Mandated Political Representation and Redistribution

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ABSTRACT

Mandated political representation for minorities involves earmarking certain electoral districts where only minority–group candidates are permitted to contest. This paper builds a political–economy model to analyse the effect of such affirmative action on redistribution in equilibrium. The model predicts that, in situations where the minority is economically disadvantaged and where voters exhibit an in–group bias, such a quota can *reduce* transfers to poorer groups. This suggests that the gains to the minority group from having such quotas are unevenly distributed. Redistribution in reserved districts leads to a rise in within–group inequality for the minorities.

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1 Introduction

Serious concerns exist about the extent to which minority groups participate in policy–making. These concerns are heightened when the minorities are socio–economically disadvantaged. For example, several racial minorities in the US exhibit lower levels of educational attainments and greater poverty, as compared to the national average. Women, though not always a minority, have limited participation in various domains. Many countries have implemented quota requirements in various occupations and institutions, often in the public sector, to correct for such anomalies. Electoral quotas, which is the subject of this current paper, are quite popular. Currently over 100 countries use electoral quotas for women and over 38 countries have electoral quotas for minority groups primarily in the form of reserved seats (Krook and O'Brien (2010)). Results from an UNDP survey in 2010 indicate that 40% of the 91 countries studied have in place special electoral measures to ensure the representation of minorities (Protsyk (2010)).

Among developing nations, India has in place wide–ranging affirmative action policies (often termed "reservation") for minority groups called the Scheduled Castes and Tribes (SCs & STs); an important component of this has been mandated representation in the legislature. The mandate involves earmarking a fraction of electoral districts where only the minority group candidates are permitted to contest.[2] A natural question that arises is the following: how does political reservation for a minority group affect the conditions of the group–members living in these reserved districts? Several empirical studies have evaluated whether political reservation benefits the minority group *in the aggregate*. However, the question of who gains and who loses *within* the minority group has received less attention.[3] This question is especially relevant when the minority group — while economically disadvantaged — exhibits a fair degree of heterogeneity in terms of income. So do these political quotas benefit the poor within the minority or the non-poor? Also, do these quotas — apart from transferring resources to the minority as a whole — affect overall redistribution?

Chin and Prakash (2011) empirically assess the impact of political reservation in the state–level legislature on overall state–level poverty. They find that ST reservation reduces poverty while SC reservation has *no* impact. They note (on pp. 266):

"These results are in line with Pande (2003), who found that ST and SC reservations in state legislative assemblies have different policy effects, with the former increasing spending on ST welfare programs and the latter increasing the number of state government jobs set aside for minorities. Welfare programs primarily target the poor whereas reserved jobs are open even to better off minorities, so it is not unexpected given Pande's results that ST reservation would reduce poverty (while SC reservation would not)."

Is it then possible that the gains to some minority groups (say, the SCs) from political reservation may not be uniform? But what may be the underlying theoretical justification for this? This paper attempts to answer such questions by putting forward a tractable model which aims to highlight a political-economy channel linking quotas to redistributive outcomes. The predictions of our model are the following: (i) in the context of an economically disadvantaged minority, political reservation reduces transfers to poorer groups when voters exhibit an in–group bias. (ii) Such

[2] More recently, similar policies have been implemented for women.

[3] We defer a detailed discussion of the related literature until the next section.

quotas lead to greater inequality within the minority group. Our model, however, does *not* deal with the issue of whether a minority group gains in the aggregate from such reservation; only distributional considerations are the focus here.

The mechanism underlying our theory builds on the following insight from well-known models of redistributive politics: when parties compete for votes by promising transfers across different groups, the group with the least ideological bias (the "swing" group) is most favoured by all parties. The standard probabilistic–voting setup, *a la* Lindbeck and Weibull (1987), is modified to a two–stage game here. The first stage involves parties choosing candidates from one of the two ethnic groups.[4] The presence of political quotas implies that the district in question may be contested only by members of the ethnic minority, thereby making the first stage choice trivial. In the second stage, the fielded candidates propose redistribution policies. Some structure is imposed on the ideological bias of a typical voter. Specifically, it has two distinct components. First, *ceteris paribus* every voter feels a positive bias for a candidate from his own ethnic group. The other component of the ideological bias stems from a party–wise affiliation, with poorer voters *ex ante* preferring a certain party while their richer counterparts *ex ante* preferring the other one; call the former a "pro–poor" party and the latter "pro–rich".[5]

The key point is the following: reservation, by influencing the ethnic identities of the fielded candidates, potentially has an effect on a voter's overall ideological bias and thus on the identity of the swing group. This, in turn, affects the nature of redistribution in equilibrium.

First, consider a reserved district. Here the ideological bias of any voter is driven solely by the party bias; the ethnic bias is irrelevant as both candidates are from the same ethnic group. So the swing group is presumably some intermediate income group which is neither too poor nor too rich. Next, consider the following "mixed–ethnicity candidate" situation. Suppose the pro–poor party fields a candidate from the minority while the rival party picks one from the majority group. In this scenario, both types of biases matter. Consider a poor voter from the majority ethnic group. This voter prefers the pro–poor party but is averse to this party's candidate on ethnic considerations, thus making him largely indifferent or "swing". It is precisely *this* trade-off which makes a relatively poor group the "swing" group, and therefore drives transfers towards that part of the income distribution.

Parties select candidate ethnicities with two considerations in mind: one is, of course, that of winning votes and the other is about improving the party's image. Here, the pro–poor party has an incentive to gain image-wise by fielding a minority candidate and thus appearing as inclusive. This, in turn, rules out the other possible "mixed–ethnicity candidate" case: namely, where the pro–poor party fields a candidate from the majority while the rival party picks one from the minority group. Therefore, it obtains that the transfers in a reserved district end up being concentrated at intermediate (rather than lower) income groups. This leads to a widening of disparities within the economically disadvantaged minority group. To be sure, this is also true for the majority group. But if the minority group is indeed strictly economically disadvantaged to begin with, then the

[4]The term "ethnic" is used here in a generic sense to refer to the two segments of the population: the *majority* and the *minority*. The relevant marker need not be ethnicity; it could be language, race or even gender.

[5]One could think of one party being more leftist in its ideological position and hence appealing to the "toiling masses" while the other party could be thought of as more "pro–business" and more right–wing.

implications in terms of increased within–group inequality are more salient for them.

The remainder of the paper is organized as follows. Section 2 provides a brief overview of the existing related literature. Section 3 contains the model and Section 4 concludes. All proofs are contained in the Appendix.

2 Related Literature

This paper is part of the broad literature which studies the impact of ethnic/gender quotas on socio-economic outcomes. There have been several studies on the impact of reservation on the provision of publicly provided goods at local levels of government like village councils (e.g., Besley et al (2004, 2005), Munshi and Rosenzweig (2008), Bardhan et al (2010), Chattopadhyay and Duflo (2004a, 2004b)). Pande (2003) finds that political reservation for Scheduled Castes (SCs) in the Indian state legislature has resulted in observable rise in targeted transfers towards these groups. In sum, these papers provide evidence that political reservation *does* make a difference to policy outcomes; specifically, there is a shift in policy towards delivering what the reserved groups want. However, the above papers look at policy outcomes for the reserved group *in toto* and not what they imply for different segments within the reserved group.

Dunning and Nilekani (2013) investigate the socio-economic effects of political quotas for SCs at the village council level and find weak distributive effects of quotas for these marginalized groups. Their findings also suggest that cross-cutting partisan ties can reduce the distributive effect of such ethnic quotas. Jensenius (2015) uses data on development indicators for over 3,000 state assembly constituencies in 15 Indian states in 1971 and 2001. Matching constituencies on pre-treatment variables from 1971, she finds that 30 years of quotas had *no* aggregate effect on several development indicators for SCs in reserved constituencies. As mentioned earlier, Chin and Prakash (2011) study the effect of political reservation in the state–level legislature on overall state–level poverty and find that ST reservation reduces poverty but that SC reservation has *no* impact. Our theory — which assumes a minimum level of political participation by the minority group — speaks to *such* effects of SC (rather than ST) reservation. The former are known to be much more politically organised than the latter (see e.g. Banerjee and Somanathan (2007)).

Our paper directly relates to theoretical models of affirmative action in various contexts, be it labour markets or educational institutions. Austen-Smith and Wallerstein (2006) posit a model which show that racial divisions reduce support for welfare expenditures. Moreover, this happens even if voters have colour-blind preferences. They show that relatively advantaged members of both the majority and minority group gain from having a second dimension of redistribution, while the less advantaged members of the majority are the principal losers. Their focus on the dispersion of gains among heterogeneous agents within ethnic groups is close in spirit to our paper.[6] Ray and Sethi (2010) address the issue of elite educational institutions adopting criteria that meet diversity

[6]Moene and Wallerstein (2001) investigate the link between welfare programs and income inequality; i.e., two objects which feature in this paper too. They study how political support for welfare programs depend upon the inequality in incomes in society.

goals without being formally contingent on applicant identity.[7]

Our paper shares certain similarities with Myerson (1993) and Lizzeri and Persico (2001). These papers analyse models in which it is possible to target budget allocations to infinitesimally small groups, which is a feature in our model too. However, both these papers have voters who are *ex ante* homogeneous in all respects. Levy (2004) presents a model of endogenous political parties where parties enable compromise by increasing the commitment ability of politicians. Our model assumes that candidates of any given ethnic group can credibly commit to transfers to all ethnic groups based on the idea that *every candidate belongs to a political party*. It is *this* feature which — in the spirit of Levy (2004) — makes any candidate's appeal to all ethnic groups credible. In terms of the focus on diversity and redistribution, our paper relates to Fernández and Levy (2008) which utilises features of the framework in Levy (2004). They study the relationship between redistribution and taste diversity using a model with endogenous platforms involving redistribution and targeted public goods, and find a non–monotonic relationship.

Our emphasis on ethnic bias in voting relates to Ashworth and Bueno de Mesquita (2014). They provide several examples under which behavioural biases might be beneficial for voters when one takes into account the strategic behaviour of politicians. Huber and Ting (2013) examine why citizens may vote against redistributive policies from which they stand to gain. Their model describes the situations under which poor voters support right-wing parties that favour low taxes and redistribution, and under which rich voters support left-wing parties that favour high taxes and redistribution. Their model also emphasizes the role of party discipline during legislative bargaining in affecting the prominence of redistribution in voter behaviour. Some elements of their model/results resonate with those in this paper, but they do not deal with mandated representation.

3 The Model

Society is populated by a unit mass of individuals and every individual — indexed by i — is characterized by two features. One is individual i's income, denoted by w_i, and the other is i's ethnicity, denoted by e_i. Every individual belongs to either one of two groups: majority/ high mass (h) and minority/ low mass (l). Hence, $e_i \in \{h, l\}$ for every i.[8]

Apart from being a minority, group l is economically disadvantaged. This aspect is captured as follows. Let the income distribution in society be represented by the cdf G.[9] For any income level w, let $\pi(w)$ denote the proportion of w-earners who are type l. Also, $\pi(.)$ is continuous in w. As the l–types are economically disadvantaged, their numbers tend to dwindle as w increases. Specifically, there exists a threshold income level, call it $\underline{w}$, beyond which $\pi(w)$ is weakly decreasing in w with $\pi(\underline{w}) < 1/2$.

There are two political parties, denoted by R and P, where R is viewed as pro–rich, and P as pro–poor, in a sense that is made precise below.

[7] They establish that under weak conditions such colour-blind affirmative action policies must be non-monotone, i.e., within each social group, some students with lower scores are admitted while others with higher scores are denied.

[8] As mentioned earlier, e_i could stand for i's race, religion, gender or any such non–income marker.

[9] All incomes lie in the interval $[0, \overline{w}]$ where $\overline{w} > 0$ is "large".

The game proceeds in two stages. In the first stage, the parties choose their respective candidates concurrently. For each party, this is effectively a choice of the candidate's ethnicity; the candidates are assumed to be identical in all other respects. Denote party j's choice of candidate ethnicity by $e(j)$ which is either h or l. In the case of a reserved constituency, every party is constrained to field an l–type candidate. In the second stage, the candidates make simultaneous offers of redistribution based on a balanced budget requirement. More formally, a *balanced-budget redistribution* is a continuous function $\mathbf{z}$ defined on income, where $z(w)$ is the transfer to each individual earning w, and the transfers satisfy the budget constraint $\int z(w)\,\mathrm{d}G(w) = 0$.[10]

An individual's preferences over candidates (and their proposed policies) are as follows. First, individual i exhibits a bias α_i, positive or negative, for party P. The corresponding payoff from R is normalized to be zero; hence α_i is really the *net* bias for party P. This bias has two main components: one that stems from i's emotive affiliation with party P (relative to R), and the other which arises from i's association with the ethnic identity of P's candidate (relative to R's).

The emotive affiliation is based on income: the poorer an individual, the stronger the net bias towards party P. It is, therefore, like a "class bias".[11] This is captured by a continuous and decreasing function $t(.)$ defined on income. As for the "ethnic bias", assume that a voter feels some degree of association for a candidate of the same ethnicity as the voter.[12] To capture this idea as simply as possible, only a single parameter $s > 0$ is utilised.

Combining, one may write individual i's net bias towards P as the following:

$$\alpha_i = \alpha(w_i, e_i) + \epsilon_i, \text{ where } \alpha(w_i, e_i) = t(w_i) + s_i.$$

Here s_i denotes the *net* ethnic bias i has for P's candidate. So $s_i = s\ (> 0)$ when i's ethnicity is shared by P's candidate but not by R's. Similarly, $s_i = -s$ when i's ethnicity is shared by R's candidate but not by P's. In the case where P and R field candidates from the same ethnic group, $s_i = 0$. The extra term ϵ_i is just mean-zero noise. The individual sees the realization of ϵ_i before voting, the parties and their candidates do not. It is assumed that ϵ_i is independently and identically distributed across individuals, with a symmetric, unimodal density f (and corresponding cdf F) that has its support on $\mathbb{R}$. Figure 1 depicts the sequence of moves in the game.

Apart from this non-pecuniary bias α_i, individual i values the economic benefit from redistribution. This is represented by means of a standard utility function $u(.)$ with $u' > 0$, $u'' < 0$ and $u'(0) = \infty$. Say party P's candidate proposes $\mathbf{x}$, and R's candidate proposes $\mathbf{y}$ where $\mathbf{x}$ and $\mathbf{y}$ are both balanced-budget redistribution schedules. An individual i earning w_i, with bias α_i will vote for party P if

$$u(w_i + x(w_i)) + \alpha_i > u(w_i + y(w_i)),$$

will vote for R if the opposite inequality holds, and will be indifferent in case of equality.

[10] The transfers should be interpreted as local public goods which are essentially non-ethnic in nature.

[11] In this sense, P is viewed as pro–poor. Also, in equilibrium, P's actions confirm this label; more on this later.

[12] There could be long–standing reasons for such bias; say, asymmetric information (better knowledge of members of own type). Such behaviour has been termed "homophily" in many social contexts. In India, there is plenty of anecdotal evidence on voting behaviour along caste lines. Also, there is evidence of bias against women leaders. See Banerjee and Pande (2007) and Beaman et al. (2009), among others.

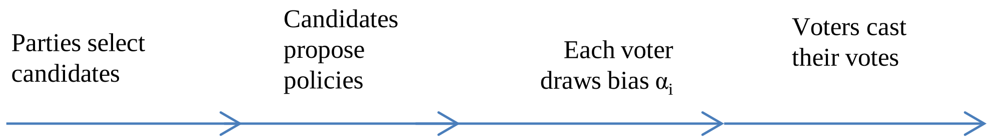

Figure 1: Timing of the game

From the perspective of a party, any individual's vote is stochastic. The probability that citizen i will vote for party P's candidate is given by

$$p_i \equiv 1 - F\left(u(w_i + y(w_i)) - u(w_i + x(w_i)) - \alpha(w_i, e_i)\right) \tag{1}$$

The expected voteshare for P is $\int_i p_i$, and this is what P's candidate seeks to maximize — and R's candidate minimize — through the choice of redistribution schedules.

3.1 Equilibrium

The standard notion of subgame perfection is used as the equilibrium concept for this game. To be specific, an equilibrium of this game is given by a collection of candidate choices and redistribution policies, $\{e(P), e(R); \mathbf{x}, \mathbf{y}\}$, which satisfy the following:

(i) The redistribution policies $\mathbf{x}$ and $\mathbf{y}$ constitute mutual best–responses for the fielded candidates given $(e(P), e(R))$.

(ii) The candidate choices $(e(P), e(R))$ constitute mutual best–responses for the two parties given the redistribution policies $\mathbf{x}$ and $\mathbf{y}$.

Existence: This can be guaranteed by simply assuming — like in Lindbeck and Weibull (1987) — that party P's candidate's objective function, namely $\int_i p_i$, is concave in $\mathbf{x}$ for any given $\mathbf{y}$ and convex in $\mathbf{y}$ for any given $\mathbf{x}$.

Characterization: We now proceed to describe the set of equlibria for this simple game. The choices of candidate ethnicities in the first stage drives redistribution offers in the second stage; hence, we start by solving backwards. Let the configuration of candidate ethnicities be denoted by γ, so $\gamma = (e(P), e(R))$. The following proposition deals with the equilibrium redistribution schedules chosen in the second stage, given γ.

PROPOSITION **1.** *For any given candidate configuration γ, there is a unique equilibrium in the second stage game. In that equilibrium, there is a unique redistribution scheme $\mathbf{x}$ offered by both parties, with the property that $w + x(w)$ strictly increases with $\sigma(\gamma, w)$ for every w, where $\sigma(\gamma, w) \equiv \pi(w) f(\alpha(w, l)) + (1 - \pi(w)) f(\alpha(w, h))$.*

Proposition 1 states that both the candidates offer identical redistribution schedules in equilibrium. Moreover, this redistribution schedule favours groups with a high $\sigma(\gamma, w)$.

But what is $\sigma(\gamma, w)$? To understand this term, first consider any level of income w. The terms $\alpha(w, l)$ and $\alpha(w, h)$ respectively denote the expected bias of an l–type and an h–type voter earning w. Now, $\sigma(\gamma, w)$ involves a population-weighted average of the densities of these biases. Given that the density f is unimodal and symmetric around 0, small biases (i.e., small $\alpha(w, l)$ and $\alpha(w, h)$) imply that $\sigma(\gamma, w)$ will exhibit a high value. Analogously, large biases translate into low values for $\sigma(\gamma, w)$. In this sense, one can think of $\sigma(\gamma, w)$ as representing the "average swing propensity" of group w. From the perspective of the parties, the groups with high "swing" propensity assume importance as they are *ex-ante* more responsive to transfers. So the result in Proposition 1 is in keeping with the standard insight from the class of probabilistic–voting models.

Let w_γ denote the "swing" group for the configuration γ, i.e., the one with the highest $\sigma(\gamma, w)$.[13] By the continuity of $\sigma(\gamma, w)$ in w, Proposition 1 implies that the income groups situated near the swing group w_γ are gainers too.

Recall the emotive affiliation/class bias $t(w)$ felt by an individual in group w for party P. This function $t(w)$ is weakly decreasing. Assume that for very low levels of income $t(.)$ is positive and then subsequently turns negative for high income levels. In particular, $t(\underline{w}) \geq s$. So, at the threshold level of income $\underline{w}$ from where onwards the share of the l group starts (weakly) declining in income, the emotive affiliation for P is no weaker than the absolute value of the ethnic bias.

By the continuity of t, there will be some intermediate w, call it w^*, such that $t(w^*) = 0$.[14] One can think of this group w^* as the "middle income" group which feels equally *class–wise* affiliated to either party.

3.2 Redistribution policies under different candidate configurations

Here we examine — one by one — what the equilibrium redistribution policies offered in the second stage look like, for the different possible choices of candidate ethnicity in the first stage.

We start with the configuration (l, h), i.e., party P fields a group l candidate while party R fields a group h candidate. Here, it turns out that the swing group must necessarily lie to the left of the income group w^*. To put it in another way, the focus of redistributive transfers is on groups poorer than the middle-income group.

PROPOSITION **2.** *Take a constituency with $\gamma = (l, h)$. Here the swing group is one which is poorer than the group w^*, i.e., $w_\gamma < w^*$ for $\gamma = (l, h)$.*

The intuition behind the result above is as follows. When party P fields a minority candidate in response to party R's fielding a majority candidate, the net ethnic bias towards P's candidate is negative for all h–type voters. Now consider a poor h–type voter. This person is emotively affiliated towards P but the ethnic bias operates against P; so overall, this voter is largely indifferent or "swing". Of course, a voter from group l who is equally poor has his emotive bias towards P

[13] Such a group exists for any given γ since $\sigma(\gamma, w)$ is continuous in w and the set of incomes is (assumed) compact.

[14] In principle, there could be an income interval where the value of t is 0. The distinction between a unique w^* versus an interval makes no significant difference to the results and so w^* is treated as unique. Also, by construction $\underline{w} < w^*$.

re-inforced by his ethnic bias, and so is *not* indifferent. However, the latter set of voters are out-numbered by the (largely indifferent) former set, making the poor on average fairly indifferent. The middle-income group has no indifferent voters: all of them are solely driven by their ethnic biases s. This is why the "swing" propensity is higher for poorer rather than middle-income groups.

The next proposition considers the case in which both parties field candidates from the same ethnic group; hence, $\gamma \in \{(l,l),(h,h)\}$. Observe, this subsumes the case of a reserved constituency.

PROPOSITION **3.** *In a constituency in which both parties field candidates from the same ethnic group, the middle-income group w^* is the "swing" group. Hence, $w_\gamma = w^*$ for $\gamma \in \{(l,l),(h,h)\}$.*

In the case where both parties field candidates from the same ethnic group (be it l or h), the relative bias in favour of P on the ethnic dimension is nil. This is because, in *net* terms, both candidates look the same from an ethnic perspective to every voter. Here the entire bias is driven by the emotive affiliation along income lines. In this situation, the middle-income group, being emotively unattached, has the lowest bias. Hence, the result follows.

A comparison of the two preceding propositions is in order. The very fact that the swing group under the (l,h) scenario is from a lower income level than under (l,l) or (h,h) tends to tilt the focus of redistribution towards groups poorer than w^* under the first scenario. So (l,h) leads to an equilibrium redistribution schedule which is more oriented towards lower income groups in relation to configurations involving candidates from the same ethnic group, i.e., (l,l) or (h,h).

This leaves us with the case where $\gamma = (h,l)$ to which we will return later. Now, we move on to the details of the first stage game where the parties choose candidate ethnicities.

3.3 Candidate choices by parties

Each party cares about its performances in the election, specifically, its voteshare. Notice, the voteshares depend not only upon the redistribution policies proposed in the second stage but also on the biases of the electorate. Recall, these biases *can* be affected by a party's choice of the candidate's ethnicity.

Let $W_j(e(P),e(R))$ denote the voteshare of party j for $j \in \{P,R\}$ when P chooses a candidate of ethnicity $e(P)$ and R chooses a candidate of ethnicity $e(R)$.

Apart from the share of votes won, each party cares about the larger image of itself. Such an image extends beyond the immediate electoral district being contested; it speaks to the larger ambitions of the party. This image, in turn, can be influenced by the choice of candidate ethnicity. Specifically, if a party fields a candidate from the l–group it may be effectively signalling to all that it embraces the spirit of inclusivity. Given the correlation between incomes and ethnicity, it is plausible to assume that party P will be more effective at this type of signalling than party R.[15] So we assume that there is a gain to party P — relative to party R — from fielding a minority candidate. Letting

[15] Since P is "pro–poor" it is more likely to have minority members than R. Fielding a minority candidate in a particular district may favourably bias minority voters in other districts and P can do this more credibly than R.

c_j denote this factor for party j, we have

$$c_P > max\{0, c_R\}.$$

The extent to which this "image" factor is important to the parties is captured by a (weighting) parameter $\chi > 0$. This sets the ground for identifying the set of candidate configurations that can be observed in equilibrium. The following proposition is a step in that direction.

PROPOSITION **4.** *The candidate configuration $\gamma = (h, l)$ will not be observed in equilibrium.*

The logic behind Proposition 4 rests on a 'revealed preference'–type argument which utilises the assumption that $c_P > c_R$. If party R in spite of being in a *less* advantageous position to gain (image-wise) from fielding a minority candidate *still* chooses to do so, then surely party P can gain by switching to a minority candidate. The fact that voteshare of party j (for $j = P, R$) is the same under (l, l) and (h, h) completes the argument.[16]

So, Proposition 4 rules out the possibility of the configuration (h, l) in an unreserved constituency. However one may ask — in the context of an unreserved constituency — if (h, h) is the only possible configuration in equilibrium. After all, if the configuration (l, h) is also ruled out then political reservation would just mean a shift from (h, h) to (l, l) and thus not affect the equilibrium redistribution policy at all. We examine this possibility next.

Consider the configuration (h, h). Here, the ethnic bias component is irrelevant for every voter; hence, $s_i = 0$ for every voter i and $\alpha(w, h) = \alpha(w, l) = t(w)$. Here the payoff to P is simply P's voteshare $W_P(h, h)$ which utilising equation (1) is given by

$$\int_i p_i = \int [1 - F(-t(w))] \,\mathrm{d}G(w)$$

Under the configuration (l, h), we have $\alpha(w, l) = t(w) + s$ and $\alpha(w, h) = t(w) - s$. Hence, P's voteshare — using equation (1) again — is given by

$$W_P(l, h) = \int [\pi(w)[1 - F(-t(w) - s)] + (1 - \pi(w))[1 - F(-t(w) + s)]] \,\mathrm{d}G(w)$$

Now for P, given that R is fielding h, fielding l will be (weakly) preferred to h if and only if

$$W_P(l, h) + \chi c_P \geq W_P(h, h). \tag{2}$$

Note that for every w, it is the case that

$$1 - F(-t(w) - s) > 1 - F(-t(w)) > 1 - F(-t(w) + s).$$

[16]Proposition 3 yields that the equilibrium redistribution schedule is identical under (l, l) and (h, h); therefore, the voting behaviour must also be so.

This introduces some ambiguity in ranking the two voteshares, $W_P(l,h)$ and $W_P(h,h)$. Intuitively, in switching from (h,h) to (l,h), party P gains the support of some l–type voters while losing some h–type supporters. To be specific, the extent of loss and gain of votes depends on the distribution of the biases among the voters ($F(.)$), the proportion of l–type voters across income groups ($\pi(.)$), the function $t(.)$, the size of ethnic bias s as well as the income distribution ($G(.)$). Moreover, the term χc_P is positive. So (l,h) cannot be ruled out like (h,l).

Notice, any factor which raises c_P would make (l,h) more likely in equilibrium. In this regard without explicitly turning to a dynamic version of this model, one can discuss the role of quotas in increasing political participation of the minorities over time. In particular, one could imagine that c_P is increasing in the degree of participation of the minorities. Therefore, the presence of quotas *early on* in time would actually make (l,h) more likely in equilibrium. Also, the ambiguity in comparing the two voteshares for P can inform about which other factors make (l,h) more likely in equilibrium. A rise in the population of the minority group at *any* income level has an effect too.

COROLLARY **1.** *Suppose the candidate configuration $\gamma=(l,h)$ is observed in equilibrium. Now take this constituency and increase the proportion of the l–types (i.e., $\pi(w)$) in at least one income group w while making no other changes. Then $\gamma=(l,h)$ continues to be observed in equilibrium.*

The idea behind the above corollary is simply that the ethnic bias under (l,h) exhibited by the group l voters works in favour of P at all income levels. So increasing their share in the population implies greater support for P. This suggests that the configuration $\gamma=(l,h)$ is more likely to be observed in constituencies where the l–group, while a minority, is relatively sizeable.

Taking stock, in an unreserved constituency the only possible configurations in equilibrium are (h,h), (l,l) and (l,h). The first two configurations yield identical redistributions in equilibrium (by Proposition 3) while the last configuration produces a redistribution policy which favours poorer groups (by Proposition 2). In sum, reservation appears to bias policy against poorer groups. If the minority group is economically disadvantaged, such reservation can exacerbate the inequities *within* them by shifting transfers to middle-income groups at the expense of the poor.

An important caveat is in order. The analysis is solely regarding the distributional impacts of electoral quotas. We are agnostic about their effect on the aggregate transfers to the minority group. To take a rather stark example, one could suppose that the proportion of l–types is actually fixed across all income groups at some level $\overline{\pi}<1/2$. Observe that this is consistent with all the assumptions in the model. In this case, reservation would have *no* impact on the aggregate transfers to the minority group (by construction) but the results of the model would still be valid.

We now revisit the key assumptions of the model. It is assumed that candidates of both ethnicities are able to make credible promises of transfers to all types of voters, be they rich or poor, l– type or h– type. Indeed, the issue of credibility of transfers is endemic to probabilistic-voting models and is typically justified by the possibility of repeated interactions between the parties and the voters. What is salient here is the ability of a minority (respectively, majority) group candidate to appeal to voters of the majority (respectively, minority) ethnic group. This may be justified in the following situations:

(i) Each of the two parties have sufficient weight to "back" the claims of their fielded candidates. If, for example, an l–type candidate does make an offer of generous transfers to some h–type voters, then the standing of the party can make it credible.[17]

(ii) The ability of l–type candidates to commit to transfers to h– type voters may arise in situations where the candidate is not a novice but has been involved in politics for some time. This again relates to the point made earlier about the (l, h) equilibrium arising more in cases where the political participation of the minority group is beyond a minimum threshold.

The assumption that in an *ex ante* sense poor voters tend to favour P while rich voters tend to favour R is an important one. This is in the spirit of the classical *left-versus-right* or *redistribution-versus-growth* type of demarcations. However, in equilibrium both parties propose the same redistribution policy under every candidate configuration (consult Proposition 1). This might raise the question as to why party affiliations take such a form when both parties propose identical redistribution policies. However, there *is* an important distinction in the actions of the two parties which justifies — at least, to an extent — the "pro–poor" and "pro–rich" labels. Recall, P fields an l–type candidate (in some cases) in response to R's fielding a h–type candidate and this improves the condition of poorer groups by shifting the focus of targeting towards them. In this way, P favours poorer groups in equilibrium, i.e., through candidate choice.

4 Conclusion

This paper presents some novel results on certain redistributive implications of political reservation for minorities. The theory here utilises the "swing voter" idea from previous models of electoral competition. It is shown that in the presence of ethnic biases, political quotas can potentially harm the interests of some members of the very minorities it was designed to benefit. It is important to observe that the theory is agnostic about the effect of electoral quotas on the aggregate transfers to the designated minority group. The key idea is that under certain situations voters face a potential trade-off between their ethnic biases and party allegiance. This trade-off can only arise in an electoral district *sans* reservation and works to the advantage of poor voters by making them less partisan and hence "swing". Once electoral quotas are introduced, the potential for such a trade-off disappears bringing the not-so-poor, ideologically detached voters in a favourable position.

To be sure, the whole idea of fielding a minority candidate rests upon the feasibility of doing so. If the political participation of minorities is so low that they neither vote nor stand for elections, then the scenario of a majority-versus-minority candidate election may never arise. So the theory is relevant in a context where the minorities are somewhat active in the political arena. Now to get them to this level of political involvement, electoral quotas may well be necessary. So the theory presented here should not be viewed as a clarion call against electoral quotas. The main contribution is in understanding the distributional implications of quotas where political participation of the minority group is above a minimum threshold.

[17] The basic assumption here is that a party can appeal to a wider set of voters than represented by any of its individual candidates. In spirit, this assumption is close to what is described in Levy (2004) although the structure there is rather different and builds upon the citizen-candidate model.

Appendix

Proof. [PROPOSITION 1.] The arguments here closely parallel those in Theorem 1 of Lindbeck and Weibull (1987). Let $V(x(w), y(w)) \equiv \pi(w)[1-F(d(w)-\alpha(w,l))]+(1-\pi(w))[1-F(d(w)-\alpha(w,h))]$. Let $d(w)$ represent the utility differential $m(\mathbf{y}, w) - m(\mathbf{x}, w)$. Rewrite $\int\limits_i p_i$ as

$$\int\limits_0^{\overline{w}} [V(x(w), y(w))] \, \mathrm{d}G(w)$$

P's candidate seeks to maximize the integral above by choosing redistribution $\mathbf{x}$ while R's candidate seeks to minimize the same by choosing $\mathbf{y}$. Suppose $(\mathbf{x}, \mathbf{y})$ is an equilibrium of this game.

Pick any w in $[0, \overline{w}]$. For this group w,

$$V_{x(w)} = [\pi(w) f(d(w) - \alpha(w,l)) + (1 - \pi(w)) f(d(w) - \alpha(w,h))] u'(w + x(w)).$$

Note, $V_{x(w)} > 0$ since both f, $u' > 0$. Also, $V_{x(w)}$ is continuous in w and this implies the value of $V_{x(w)}$ *must* be the same for every w in $[0, \overline{w}]$. Suppose not. Let w_1 and w_2 be two distinct income levels such that $V_{x(w_1)} > V_{x(w_2)}$. A marginal decrease in $x(w)$ in a small enough interval around w_2 accompanied by a marginal increase in $x(w)$ in a small interval around w_1 while respecting the budget constraint improves expected plurality for P, contradicting that $(\mathbf{x}, \mathbf{y})$ is an equilibrium.

Hence, we can write the following:

$$[\pi(w) f(d(w) - \alpha(w,l)) + (1 - \pi(w)) f(d(w) - \alpha(w,h))] u'(w + x(w)) = \lambda_\gamma \tag{3}$$

for every $w \in [0, \overline{w}]$ and some $\lambda_\gamma > 0$.

Now consider $\frac{\partial V}{\partial y(w)}$. Analogous arguments apply in this case and hence we can claim

$$[\pi(w) f(d(w) - \alpha(w,l)) + (1 - \pi(w)) f(d(w) - \alpha(w,h))] u'(w + y(w)) = \mu_\gamma \tag{4}$$

for every $w \in [0, \overline{w}]$ and some $\mu_\gamma > 0$.

Comparing equations (3) and (4) for any group w yields $\frac{u'(w+x(w))}{u'(w+y(w))} = \frac{\lambda_\gamma}{\mu_\gamma}$ which is a constant. This implies that in *any* equilibrium $\mathbf{x} = \mathbf{y}$ given the strict concavity of u and that both $\mathbf{x}$ and $\mathbf{y}$ are balanced–budget redistributions. Suppose not. Assume that for some w_1, w.l.o.g. $x(w_1) > y(w_1)$. By $\frac{u'(w+x(w))}{u'(w+y(w))} = \frac{\lambda_\gamma}{\mu_\gamma}$, this implies $x(w) > y(w)$ for every w in violation of the budget constraint. Thus, $d(w) = 0$ for every group w. Imputing this in equation (3) and using the symmetry of f around 0, we get for every group w:

$$\sigma(\gamma, w)[u'(w + x(w))] = \lambda_\gamma. \tag{5}$$

This guarantees that $w + x(w)$ increases in $\sigma(\gamma, w)$ given the strict concavity of u. The same equation can be utilized to show the uniqueness of equilibrium. Suppose that both $(\mathbf{x}, \lambda)$ and $(\mathbf{x}', \lambda')$ satisfy (5). If $\lambda = \lambda'$ then $\mathbf{x} = \mathbf{x}'$ by the strict concavity of u. Alternatively if $\lambda < \lambda'$ then $\mathbf{x} > \mathbf{x}'$ for the same reason. However, this implies that both $\mathbf{x}$ and $\mathbf{x}'$ cannot be balanced-budget redistributions. Hence it must be that $(\mathbf{x}, \lambda) = (\mathbf{x}', \lambda')$. ∎

Proof. [PROPOSITION 2.] Note, $\gamma = (l, h)$ implies that every l–group voter associates positively with P's candidate while every h–group voter associates positively with R's candidate. Hence, $\alpha(w, l) = t(w) + s$ and $\alpha(w, h) = t(w) - s$.

The derivative of $\sigma(\gamma, w)$ w.r.t. w when evaluated at w^* is the following:

$$f'(s)t'(w^*)[2\pi(w^*) - 1].$$

This term is negative since $\pi(w^*) < 1/2$ and both $f'(s)$ and $t'(w^*)$ are negative. So, $w_\gamma \neq w^*$.

Suppose $w_\gamma > w^*$. Hence, $t(w_\gamma) \leq 0$ and

$$\sigma(\gamma, w_\gamma) = \pi(w_\gamma)f(t(w_\gamma) + s) + (1 - \pi(w_\gamma))f(t(w_\gamma) - s). \tag{6}$$

It must be that $t(w_\gamma) + s \geq 0$. Suppose not. Consider $\hat{w}$ such that $t(\hat{w}) + s = 0$. Clearly, $\hat{w} < w_\gamma$ since t is decreasing in w.

So,

$$\sigma(\gamma, \hat{w}) = \pi(\hat{w})f(0) + (1 - \pi(\hat{w}))f(t(\hat{w}) - s).$$

Also

$$\sigma(\gamma, \hat{w}) \geq \pi(w_\gamma)f(0) + (1 - \pi(w_\gamma))f(t(\hat{w}) - s) > \sigma(\gamma, w_\gamma). \tag{7}$$

where the first inequality comes from $\pi(\hat{w}) \geq \pi(w_\gamma)$. The second inequality follows from the unimodality and symmetry of f around 0 and by observing that

$$|t(\hat{w}) - s| = 2s < |t(w_\gamma) - s|.$$

Hence, it must be that $s + t(w_\gamma) \geq 0$.

Now, corresponding to w_γ, one can always find a group $\tilde{w} \in [\underline{w}, w^*)$ such that $t(\tilde{w}) = -t(w_\gamma) > 0$. This is possible since $t(\underline{w}) \geq s$ by assumption. For this group $\tilde{w}$,

$$\sigma(\gamma, \tilde{w}) = \pi(\tilde{w})f\left(t(\tilde{w}) + s\right) + (1 - \pi(\tilde{w}))f\left(s - t(\tilde{w})\right) \tag{8}$$

Now compare equations (6) and (8). Since $t(\tilde{w}) = -t(w_\gamma)$ and $1 - \pi(\tilde{w}) > 1/2 > \pi(w_\gamma)$, it must be that $\sigma(\gamma, \tilde{w}) > \sigma(\gamma, w_\gamma)$. This leads to a contradiction which establishes the proposition. ∎

Proof. [PROPOSITION 3.] In a constituency where $e(P) = e(R)$, for any group w:

$$\sigma(\gamma, w) = \pi(w)f(t(w)) + (1 - \pi(w))f(t(w)) = f(t(w)).$$

Clearly, the above is maximized at $w = w^*$ given that f is unimodal and symmetric around 0 and that $t(w^*) = 0$. ∎

Proof. [PROPOSITION 4.] Suppose $\gamma = (h, l)$ is the first–stage equilibrium choice in an unreserved constituency. Since party R is fielding an l–group candidate, it must be

$$W_R(h,l) + \chi c_R \geq W_R(h,h). \tag{9}$$

Now suppose that party P deviates to fielding an l–group candidate. Given that $\gamma = (h, l)$ is part of the equilibrium, such a deviation should not be profitable for party P. Hence,

$$W_P(l,l) + \chi c_P - W_P(h,l) \leq 0. \tag{10}$$

However,

$$W_P(l,l) + \chi c_P - W_P(h,l) = W_P(l,l) + \chi c_P + W_R(h,l) = W_P(h,h) + \chi c_P + W_R(h,l) \tag{11}$$

where the last equality follows from Proposition 3. However,

$$W_P(h,h) + \chi c_P + W_R(h,l) \geq W_P(h,h) + W_R(h,h) - \chi c_R + \chi c_P = \chi(c_P - c_R) > 0$$

where the first inequality follows from the relation in (9). Therefore,

$$W_P(l,l) + \chi c_P - W_P(h,l) > 0.$$

This contradicts the relation in (10) and thus establishes the proposition. ■

Proof. [COROLLARY 1.] Increasing $\pi(w)$ for at least one income group while making no other changes implies an increase in $W_P(l,h)$ since $F(-t(w) - s) < F(-t(w) + s)$. Note, $W_P(h,h)$ is unaffected. Clearly, if the relation stated in the inequality (2) was satisfied earlier, it continues to be so after the change in the size of the l–group. ■

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