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Ethnic Identities, Public Spending and Political Regimes

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Ethnic Identities, Public Spending and Political Regimes

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Abstract

Do democracies discriminate less against minorities as compared to non-democracies? How does the dominance of an ethnic group affect discrimination under various political regimes? We build a theory which tries to answer such questions. In our model, political leaders (democratically elected or not) decide on the allocation of spending on different types of public goods: a general public good and an ethnically-targetable public good which benefits the majority ethnic group while imposing a cost on the other minorities. We show that, under democracy, lower ethnic dominance leads to greater provision of the general public good while higher dominance implies higher provision of the ethnically-targetable good. Interestingly, the opposite relation obtains under dictatorship. This implies that political regime changes can favour or disfavour minorities based on the ambient level of ethnic dominance. Several historical events involving regime changes can be analysed within our framework and are consistent with our results.

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Non-technical summary

Discrimination against minorities – ethnic, religious, linguistic, etc. – is a serious concern worldwide. Such systematic exclusion of segments of the population is damaging not only from a normative perspective – there are potential economic ineffiencies arising out of this. The role of political institutions in determining various economic outcomes has received much attention in the recent years. Typically, democracies are perceived to be superior to non-democracies on many dimensions; particularly, on the allocation of public spending (see e.g., Tavares and Wacziarg (2001), Deacon (2009), Acemoglu et al. (2014)).

So can the issue of discrimination against minorities be mitigated by superior institutional structures like democracy? In other words, is discrimination necessarily lower under democracies as opposed to dictatorships? Can one pin down *which* factors might condition the degree of discrimination under different political regimes? In particular, how does the presence of a dominant ethnic group affect discrimination under various political regimes? In this paper, we put forward a tractable theory to answer such questions.

We analyse the above questions within the context of the framework introduced in Acemoglu and Robinson (2006). In our model, political leaders (democratically elected or not) decide on the allocation of spending on different types of public goods: a general public good and an ethnically-targetable public good which benefits the majority ethnic group while imposing a cost on the other minorities. They also decide on the tax rate on incomes which provides the budget for the provision of these goods. The society consist of individuals with different ethnic identities and varying levels of income.

We show that, under democracy, lower ethnic dominance leads to greater provision of the general public good while higher dominance implies higher provision of the ethnically-targetable good. Interestingly, the opposite relation obtains under dictatorship. This implies that political regime changes can favour or disfavour minorities based on the ambient level of ethnic dominance.

In our setup, the extent of appropriation of the tax revenues is an endogenous choice variable for the dictator. This allows us to document the relationship between ethnic dominance and this level of appropriation by the dictator. Our results provide a rationale – based on the size of the dominant ethnic group – for why one observes a different *pattern* of discrimination and not just a different *level* of public spending in dictatorships as opposed to democracies.

Our theory can be used to interpret certain historical events like the changing nature of Hutu-Tutsi relations in Rwanda, the treatment of Chinese Indonesians during and after the Suharto regime and more recently the issue of persecution of the Rohingya community in Myanmar. Each of these scenarios when viewed through the lens of our model appear to be consistent with the model's predictions.

1 Introduction

Discrimination against minorities — ethnic, religious, linguistic, etc. — is a serious concern worldwide. Sometimes such discrimination takes a overt form via directed violence, forcible segregation (residential and or occupational).[2] In many contexts this is more covert, working through discrimination in the labour market (manifest in hiring decisions, glass ceilings, etc.) or even through the public offices by provision of lower/inferior public goods (roads, infrastructure, health facilities, educational institutions, etc.). Such systematic exclusion of segments of the population is damaging not only from a normative perspective — there are potential economic inefficiencies arising out of this. The role of political institutions in determining various economic outcomes has received much attention in the recent years.[3] Typically, democracies are perceived to be superior to non-democracies on many dimensions; particularly, on the allocation of public spending (see e.g., Tavares and Wacziarg (2001), Deacon (2009), Acemoglu et al. (2014)). So can the issue of discrimination against minorities be mitigated by superior institutional structures like democracy? In other words, is discrimination necessarily lower under democracies as opposed to dictatorships? Recent events suggest otherwise. Consider the recent surge in violence against the Muslim Rohingya community in Myanmar — this is *after* a democratically elected government assumed power.[4] Therefore, can one pin down which factors might condition the degree of discrimination under different political regimes? In particular, how does the presence of a dominant ethnic group affect discrimination under various political regimes? Here, we put forward a tractable theory to answer such questions.

Our theory considers two alternative political regimes: democracy and dictatorship. In our model, the society is composed of a dominant ethnic group and an amalgamation of many other (minority) groups. Irrespective of the political regime, one of the main tasks of the government is to allocate public spending. Such spending has an important role to play in the economy, particularly in boosting output and economic growth.[5] Political parties within a democracy would understandably take this spending seriously, as their terms in office would depend quite critically on this. For dictators, who are not elected through popular mandate, there is an alternative incentive to direct public spending in a certain way: they would typically embezzle a portion for themselves, while also ensuring that they minimise the chances of a popular uprising.

We introduce the notion of discrimination in this setting in the following manner: two kinds of public spending are possible in this society. The first type is on a "general" public good

[2]Consider the centuries old "caste" system in India. Incidents of atrocities upon the lower castes are not uncommon even today whenever there is an alleged "transgression" of the boundaries by them.

[3]Persson (2002) contains an excellent overview.

[4]The increase in inter-ethnic cooperation in Rwanda under President Kagame's quasi-autocratic rule (see Blouin and Mukand (2018)) also points in a similar direction. We shall turn to a detailed discussion of such events later.

[5]See, for instance, Barro (1990), Futagami et al. (1993), Turnovsky (1997), Ghosh and Roy (2004), etc.

which benefits everyone irrespective of their ethnic background, while the other, an "ethnic" public good, benefits only the dominant ethnic group. Moreover, this latter good apart from being exclusionary imposes a *direct* cost (psychological, material, etc.) on the members of the non-dominant ethnic groups. We model this via imputing a negative component on the utility of the minorities.[6] Hence, whenever there is a positive amount spent on the ethnic good, it is classified as discrimination in our setup — *the greater the spending on the ethnic good, the higher the discrimination.*[7] Given that this "ethnic good" is actually publicly provided, the theory we develop is pertinent to overt forms of discrimination — specifically, where the state has the potential to favour certain segments of society at the cost of others. There is, however, heterogeneity in the preferences for this "ethnic" good amongst the dominant ethnic group — some value it more than others.

We first study a democratic setting with two parties which compete for the citizens' votes by each proposing tax rates on incomes and thereby promising budgetary allocations on the two public goods. Like in Acemoglu and Robinson (2006), we assume that citizens of any ethnic group can either be poor or rich. Here, we show that the equilibrium allocation involves a monotonic relationship between ethnic dominance and the share of the general public good. Below a certain threshold level of ethnic dominance, the entire budget is spent on the general public good by either political party; above this threshold, the spending is entirely on the ethnic public good. This is intuitive, as in the absence of a "large" dominant group, political parties will strive to compete for votes from all sections of the population (and hence invest in the general public good), while in the presence of such a group, the parties would spend all of their energies in catering to that group (thereby investing in the ethnic good) even at the cost of antagonising the minorities. The fact that parties can adjust the tax rate suitably to garner support among the different income groups does not interfere with this core logic.

In the case of a dictatorial regime, there is no explicit role for political parties. The dictator decides on the tax rate and the allocation of public spending with largely two considerations in mind: appropriation of the public funds ("rents") and surviving any potential uprising by the citizens. In the eventuality of a successful revolt, there is a return to the two-party democratic regime and the dictator is disallowed from appropriating any amount of the public budget. Thus, the dictator has to factor in how the different income earners *within* the ethnic groups will react — i.e., support a rebellion or not — when he makes his public spending allocation. Clearly, the decision by any citizen would depend upon what she thinks the alternative scenario (in this case, democracy) will deliver to her. What makes the issue perhaps more interesting is that whatever democracy delivers, depends upon how large the dominant ethnic group the society is. So our *subgame perfect equilibria* in the dictatorship game depend upon the level of ethnic dominance.

We show that when ethnic dominance is lower than a certain threshold, the dictator tilts

[6]Section 4.1 discusses the case of having an ethnic good for each of the minority groups.

[7]To be sure, this is a stylised view of the idea of discrimination. Nonetheless, this is the aspect which is salient through the actions of the government; hence, we think it is a relevant depiction.

spending (if any) entirely towards the dominant ethnic group.[8] When ethnic dominance is higher than that threshold, the dictator may invest only in the general public good; in fact, the spending on the ethnic good (if any) is strictly lower than that under democracy. In other words, in society with little ethnic dominance the dictator will actually only cater to the dominant ethnicity while neglecting the minorities. It is precisely a society with a large dominant ethnic group which will witness little or no discrimination. Observe that this is completely *contrary* to the equilibrium policy under democracy.

The intuition for this result is the following: with low ethnic dominance, the minority group has a strong incentive to rebel since they know that they will benefit from the general public spending in case the dictator is ousted and elections take place. So dissuading them is too costly for the dictator. In order to prevent members of the dominant group from joining the rebellion, targetted ethnic spending has to be offered to that group by the dictator. Alternatively, the dictator may simply cater to the rich citizens by lowering tax rates and not providing any public spending.

Conversely, with high ethnic dominance, the dominant group has an incentive to rebel since under democracy the entire spending will be directed towards them (complete discrimination). In this situation, the minority group will typically not rebel since democracy will not bring them any enjoyment from the public spending. Therefore, in order to dissuade some members of the majority from rebelling, a positive amount of only the general public good may be offered by the dictator. Discrimination need not be optimal from the dictator's perspective since under democracy the *entire* spending would be in favour of the dominant ethnic group. Hence the dictator tries to dissuade rebellion by committing to little or no discrimination. As a result, the pattern of discrimination — particularly, how it varies with the size of dominant ethnic majority — is strikingly different in a democracy as opposed to a dictatorship.

In our setup, the extent of appropriation is an endogenous choice variable for the dictator. This allows us to document the relationship between ethnic dominance and this level of appropriation by the dictator.[9] Our results provide a rationale — based on the size of the dominant ethnic group — for why one observes a different *pattern* of discrimination and not just a different *level* of public spending in dictatorships as opposed to democracies.

Our theory can be used to interpret certain historical events like the changing nature of Hutu-Tutsi relations in Rwanda, the treatment of Chinese Indonesians during and after the Suharto regime and more recently the issue of persecution of the Rohingya community in Myanmar. Each of these scenarios when viewed through the lens of our model appear to be consistent with the model's predictions. We offer a more detailed treatment of each of these cases later.

[8] This threshold is the same as the one where the switch in spending happens under democracy.

[9] The pattern is non-monotonic with a potential discontinuous jump at the threshold where the switch in spending (under democracy) occurs.

The remainder of the paper is organised in the following way: Section 2 provides a discussion of the related literature. Section 3 develops the theory and presents the analytical results. Section 4 discusses some possible extensions, Section 5 contains some discussion regarding certain historical events in light of our theory and Section 6 concludes. All proofs are contained in the appendix.

2 Related Literature

By highlighting the connection between discriminatory public spending and political regimes within the context of ethnic dominance, our paper relates to various strands of literature. The link between ethnic diversity and public goods provision draws upon the recognition of the fact that when people are heterogeneous, so are their preferences, which thereby has an important bearing on how much and what sort of public goods are produced. For instance, the link between ethnic fractionalisation and public services is attributed to taste differences of different sections of the population (Alesina et al. (1999), Alesina and La Ferrara (2005)) and/or inability to impose social sanctions in ethnically diverse communities (Miguel and Gugerty (2005)), thus leading to failure of collective action.[10] In most of this literature, the focus has been on coordination issues arising from taste diversity. The issue of how various minority groups fare from such public provision has largely been neglected.

A large section of the literature on discrimination against minorities deals with the evaluation of various corrective measures. These measures typically involve some form of earmarking or reservation of posts (often in public offices, educational institutions, etc.). Reserving political office for members from various marginalised groups has sometimes been found to be effective — in the sense of working in the interests of those groups (see e.g., Pande (2003), Chin and Prakash (2011) for evidence in the case of India where reservation has been in place for decades in favour of historically disadvantaged groups called the Scheduled Castes (SCs) and the Scheduled Tribes (STs).) There are other studies which suggest that the effects may be heterogeneous within the minorities (Mitra (2018)) or that they may not be persistent (Jensenius (2015), Bhavnani (2016)). But most of this literature is in the context of democracies; there is hardly any comparison with alternative political regimes. Also, these studies do not deal with how the political structure may be responsible for the existence of such discrimination in the first place.

Mukand and Rodrik (2015) make the distinction between electoral and liberal democracies where the former "are political regimes which allow political competition and generally fair

[10]Banerjee and Somanathan (2001), in studying the Indian districts, have suggested that more heterogeneous communities tend to be politically weaker, and therefore are likely to be denied the public goods of their choice and are more likely to get some of the inferior substitutes. See also Tajfel et al. (1971), Alesina and Drazen (1991), Alesina and Rodrik (1994), Alesina et al. (1999), Baldwin and Huber (2010) among others.

elections, but exhibit considerable violations in the civil rights of minority and other groups not in power." In their words, the main distinctive feature of a liberal regime is the presence of "the restraints placed on those in power to prevent discrimination against minorities and ensure equal treatment". They develop a formal model to sharpen the contrast between electoral and liberal democracies and highlight circumstances under which liberal democracy can emerge. Their emphasis on distinguishing between different regimes (electoral and liberal democracies) in terms of the discrimination against minorities resonates with the main theme in our work. However, their focus is different from ours — they outline the conditions as to when liberal democracy may arise.

Padro-i-Miquel (2007) argues how it is possible for rulers who often extract enormous rents and grossly mismanage their economies to survive. This is possible in an environment where society is ethnically divided and institutions are weak. The incumbent ruler can exploit the members of his own ethnic group by the utilising "the politics of fear". Whilst being related to the issue of discrimination against minorities, the logic therein does not rely upon one group being numerically/politically dominant; this is a key departure from our setup. Moreover, our comparison across different regimes (democracy and dictatorship) is not the focus in Padro-i-Miquel (2007). Burgess et al. (2015) find, in the context of Kenya during the 1963 – 2011 period, that those districts that shared the ethnicity of the president received twice as much expenditure on roads and almost five times the length of paved roads built relative to what would be predicted by their population share. This form of ethnic favouritism, which was evident during periods of autocracy, disappeared during periods of democracy in Kenya.

The above suggests that ethnicity of the ruler matters regarding the size and composition of public spending when it comes to dictators. Interestingly, the evidence from India suggests that something similar happens when rulers are popularly elected. Bardhan et al. (2008) find that the village councils with a leader from the scheduled castes (SC) or scheduled tribes (ST) tend to receive more credit from the Integrated Rural Development Programme (IRDP). Besley et al. (2004) finds that for high spillover public goods (such as the access road to a village), the residential proximity to the head of the Gram Panchayat matters. For low spillover goods, the underlying preference of the head mainly counts.[11] This prevalence of ethnicity-based targetting even in democracies is also borne out by cross-country studies (see e.g., Franck and Rainer (2012), Kramon and Posner (2016), De Luca et al. (2018)). In our paper, the dictator is only interested in increasing their rent from the national pie, and we have abstracted away from any non-pecuniary payoffs (like favouring co-ethnics *per se*); in the context of democracy, the political parties are standard expected voteshare-maximisers.[12]

[11] See also Munshi and Rosenzweig (2015) for an examination of the role of local ethnic politics in provision of local public goods.

[12] Acemoglu, Ticchi and Vindigni (2010) study how non-democratic regimes use the military (which consists of a set of individuals who act in their own self-interest), and how this can lead to the emergence of military dictatorships (when the military decide that turning against, rather than aligning with, the elite would enable them to pursue their own objectives). We abstract from such dynamic considerations and focus on

Our work is related to Deacon (2009) where the differing incentives of political leaders from different regimes (democracy/dictatorship) are discussed.[13]

On the subject of whether or not the nature of spending is monotonic in ethnic diversity, our paper is close to Fernandez and Levy (2008). They show how diversity in preferences affects the basic conflict between rich and poor in a framework where people are heterogeneous both in preferences and in incomes, and in which political parties and party platforms are endogenous.[14] The government both redistributes income and funds special-interest projects (e.g., local or group-specific public goods), all from proportional income taxation. Their analysis demonstrates that the effect of increased diversity is non-monotonic. They, however, do not consider non-democratic settings.

3 The Model

Here, we develop a simple model to capture the link between public spending (general versus discriminatory) and ethnic dominance under different political structures. Our basic structure borrows heavily from Acemoglu and Robinson (2006). Our framework will enable a direct comparison of public spending patterns across a democracy and a dictatorship for *any* level of ethnic dominance. We begin with the analysis of a democratic setup.

3.1 Democracy

Here we will assume that there are two (exogenously given) political parties, A and B who compete for votes from the citizens. There is a unit mass of voters which is partitioned into $N \geq 2$ ethnic groups. Of these, we will call the largest one the dominant ethnic group and denote its mass by $\lambda \in (0, 1)$. We refer to the remaining mass $(1 - \lambda)$ of ethnic groups as being minorities, although collectively they may be larger than the dominant ethnic group (i.e., λ may well be below $1/2$).

There is heterogeneity in terms of income in the society. Like in Acemoglu and Robinson (2006) we have two income levels — y^p for the poor and y^r for the rich such that $y^p < y^r$. Let π denote the mass of the poor where $\pi \in (1/2, 1)$. Denote the average income by $\overline{y}$ where $\overline{y} \equiv \pi y^p + (1-\pi)y^r$. We start with the assumption of *unranked ethnicity* a la Esteban and Ray (2008), i.e., the proportion of poor citizens among the dominant ethnic group is the same as that in the entire society, namely π.

public spending patterns under alternative regimes.

[13] Deacon (2009) also provides robust empirical evidence on the asymmetries in public spending across the different political structures.

[14] See also Lizzeri and Persico (2005) for comparison of expenditure in terms of efficiency when the number of competing candidates change. In a related vein, Mitra and Mitra (2017) examine the implications of more competitive elections on redistributive outcomes like inequality and find a strong link.

The political process determines an income tax rate ($t \in [0,1]$) which generates a budget for providing the citizens with public goods.[15] Now, the budget could be spent on two different public goods. One is a truly general public good — call it G — investment in which benefits all citizens equally. The other is an ethnic-specific good E, designed to benefit only members of the *dominant* ethnic group, i.e., the λ– group. We will assume that the members of the minority actually are harmed by the provision of E; this is because providing E implies *discriminating* against the minorities.

We think of E as a component of public policy which promotes — on average — the economic/social/political interests of the dominant ethnic group to the *detriment* of the others. This could take diverse forms — say, in the promotion of the dominant ethnic group in economic spheres which disadvantages the other ethnic groups; or a formal proclamation of ethnic identities, in particular delineating the national identity in terms of that of the dominant ethnic group (via the funding of ethnic or cultural-specific goods, festivals, etc.), which would reduce the stature of the minorities to "second class citizens". This could also take the shape of intimidation and directed violence against various sections of the minorities either by the direct (mis)use of the armed forces or their complicity in not containing "mob violence" against the minorities.[16]

Mukand and Rodrik (2015) argue that the distinctive nature of liberal democracy is that it protects civil rights (equality before the law for minorities) in addition to property rights and political rights. Their very *definition* of civil rights incorporates non-discrimination in the provision of public goods such as justice, security, education and health. Therefore, a good like E cannot find legitimisation in a liberal democracy. So our framework should be considered as solely an electoral democracy. If and when the equilibrium policy involves providing no E, does this assume the semblance of a liberal democracy.

The budget constraint — for either of the two parties — is given by

$$\lambda.e + g \leq t\overline{y}.$$

We will denote party j's platform by (t_j, g_j, e_j) for $j = A, B$. The parties simultaneously propose platforms, and each party seeks to maximize its expected number of votes given the other party's platform.

We assume that there is heterogeneity in preference for the ethnic-specific good E within the dominant ethnic group. The payoffs to the voters are described below.

On being offered (t, g, e), the payoff to member i of the $(1-\lambda)$– group is $(1-t)y^i + g - \psi.e$ where $\psi \in [0,1]$. Higher the value of ψ, the greater the disutility to this minority group member from discrimination. In a sense, this parameter ψ captures the direct costs of discrimination to a minority group member. On the other hand, the payoff to a member i

[15] Typically such public spending has the potential to raise output and overall growth.

[16] This is discussed in greater detail under Section 5.

of the λ– group is given by

$$(1-t)y^i + g + e(1+\epsilon_i)$$

where ϵ_i is drawn from a distribution with cdf F independently for every individual i in the λ–group. Also, $E[\epsilon] > 0$ and $f \equiv F' > 0$ everywhere on the real line. Moreover, let f be symmetric and unimodal so that the mode is at $E[\epsilon]$. This implies $F(0) < \frac{1}{2}$. This re-iterates the fact that it is more likely for a member (of the dominant group) to actually have a positive realisation of ϵ, than not.

Observe that the ethnic-specific good E, with its element of taste-heterogeneity, easily lends itself to the following interpretations. One could think of different scenarios where the dominant ethnic group specialises (or has disproportionate shares) in a certain sector/industry. Hence, increasing investment in E would by and large benefit most members of the group but not all; some might actually be hurt if their fortunes are tied to other sectors/industries. Alternatively, one could think of this λ– group as being composed of smaller ethnically *distinct* sub–groups who are united in their common affinity for E. So the ethnic good E could be viewed as a kind of "compromise" local public good for this λ– group, where every member of the λ– group has a positive expected return from consuming E, which is equal *ex ante*.[17] From the perspective of the minority citizens, E is something whose benefits they are excluded from and yet whose costs are borne by them through the taxes paid. Furthermore, they are hurt by the provision of it since it signifies discrimination against them.

Now we are in a position to analyse the equilibrium of this simple game and then study its dependence on λ. In fact, the following observation is a step in that direction.

OBSERVATION **1.** *There exists a unique* $\hat{\lambda} \in (1-\frac{1}{2\pi}, 1)$*, such that both parties proposing a tax rate of unity and promising to spend the entire budget on the public good G is the unique equilibrium for every* $\lambda \in (0, \hat{\lambda}]$.

The intuition behind the result stated in Observation 1 is the following. When the dominant ethnic group is actually small so that the $(p, 1-\lambda)$ group is a majority (i.e. $\pi(1-\lambda) \geq 1/2$), then the equilibrium policy must be the "bliss point" of this group. Hence, for $\lambda \leq 1-\frac{1}{2\pi}$, the equilibrium policy involves $(t=1, g=\overline{y}, e=0)$. As λ *just* exceeds $1-\frac{1}{2\pi}$, it is still not optimal from a party's perspective to shift away from $(t=1, g=\overline{y}, e=0)$. A reduction in t (and hence g) while keeping $e=0$ would be welcomed by the rich, but not by the poor — so that is not an optimal deviation given that the poor outnumber the rich. Keeping $t=1$ and switching to $e>0$ will not work either since not everyone within the dominant ethnic group actually *likes* the ethnic good. Hence, $(t=1, g=\overline{y}, e=0)$ remains the optimal strategy for a range of λ in excess of $1-\frac{1}{2\pi}$.

This leads us to the question of what happens when the size of the dominant ethnic group is beyond this threshold level of $\hat{\lambda}$. Notice, as λ starts to increase trying to win by appealing to

[17] This aspect of an ethnic group having it's own specific type of "local" public good is similar in spirit to Fernandez and Levy (2008).

all *but* the $(p, 1-\lambda)$ group starts becoming a viable strategy. This can be done by lowering taxes and providing E — the former will appeal to the rich (regardless of ethnic identity) and the latter is attractive to a majority of the dominant ethnic group.

The following observation makes this more explicit.

OBSERVATION **2.** *For every $\lambda \in (\hat{\lambda}, 1)$, the equilibrium is unique and symmetric. The equilibrium platform involves $t < 1$ with the entire budget being spent on the ethnic-specific good E, i.e., $e = t\overline{y}/\lambda$. Moreover, t is increasing in λ over the range $(\hat{\lambda}, 1)$.*

The intuition behind the result stated in Observation 2 is the following. When $t = 1$ and $g = \overline{y}$, the payoff to each individual in society is $\overline{y}$. For *another* platform to win the support of any citizen, it must be offer her something larger than $\overline{y}$. As the dominant ethnic group starts to grow larger it becomes feasible to obtain a majority by targetting them along with the rich minority group through a combination of lower taxes and the provision of E. By a suitable choice of t, most of the λ group *and* all the rich among the $(1-\lambda)$ group can be guaranteed a payoff larger than $\overline{y}$. Provided this mass is greater than $1/2$, such a policy will win against $(t = 1, g = \overline{y}, e = 0)$.[18] Furthermore, if the size of the dominant ethnic group is sufficiently higher than $1/2$ then the equilibrium policy need not require setting the payoff of the rich minority group higher than $\overline{y}$. One needs to ensure that the members of the λ group getting a payoff larger than $\overline{y}$ constitute the requisite majority.

Within the dominant ethnic group, there is a conflict between the rich and the poor as regards the tax rate. The poor prefer higher taxes along with a commensurate rise in E, while the rich, although favourable towards E, are *less* well-disposed towards higher taxes. Given that the majority of citizens among the λ group is poor, it becomes more important to cater to them (potentially at the expense of the rich ones) as λ increases — this leads to t being an increasing function of λ.

The observations above collectively yield the following result.

PROPOSITION **1.** *In a democracy, the relationship between ethnic dominance (as captured by the magnitude of λ) and the share of the pure public good G (or alternatively, the ethnic-specific public good E) provided in equilibrium is (weakly) monotonic in λ. In particular, there is unique value of λ — namely, $\hat{\lambda}$ — such that for all $\lambda \leq \hat{\lambda}$ the unique equilibrium allocation involves a tax rate of unity and spending the entire budget on G. In contrast, for all $\lambda \in (\hat{\lambda}, 1)$ the unique equilibrium allocation involves a tax rate strictly lower than unity and spending the entire budget on the ethnic-specific public good E.*

Next we move on to a similar analysis when instead of a two–party electoral democracy, we have a dictatorship in place.

[18] In fact, such a policy is the unique Condorcet winner in this situation.

3.2 Dictatorship

In a dictatorship, there will be no explicit role for any political parties. The decision regarding the tax rate on incomes and the allocation of the resulting funds for providing G and E will be taken by the dictator, whom we shall refer to as D.

The other elements of the model remain just as before. We have our dominant ethnic group of size λ and it will be assumed that the citizens have no direct control over the size or the allocation of the budget (just as before). In a democratic setup, the policies proposed by the two parties were governed by considerations of support by the citizens through the ballot. Here, under a dictatorial regime, certain *different* considerations will impel the dictator D to raise taxes and allocate spending in a particular way.

There are some basic factors which any dictator must take into account. First, there is always a threat of a mass revolution. Hence, our dictator D knows that with some chance he will not be ruling the roost in the near future. Secondly, staying in power is valuable to D; this provides access to "rents" which depend on the public budget.[19] For simplicity, we will assume the following: D lives for one period during which there is a chance of a mass revolution and if he survives the revolution (or if there is none) then he can usurp a part of the public budget. In case D is overthrown, he gets a zero payoff.

Now this brings us to the question of what determines the incidence and success of a "revolution". We posit a simple two–stage game to capture the idea of a "revolution". In the first stage, the dictator proposes an allocation $(t_D, g_D, e_D) \geq (0, 0, 0)$ and also his "share" μ of the budget.[20] The allocation (g_D, e_D) is subject to feasibility constraints. Therefore,

$$g_D + \lambda e_D \leq (1 - \mu) t_D \overline{y}.$$

In the second stage, the members of the different ethnic groups simultaneously decide whether or not to revolt against D. Formally, each citizen chooses an action from the set $\{R, NR\}$ where R denotes revolt and NR not revolt. This action is taken individually by each citizen — hence, no coordination issues — and is done *after* each λ–group citizen draws her realization of ϵ which is the stochastic component of the payoff from E. This means that the choice of revolting or not is made after she knows her *exact* valuation of the E–good.

What happens when the revolt is "successful" and D is deposed? We take the position that a two-party democracy emerges at the conclusion of a successful rebellion. The idea is that the political parties can be thought to remain dormant under a dictatorship, but emerge once the dictator loses power. In reality, in countries which move back-and-forth between democracy and (military) dictatorships, prominent political parties are quite resilient and resume activities soon after the dictator is deposed (see e.g., the political histories of Pakistan

[19] More on these "rents" later.

[20] Announcing (t_D, g_D, e_D) is sufficient for the citizens to infer μ.

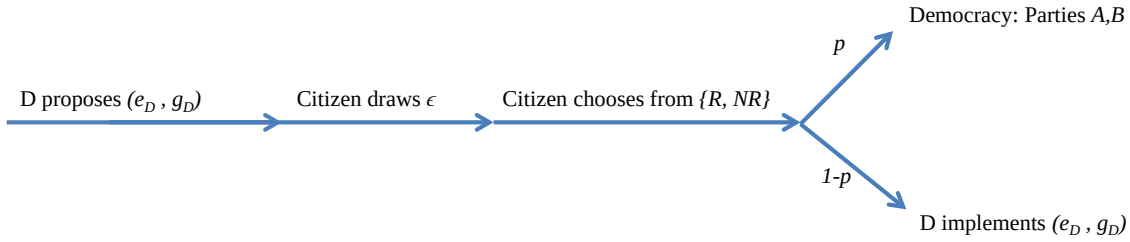

Figure 1: *Timing.* The sequence of moves under dictatorship.

and Zimbabwe among others).

At the end of the period, *exactly* one of the two things happen:

(i) all citizens choose NR *or* some choose R but the revolt is unsuccessful and D implements his proposed (t_D, g_D, e_D) and usurps μ.

(ii) The revolt results in D's removal and democracy is restored. Under democracy, we have the citizens voting and deciding the tax rate and the allocation of the budget via the ballot.[21]

See Figure 1 for a graphical depiction of the timing.

Let p denote the probability of a successful revolution. How does p depend on the parameters of the model? We assume that larger the size of the rebel group, the higher is p. For the sake of concreteness, let p equal the mass of people who choose action R. As a tie–breaking rule, we have that whenever a citizen is indifferent between D's offer and the alternative equilibrium allocation under democracy, she chooses NR. This is easily justified by assuming there is a fixed cost $c \geq 0$ which is incurred by the citizen in case she chooses to rebel. In fact, we could explicitly incorporate this (private) cost of revolution $c > 0$ into our model. However, we refrain from doing so as it complicates notation without adding any further insights; all our qualitative results are unchanged as long as c is sufficiently low. In principle, D can set μ equal to unity. That implies both g_D and e_D equal 0.

We solve this two–stage game backwards, as is standard practice. D's problem in the first stage is the following:

$$\begin{aligned} &max_{(t_D, g_D, e_D, \mu)} \ (1-p)\mu t_D \overline{y} \\ &s.t. \ \ g_D + e_D \lambda \leq (1-\mu) t_D \overline{y} \end{aligned}$$

where $t_D, \mu \in [0,1]$ and $g_D, e_D \geq 0$. The optimal choice of (t_D, g_D, e_D, μ) clearly depends

[21] Given that the outcome of the revolution (if there is one) is probabilistic, it is not possible for the political parties to gain any further information on any of the individual citizens' realisations of ϵ; note, they already know the distribution $F(.)$ of these ϵ variables. Hence the possibility of any type of Bayesian updating does not exist in this setup.

upon the degree of ethnic diversity λ, not just through the budget constraint but also via p.

Take any given $\lambda \in [0, 1)$. Recall the cutoff value of λ, namely $\hat{\lambda}$, from the democratic setup. What the citizens can expect to transpire in democracy will depend on where λ stands in relation to $\hat{\lambda}$ (see Proposition 1).

We start with $\lambda \leq \hat{\lambda}$.

Case 1: $\lambda \leq \hat{\lambda}$.

Recall, the unique equilibrium allocation under democracy involves $t = 1$ and $g = \overline{y}$. Suppose D chooses to bank on the support of just the rich citizens. This means that $t_D < 1$. If D chooses to provide E with the resulting tax revenues, he will be antagonising the rich among minority group.[22] Suppose D chooses to provide $g_D \geq 0$ and $e_D = 0$.[23] Note, he needs to ensure that

$$(1 - t_D)y^r + (1 - \mu)t_D\overline{y} \geq \overline{y}.$$

Given that $\mu \leq 1$, the above implies t_D must satisfy

$$\frac{1 - t_D}{t_D} \leq \frac{\overline{y}}{y^r - \overline{y}}.$$

Hence, D chooses t_D to maximise $(1-p)\mu t_D\overline{y}$ where $1-p$ is simply the mass of the rich, i.e., $(1-\pi)$. Given the constraint above, $\mu t_D\overline{y}$ reduces to $(1-t_D)(y^r-\overline{y})$ since D will make the rich's (support) constraint binding. Here D's objective function becomes $(1-t_D)(y^r-\overline{y})$. Notice, the above constraint has that the LHS is falling in t_D. Hence, the optimal choice of t_D must be where

$$\frac{1 - t_D}{t_D} = \frac{\overline{y}}{y^r - \overline{y}}.$$

This, in turn, implies that D sets $\mu = 1$ and $t_D = \frac{y^r-\overline{y}}{y^r}$. Therefore, D's payoff is given by

$$(1 - \pi)\overline{y}(\frac{y^r - \overline{y}}{y^r}).$$

Alternatively, D could try enlisting the support of the λ group members by providing some amount of E and some $t_D < 1$. This may dominate the strategy of targetting *only* the rich, if the proportion of the poor in the λ group is sufficiently high. The following observation states this explicitly.

Observation **3.** *For $\lambda \leq \hat{\lambda}$, the dictator D will offer to provide a positive of amount of only E provided π is sufficiently high. Otherwise, D chooses $t_D = \frac{y^r-\overline{y}}{y^r} (< 1)$ and sets $g_D = e_D = 0$.*

[22] Given that $\lambda \leq \hat{\lambda}$, this is not optimal as $1 - \lambda$ may well be greater than $1/2$.

[23] We will consider the possibility of $e_D > 0$ shortly.

It would be useful, at this point, to contrast the asymmetry with the corresponding scenario under democracy — see Observation 1. While democracy guarantees the maximum possible provision of G, there is *none* provided under a dictatorship. If anything at all, the dictator provides E. This stark difference stems from the fact that, under democracy, the $(p, 1-\lambda)$ group is large enough to completely direct the allocation towards their bliss point. The dictator realises this and knows that this group cannot be deterred from rebelling, unless D implements the democratic equilibrium policy — this D will not do since it entails a payoff of 0 for him. Hence, D tries to either assuage all the rich by cutting down on the tax rate (with no provision of G or E) or tries to win the backing of the majority of the λ group by offering them a positive level of E.

We now turn to the other scenario.

Case 2: $\lambda \in (\hat{\lambda}, 1)$.

Under democracy, this λ– interval is actually characterised by different payoffs to the different sub-groups. This clearly complicates the analysis to a considerable extent as the various sub-groups have different incentives to rebel.

A member i of the dominant ethnic group from income strata j (i.e., $j \in \{p, r\}$) gets

$$(1-t)y^j + \frac{t\overline{y}}{\lambda}(1+\epsilon_i).$$

Analogously, a member of the minority from income strata j gets

$$(1-t)y^j - \psi\frac{t\overline{y}}{\lambda}.$$

Clearly, among the minority it is the poor who has the least incentive to rebel. This is something the dictator will factor in while proposing his policy. In what follows, we will examine the set of feasible policies which D may implement given the parameters (λ, π, ψ, y_p and y_r) while maintaining $\lambda \in (\hat{\lambda}, 1)$. We label them as P1, P1', P2, P3 and P4 — it is useful to think of each of these categories as a *set* of policies, out of which D will pick an optimal one. It is clear that, in equilibrium, D will *always* choose $\mu > 0$, i.e., steal a part of the tax revenues; otherwise, D is guaranteed a payoff of 0 with certainty.

P1: D *sets* $t_D < t$ *with* $e_D < e = t\overline{y}/\lambda$ *and* $g_D = 0$.

If D chooses P1, then the entire $(1-\lambda)$ group will not rebel since both the tax rate and the level of E proposed by D is lower than under democracy.

A member i of the λ group from income strata j (i.e., $j \in \{p, r\}$) faces a genuine trade-off. Note, such a person will not rebel iff

$$(1-t_D)y^j + (1-\mu)\frac{t_D\overline{y}}{\lambda}(1+\epsilon_i) \geq (1-t)y^j + \frac{t\overline{y}}{\lambda}(1+\epsilon_i);$$

in other words, iff

$$\epsilon_i \leq \frac{\lambda(t-t_D)y^j}{\overline{y}[t-t_D(1-\mu)]} - 1.$$

So the mass of rebels is given by

$$p = \lambda\Bigg\{(1-\pi)\Bigg[1-F\Bigg(\frac{\lambda(t-t_D)y^r}{\overline{y}[t-t_D(1-\mu)]}-1\Bigg)\Bigg]+\pi\Bigg[1-F\Bigg(\frac{\lambda(t-t_D)y^p}{\overline{y}[t-t_D(1-\mu)]}-1\Bigg)\Bigg]\Bigg\}.$$

Hence, D chooses $t_D \in (0,t)$ and $\mu \in [0,1]$ in order to maximise $\mu t_D \overline{y}(1-p)$ where p is denoted above.

What if D proposed the same t_D and μ but instead of providing E simply switched to providing G? Can this yield a higher payoff? Such considerations bring us to the next feasible set of policies for D, namely, P1'.

P1': D sets $t_D < t$ with $e_D = 0$ and $g_D > 0$.

We now examine the question posed above by looking at each of the different societal groups in turn. Notice, like in P1, the entire $(1-\lambda)$ group will not rebel.[24]

Like under P1, here too a member i of the λ group from income strata j (i.e., $j \in \{p,r\}$) faces a genuine trade-off. Thus, such a person will not rebel iff

$$(1-t_D)y^j + (1-\mu)t_D\overline{y} \geq (1-t)y^j + \frac{t\overline{y}}{\lambda}(1+\epsilon_i);$$

in other words, iff

$$\epsilon_i \leq \frac{\lambda[(t-t_D)y^j + t_D(1-\mu)\overline{y}]}{t\overline{y}} - 1.$$

So the mass of rebels is given by

$$p = \lambda\Bigg\{(1-\pi)\Bigg[1-F\Bigg(\frac{\lambda[(t-t_D)y^r + t_D(1-\mu)\overline{y}]}{t\overline{y}}-1\Bigg)\Bigg]+$$

$$\pi\Bigg[1-F\Bigg(\frac{\lambda[(t-t_D)y^p + t_D(1-\mu)\overline{y}]}{t\overline{y}}-1\Bigg)\Bigg]\Bigg\}.$$

If this is lower than the corresponding one under P1, then P1 cannot be an optimal strategy for D. This is the subject of the following observation.

OBSERVATION **4.** *For $\lambda \in (\hat{\lambda},1)$, the dictator D will prefer to provide a positive of amount of only G rather than only E provided the level of income inequality is within a certain threshold. Specifically, when $\theta \equiv y_r/y_p$ lies within a certain interval, D's payoff from $P1'$ exceeds that from $P1$.*

[24] In fact, their payoff under P1' is strictly higher than under P1 where their optimal action was to not rebel.

The result in Observation 4 links the ambient level of income disparity to the provision of G versus E within the two sets of policies — P1 and P1'. In fact, as long as income inequality is not very extreme, D prefers providing G rather than E. As argued in the proof of Observation 4, the comparison is made between P1 and P1' by keeping the same tax rate and μ and switching between E and G. We identify the "indifferent" person from the dominant ethnicity within *each* income group under P1 and then under P1' for the same tax rate and μ. For the poor citizens of the λ group, this threshold comparison yields that a greater mass of them prefer P1' (rather than P1) in relation to the democratic policy. The analogous exercise for the rich among the λ group yields that more of them will pick favour P1' over P1 (in relation to the democratic policy) as long as the income disparity is not too extreme.

Next, we consider feasible policies for D which involve setting a tax rate (weakly) higher than the one under democracy.

P2: D sets $t_D(1-\mu) = t$ and $e_D = e = t\overline{y}/\lambda$.

A policy where the post-tax income is smaller ($t_D > t$ and $\mu > 0$) while the provision of E is unchanged vis-a-vis democracy will irk the entire society. Hence, the whole society rebels and the dictator will be removed with certainty leaving him with a payoff of zero. Clearly, D will never choose P2.

P3: D sets $t_D \geq t$ and $t_D(1-\mu) < t$.

This is the case where D might choose to set a tax *higher* than under democracy but deliver a strictly lower level of spending on the public goods (G and E). Notice, that such a policy will undoubtedly irk most of the dominant group but may be welcomed by the other ethnic groups *provided* the level of E provided is sufficiently low/zero.

To be more precise, if D sets $t_D \geq t$ and $t_D(1-\mu) < t$, then even if he spends the entire $t_D(1-\mu)\overline{y}$ on providing E most of the λ group will rebel, since $F(-1) < F(0) < 1/2$. In fact, a member i of the $(1-\lambda)$ group from income strata j (i.e., $j \in \{p, r\}$) will rebel iff

$$(1-t_D)y^j - \psi\frac{t_D(1-\mu)\overline{y}}{\lambda} < (1-t)y^j - \psi\frac{t\overline{y}}{\lambda}.$$

Given this, the optimal choice of e_D here is 0. Hence, D does one of the following: (a) sets $\mu = 1$ or (b) provides $g_D = t_D(1-\mu)\overline{y}$, with $\mu < 1$.

Case (a): If $\mu = 1$ then the entire $(1-\lambda)$ group will not rebel as long as their post-tax income from the imposition of t_D is as high as their post-tax income under democracy (where t is imposed) when also accounting for their disutility arising from discrimination. More formally, this is true if t_D satisfies the following:

$$(t_D - t)y^r \leq \psi\frac{t\overline{y}}{\lambda}.$$

Hence, setting $t_D = \min\{t(\frac{\psi\overline{y}}{\lambda y^r}+1), 1\}$ guarantees that the mass of rebels is only some of the (unhappy) dominant ethnic group members, i.e., $\lambda[1 - F(-\frac{\lambda(t_D-t)}{t\overline{y}} - 1)]$. This policy ensures D the following payoff:

$$\overline{y}t_D\left[1-\lambda\left(1-F\left(-\frac{\lambda(t_D-t)}{t\overline{y}}-1\right)\right)\right]$$

Case (b): If $g_D = t_D(1-\mu)\overline{y}$, then some more of the λ group members will not rebel, as compared to Case (a). Specifically, a member i of the λ group from income strata j (i.e., $j \in \{p, r\}$) will not rebel iff $(1-t_D)y^j + (1-\mu)t_D\overline{y} \geq (1-t)y^j + \frac{t\overline{y}}{\lambda}(1+\epsilon_i)$; hence, iff

$$\epsilon_i \leq \frac{\lambda[t_D(1-\mu)\overline{y} - (t_D-t)y^j]}{t\overline{y}} - 1.$$

Just like in case (a) above, a member i of the $(1-\lambda)$ group from income strata j will not rebel iff

$$(1-t_D)y^j + t_D(1-\mu)\overline{y} \geq (1-t)y^j - \psi\frac{t\overline{y}}{\lambda}.$$

Re-arranging terms yield the above condition as:

$$(t_D-t)y^j \leq t_D(1-\mu)\overline{y} + \psi\frac{t\overline{y}}{\lambda}.$$

Hence, the following choice of t_D guarantees that no member of the $(1-\lambda)$ group rebels:

$$t_D = t.\left(\frac{y^r + \overline{y}\frac{\psi}{\lambda}}{y^r - \overline{y}(1-\mu)}\right).$$

Hence, setting $t_D = \min\{t(\frac{y^r+\overline{y}\frac{\psi}{\lambda}}{y^r-\overline{y}(1-\mu)}), 1\}$ guarantees that the mass of rebels is only some of the (unhappy) dominant ethnic group members, which is given by

$$\lambda\left\{(1-\pi)\left[1-F\left(\frac{\lambda[t_D(1-\mu)\overline{y}-(t_D-t)y^r]}{t\overline{y}}-1\right)\right]+\pi\left[1-F\left(\frac{\lambda[t_D(1-\mu)\overline{y}-(t_D-t)y^p]}{t\overline{y}}-1\right)\right]\right\}$$

This policy ensures D the following payoff:

$$\overline{y}t_D\mu\left[1-\lambda\left\{(1-\pi)\left[1-F\left(\frac{\lambda[t_D(1-\mu)\overline{y}-(t_D-t)y^r]}{t\overline{y}}-1\right)\right]+\right.\right.$$
$$\left.\left.\pi\left[1-F\left(\frac{\lambda[t_D(1-\mu)\overline{y}-(t_D-t)y^p]}{t\overline{y}}-1\right)\right]\right\}\right].$$

It is not straightforward to compare this payoff with that for Case (a). What is rather interesting is that the optimal policy in either Case (a) or (b) does *not* involve the provision

of E. This makes intuitive sense as this set of policies is geared towards ensuring the support of the non-dominant ethnic groups.

This brings us to the last remaining two cases. In each of them, D chooses to levy a tax *higher* than under democracy and deliver a strictly higher level of spending on the public goods (G and E). We start with the case where D chooses to spend only on E.

P4: D sets $t_D(1-\mu) > t$ and $g_D = 0$ with $e_D > e = t\overline{y}/\lambda$.

If D proposes such a policy, it is clear that the entire $(1-\lambda)$ group will rebel. This is so since — in relation to democracy — they are left with a lower post-tax income and a higher provision of E, which they dislike.

A member i of the λ group from income strata j (i.e., $j \in \{p, r\}$) will not rebel iff $(1-t_D)y^j + \frac{t_D(1-\mu)\overline{y}}{\lambda}(1+\epsilon_i) \geq (1-t)y^j + \frac{t\overline{y}}{\lambda}(1+\epsilon_i)$; hence, iff

$$\epsilon_i \geq \frac{\lambda(t_D - t)y^j}{[t_D(1-\mu) - t]\overline{y}} - 1.$$

Hence, the mass of rebels is given by

$$1 - \lambda + \lambda\left[\pi F\left(\frac{\lambda(t_D - t)y^p}{[t_D(1-\mu) - t]\overline{y}} - 1\right) + (1-\pi)F\left(\frac{\lambda(t_D - t)y^r}{[t_D(1-\mu) - t]\overline{y}} - 1\right)\right].$$

P4': D sets $t_D(1-\mu) > t$ and $e_D = 0$ with $g_D = t_D(1-\mu)\overline{y}$.

If D proposes such a policy, it is clear that the entire $(1-\lambda)$ group will *not* rebel provided their distaste from discrimination is non-negligible (i.e., ψ satisfies a lower bound — more on this shortly). This is so since under democracy they are taxed and in return offered only E, which they dislike.

A member i of the λ group from income strata j (i.e., $j \in \{p, r\}$) will not rebel iff $(1-t_D)y^j + t_D(1-\mu)\overline{y} \geq (1-t)y^j + \frac{t\overline{y}}{\lambda}(1+\epsilon_i)$; hence, iff

$$\epsilon_i \leq \frac{\lambda[t_D(1-\mu)\overline{y} - (t_D - t)y^j]}{t\overline{y}} - 1.$$

Hence, the mass of rebels is given by

$$\lambda\Bigg\{\pi\left[1 - F\left(\frac{\lambda[t_D(1-\mu)\overline{y} - (t_D - t)y^p]}{t\overline{y}} - 1\right)\right] +$$

$$(1-\pi)\left[1 - F\left(\frac{\lambda[t_D(1-\mu)\overline{y} - (t_D - t)y^r]}{t\overline{y}} - 1\right)\right]\Bigg\}.$$

The policy sets P4 and P4' seem quite similar in the sense that D chooses a higher tax rate

than under democracy. The major difference stems from the type of public spending — discriminatory versus general.

This brings us to the question as to which of the above policy platforms D will choose for $\lambda > \hat{\lambda}$. In particular, we will try to examine when a policy from the set P4 is likley to transpire (or not) in equilibrium. The interest in P4 stems from the fact that it entails the *greatest* extent of discrimination that is feasible in this economy.

Before introducing the main result on this issue, we will impose a restriction on the magnitude of ψ, i.e., on the extent of *distaste* for discrimination. The restriction is essentially a lower bound on ψ. Consider the platform $(t = 1, g = \overline{y})$ discussed in Observations 1 and 2. We assume that the tax rate which maximises the total vote from the λ group under democracy by solely providing E against a platform $(t = 1, g = \overline{y})$ is (weakly) higher than what is acceptable to the $(r, 1-\lambda)$ group against $(t = 1, g = \overline{y})$. In other words, the rich among the minority weakly prefer $(t = 1, g = \overline{y})$ to the (t, e) combination which gets the maximum votes from within the entire λ group. This implies that the $(r, 1-\lambda)$ group would need to be offered a lower tax rate (and automatically a lower e) than the (t, e) combination which gets the maximum votes from within the entire λ group.

More formally, $t^{\lambda} \equiv \arg\max\ (1-\pi)\left[1 - F\left(\frac{\lambda[\overline{y}-(1-t)y^r]}{t\overline{y}} - 1\right)\right] + \pi\left[1 - F\left(\frac{\lambda[\overline{y}-(1-t)y^p]}{t\overline{y}} - 1\right)\right]$. We assume $t^{\lambda} \geq \frac{y^r - \overline{y}}{y^r + \frac{\psi}{\lambda}\overline{y}}$. Hence, ψ has to be high enough for this to be true for every $\lambda \in (0, 1)$.

This is basically a guarantee that the discrimination costs are salient enough to bring about a direct misalignment of interests between the dominant ethnic group and the rich citizens from the minority. With this in mind, we proceed to our next key result as stated in the following observation.

Observation **5.** *$\exists$ a certain threshold $\underline{\lambda} > \hat{\lambda}$ such that the dictator will not offer a platform from P4 $\forall \lambda \in (\hat{\lambda}, \underline{\lambda}]$. Thus, $\forall \lambda \in (\hat{\lambda}, \underline{\lambda}]$ the amount of E provided by D (if any) will be strictly lower than that offered under democracy.*

Observation 5 informs us about the provision of the discriminatory good, i.e. E, under dictatorship. To comprehend its full import, it is worthwhile to bear in mind the corresponding result for democracy (as documented in Observation 2). To the right of the threshold $\hat{\lambda}$, democracy delivers only E, the budget for which keeps increasing in the size of the dominant ethnic group. Observation 5 identifies a threshold value of λ (namely, $\underline{\lambda}$) to the right of $\hat{\lambda}$ such that whenever the size of the dominant ethnic group falls between $\hat{\lambda}$ and $\underline{\lambda}$, the dictator either does *not* offer E or provides a strictly *lower* amount of it relative to that in democracy.

The core intuition behind this result lies in understanding which subset of citizens are most favoured by P4 and which of them are most hurt. Clearly, all the members of the non-dominant ethnic groups are most disfavoured by P4. Observe that the poor among the dominant ethnic group are the greatest gainers from P4 — they enjoy the redistributive

effect of the high tax rate coupled with the targeted provision of E. To be sure, their richer co-ethnics enjoy E (on average) too but are less keen on the higher tax rate. However, the poor are numerically larger within the dominant ethnic group and also in society overall.

Taking these points together, one can argue that it is basically the size of the dominant ethnic group which becomes a determining factor as to whether P4 is offered in equilibrium. If the size of this group (i.e., λ) is sufficiently bounded then D chooses *not* to engage in discriminatory spending in excess of that under democracy.

The threshold $\underline{\lambda}$ is identified in the proof of the observation as

$$\frac{1}{1+(\frac{\theta}{\theta-1})(\frac{x}{\pi})}$$

where

$$x \equiv \frac{(\frac{\psi}{\lambda}+1)[\theta(1-\pi)+\pi]}{\frac{\psi}{\lambda}[\theta(1-\pi)+\pi]+\theta}.$$

Two remarks are in order.

Remark 1. $\underline{\lambda}$ is increasing in the level of income disparity, i.e., in $\theta = y^r/y^p$, and in the share of the poor (π).

It is clear that $x < 1$. Straightforward differentiation yields that x is decreasing in θ. Moreover, it can be checked similarly that the larger the share of the poor (i.e., π), the smaller is x. Combining these arguments, we have that $\pi \to 1$ and $\theta \to \infty$ implies $\underline{\lambda} \to 1$. Hence, the more unequal the society in terms of income, the *larger* the range of λ for which a lower level of E obtains under dictatorship as opposed to democracy.

Remark 2. This bound $\underline{\lambda}$ denotes a *sufficient* condition — it may well be the case that a similar behaviour by D (i.e., providing lesser or none of E in comparison to democracy) is observed for λ in excess of this threshold $\underline{\lambda}$.

Observation 5 is agnostic about the level of E provided when the size of the dominant group exceeds $\underline{\lambda}$. Hence, in relation to Remark 2 above, it *may* well be the case that $P4$ — and hence, a level of discrimination larger than under democracy — will transpire for some values of λ larger than $\underline{\lambda}$. This suggests that in highly homogeneous societies, where the dominant ethnic group essentially comprises nearly the entire population, a dictatorship may be end up being more discriminatory than a democracy. The case of Germany in the first half of the 20th century fits well with such a description.[25]

The core message of the analysis of the dictatorship regime from Observations 3 through 5 is summarised and collected in the following proposition.

PROPOSITION **2.** *In a dictatorship, the relationship between ethnic dominance (as captured by*

[25]Germany is not the only one; some other European countries during the same period introduced racial laws. We are grateful to an anonymous referee for pointing this out.

the magnitude of λ) and the share of the pure public good G offered by the dictator undergoes a sharp change around the threshold $\hat{\lambda}$. Specifically, the equilibrium allocation involves the dictator offering only E or nothing for $\lambda \leq \hat{\lambda}$. For all $\lambda > \hat{\lambda}$, either G or E or nothing may be offered in equilibrium, depending upon the level of income inequality in society. However, the provision of E is strictly lower as compared to democracy for a range of λ beyond $\hat{\lambda}$.

We would like to draw attention to the proposition above and contrast it with our main result for the case of the democratic setup. Recall that in our democratic setup (with the standard two–party competition framework), we obtained that for a highly ethnically heterogeneous society (i.e. λ "small"), the entire budget will be spent on providing G — hence, no discrimination. On the other hand, we find that for a dictatorship a highly ethnically heterogeneous society will see a provision of only the E good (or nothing) — therefore, some potential discrimination. What is striking is the *reversal* in the pattern of spending under a dictatorship as compared to that in a democracy around the threshold $\hat{\lambda}$.

3.3 The identity of the dictator

We have treated the dictator as an independent entity, not personally identifying with any of the N ethnic groups or the income classes (poor or rich). What the dictator is *solely* concerned with is his expected payoffs from holding on to the reins of power which arise from appropriation of the revenues raised through taxation. In practice, a dictator often relies on the support from the military (examples of such cases are plenty – consider Pakistan, Indonesia, Rwanda among others).

Acemoglu and Robinson (2006) point to the incentives of the elite to support such non-representative governments. In our setup, the identity of the allies of a dictator depend upon the ambient level of ethnic dominance.[26] Acemoglu, Ticchi and Vindigni (2010) explicitly model the military as a *distinct* group who acts in its self-interest. Our notion of a dictator is essentially as the representative agent of this group. This is quite different from the setup in Padro-i-Miquel (2007) where the ethnic identity of the dictator is crucial in driving the logic of rent extraction from society, and in particular, from the ruler's co-ethnics.

In a similar vein, we model political parties as voteshare-maximising and without affiliations/biases vis-a-vis the different ethnic groups, in the tradition of Hotelling models of political competition. This is done in the interest of simplicity as introducing ethnic biases among political parties may potentially lead to policy divergence in equilibrium which would complicate the analysis without possibly providing deeper insights.

In a dynamic setting such as in Acemoglu, Ticchi and Vindigni (2010), one may consider as to when the dictator may strategically use his 'followers' (the military) to usurp control

[26] We will return to this point in the following section.

of the government. We do not explicitly model this aspect and assume that *Nature* at the start of the game picks the dictator to rule with some positive probability.

3.4 The payoffs to the different ethnic groups

The main thrust of the analysis has been on identifying the extent of discrimination, through the provision of E at the cost of G, under the different regimes. However, the analysis does identify some *gainers* and *losers* under the two regimes for any given level of ethnic dominance. Here, we discuss briefly as to which group fares better under dictatorship for the different possible levels of λ.

First, we will compare the dominant ethnic group against all the other $N-1$ groups. Then, we shall discuss the case where $N > 2$ and compare *across* different minority groups.

When the size of the dominant ethnic group is "small" (i.e., $\lambda \leq \hat{\lambda}$), democracy delivers complete redistribution; hence, every citizen regardless of income level or ethnic identity gets the same payoff ($\overline{y}$). Under a dictatorship for this λ interval, there is a clear heterogeneity in payoffs. Exactly one of the two things happen: (1) D caters to the rich irrespective of ethnic identity (by leaving them with a payoff of $\overline{y}$) and providing the poor with a payoff strictly lower than $\overline{y}$ and (2) D provides a positive level of E (and no G) and hence leaves the dominant ethnic group in *each* income category happier than the others in the corresponding income category. In particular, a section of the rich among the dominant ethnic group get a payoff greater than $\overline{y}$. Thus, D may well have the support of the ethnic majority group — particularly, the rich among them — whenever $\lambda \leq \hat{\lambda}$.

When the size of the dominant ethnic group is in excess of $\hat{\lambda}$, democracy tends to favour the ethnic majority. Here the biggest gainers are the rich among the dominant ethnicity. Under a dictatorship for this λ interval, there is again a heterogeneity in payoffs. Here, D may provide a positive level of G and will certainly provide lesser of E for a range of λ beyond $\hat{\lambda}$. Since discrimination is unambiguously lower here under dictatorship, the disparities in payoffs across the different *ethnic* groups is smaller. However, the differences in payoffs across the two *income* groups remain salient whenever the tax rate is lower than unity. This suggests that the rich among the dominant ethnic group have more of an incentive to oppose the dictator in this λ interval.

Now consider two different minority groups — call them groups 2 and 3 (where the dominant ethnic group is labelled '1'). Without loss of generality, let us say that group 2 is richer than group 3. In light of our analysis above, what can one infer regrading the payoffs to these two minority groups?

When $\lambda \leq \hat{\lambda}$, democracy delivers equally to *all* ethnic groups. However, under dictatorship things have the potential to look different. In the situation where D exclusively caters to the rich (irrespective of ethnic identity) by setting taxes lower than under democracy, it is

group 2 which stands to gain relative to group 1. In case D chooses to provide some E (and no G), both groups 2 and 3 feel the brunt of discrimination. However, even here group 2 is better off than group 3 since $t_D \leq 1$ with strict inequality for certain parameter values. In sum, the richer minority group is always better off in comparison with the poorer ones (at least weakly) under dicatorship as long the dominant group is not too large.

When λ exceeds $\hat{\lambda}$, democracy tends to favour the ethnic majority, along with the *rich* within the ethnic minority groups. Thus, group 2 will stand to gain more than group 3 as λ crosses the $\hat{\lambda}$– threshold. Under dictatorship, for the $(\hat{\lambda}, \underline{\lambda}]$ interval, the dictator may choose P1 or P1' whereby the tax rate is lower than that under democracy and either E or G is provided (depending upon the income inequality). In such a situation, group 2 is better off than its poorer counterpart *and also what it was under democracy*. In the case where D chooses P3 or P4', the tax rate facing the citizens is higher than under democracy although there is less discrimination against the minorities. Here, in comparison to their respective situations under democracy, both groups 2 and 3 are better off; although the improvement for group 3 happens to be more significant.[27] Thus, dictatorship rather than democracy tends to lower differential treatment across the various minority groups when λ exceeds $\hat{\lambda}$.

4 Some Extensions

We discuss some implications of our theory by extending our model in certain directions.

4.1 An ethnic good for each ethnic group

There is an important asymmetry in the baseline model — the dominant ethnic group is allowed directed spending but the only benefit accruing to the minorities comes from general public spending. The reason behind this asymmetry was to precisely bring out the idea of discrimination as starkly (and as simply) as possible. However, it is possible to allow for a similar ethnic "good" for the minorities and yet retain the main results.

For the $N-1$ non-dominant groups, suppose there exists an ethnic good E_n spending on which benefits only members from the ethnic group $n \in \{2, .., N\}$. Also, let there be heterogeneity within each group as to the preference for this good in a manner analogous to the dominant group's ethnic good E. So when E_n is provided, more than half the minority group n gets a positive realisation of the taste shock.

Before proceeding any further, it is important to clarify what "discrimination" means in this context. Clearly, when all the spending is on the general public good G, then there is no discrimination (like in the baseline model). However, when there is some spending on E, the

[27] This follows from the fact that the poor among the minority suffer the most under democracy for $\lambda > \hat{\lambda}$.

entire minority feel discriminated against. Similarly, when there is some spending on E_n, all the other groups feels discriminated against. So now, we ask the question as to how *all such forms of discrimination* fare under the different political regimes.

As before, first consider the situation under democracy. When the size of the dominant group is not too 'large' (similar to Observation 1), one can argue that only G is provided as long as the disutility from discrimination (ψ) is sufficiently high in society. Now, the clear contender to this allocation is some combination of spending on E and E_n ($n \in \{2, .., N\}$). Notice however, that when spending is promised on all these ethnic goods, members from all groups feel discriminated and hence would simply prefer a platform with only general public spending (no discrimination). The logic in the case of high ethnic dominance (as in Observation 2) is unchanged from before — both parties will only cater to the dominant ethnic group when the latter is of a sufficient large size. Hence, the equilibrium allocations do not change under democracy.

Now moving over to the dictatorship scenario, we see that for low ethnic dominance (as in Observation 3) the dictator now has the option of using E_n as a means to dissuading the minority groups. However, the more he spends on E_n the less he has for spending on E and for his own consumption. Given that the minority groups have a particularly high incentive to rebel, it is too costly to provide E_n by cutting back on E. Moreover, spending (sufficiently) on E_n at the cost of E would mean that the dictator would lose some of the majority group citizens to gain a few minority votes (recall, the dominant ethnic group is the largest among the N groups). This is clearly not optimal from the dictator's perspective. Thus, once again the dictator would use only E in this situation. When ethnic dominance is high (as in Observations 4 and 5), the dictator will not spend on E_n since the minority would not be rebelling for a whole interval of λ beyond the "switch" threshold $\hat{\lambda}$.

In sum, it is possible to introduce this additional aspect of ethnic spending for the minorities without affecting the main findings in any significant manner.

4.2 Public Spending and Growth

The nature of public spending in an economy has the capacity to affect economic performance and in particular, output.

One can think of overall output Y being a standard CES function — involving g, λ and e — of the following form:

$$Y(g, \lambda e) = \chi[\alpha g^{\rho} + (1 - \alpha)(\lambda e)^{\rho}]^{1/\rho}$$

where $\rho \in (0, 1)$ and $\alpha \in (\frac{1}{2}, 1)$. We take the position that growth is mainly driven by investment in general public goods rather than in (ethnically) targetted goods. So we have α in the interval $(\frac{1}{2}, 1)$. This guarantees that when the entire budget is being spent on either

G or E, spending it on G yields a higher output; i.e., $Y(1,0) > Y(0,1)$.[28] In this restricted sense, investment in the general public good outperforms investment in the ethnic–specific good in terms of overall output. χ is the TFP term which we assume satisfies the following condition: $\chi \geq \frac{1}{(1-\alpha)^{\frac{1}{\rho}}}$. Hence, it is possible to generate an output level of 1, when all the budget is spent on E.[29]

Our model can be used to examine if the relationship between ethnicity and growth is at all shaped by the existing political regime. As Propositions 1 and 2 state, the variation in the pattern of expenditure (between G and E) over the level of ethnic dominance (proxied by λ) is completely *different* under the two political regimes. From this perspective, our model delivers that as ethnic dominance decreases in a democracy (in the region to the right of $\hat{\lambda}$) there is an lowering of the tax rate and thus *lower* output (see Observation 2). However, under dictatorship we have that any decrease in ethnic dominance (in the region to the right of $\hat{\lambda}$) has an ambiguous effect output.

Note however, to the left of the $\hat{\lambda}$ threshold we have that any decrease in ethnic dominance has no effect in a democracy while the effect is ambiguous under dictatorship. This suggests a convergence in output levels across the two institutional regimes for high levels of ethnic dominance is not improbable. So starting from $\lambda \to 0$, one should observe a divergence in output levels across regimes as ethnic dominance rises up to a point (the $\hat{\lambda}$ threshold), beyond which increases in ethnic diversity may lead to a convergence in output levels across these two institutional regimes. Insofar we treat these output levels in our static framework as some steady state levels in a dynamic setting, our predictions can be interpreted in terms of output growth rather than levels.

5 Discussion

In this section, we discuss some historical events which when analysed within the framework of our model appear to corroborate the model's predictions. In each of the following cases, there is a change in regime (from democracy to dictatorship or *vice versa*) and some degree of ethnic heterogeneity which allows us to make a comparison in terms of changes in (targeted) public policy.

The implicit assumption is that the level of ethnic dominance for a country is largely unaffected by the regime change. We consider countries with both high and low ethnic dominance to illustrate the workings of our theory.

[28] Note, $Y(1,0) = \chi\alpha^{1/\rho}$ and $Y(0,1) = \chi(1-\alpha)^{1/\rho}$. Hence, $\frac{Y(1,0)}{Y(0,1)} = (\frac{\alpha}{1-\alpha})^{1/\rho} > 1$ since $\alpha > \frac{1}{2}$.

[29] This automatically guarantees that it is possible to get an even higher output by spending all the budget on the G good.

5.1 Rwanda

The Hutu community is the major ethnic group in Rwanda (over 80%) and a dominant minority group is the Tutsi (about 15%). The genocide involving the massacre of Tutsi (and moderate Hutu) civilians by certain armed groups of Hutus which happened in 1994 has received much attention. This started soon after the fatal plane crash of the Rwandan president, Juvenal Habyarimana. Incidentally, Habyarimana (a Hutu from the northern part of Rwanda) actually staged a military coup to seize power from the previous president, Gregoire Kayibanda (a Hutu political leader) in 1973. Kayibanda's tenure, which was a democracy (although far from perfect) was characterised by several incidents of Tutsi persecution. As Prunier (1995) notes:

"When he [Juvenal Habyarimana] took power in a bloodless coup on 5 July 1973, there was widespread popular relief, even among the Tutsi whose security the new regime immediately guaranteed... All in all, life was difficult for the Tutsi who were victims of institutional discrimination, but in everyday life it was quite tolerable. Compared to the Kayibanda years, things had improved, even to the point where some well-known Tutsi businessmen had made fortunes and were on very good terms with the regime. The unspoken understanding was 'Do not mess around with politics, this is a Hutu preserve'. As long as Tutsi stuck to that principle, they were generally left in peace."

By most accounts, one infers that until 1990 only low-level incidents of violence against the minority Tutsi had occurred under Habyarimana's rule — nothing on the same scale as the persecution and mass killings that periodically took place before the 1973 coup. In the context of our model, the Rwandan situation describes a society which is fairly homogeneous in ethnicity and which sees a transition from democracy to dictatorship.[30] By Propositions 1 and 2, such a society would be characterised by neglect of minorities under democracy and (relatively) equal treatment under dictatorship. The above account seems consistent with such predictions.

The political situation in post-genocide Rwanda has been described as a quasi-autocracy, given President Kagame's influence (see Blouin and Mukand (2018)). In terms of our theory, this ought to be a period characterised by equal treatment of the ethnic groups. Bloiun and Mukand (2018) exploit variation in exposure to the government's radio propaganda due to the mountainous topography of Rwanda. Results of their lab-in-the-field experiments demonstrate that individuals exposed to government propaganda have lower salience of ethnicity, increased inter-ethnic trust and show more willingness to interact face-to-face with members of another ethnic group. Therefore, this government is improving relations between ethnic groups rather than engage in discrimination, which is consistent with our theory.

[30]Habyarimana created the Mouvement Revolutionaire National pour le Developpement (MRND) as the country's only legal party in 1975.

5.2 Indonesia

Indonesia is an ethnically diverse country where largest ethnic group is the Javanese, who comprise about 42% the population and are politically and culturally dominant (see e.g., Kingsbury (2003)). President Suharto's regime (also called the "New Order") lasted over 30 years (1966–1998) and can be safely classified as a non-democracy for most of its duration. In May 1998, there was a massive unrest in the country. In particular, there was targeted violence against a minority group, specifically, the Chinese-Indonesians in several parts of the country (see Panggabean and Smith (2011)). Much earlier in 1967, the New Order government created a committee to study what was called the 'Chinese problem' (see Purdey (2006)). The key issue was to profit from their economic aptitude whilst ridding them of any potential economic dominance. The New Order effectively instituted a system whereby the ruling class could take advantage of an economically skilled and successful ethnic minority which was highly susceptible to intimidation and plunder and was therefore reliant on the powers-that-be for protection.

In terms of our model, E represents any type of systematic spending which is detrimental to the members of the minorities while benefiting (on average) the members of the dominant ethnic group. Notice, directed violence against a minority strikes fear in the hearts of other minorities. In fact, in the economic sphere this can be beneficial to the dominant ethnic group as they have to contend with less competition.[31] This is evidence of a pattern of disfavouring minorities in a setup characterised by low ethnic dominance under a dictatorship (providing E rather than G in terms of our model as in Proposition 2).

This pattern of persecution was abandoned — at least to an extent — after the transition to democracy in the 21st century. Tan (2005) observes: "Since the end of the repressive Suharto regime, aside from some localized incidents, the ethnic Chinese have been left more or less alone." After the fall of Suharto, numerous discriminative laws were recalled and others promoting unity were passed. President Habibie passed legislation requiring the elimination of the terms pribumi and non-pribumi (native Indonesian and non-native) in 1998. In 2002, Chinese New Year was declared a national holiday. However, some discriminative legislation still remains. Chinese Indonesians have been "embraced" by the government, with numerous mixed-ethnic cultural presentations and media activity. By 2004, there were three Chinese Indonesian members of the Peoples Representative Council, as well as one cabinet member. This is again in line with our result in Proposition 1 which states that democracies with low ethnic dominance do *not* discriminate in terms of public spending across ethnic groups (i.e., they provide G rather than E).

[31] This argument is similar in spirit to various studies which document the dynamics of Hindu-Muslim violence in India (see Mitra and Ray (2014) among others).

5.3 Myanmar

Myanmar, formerly known as Burma, has witnessed serious political turnovers since its independence from the British in 1948. The first decade following independence was devoted to reconstruction which was necessary given the devastation caused to the region from the Second World War. However, this phase was somewhat politically turbulent. In March 1962, Ne Win led a military coup and arrested U Nu, the chief justice, and several cabinet ministers. He justified his actions as a means of keeping the union from disintegrating. Suspending the 1947 constitution, which had been in effect since independence, he ruled the country with a Revolutionary Council consisting of senior military officers.

Ne Win's stated purpose was to make Burma a truly socialist state. A military-controlled one-party (Burma Socialist Programme Party [BSPP]) system was established. In April 1972, Ne Win and other members of the Revolutionary Council retired from the army, but they retained their positions of power in the BSPP.

Since the late 1980s, pro-democracy voices started gathering force. In May 1990 Myanmar held its first multiparty elections in 30 years. Incidentally, Myanmar saw a full-scale transition to democracy in 2015 where Aung San Suu Kyi's party won a landslide victory, taking 86% of the seats in the Assembly of the Union. Although she was prohibited from becoming the President due to a clause in the constitution she assumed the newly created role of State Counsellor, making her the *de facto* head of government.

The Rohingya community in Myanmar have recently been in the news for the treatment they have been receiving at the hands of government forces. Lindblom et al. (2015) state:

"The Rohingya Muslims in Myanmar's Rakhine State have suffered serious and persistent human rights abuses. Myanmar authorities, security forces, police, and local Rakhine actors have engaged in widespread violence, acts of torture, arbitrary detention, rape, and other crimes causing serious physical and mental harm. The scale of these atrocities has increased precipitously since 2012."

Aung San Suu Kyi has come under sharp criticism for her perceived indifference to the plight of the Rohingya community. In a 2015 BBC News article, it was suggested that Suu Kyi's silence over the Rohingya issue is due to a need to obtain support from the majority Bamar ethnicity as she is in "the middle of a general election campaign".[32] In early 2018 it was estimated that more than 800,000 Rohingya had fled the country since the first crackdown had begun. The actions of the security forces drew international condemnation, and the government's weak response to the crisis garnered significant amounts of criticism from the international community for falling far short of what was needed.

Given that the Bamar ethnic group constitutes about 68% of the Burmese population (while the rest is composed of several small ethnicities), Myanmar fits the description of having

[32]The BBC article can be accessed at http://www.bbc.co.uk/news/world-asia-32974061

high ethnic dominance in terms of our model. By Propositions 1 and 2, such a society would demonstrate neglect of minorities under democracy and (relatively) equal treatment under dictatorship. To be sure, the Rohingya community has been suffering under the military government too, but as noted above, there has been an uptick in the violence against them in the recent "democracy" years. This pattern is fairly consistent with the predictions of our theory.

6 Conclusion

The issue of discrimination against minorities is of significant interest to scholars from various disciplines and policy-makers. Given the recent interest in the role of institutions on the workings on the economy, it is natural to ask if "superior" institutions like democracy can automatically alleviate such discrimination. Here we have attempted to take on this question with the help of a simple model, whose analysis yields relevant insights. To be sure, discrimination takes many hues within any ethnically heterogeneous society — our analysis cannot possibly encompass *all* forms of discrimination. To be specific, we have tried to capture discrimination in public policy in a stylised way. In our model, the government (popularly elected or otherwise) is allowed to either engage in public spending on genuinely public goods or on providing what only members of the dominant ethnic group benefit from. In our setup, the existence and exercise of the latter option signifies discrimination. In a sense, our model is essentially geared towards analysing explicit or covert forms of discrimination where the state is an *active* agent.

We analyse this model under two starkly different political regimes — namely, democracy and dictatorship. Our model brings out the contrast in public spending patterns — specifically, discriminatory spending — by highlighting the tensions that drive behaviour under democracy and dictatorships. A society with a relatively small dominant community (and hence largely diverse) is likely to see a more homogeneous pattern of public spending under democracy as compared to one where the dominant community is a sizeable super-majority. In the latter case, targeting the dominant community, at the expense of the minorities, is enough to guarantee electoral success.

The considerations are altogether different under a dictatorship where the dictator has to think of pre-empting any revolution which is undertaken in the hope of moving to democracy. Here different ethnic groups would have different motives based on what they expect under democracy. This is considerably complicated by the fact that *within* each ethnic group there is a divergence of interests — based on their economic standing — and this interacts with their ethnic identity to determine which combination of tax rates and public good(s) is most appealing to them.

Our theory is capable of interpreting certain historical events involving regime changes. Our

model predicts that such a change would either favour or dis-favour minorities depending upon the size of the dominant ethnic group. We discuss a few instances — namely, Rwanda, Indonesia and Myanmar — in the framework of our model and observe that our predictions are consistent with these cases.

Coming back to the question regarding democracy mitigating concerns regarding discrimination, our position is not without sufficient scepticism. As our analysis demonstrates, minorities may well face less discrimination under dictatorships. Undoubtedly, we are not claiming that democracy necessarily imposes the "tyranny of the masses". What is quite critical is the size of the dominant ethnic group; and this is a factor which usually changes slowly over time. In conclusion, our findings suggest that extra safeguards (reservation of posts, quotas, etc.) need to be in place so as to rescue minorities from unfair treatment in electoral as opposed to liberal democracies.

Appendix

Proof. [Observation 1.] Take any $\lambda \in (0, 1 - \frac{1}{2\pi}]$. This implies that the mass of the $(p, 1-\lambda) \geq 1/2$. Start with $(t_A = t_B = 1, e_A = e_B = 0, g_A = g_B = \overline{y})$. Here, each party gets an expected payoff of $1/2$. Suppose party A deviates to $\tilde{e}_A > 0$. This implies that A will definitely lose all the votes from the $(p, 1-\lambda)$–group, since they get a payoff of $\overline{y}$ from party B and A cannot guarantee them that (or anything greater) if $\tilde{e}_A > 0$. Given that $\pi(1-\lambda) \geq 1/2$, this deviation for A is not optimal.

Note, that by setting $\tilde{e}_A = t_A\overline{y}/\lambda$ for any $t_A \in (0, 1]$, party A may deliver a payoff greater than $\overline{y}$ to a majority, but never all, of the λ group since $f > 0$ on the entire real line. This implies, by the continuity of the payoffs in λ, that such a deviation is not profitable against party B's policy of $(t_B = 1, e_B = 0, g_B = \overline{y})$ for some interval $[1 - \frac{1}{2\pi}, \hat{\lambda}]$, where $\hat{\lambda} < 1$.

For uniqueness, note the following. In any equilibrium, each party must have an expected payoff of $1/2$ otherwise 'mimicry' is always a profitable deviation. Any equilibrium apart from $(t_A = t_B = 1, e_A = e_B = 0, g_A = g_B = \overline{y})$ necessarily involves at least one party offering a positive amount of E. The arguments above establish that any such platform must necessarily yield a payoff lower than $1/2$ in the interval $(0, \hat{\lambda}]$ when the other party proposes to spend the entire budget on G. Thus, $(t_A = t_B = 1, e_A = e_B = 0, g_A = g_B = \overline{y})$ is the only equilibrium in that λ– interval. ∎

Proof. [Observation 2.] Consider the generic platform $(t < 1, e = t\overline{y}/\lambda, g = 0)$ against $(t = 1, e = 0, g = \overline{y})$. Note, the $(r, 1-\lambda)$ group will support iff

$$(1-t)y^r - \psi.\frac{t\overline{y}}{\lambda} \geq \overline{y} \Rightarrow t \leq \frac{y^r - \overline{y}}{y^r + \frac{\psi}{\lambda}\overline{y}}.$$

A citizen i from the (j, λ) group will vote for the former over the latter iff

$$(1-t)y^j + \frac{t\overline{y}}{\lambda}(1+\epsilon_i) \geq \overline{y}$$

where $j \in \{p, r\}$. Thus, the mass of supporters from the λ group for the platform with $t < 1$ is given by

$$(1-\pi)\left[1 - F\left(\frac{\lambda[\overline{y} - (1-t)y^r]}{t\overline{y}} - 1\right)\right] + \pi\left[1 - F\left(\frac{\lambda[\overline{y} - (1-t)y^p]}{t\overline{y}} - 1\right)\right].$$

Let $t^\lambda \equiv \arg\max (1-\pi)\left[1 - F\left(\frac{\lambda[\overline{y}-(1-t)y^r]}{t\overline{y}} - 1\right)\right] + \pi\left[1 - F\left(\frac{\lambda[\overline{y}-(1-t)y^p]}{t\overline{y}} - 1\right)\right]$.
There are two possibilities: (i) $t^\lambda \in [0, \frac{y^r - \overline{y}}{y^r + \frac{\psi}{\lambda}\overline{y}})$ and (ii) $t^\lambda \geq \frac{y^r - \overline{y}}{y^r + \frac{\psi}{\lambda}\overline{y}}$.

Take case (i). Then a policy of $(t = t^\lambda, e = t^\lambda\overline{y}/\lambda, g = 0)$ will win against $(t = 1, e = 0, g = \overline{y})$

for any $\lambda > \hat{\lambda}$. Next, we show that t^λ is increasing in λ. Let

$$V(t) \equiv (1-\pi)\left[1 - F\left(\frac{\lambda[\overline{y} - (1-t)y^r]}{t\overline{y}} - 1\right)\right] + \pi\left[1 - F\left(\frac{\lambda[\overline{y} - (1-t)y^p]}{t\overline{y}} - 1\right)\right].$$

Differentiating w.r.t. t for an interior optima (i.e., $V'(t) = 0$) and re-arranging terms yield the following:

$$f\left(\frac{\lambda[\overline{y} - (1-t)y^p]}{t\overline{y}} - 1\right) = f\left(\frac{\lambda[\overline{y} - (1-t)y^r]}{t\overline{y}} - 1\right).$$

For the above to be satisfied, given the symmetry of f around $E[\epsilon]$ it must be that

$$\frac{\lambda[\overline{y} - (1-t)y^p]}{t\overline{y}} - 1 - E[\epsilon] = E[\epsilon] - \frac{\lambda[\overline{y} - (1-t)y^r]}{t\overline{y}} - 1.$$

Define $z_i(t) \equiv \frac{\overline{y} - (1-t)y^i}{t}$ for $i \in \{p, r\}$.
Hence, $z_i'(t) = \frac{y^i - \overline{y}}{t^2}$. So, $z_p'(t) < 0$ and $z_r'(t) > 0$.

$$V''(t) = f'\left(\frac{\lambda z_r(t)}{\overline{y}} - 1\right)\left[\frac{\lambda z_r'(t)}{\overline{y}}\right] - f'\left(\frac{\lambda z_p(t)}{\overline{y}} - 1\right)\left[\frac{\lambda z_p'(t)}{\overline{y}}\right].$$

By the symmetry of f around $E[\epsilon]$ and $V'(t) = 0$, we have $f'\big(\frac{\lambda z_r(t)}{\overline{y}} - 1\big) = -f'\big(\frac{\lambda z_p(t)}{\overline{y}} - 1\big)$. Hence,

$$V''(t) < 0 \Longleftrightarrow z_p'(t) + z_r'(t) < 0.$$

Consider the FOC w.r.t. t, i.e., $V'(t) = 0$. Differentiating both sides w.r.t. λ yields:

$$f'\left(\frac{\lambda z_p(t)}{\overline{y}} - 1\right).\left[z_p(t) + \lambda z_p'(t)t'(\lambda)\right] = f'\left(\frac{\lambda z_r(t)}{\overline{y}} - 1\right).\left[z_r(t) + \lambda z_r'(t)t'(\lambda)\right].$$

Using $f'\big(\frac{\lambda z_r(t)}{\overline{y}} - 1\big) = -f'\big(\frac{\lambda z_p(t)}{\overline{y}} - 1\big)$, the above becomes:

$$z_p(t) + z_r(t) + \lambda t'(\lambda)[z_p'(t) + z_r'(t)] = 0.$$

Note, $\big(\frac{\lambda z_p(t)}{\overline{y}} - 1\big) - E[\epsilon] = E[\epsilon] - \big(\frac{\lambda z_r(t)}{\overline{y}} - 1\big)$ from the FOC implies

$$z_p(t) + z_r(t) > 0$$

since $E[\epsilon] > 0$. Hence,

$$z_p(t) + z_r(t) + \lambda t'(\lambda)[z_p'(t) + z_r'(t)] = 0 \Rightarrow \lambda t'(\lambda)[z_p'(t) + z_r'(t)] < 0.$$

Since $V''(t) < 0 \Longleftrightarrow z_p'(t) + z_r'(t) < 0$, we have $t'(\lambda) > 0$.

Take case (ii). Clearly for $\lambda \leq 1/2$, the platform $(t < 1, e = t\overline{y}/\lambda, g = 0)$ will need to ensure

the support of the entire $(r, 1-\lambda)$ group to win against $(t=1, e=0, g=\overline{y})$. Hence, the optimal choice for any such $\lambda > \hat{\lambda}$ is $t = \frac{y^r - \overline{y}}{y^r + \frac{\psi}{\lambda}\overline{y}}$ and $e = t^{\lambda}\overline{y}/\lambda$ with $g = 0$. It is clear that $\frac{y^r - \overline{y}}{y^r + \frac{\psi}{\lambda}\overline{y}}$ is increasing in λ. For λ sufficiently close to 1, the support from the $(r, 1-\lambda)$ group may no longer be necessary and hence $(t = t^{\lambda}, e = t^{\lambda}\overline{y}/\lambda, g = 0)$ will be the optimal policy.

For uniqueness, note the following. Any equilibrium apart from both parties offering $(t < 1, e = t\overline{y}/\lambda, g = 0)$ with the same $t > 0$ necessarily involves at least one party offering a positive amount of G. The arguments above (in cases (i) and (ii)) establish for $\lambda \in (\hat{\lambda}, 1)$ that any such platform must necessarily yield a payoff lower than $1/2$ when the other party proposes to spend the entire budget on E. Thus, $(t_A = t_B = t < 1, e_A = e_B = t\overline{y}/\lambda, g_A = g_B = 0)$ is the only equilibrium in that λ– interval. ■

Proof. [Observation 3.] When D chooses t_D and μ to provide only E, the level of E provided is $\frac{t_D(1-\mu)\overline{y}}{\lambda}$. Clearly, all poor members of the $(1-\lambda)$ group will revolt as their payoff from this is strictly lower than $\overline{y}$ which is that they obtain under democracy. The rich members of the $(1-\lambda)$ group may or may not revolt depending upon t_D.

Now consider the members of the dominant ethnic group. A (r, λ) individual will support D iff

$$(1-t_D)y^r + \frac{t_D(1-\mu)\overline{y}}{\lambda}(1+\epsilon_i) \geq \overline{y}.$$

Similarly, a (p, λ) individual will support D iff

$$(1-t_D)y^p + \frac{t_D(1-\mu)\overline{y}}{\lambda}(1+\epsilon_i) \geq \overline{y}.$$

Hence, the mass of the rebels from the λ group is given by

$$(1-\pi)F\left(\frac{\lambda[\overline{y} - (1-t_D)y^r]}{t_D(1-\mu)\overline{y}} - 1\right) + \pi F\left(\frac{\lambda[\overline{y} - (1-t_D)y^p]}{t_D(1-\mu)\overline{y}} - 1\right).$$

Depending upon the decision of the $(r, 1-\lambda)$ group,

$$p \leq \lambda[(1-\pi)F\left(\frac{\lambda[\overline{y} - (1-t_D)y^r]}{t_D(1-\mu)\overline{y}} - 1\right) + \pi F\left(\frac{\lambda[\overline{y} - (1-t_D)y^p]}{t_D(1-\mu)\overline{y}} - 1\right)] + (1-\lambda).$$

This implies that D's payoff from this policy is at least

$$\lambda\overline{y}\mu t_D\left[1 - (1-\pi)F\left(\frac{\lambda[\overline{y} - (1-t_D)y^r]}{t_D(1-\mu)\overline{y}} - 1\right) - \pi F\left(\frac{\lambda[\overline{y} - (1-t_D)y^p]}{t_D(1-\mu)\overline{y}} - 1\right)\right].$$

Clearly, D chooses t_D and μ strategically to maximise the above expression. This, in turn, implies that D's payoff is (weakly) greater than which is obtained by setting $t_D = 1$ and $\mu = 1-\lambda$. This payoff is $\lambda(1-\lambda)\overline{y}/2$.
Compare this with D's payoff from setting $t_D = \frac{y^r - \overline{y}}{y^r} (< 1)$ and $g_D = e_D = 0$, which is given

by $(1-\pi)\overline{y}(\frac{y^r-\overline{y}}{y^r})$ which can be re-written as $\pi(1-\pi)\overline{y}(\frac{y^r-y^p}{y^r})$. Observe, that for any given y_p and y_r, this payoff is the highest when $\pi = 1/2$. This establishes that there is a threshold level of π, such that for any π at or above this threshold, D chooses to provide $e_D > 0$ rather than $g_D = e_D = 0$. ■

Proof. [Observation 4.] Consider the μ and t_D which represent the arg max of $\mu t_D \overline{y}(1-p)$ under P1. Now suppose D keeps the same μ and t_D and instead of E provides only G. Hence, whichever policy has lesser resistance (a lower p) will be better for D.

First consider the (p, λ) group. Here we compare the threshold person who is indifferent between D's policy and what democracy offers her. Hence, we contrast $\frac{\lambda[(t-t_D)y^p+t_D(1-\mu)\overline{y}]}{t\overline{y}}$ with $\frac{\lambda(t-t_D)y^p}{\overline{y}[t-t_D(1-\mu)]}$. If the former is larger (smaller) than the latter, then P1' commands greater (lower) support among the (p, λ) group than P1 does. Note,

$$\left(\frac{\lambda[(t-t_D)y^p + t_D(1-\mu)\overline{y}]}{t\overline{y}}\right) \Big/ \left(\frac{\lambda(t-t_D)y^p}{\overline{y}[t-t_D(1-\mu)]}\right) = \frac{[(t-t_D)y^p + t_D(1-\mu)\overline{y}]}{(t-t_D)y^p}.\frac{[t-t_D(1-\mu)]}{t}.$$

Observe

$$\frac{[(t-t_D)y^p + t_D(1-\mu)\overline{y}]}{(t-t_D)y^p} > 1 > \frac{[t-t_D(1-\mu)]}{t}.$$

Clearly,

$$\frac{[(t-t_D)y^p + t_D(1-\mu)\overline{y}]}{(t-t_D)y^p} > \frac{[(t-t_D)y^p + t_D(1-\mu)y^p]}{(t-t_D)y^p} = \frac{t-\mu t_D}{t-t_D}.$$

Also,

$$\left(\frac{t-\mu t_D}{t-t_D}\right).\frac{[t-t_D(1-\mu)]}{t} = \frac{t^2 - tt_D + t_D^2\mu(1-\mu)}{t^2 - tt_D}.$$

It is clear that $\frac{t^2-tt_D+t_D^2\mu(1-\mu)}{t^2-tt_D} > 1$. Hence, P1' commands greater support among the (p, λ) group than P1 does.

Now consider the (r, λ) group. An analogous comparison of the thresholds implies measuring $\frac{\lambda[(t-t_D)y^r+t_D(1-\mu)\overline{y}]}{t\overline{y}}$ against $\frac{\lambda(t-t_D)y^r}{\overline{y}[t-t_D(1-\mu)]}$. If the former is larger (smaller) than the latter, then P1' commands greater (lower) support among the (r, λ) group than P1 does. Note,

$$\left(\frac{\lambda[(t-t_D)y^r + t_D(1-\mu)\overline{y}]}{t\overline{y}}\right) \Big/ \left(\frac{\lambda(t-t_D)y^r}{\overline{y}[t-t_D(1-\mu)]}\right) = \frac{[(t-t_D)y^r + t_D(1-\mu)\overline{y}]}{(t-t_D)y^r}.\frac{[t-t_D(1-\mu)]}{t}.$$

Observe

$$\frac{[(t-t_D)y^r + t_D(1-\mu)\overline{y}]}{(t-t_D)y^r} > 1 > \frac{[t-t_D(1-\mu)]}{t}.$$

Clearly,

$$\frac{[(t-t_D)y^r + t_D(1-\mu)\overline{y}]}{(t-t_D)y^r} < \frac{[(t-t_D)y^r + t_D(1-\mu)y^r]}{(t-t_D)y^r} = \frac{t-\mu t_D}{t-t_D}.$$

Also,

$$\left(\frac{t-\mu t_D}{t-t_D}\right).\frac{[t-t_D(1-\mu)]}{t}=\frac{t^2-tt_D+t_D^2\mu(1-\mu)}{t^2-tt_D}>1.$$

Hence, $\exists \hat{y}<y^r$ such that

$$\frac{[(t-t_D)y^r+t_D(1-\mu)\hat{y}]}{(t-t_D)y^r}.\frac{[t-t_D(1-\mu)]}{t}=1.$$

Thus, as long as $\overline{y}>\hat{y}$ then

$$\frac{[(t-t_D)y^r+t_D(1-\mu)\overline{y}]}{(t-t_D)y^r}.\frac{[t-t_D(1-\mu)]}{t}>1.$$

Let $\theta\equiv y^r/y^p$. Clearly, $\theta>1$. Therefore, one can write the average income as

$$\overline{y}=y^r\left[\frac{\pi}{\theta}+(1-\pi)\right].$$

Notice, a reduction in θ keeping y^r constant, increases $\overline{y}$. Hence, for θ greater than unity but below some threshold, $\overline{y}>\hat{y}$. Thus, for this range of θ, P1' commands greater support among the (r,λ) group than P1 does.

Since the choice of μ and t_D was constrained to the arg max of $\mu y t_D\overline{y}(1-p)$ under P1, D can (weakly) improve upon this by a suitable choice of these variables under P1'. Thus, for income disparity not too extreme, D will prefer to implement P1' rather than P1. ■

Proof. [Observation 5.] D's payoff from P4 may be written as $\rho t\mu(1-p)\overline{y}$ where t is the corresponding tax rate under democracy, $t_D\equiv\rho t$, $\rho\in(\frac{1}{1-\mu},\frac{1}{t}]$ and the mass of rebels is given by

$$p=1-\lambda+\lambda\left[\pi F\left(\frac{\lambda(t_D-t)y^p}{[t_D(1-\mu)-t]\overline{y}}-1\right)+(1-\pi)F\left(\frac{\lambda(t_D-t)y^r}{[t_D(1-\mu)-t]\overline{y}}-1\right)\right].$$

Observe,

$$\frac{t_D-t}{t_D(1-\mu)-t}=\frac{\rho-1}{\rho(1-\mu)-1}$$

which is decreasing in ρ. Hence, p is minimised by setting $\rho=1/t$ and hence $t_D=1$.

This implies that the payoff to D from P4 is given by

$$\overline{y}\mu\lambda\left[1-\pi F\left(\frac{\lambda(1-t)y^p}{[1-\mu-t]\overline{y}}-1\right)-(1-\pi)F\left(\frac{\lambda(1-t)y^r}{[1-\mu-t]\overline{y}}-1\right)\right]<\overline{y}\lambda\mu<\overline{y}\lambda(1-t),$$

where the last inequality follows from $1-\mu-t>0$.

The payoff to D from choosing a policy optimally from P3 is at least

$$\overline{y}t_D\Bigg[1-\lambda\Bigg(1-F\Bigg(-\frac{\lambda(t_D-t)}{t\overline{y}}-1\Bigg)\Bigg)\Bigg]$$

where $t_D=\min\{t(\frac{\psi\overline{y}}{\lambda y^r}+1),1\}$. This is what D obtains when he sets $\mu=1$ and t_D is such that the entire $(1-\lambda)$ does not rebel.

Case (i): Suppose $t(\frac{\psi\overline{y}}{\lambda y^r}+1)\geq 1$ and hence $t_D=1$.

Here, D's payoff from choosing a policy optimally from P3 is at least

$$\overline{y}\Bigg[1-\lambda\Bigg(1-F\Bigg(-\frac{\lambda(t_D-t)}{t\overline{y}}-1\Bigg)\Bigg)\Bigg]>\overline{y}[1-\lambda].$$

By our assumption on the lower bound of ψ, we have $t\geq\frac{y^r-\overline{y}}{y^r+\frac{\psi}{\lambda}\overline{y}}$. Therefore, D's payoff from P3, in this case, dominates that from P4 as long as

$$\overline{y}[1-\lambda]\geq\overline{y}\lambda\Bigg[1-\Bigg(\frac{y^r-\overline{y}}{y^r+\frac{\psi}{\lambda}\overline{y}}\Bigg)\Bigg].$$

Now, we utilise $\theta\equiv y^r/y^p$ and re-write $\left[1-\left(\frac{y^r-\overline{y}}{y^r+\frac{\psi}{\lambda}\overline{y}}\right)\right]$ as

$$\frac{(\frac{\psi}{\lambda}+1)[\theta(1-\pi)+\pi]}{\frac{\psi}{\lambda}[\theta(1-\pi)+\pi]+\theta}\equiv x.$$

Hence,

$$\overline{y}[1-\lambda]\geq\overline{y}\lambda\Bigg[1-\Bigg(\frac{y^r-\overline{y}}{y^r+\frac{\psi}{\lambda}\overline{y}}\Bigg)\Bigg]\Leftrightarrow\lambda\leq\frac{1}{1+x}.$$

Case (ii): Suppose $t(\frac{\psi\overline{y}}{\lambda y^r}+1)<1$.

In this case, D's payoff from choosing a policy optimally from P3 is at least

$$\overline{y}t\Bigg(\frac{\psi\overline{y}}{\lambda y^r}+1\Bigg)[1-\lambda].$$

Recall, we have $t\geq\frac{y^r-\overline{y}}{y^r+\frac{\psi}{\lambda}\overline{y}}$. Thus, D's payoff from choosing optimally from P3 is at least

$$\overline{y}\Bigg(\frac{\psi\overline{y}}{\lambda y^r}+1\Bigg)\Bigg(\frac{y^r-\overline{y}}{y^r+\frac{\psi}{\lambda}\overline{y}}\Bigg)[1-\lambda]$$

which on simplification becomes

$$\left(\frac{y^r-\overline{y}}{y^r}\right)\overline{y}(1-\lambda)=\left(\frac{\pi(y^r-y^p)}{y^r}\right)\overline{y}(1-\lambda)=\pi\left(\frac{\theta-1}{\theta}\right)\overline{y}(1-\lambda).$$

Therefore, D's payoff from P3, in this case, dominates that from P4 as long as

$$\pi\left(\frac{\theta-1}{\theta}\right)\overline{y}[1-\lambda]\geq\overline{y}\lambda\left[1-\left(\frac{y^r-\overline{y}}{y^r+\frac{\psi}{\lambda}\overline{y}}\right)\right]\Leftrightarrow\lambda\leq\frac{1}{1+(\frac{\theta}{\theta-1})(\frac{x}{\pi})}.$$

When comparing cases (i) and (ii), we have $(\frac{\theta}{\theta-1})(\frac{1}{\pi})>1$. Hence, we define $\underline{\lambda}$ as $\frac{1}{1+(\frac{\theta}{\theta-1})(\frac{x}{\pi})}$. This establishes that D will never opt for P4 $\forall\lambda\in(\hat{\lambda},\underline{\lambda}]$. ■

References

Acemoglu, D., Naidu, S., Restrepo, P., and Robinson, J.A. (2014). Democracy Does Cause Growth. *NBER Working Paper No. 20004.*

Acemoglu, D. and Robinson, J.A. (2006). Economic Origins of Dictatorship and Democracy. *Cambridge, UK: Cambridge University Press.*

Acemoglu, D., Ticchi, D., and Vindigni, A. (2010). A Theory of Military Dictatorships. *American Economic Journal: Macroeconomics, 2(1), pp. 1-42.*

Alesina, A., and Drazen, A. (1991). Why are stabilizations delayed? *American Economic Review, Vol. 81, 1170-1188.*

Alesina, A., and La Ferrara, E. (2005). Ethnic Diversity and Economic Performance. *Journal of Economic Literature, Vol. 43, 762-800.*

Alesina, A., and Rodrik, R. (1994). Distributive Politics and Economic Growth. *Quarterly Journal of Economics, Vol. 109, 465-490.*

Alesina, A., Baqir, R., and Easterly, W. (1999). Public Goods and Ethnic Divisions. *Quarterly Journal of Economics, Vol. 114, 1243-1284.*

Baldwin, K., and Huber, J.D. (2010). Economic versus Cultural Differences: Forms of Ethnic Diversity and Public Goods Provision. *American Political Science Review, 104(04), 644–662.*

Banerjee, A., and Somanathan, R. (2001). Caste, community and collective action: The political economy of public good provision in india. *mimeo, MIT.*

Bardhan, P., Mitra, S., Mookherjee, D., and Sarkar, A. (2008). Political participation, clientelism and targeting of local government programs: Analysis of survey results from rural West Bengal. *Boston: Department of Economics, Boston University.*

Barro, R.J. (1990). Government spending in a simple model of endogenous growth, *Journal of Political Economy, 98, S103–25.*

Besley, T., Pande, R., Rahman, L. and Rao, V. (2004). The Politics of Public Good Provision: Evidence from Indian Local Governments. *Journal of the European Economic Association, 2: 416–426.*

Bhavnani, R. (2016). Do the Effects of Temporary Ethnic Group Quotas Persist? Evidence from India. *American Economic Journal: Applied Economics*, forthcoming.

Blouin, A., and Mukand, S. W. (2018). Erasing Ethnicity? Propaganda, Nation Building and Identity in Rwanda. *Journal of Political Economy*, forthcoming.

Burgess, R., Jedwab, R., Miguel, E., and Morjaria, A. (2015). The value of democracy: evidence from road building in Kenya. *The American Economic Review, 105(6), 1817-1851.*

Chin, A., and Prakash, N. (2011). The redistributive effects of political reservation for minorities: Evidence from India. *Journal of Development Economics, 96(2), 265 – 277.*

De Luca. G., Hodler, R., Raschky, P., and Valsecchi, M. (2018). Ethnic favoritism: An axiom of politics? *Journal of Development Economics 132 (2018) 115-129.*

Deacon, R. (2009). Public good provision under dictatorship and democracy. *Public Choice, 139: 241-262.*

Fernandez, R., and Levy, G. (2008). Diversity and Redistribution. *Journal of Public Economics, 92(5-6), 925- 943.*

Franck, R. and Rainer, I. (2012). Does the Leader?s ethnicity Matter? Ethnic favoritism, education and health in sub-Saharan Africa. *American Political Science Review, 106, 294-325.*

Futagami, K., Morita, Y., and Shibata, A. (1993). Dynamic Analysis of an Endogenous Growth Model with Public Capital, *Scandinavian Journal of Economics, 95, 607–25.*

Ghosh, S. and Roy, U. (2004). Fiscal policy, long-run growth, and welfare in a stock-flow model of public goods, *Canadian Journal of Economics, 37, 742–56.*

Jensenius, F. R. (2015). Development from Representation? A Study of Quotas for the Scheduled Castes in India. *American Economic Journal: Applied Economics, 7(3), 196–220.*

Kingsbury, Damien (2003). Autonomy and Disintegration in Indonesia. *Routledge.*

Kramon, E. and Posner, D.N. (2016). Ethnic favoritism in primary education in Kenya. *Quarterly Journal of Political Science 11, 1-58.*

Lindblom, A., Marsh,E., Motala, T. and Munyan, K. (2015). Persecution of the Rohingya Muslims: Is Genocide Occurring in Myanmar's Rakhine State? *Yale Law School Report.*

Lizzeri, A., and Persico, N. (2005). A Drawback of Electoral Competition, *Journal of the European Economic Association 3(4), 1318-1348.*

Miguel, E., and Gugerty, M. K. (2005). Ethnic diversity, social sanctions, and public goods in Kenya, *Journal of Public Economics 89.11: 2325-2368.*

Mitra, A. (2018). Mandated Political Representation and Redistribution. *Economica, Vol. 85, Issue 338, pp. 266 – 280.*

Mitra, A., and Mitra, S. (2017). Electoral Uncertainty, Income Inequality and The Middle Class. *Economic Journal. Vol. 127, Issue 602, pp. 1119 –1152.*

Mitra, A., and Ray, D. (2014). Implications of an Economic Theory of Conflict: Hindu-Muslim Violence in India. *Journal of Political Economy, Vol. 122, No. 4 (August 2014), pp. 719-765.*

Mukand, S.W., and Rodrik, D. (2015). The Political Economy of Liberal Democracy. *NBER*

Working Paper No. 21540.

Munshi, K., and Rosenzweig, M. (2015). Insiders and Outsiders: Local Ethnic Politics and Public Good Provision, *mimeo, Brown University.*

Padro-i-Miquel, G. (2007). The Control of Politicians in Divided Societies: The Politics of Fear, *Review of Economic Studies 74(4): 1259-1274.*

Pande, R. (2003). Can Mandated Political Representation Increase Policy Influence for Disadvantaged Minorities? Theory and Evidence from India. *The American Economic Review, 93(4), 1132–1151.*

Panggabean, S.R, and Smith, B. (2011). Explaining Anti-Chinese Riots in Late 20th Century Indonesia. *World Development Vol. 39, No. 2, pp. 231–242, 2011.*

Persson, T. (2002). Do Political Institutions Shape Economic Policy? *Econometrica, 70 (3): 883–905.*

Prunier, G. (1995), "The Rwanda Crisis: History of a Genocide", *Columbia University Press.*

Purdey, J. (2006). "Anti-Chinese Violence in Indonesia, 1996–1999". *Honolulu, H.I.: University of Hawaii Press. ISBN 978-0-8248-3057-1.*

Tajfel, H., Billig, M. G., Bundy, R. P., and Flament, C. (1971). Social categorization and intergroup behaviour, *European Journal of social Psychology, 1(2), 149-178.*

Tan, Mely G. (2005). "Ethnic Chinese in Indonesia". In Ember, Melvin; Ember, Carol R.; Skoggard, Ian. *Encyclopedia of Diasporas: Immigrant and Refugee Cultures Around the World. New York, N.Y.: Springer Media. pp. 795 – 807.*

Tavares, J., and Wacziarg, R. (2001). How Democracy Affects Growth. *European Economic Review, Vol. 45, 1341-1378.*

Turnovsky, S.J. (1997). Fiscal policy in a growing economy with public capital, *Macroeconomic Dynamics, 1, 615–39.*

Zakaria, F. (2003). The future of freedom: Illiberal democracy at home and abroad. *New York: Norton.*

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