline{y_P}, \underline{y_R}, \underline{y_E})$.*

*Proof.* See the Appendix. □

Hence, democracies characterized by limited redistribution and preferential policies are stable as long as they are sufficiently developed. If they are not, the identity of groups who threaten democracy depends on the military strength of the group that demands preferential policies. Unsurprisingly, as the likelihood of a potential dictatorship of this group increases, the temptation of the other groups to turn against democracy and attempt to implement their ideal policy decreases. A less obvious implication is that even if other groups cater to the group with a demand for preferential policies in the face of their strong military power, this may not be enough to guarantee the loyalty of this group to democracy if the country is sufficiently poor.

## 5 Conclusion

In this paper, I have studied the chances of democratic stability in ethnically divided societies by examining the impact of a potential preferential policy on groups' incentives to support a democratic regime. My starting point has been the intuition that in ethnically divided societies, preferential policies can also be the cause of inter-ethnic cooperation as opposed to inter-ethnic competition if the ethnic conflict over preferential policies is accompanied by a simultaneous conflict over income redistribution.

Having allowed the groups to attempt to abolish the democratic framework in the face of democratic policy choices that hurt them, I demonstrated that the stability of democracies characterized by high redistribution without preferential policies depends more on the distribution of income rather than the level of development. More specifically, democracies with high redistribution rates and no preferential policies are stable only if the income distribution is relatively equal and they are sufficiently developed. In addition, the incentives of the group supporting preferential policies to turn against democracy are stronger if income distribution is more *equal* since lower inequality makes it less risky for this group to turn against democracy. Hence, among two countries with the same low income level but different levels of inequality (one low and one high), democracy is less likely to consolidate in the former than in the latter.

If there are coalition possibilities between groups, then the rich and the group demanding preferential policies have incentives to collude in order to limit redistribution and adopt preferential policies. However, if this collusion happens in a relatively poor society, then democratic stability becomes highly unlikely for the following reasons: If the group that supports preferential policies is militarily weak, the poor group that does not benefit from preferential policies has greater incentives to turn against democracy in a poor society. If the group with the demand of preferential policies is militarily strong, then, poor democracies are under the risk of the very same group turning against democracy even if preferential policies are being adopted. Hence, preferential policies are associated with democratic stability if they are accompanied by limited redistribution at sufficiently large income levels.

Finally, there are several ways to proceed by building upon the framework I suggest in this paper. First, an empirical testing of the predictions of the model is the most obvious next step. Second, a natural extension of the theoretical analysis is to incorporate the anticipation of groups' incentives to abolish democracy to the policy platforms offered and implemented under the democratic framework.

## 6 Appendix

**Proof of Proposition 1.** Note first that $E$ is always better of under $P$'s ideal policies than under $R$'s ideal policies; and $R$ is always better of under $P$'s ideal policies than under $E$'s ideal policies. So, under the partition P|R|E, if each group runs and proposes its ideal policy, the one with the plurality of votes would win. If $P$ has the plurality, $P$ would win; and $E$ and $R$ would drop from the race without affecting the result. If $R$ has the plurality, then $E$ would drop from the race to ensure that $P$ wins. If $E$ has the plurality, this time, $R$ would have the same incentive to drop from the race and ensure that $P$ wins. Hence, under the partition of P|R|E, in every possible case, $P$ would run alone by proposing its ideal policy pair and win.

Consider the partition PE|R. It cannot be that $R$ wins since the coalition can offer $P$'s ideal policies and win and improve the utility of its members. Hence, the coalition of $P$ and $E$ would win again by proposing $P$'s ideal policy pair. But then $P$ has an incentive to break the coalition and win by offering its ideal policy alone in the new partition P|R|E. The same logic of analysis also applies to the partition PR|E. Now, consider P|RE. $RE$ can win against $P$ if they offer policies in their Pareto set that are better for both than the ideal policy of $P$. These policies are stable because if $R$ and $E$ split, they would be back in the partition of P|R|E which would implement the ideal policies of $P$. There are three conditions that must be met so that the set of policies that make both better off than the ideal policy pair of $P$ is non-empty. First, there must be a tax rate, $\tau_E$, at which $E$ is indifferent between the policy pair of the coalition ($\tau_E$, $\hat{p}$) and the ideal policy pair of $P$ and for any $\hat{\tau} > \tau_E$, $E$ prefers the coalition to the ideal policy pair of $P$. Therefore, it must be true that

$$U_E(\tau_E, \hat{p}) = y\alpha_P + \tau_E y(1-\alpha_P) - \hat{p} + v(\hat{p}) = y$$

Solving this expression for $\tau_E$, we get

$$\tau_E = \frac{y(1-\alpha_P) + \hat{p} - v(\hat{p})}{y(1-\alpha_P)} = 1 + \frac{\hat{p} - v(\hat{p})}{y(1-\alpha_P)}$$

It must be true that $0 < \tau_E < 1$, hence

$$0 < v(\hat{p}) - \hat{p} < y(1 - \alpha_P)$$

which is identical to the first condition in Proposition 1.

Second, there must also be a tax rate, $\tau_R$, at which $R$ is indifferent between the policy pair of the coalition ($\tau_R$, $\hat{p}$) and the ideal policy pair of $P$ and for any $\hat{\tau} < \tau_R$, $R$ prefers the coalition to the ideal policy pair of $P$. Therefore, it must be true that

$$U_R(\tau_R, \hat{p}) = y\alpha_R + \tau_R y(1 - \alpha_R) - \hat{p} = y$$

Solving this expression for $\tau_R$, we get

$$\tau_R = \frac{y(1 - \alpha_R) + \hat{p}}{y(1 - \alpha_R)} = 1 + \frac{\hat{p}}{y(1 - \alpha_R)}$$

It must be true that $0 < \tau_R < 1$, hence

$$\hat{p} < y(\alpha_R - 1)$$

which is identical to the second condition in Proposition 1.

It must also be the case that $\tau_E < \tau_R$ so that the tax rates that $E$ prefers to the ideal policy pair of $P$ and the tax rates that $R$ prefers to the ideal policy pair of $P$ overlap. Hence, it must be true that

$$\frac{\hat{p} - v(\hat{p})}{1 - \alpha_P} < \frac{\hat{p}}{(1 - \alpha_R)}$$

which after a couple of algebraic manipulations becomes

$$\frac{\hat{p}}{v(\hat{p})} < \frac{1 - \alpha_R}{\alpha_P - \alpha_R}$$

which is identical to the third condition in Proposition 1.

Finally, we need to check the grand coalition of PRE. As $E$ or $R$ can split and create a partition in which the ideal policy of $P$ can be offered by the remaining coalition and be an equilibrium, the coalition must offer the same policies that RE offer. This implies that RE can split and achieve the same outcomes without $P$, hence the coalition of PRE is not stable.

**Proof of Lemma 1.** First I will establish that algebraically, the length of the dictatorship does not make a difference in the value of rebelling. Suppose that the first dictatorship of group $i$ lasts $T$ periods and the game is played anew afterwards. Since none of the parameters will have changed, the only possibility is that a different party establishes its dictatorship. Then, the expected value of rebelling for party $i$ is

$$\begin{aligned}
V_i(rebel, rebel, rebel) &= \frac{1}{1-\rho}(q_P U_{iP} + q_R U_{iR} + q_E U_{iE}) \\
&= q_P^2 \frac{1}{1-\rho} U_{iP} + q_P q_R (\frac{1-\rho^T}{1-\rho} U_{iP} + \frac{\rho^T}{1-\rho} U_{iR}) + q_R q_P (\frac{1-\rho^T}{1-\rho} U_{iR} + \frac{\rho^T}{1-\rho} U_{iP}) + \\
&\quad q_R^2 \frac{1}{1-\rho} U_{iR} + q_P q_E (\frac{1-\rho^T}{1-\rho} U_{iP} + \frac{\rho^T}{1-\rho} U_{iE}) + q_E q_P (\frac{1-\rho^T}{1-\rho} U_{iE} + \frac{\rho^T}{1-\rho} U_{iP}) + \\
&\quad q_E^2 \frac{1}{1-\rho} U_{iE} + q_E q_R (\frac{1-\rho^T}{1-\rho} U_{iE} + \frac{\rho^T}{1-\rho} U_{iR}) + q_R q_E (\frac{1-\rho^T}{1-\rho} U_{iR} + \frac{\rho^T}{1-\rho} U_{iE}) \\
&= \frac{1}{1-\rho}[U_{iP}(q_P^2 + q_P q_R + q_P q_E) + U_{iR}(q_R q_P + q_R^2 + q_R q_E) + U_{iE}(q_E q_P + q_E^2 + q_E q_R)] \\
&= \frac{1}{1-\rho}[U_{iP}(q_P(q_P + q_R + q_E)) + U_{iR}(q_R(q_P + q_R + q_E)) + U_{iE}(q_E(q_P + q_E + q_R))] \\
&= \frac{1}{1-\rho}(q_P U_{iP} + q_R U_{iR} + q_E U_{iE}). \qquad (6.1)
\end{aligned}$$

It is easy to see that this equality would hold for any number of repetitions.

I start with what $R$ and $E$ do when $P$ rebels. $R$ would rebel if $P$ rebels while $E$ obeys if

$$V_R(rebel,\ rebel,\ obey) \geqslant V_R(rebel,\ obey,\ obey) \qquad (6.2)$$

where the first action refers to what $P$ does, the second to what $R$ does and the third to what $E$

does. We know that

$$\begin{aligned} V_R(rebel, rebel, obey) &= q_P U_{RP} \frac{1}{1-\rho} + q_R U_{RR} \frac{1}{1-\rho} + q_E U_R + \rho q_E (q_P U_{RP} \frac{1}{1-\rho} + q_R U_{RR} \frac{1}{1-\rho} + q_E U_R + ...) \\ &= \frac{q_P U_{RP}}{(1-\rho)(1-\rho q_E)} + \frac{q_R U_{RR}}{(1-\rho)(1-\rho q_E)} + \frac{q_E U_R}{1-\rho q_E} \end{aligned}$$

and

$$\begin{aligned} V_R(rebel, obey, obey) &= q_P U_{RP} \frac{1}{1-\rho} + q_R U_R + q_E U_R + \rho(1-q_P)(q_P U_{RP} \frac{1}{1-\rho} + q_R U_R + q_E U_R + ...) \\ &= \frac{q_P U_{RP}}{(1-\rho)(1-\rho(1-q_P))} + \frac{(1-q_P) U_R}{1-\rho(1-q_P)} \end{aligned}$$

Hence, (6.2) holds if

$$q_R(1-\rho)U_{RR} + \rho q_P q_R U_{RR} \geqslant q_R(1-\rho)U_R + \rho q_P q_R U_{RP} \tag{6.3}$$

which is always true since $U_{RR} = \alpha_R y > U_R = y$ and $U_{RR} > U_{RP} = \mu\ y$.

$R$ would rebel if $P$ rebels while $E$ also rebels if

$$V_R(rebel,\ rebel,\ rebel) \geqslant V_R(rebel,\ obey,\ rebel) \tag{6.4}$$

$$V_R(rebel, rebel, rebel) = \frac{1}{1-\rho}(q_P U_{RP} + q_R U_{RR} + q_E U_{RE})$$

and

$$V_R(rebel, obey, rebel) = \frac{q_P}{(1-\rho)(1-\rho q_R)} U_{RP} + \frac{q_R}{1-\rho q_R} U_R + \frac{q_E}{(1-\rho)(1-\rho q_R)} U_{RE}$$

Hence, (6.4) is true if

$$(1-\rho q_R) q_R \alpha_R y \geqslant y\left[\rho q_R q_P \mu + \mu \rho q_R q_E + (1-\rho) q_R\right] - \mu \rho q_R q_E p_E^* \tag{6.5}$$

The last term on the RHS is negative and $\alpha_R > 1$; so in order to show that this inequality always holds, it is sufficient to show that $(1-\rho q_R) \geqslant (\rho q_P\mu + \rho\mu q_E + 1 - \rho)$. Using $q_E$ = 1 - $q_P$ - $q_R$, it is clearly true that $\rho q_P\mu + \rho\mu q_E + 1 - \rho$ = 1 - $\rho(-\mu + \mu q_R + 1)$. The term in parenthesis decreases in $\mu$ so it must take a value between $q_R$ and 1. This implies that $1 - \rho(-\mu + \mu q_R + 1) < 1 - \rho q_R$. Hence, (6.4) always holds. This establishes that $R$ is always better off rebelling when $P$ rebels regardless of what $E$ does. Hence, to find out $E$'s strategy when $P$ rebels, it is sufficient to check what $E$ does when both $P$ and $R$ rebel. $E$ would rebel if $P$ rebels while $R$ also rebels if

$$V_E(\textit{rebel, rebel, rebel}) \geqslant V_E(\textit{rebel, rebel, obey}) \tag{6.6}$$

$$V_E(\textit{rebel}, \textit{rebel}, \textit{rebel}) \quad = \quad \frac{1}{1-\rho}(q_P U_{EP} + q_R U_{ER} + q_E U_{EE})$$

and

$$V_E(\textit{rebel}, \textit{rebel}, \textit{obey}) = \frac{q_P}{(1-\rho)(1-\rho q_E)} U_{EP} + \frac{q_R}{(1-\rho)(1-\rho q_E)} U_{ER} + \frac{q_E}{(1-\rho q_E)} U_E$$

Hence, (6.6) holds if

$$(1-\rho q_E) q_E (y - p_E^* + v(p_E^*)) \geqslant \rho q_P q_E \mu y + \rho q_R q_E \mu \alpha_P y + (1-\rho) q_E y \tag{6.7}$$

It must be true that $v(p_E^*) - p_E^* > 0$ since otherwise, $E$ would not be better off under its ideal policy pair than under the ideal policy pair of $P$. Then, $(1-\rho q_E)q_E(y - p_E^* + v(p_E^*)) > (1-\rho q_E)q_E y = [1 - \rho(1 - q_P - q_R)]q_E y = (1-\rho)q_E y + \rho q_P q_E y + \rho q_R q_E y$. This implies that $(1-\rho)q_E y + \rho q_P q_E y + \rho q_R q_E y > \rho q_P q_E \mu y + \rho q_R q_E \mu \alpha_P y + (1-\rho) q_E y$ since $\mu < 1$ and $\alpha_P < 1$. Hence, (6.6) always holds.

We have shown that if $P$ rebels, both $E$ and $R$ are also better off rebelling. The next step is to check what $E$ and $P$ do when $R$ rebels. $E$ would prefer to rebel if $R$ rebels while $P$ obeys if

$$V_E(\textit{obey, rebel, rebel}) \geqslant V_E(\textit{obey, rebel, obey}) \tag{6.8}$$

We know that

$$V_E(obey, rebel, rebel) \quad = \quad \frac{q_P}{1-\rho q_P} U_E + \frac{q_R}{(1-\rho)(1-\rho q_P)} U_{ER} + \frac{q_E}{(1-\rho)(1-\rho q_P)} U_{EE}$$

and

$$V_E(obey, rebel, obey) = \frac{1-q_R}{(1-\rho(1-q_R))} U_E + \frac{q_R}{(1-\rho)(1-\rho(1-q_R))} U_{ER}$$

So, (6.8) holds if

$$(1-\rho) q_E U_{EE} + \rho q_R q_E U_{EE} \geqslant (1-\rho) q_E U_E + \rho q_R q_E U_{ER} \tag{6.9}$$

which is always true since $U_{EE} = y - p_E^* + v(p_E^*) > U_E = y$ and $U_{EE} > U_{ER} = \mu \alpha_P y$. We have already shown that

$$V_E \text{ } (rebel, \text{ } rebel, \text{ } rebel) \geqslant V_E \text{ } (rebel, \text{ } rebel, \text{ } obey)$$

is true. Therefore, to find out what $P$'s strategy should be when $R$ rebels, we only need to check when

$$V_P(rebel, rebel, rebel) \geqslant V_P(obey, rebel, rebel) \tag{6.10}$$

$$V_P(rebel, rebel, rebel) \quad = \quad \frac{1}{1-\rho}(q_P U_{PP} + q_R U_{PR} + q_E U_{PE})$$

$$V_P(obey, rebel, rebel) \quad = \quad \frac{q_P}{1-\rho q_P} U_P + \frac{q_R}{(1-\rho)(1-\rho q_P)} U_{PR} + \frac{q_E}{(1-\rho)(1-\rho q_P)} U_{PE}$$

Hence, (6.10) holds if

$$y \rho q_P (1-q_P) \geqslant y \rho q_P (\mu \alpha_P q_R + \mu q_E) - \rho q_P q_E \mu p_E^* \tag{6.11}$$

It is clear that $\mu \alpha_P q_R + \mu q_E < 1 - q_P$ since $\mu < 1$ and $\alpha_P < 1$. This implies that (6.10) is always true. Hence, $P$ always rebels if $R$ and $E$ rebel. Finally, we should also check what $R$ and $P$ do when $E$ rebels. $R$ would prefer to rebel if $E$ rebels while $P$ obeys if

$$V_R(obey, rebel, rebel) \geqslant V_R(obey, obey, rebel) \tag{6.12}$$

$$V_R(obey, rebel, rebel) = \frac{q_P}{1-\rho q_P}U_R + \frac{q_R}{(1-\rho)(1-\rho q_P)}U_{RR} + \frac{q_E}{(1-\rho)(1-\rho q_P)}U_{RE}$$

$$V_R(obey, obey, rebel) = \frac{q_P}{1-\rho(q_P+q_R)}U_R + \frac{q_R}{1-\rho(q_P+q_R)}U_R + \frac{q_E}{(1-\rho)(1-\rho(q_P+q_R))}U_{RE}$$

So, (6.12) holds if

$$(1-\rho(q_P+q_R))q_R\alpha_R y \geqslant yq_R\left[(1-\rho)+\mu\rho q_E)\right] - \mu p_E^*\rho q_R q_E$$

It is true that $(1-\rho)+\mu\rho q_E = 1-\rho(1-\mu q_E) < 1-\rho(q_P+q_R)$ since $\mu < 1$. Hence, $(1-\rho(q_P+q_R))q_R\alpha_R y > yq_R\left[(1-\rho)+\mu\rho q_E)\right]$ because $\alpha_R > 1$. This implies that (6.12) is also always true. We already know that

$$V_R(rebel, rebel, rebel) \geqslant V_R(rebel, obey, rebel)$$

so, $R$ is always better off rebelling when $E$ rebels. We also know that

$$V_P(rebel, rebel, rebel) \geqslant V_P(obey, rebel, rebel)$$

is always true. Hence, this establishes that all three groups are better off rebelling if one of the other actors rebels.

**Proof of Proposition 2.** The condition for $P$ to obey is

$$\begin{aligned} V_P(obey, obey, obey) &= \frac{y}{1-\rho} \geqslant \\ V_P(rebel, rebel, rebel) &= \frac{1}{1-\rho}(q_P U_{PP} + q_R U_{PR} + q_E U_{PE}) \end{aligned}$$

which can also be written as

$$0 \geqslant y(q_P + q_R\mu\alpha_P + q_E\mu - 1) - q_E\mu p_E^* \tag{6.13}$$

which is always true since $q_P + q_R\mu\alpha_P + q_E\mu < 1$ and $-q_E\mu p_E^* < 0$. Similarly, the condition for $R$ to obey is

$$0 \geqslant y(q_P\mu + q_R\alpha_R + q_E\mu - 1) - q_E\mu p_E^* \tag{6.14}$$

which is always true if $q_P\mu + q_R\alpha_R + q_E\mu - 1 \leqslant 0$ since $-q_E\mu p_E^* < 0$. This implies that $R$ always obeys the results of the elections if

$$\alpha_R \leqslant \alpha_R^* = \frac{1 - \mu(q_P + q_E)}{q_R}$$

If $\alpha_R > \alpha_R^*$ then $y(q_P\mu + q_R\alpha_R + q_E\mu - 1)$ increases in $y$. Solving (6.14) for equality gives

$$\overline{y_R} = \frac{q_E\mu p_E^*}{\mu + q_R(\alpha_R - \mu) - 1}$$

$E$ obeys the results of the elections if

$$0 \geqslant y(q_P\mu + q_R\mu\alpha_P + q_E - 1) - q_E(p_E^* - v(p_E^*)) \tag{6.15}$$

We know that $y(q_P\mu + q_R\mu\alpha_P + q_E - 1) < 0$ while $-q_E(p_E^* - v(p_E^*)) > 0$. Solving (6.15) for equality gives

$$\underline{y_E} = \frac{q_E(p_E^* - v(p_E^*))}{q_P(\mu - 1) + q_R(\mu\alpha_P - 1)}$$

Finally, in order to have an income range where all groups obey the results of elections, it must also be the case that $\underline{y_E} \leqslant \overline{y_R}$. This is true if

$$\frac{q_E(p_E^* - v(p_E^*))}{q_P(\mu - 1) + q_R(\mu\alpha_P - 1)} \leqslant \frac{q_E \mu p_E^*}{\mu + q_R(\alpha_R - \mu) - 1}$$

After a few steps, this inequality becomes

$$\alpha_R < \frac{\mu p_E^*[(1 - q_E)(1 - \mu) - \mu(q_R(\alpha_P - 1))]}{(v(p_E^*) - p_E^*)q_R} - \frac{\mu(1 - q_R) - 1}{q_R} = \alpha_R^{**} \tag{6.16}$$

$\alpha_R^{**} > 0$ since both the first term and the second term on the RHS of (6.16) are positive. We also need to show that $\alpha_R^{**} > \alpha_R^*$. Note that $-\frac{\mu(1-q_R)-1}{q_R} = \frac{1-\mu(1-q_R)}{q_R} = \frac{1-\mu(q_P+q_E)}{q_R} = \alpha_R^*$ and we know that $\frac{\mu p_E^*[(1-q_E)(1-\mu)-\mu(q_R(\alpha_P-1))]}{(v(p_E^*)-p_E^*)q_R}$ is positive, hence $\alpha_R^{**} > \alpha_R^*$.

**Proof of Corollary 1.** Note that both the numerator and the denominator of $\underline{y_E} = \frac{q_E(p_E^*-v(p_E^*))}{q_P(\mu-1)+q_R(\mu\alpha_P-1)}$ is negative. Hence an increase in $\alpha_P$ makes the denominator less negative as a result of which the entire expression becomes larger and hence $\underline{y_E}$ increases.

**Proof of Lemma 2.** Note that the only difference for the utilities of the actors under different political outcomes is their utilities under democracy. We know that $U_P(\tau{=}\hat{\tau},\ p{=}\hat{p}) = y(\alpha_P$ - $\alpha_P\hat{\tau}$ + $\hat{\tau})$ - $\hat{p} < y$ since $\alpha_P$-$\alpha_P\hat{\tau} + \hat{\tau} < 1$ and $\hat{p} > 0$. $U_R(\tau{=}\hat{\tau},\ p{=}\hat{p}) = y\ (\alpha_R$ - $\alpha_R\hat{\tau}$ + $\hat{\tau})$ - $\hat{p} < \alpha_R y$ since $\alpha_R > 1$ and $\hat{p} > 0$. Note also that $U_R(\tau{=}\hat{\tau},\ p{=}\hat{p}) > y$ since this outcome is in the Pareto set of $R$ and $E$. We also know that $U_E(\tau{=}\hat{\tau},\ p{=}\hat{p}) = y\ (\alpha_P$ - $\alpha_P\hat{\tau}$ + $\hat{\tau})$ - $\hat{p} + v(\hat{p})$. $(\hat{\tau},\ \hat{p})$ is in the Pareto set of $R$ and $E$, therefore, $U_E > y$ and $v(\hat{p})$ - $\hat{p} > 0$. In analyzing the first case, we showed that $R$ would rebel if $P$ rebels while $E$ obeys if

$$q_R(1 - \rho)U_{RR} + \rho q_P q_R U_{RR} \geqslant q_R(1 - \rho)U_R + \rho q_P q_R U_{RP}$$

which always holds since $U_{RR} > U_{RP}$ and $U_{RR} > U_R$. We also know that $R$ would rebel if $P$ and $E$ rebel if

$$(1 - \rho q_R)q_R U_{RR} \geqslant \rho q_R q_P U_{RP} + \rho q_R q_E U_{RE} + (1 - \rho)q_R U_R \tag{6.17}$$

which can also be written as

$$(1-\rho q_R)q_R\alpha_R y \geqslant y\left[(\rho q_R q_P \mu + \rho q_R \mu q_E + (1-\rho)q_R(\alpha_R - \alpha_R\hat{\tau} + \hat{\tau})\right] - q_R(1-\rho)\hat{p} - \mu p_E^* \rho q_R q_E \tag{6.18}$$

Since the last two terms on the RHS of (6.18) are negative, in order to show that this condition always holds, it is sufficient to show that

$$(1-\rho q_R)q_R\alpha_R y \geqslant y\left[(\rho q_R q_P \mu + \rho q_R \mu q_E + (1-\rho)q_R(\alpha_R - \alpha_R\hat{\tau} + \hat{\tau})\right]$$

To see that this inequality always holds, first, observe that $\alpha_R - \alpha_R\hat{\tau} + \hat{\tau} \leqslant \alpha_R$ since $\hat{\tau} < 1$ and $\alpha_R > 1$. Hence, $(\rho q_R q_P \mu + \rho q_R \mu q_E + (1-\rho)q_R(\alpha_R - \alpha_R\hat{\tau} + \hat{\tau}) \leqslant (\rho q_R q_P \mu + \rho q_R \mu q_E + (1-\rho)q_R\alpha_R$. So, if we show that

$$(1-\rho q_R)q_R\alpha_R y \geqslant y\left[(\rho q_R \mu(1-q_R) + (1-\rho)q_R\alpha_R\right]$$

is always true, this is sufficient to prove that (6.18) is also always true. Now, it must be true that $\rho q_R\alpha_R(1-q_R)y > \rho q_R\mu(1-q_R)y$ since $\alpha_R > 1$ and $\mu < 1$. This inequality can also be written as

$$q_R\alpha_R(1-\rho q_R)y > y\left[\rho q_R \mu(1-q_R) + (1-\rho)q_R\alpha_R\right]$$

This implies that (6.18) is always true. So, we established that $R$ is always better off rebelling when $P$ rebels regardless of what $E$ does. To find out what $E$'s strategy is when $P$ rebels, it is sufficient to check what $E$ would do if both $P$ and $R$ rebel. We know that $E$ would rebel if $P$ and $R$ rebel iff

$$(1-\rho q_E)q_E U_{EE} \geqslant \rho q_P q_E U_{EP} + \rho q_R q_E U_{ER} + (1-\rho)q_E U_E \tag{6.19}$$

which can also be written as

$$\begin{aligned}(1-\rho)q_E(y - p_E^* + v(p_E^*)) + \rho q_P q_E(y - p_E^* + v(p_E^*)) + \rho q_R q_E(y - p_E^* + v(p_E^*)) \quad \geqslant \\ \rho q_P q_E \mu y + \rho q_R q_E \mu \alpha_P y + (1-\rho)q_E(y(\alpha_P - \alpha_P\hat{\tau} + \hat{\tau}) - \hat{p} + v(\hat{p}))\end{aligned}$$

which is always true since otherwise $E$ would be better off under a pair of policy $(\hat{\tau}, \hat{p})$ than under $(\tau = 1, p = p_E^*)$. Hence, $E$ is always better off rebelling if $P$ and $R$ rebel. The next step is to check the optimal strategies of $P$ and $E$ when $R$ rebels. $P$ would rebel if $R$ rebels while $E$ obeys if

$$V_P(\textit{rebel, rebel, obey}) \geqslant V_P(\textit{obey, rebel, obey}) \tag{6.20}$$

We know that

$$V_P(rebel, rebel, obey) = \frac{q_P}{(1-\rho)(1-\rho q_E)} U_{PP} + \frac{q_R}{(1-\rho)(1-\rho q_E)} U_{PR} + \frac{q_E}{(1-\rho q_E)} U_P$$

and

$$V_P(obey, rebel, obey) = \frac{1-q_R}{1-\rho(1-q_R)} U_P + \frac{q_R}{(1-\rho)(1-\rho(1-q_R)} U_{PR}$$

So, (6.20) holds if

$$(1-\rho) q_P U_{PP} + \rho q_R q_P U_{PP} \geqslant \rho q_P q_R U_{PR} + (1-\rho) q_P U_P$$

which always holds since $U_{PP} > U_{PR}$ and $U_{PP} > U_P$. We already know from the first case that the condition under which

$$V_P \ (\textit{rebel, rebel, rebel}) \geqslant V_P \ (\textit{obey, rebel, rebel})$$

is

$$(1-\rho q_P) q_P U_{PP} \geqslant (1-\rho) q_P U_P + \rho q_P q_R U_{PR} + \rho q_P q_E U_{PE} \tag{6.21}$$

We showed that this condition always holds in the first case. Here, the only difference in terms of utilities is $U_P(\tau{=}\hat{\tau},\ p{=}\hat{p}) < y = U_P(\tau{=}1,\ p{=}0)$. Hence, this condition must always hold also in this second case. Therefore, $P$ is better off rebelling when $R$ rebels. We already know that

$$V_E \ (\textit{rebel, rebel, rebel}) \geqslant V_E \ (\textit{rebel, rebel, obey})$$

Finally, we need to check what $P$'s and $R$'s strategy would be if $E$ rebels. $P$ would rebel if $E$ rebels while $R$ obeys if

$$\begin{aligned} V_P(rebel, obey, rebel) = & \quad \tfrac{q_P}{(1-\rho)(1-\rho q_R)} U_{PP} + \tfrac{q_R}{1-\rho q_R} U_P + \tfrac{q_E}{(1-\rho)(1-\rho q_R)} U_{PE} \quad \geqslant \\ V_P(obey, obey, rebel) = & \quad \tfrac{q_P+q_R}{1-\rho(q_P+q_R)} U_P + \tfrac{q_E}{(1-\rho)(1-\rho(q_P+q_R))} U_{PE} \end{aligned}$$

which after a few steps becomes

$$U_{PP} q_P (1 - \rho(q_P + q_R)) > U_P (q_P - \rho q_P) + U_{PE} \rho q_P q_E \tag{6.22}$$

Given the values of $U_P$ and $U_{PE}$, it must be true that $U_P(q_P - \rho q_P) + U_{PE}\rho q_P q_E < y(q_P - \rho q_P) + y\mu\rho q_P q_E < y q_P(1 - \rho(q_P + q_R))$ since $\mu < 1$. We know that $y q_P(1 - \rho(q_P + q_R))$ is equal to the LHS of (6.22); this implies that (6.22) always holds. $P$ always rebels if $E$ rebels while $R$ obeys. We already know that

$$V_P\ (\textit{rebel, rebel, rebel}) \geqslant V_P\ (\textit{obey, rebel, rebel})$$

is always true. Hence, $P$ is better off rebelling if $E$ rebels no matter what $R$ does. To find out what $R$ does when $E$ rebels we need to check what $R$ does if both $P$ and $E$ rebel. But we already showed that

$$V_R\ (\textit{rebel, rebel, rebel}) \geqslant V_R\ (\textit{rebel, obey, rebel})$$

is always true. So, $R$ is also better off rebelling if $E$ rebels. This establishes that whenever an actor makes a choice between *obey* and *rebel*, it has to compare $V_i$ (*obey, obey, obey*) to $V_i$ (*rebel, rebel, rebel*).

**Proof of Proposition 3.** $P$ obeys the results of the elections iff

$$\begin{aligned} V_P(obey, obey, obey) = &\quad \tfrac{1}{1-\rho}\left[y(\alpha_P + \hat{\tau}(1-\alpha_P)) - \hat{p}\right] \quad \geqslant \\ V_P(rebel, rebel, rebel) = &\quad \tfrac{1}{1-\rho}(q_P U_{PP} + q_R U_{PR} + q_E U_{PE}) \\ = &\quad \tfrac{1}{1-\rho}\left[q_P y + q_R \mu \alpha_P y + q_E \mu (y - p_E^*)\right] \end{aligned}$$

which is equivalent to

$$0 \geqslant y[q_P + q_R \mu \alpha_P + q_E \mu - \alpha_P - \hat{\tau}(1-\alpha_P)] + \hat{p} - q_E \mu p_E^* \tag{6.23}$$

I will call the expression $[q_P + q_R \mu \alpha_P + q_E \mu - \alpha_P - \hat{\tau}(1-\alpha_P)] =$ A and $\hat{p} - q_E \mu p_E^* =$ B. Under Assumption 1, A is always less than 0. If B is also less than or equal to zero, then the above inequality always holds. B $\leqslant 0$ if $q_E \geqslant q_E^* = \frac{\hat{p}}{\mu p_E^*}$. Otherwise B $> 0$. Then, it is easy to see that the above equation holds if $y \geqslant \underline{y_P} = \frac{q_E \mu p_E^* - \hat{p}}{q_P + \alpha_P(q_R \mu - 1) + q_E \mu - \hat{\tau}(1-\alpha_P)}$. $R$ would obey the election results iff

$$\begin{aligned} V_R(obey, obey, obey) = &\quad \tfrac{1}{1-\rho}\left[y(\alpha_R + \hat{\tau}(1-\alpha_R)) - \hat{p}\right] \quad \geqslant \\ V_R(rebel, rebel, rebel) = &\quad \tfrac{1}{1-\rho}(q_P U_{RP} + q_R U_{RR} + q_E U_{RE}) \\ = &\quad \tfrac{1}{1-\rho}\left[q_P \mu y + q_R \alpha_R y + q_E \mu (y - p_E^*)\right] \end{aligned}$$

which can also be written as

$$0 \geqslant y[q_P \mu + q_R \alpha_R + q_E \mu - \alpha_R - \hat{\tau}(1-\alpha_R)] + \hat{p} - q_E \mu p_E^* \tag{6.24}$$

I will call the expression $[q_P \mu + q_R \alpha_R + q_E \mu - \alpha_R - \hat{\tau}(1-\alpha_R)] =$ C and $\hat{p} - q_E \mu p_E^* =$ D $=$ B. Under Assumption 1, C is always less than 0. If B is also less than or equal to zero, then the above inequality always holds. We already know that B $\leqslant 0$ if $q_E \geqslant q_E^* = \frac{\hat{p}}{\mu p_E^*}$. Otherwise B $> 0$. Then it is easy to see that the above equation holds if $y \geqslant \underline{y_R} = \frac{q_E \mu p_E^* - \hat{p}}{\mu(q_P + q_E) + \alpha_R(q_R - 1) - \hat{\tau}(1-\alpha_R)}$. $E$ would observe the election results iff

$$\begin{aligned} V_E(obey, obey, obey) = & \quad \tfrac{1}{1-\rho}\left[y(\alpha_P + \hat{\tau}(1-\alpha_P)) - \hat{p} + v(\hat{p})\right] \qquad \geqslant \\ V_E(rebel, rebel, rebel) = & \quad \tfrac{1}{1-\rho}(q_P U_{EP} + q_R U_{ER} + q_E U_{EE}) \\ = & \quad \tfrac{1}{1-\rho}\left[q_P \mu y + q_R \mu \alpha_P y + q_E(y - p_E^* + v(p_E^*))\right] \end{aligned}$$

which can also be written as

$$0 \geqslant y[q_P\mu + q_R\mu\alpha_P + q_E - \alpha_P - \hat{\tau}(1-\alpha_P)] + q_E(v(p_E^*) - p_E^*) + \hat{p} - v(\hat{p}) \tag{6.25}$$

I will call the expression $[q_P\mu + q_R\mu\alpha_P + q_E - \alpha_P - \hat{\tau}(1-\alpha_P)]$ = E and $q_E(v(p_E^*) - p_E^*) + \hat{p} - v(\hat{p})$ = F. Under Assumption 1, E is always less than zero. If F is also less than or equal to zero, then the above equation always holds. Hence, the above equation always holds if $q_E \leqslant q_E^{**} = \frac{v(\hat{p})-\hat{p}}{v(p_E^*)-p_E^*}$. If $q_E > q_E^{**}$, then the above equation holds if $y \geqslant \underline{y_E} = \frac{v(\hat{p})-\hat{p}-q_E(v(p_E^*)-p_E^*)}{q_E+q_P\mu+\alpha_P(q_R\mu-1)-\hat{\tau}(1-\alpha_P)}$. Finally, to prevent the proliferation of cases that would not add any substantial insights, we should also make sure that $q_E^{**} \leqslant q_E^*$. This inequality holds if $\frac{\hat{p}}{\mu p_E^*} \geqslant \frac{v(\hat{p})-\hat{p}}{v(p_E^*)-p_E^*}$ which after a couple of steps becomes $\mu < \frac{\hat{p}(v(p_E^*)-p_E^*)}{p_E^*(v(\hat{p})-\hat{p})}$ which is identical to Assumption 2.

**Proof of Corollary 2.** Depending on the value of $q_E$, democracy survives either if $y \geqslant \underline{y_P}$ and $y \geqslant \underline{y_R}$, or if $y \geqslant \underline{y_P}$, $y \geqslant \underline{y_R}$ and $y \geqslant \underline{y_E}$, or if $y \geqslant \underline{y_E}$. Hence, regardless of the value $q_E$ takes, a sufficient condition for democracy to survive is $y \geqslant max(\underline{y_P}, \underline{y_R}, \underline{y_E})$.

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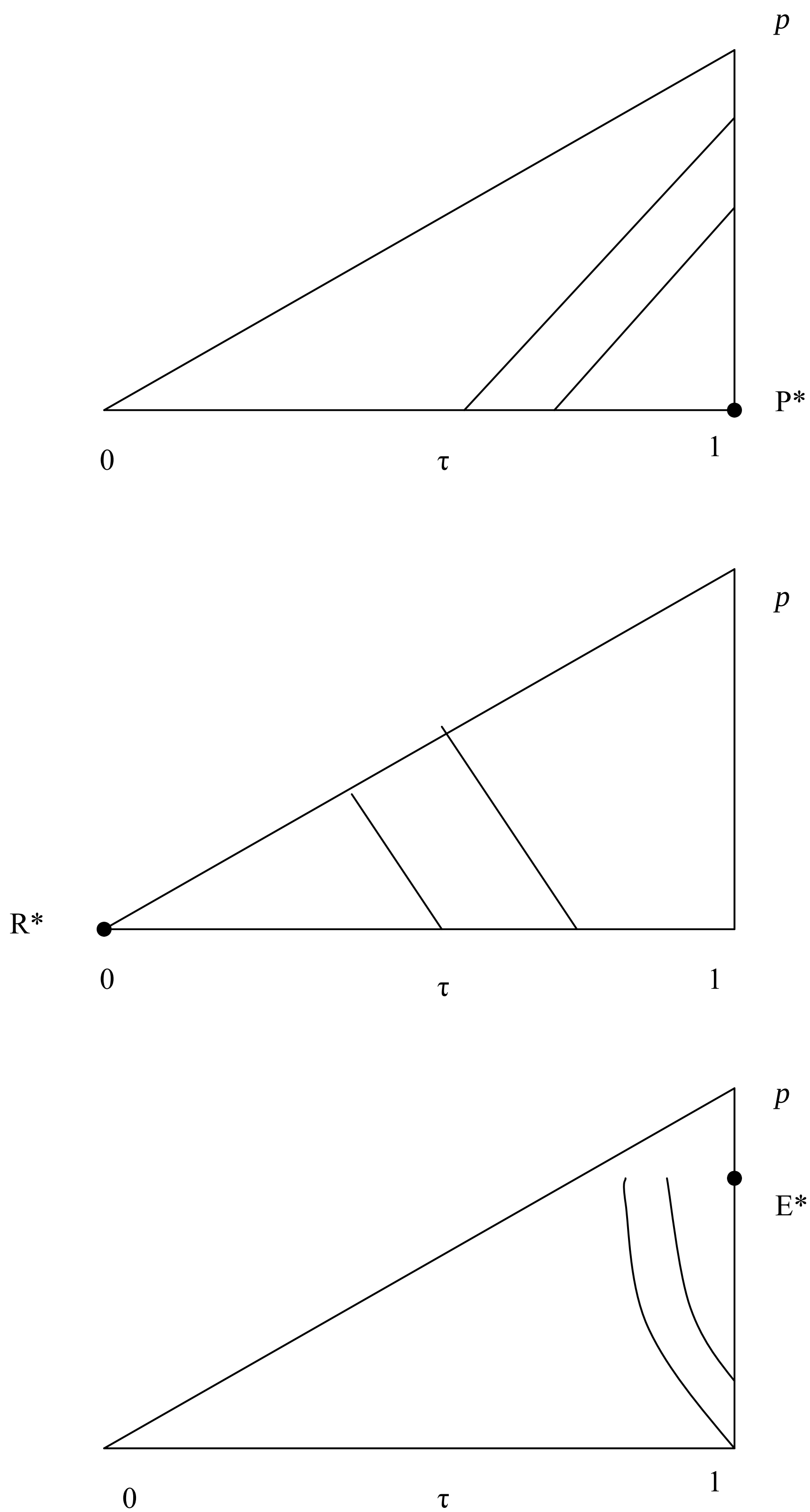
## Figure 1: Indifference Curves and Ideal Policy Pairs of P, R and E



# Figure 2: The Pareto Set of the Coalition of R and E

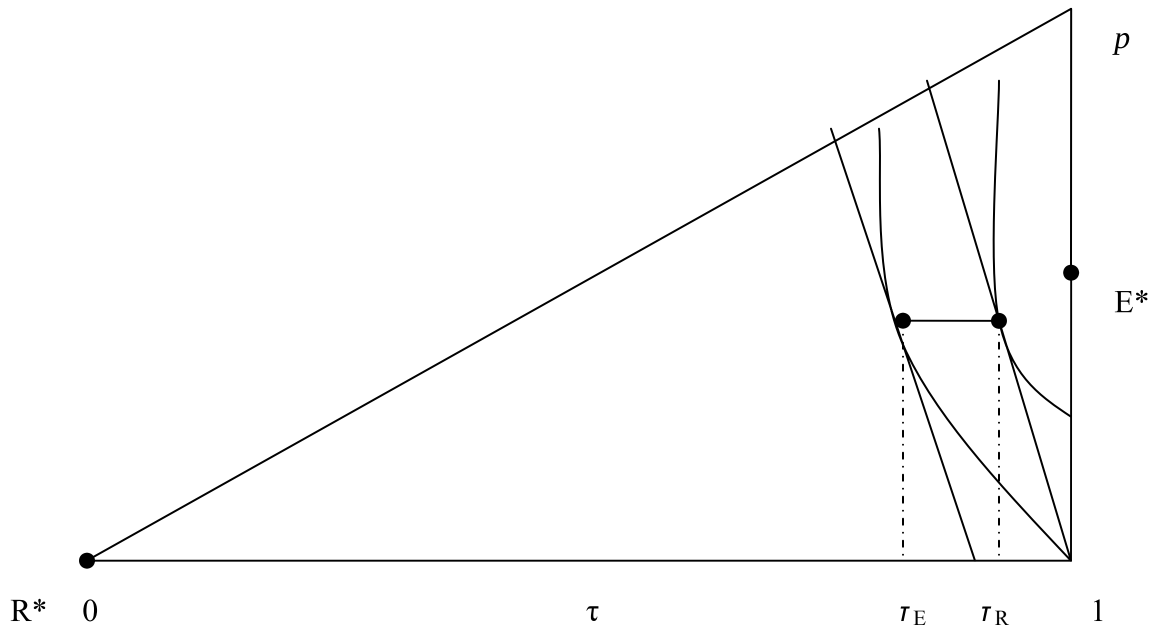


**Figure 3: The Impact of Changes in Income (*y*) on Equilibrium Tax Rates (*τ*) and Preferential Policies (*p*)**